

Nonverbal Communication¹

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A SEMANTIC SPACE FOR NONVERBAL BEHAVIOR²

One of the most troublesome aspects of research in any relatively unexplored area of study is the determination of basic categories or dimensions that cut across most of the phenomena of interest. In the study of nonverbal communication, this has been an ever present problem in that numerous categories can be selected from the following realms: communication behaviors such as facial expressions, verbalizations, movements, and postures; referents such as feelings and attitudes; communicator or addressee attributes such as personality, psychological well-being, age, sex, and status; and communication media such as face-to-face, telephone, and video interactions.

For instance, one can ask, what are the important behaviors to explore in studying nonverbal communication? Immediately one faces the problem that although any behavior is in principle communicative, since it is observable and bears some kind of significance, some behaviors are more a part of communication than others (e.g., facial expressions in contrast to foot movements). The selection of nonverbal cues for study has sometimes been based on expressive qualities—that is, pathology-related (e.g., Braatoy, 1954; Deutsch, 1947, 1952; Deutsch & Murphy, 1955; or Reich, 1945); or personality-related (e.g., Allport & Vernon, 1933)

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2. This section and the application section to follow include modified segments of my article "A semantic space for nonverbal behavior," *Journal of Consulting and Clinical Psychology*, 1970, 35, 248-257. Copyright © 1970 by the American Psychological Association and reproduced by permission.

attributes. For instance, psychoanalysts such as Braatoy and Reich have interpreted postural rigidity to indicate obsessional tendencies and greater resistance to change. Some clinicians have also been interested in the identification of particular moods or feelings from specific behaviors (e.g., Fromm-Reichmann, 1950). Experimental investigations of this problem led to the identification of seven affects which were consensually coded into facial and vocal expressions, but still did not provide a general framework for the classification of nonverbal behavior (e.g., findings reviewed by Davitz, 1964, or Woodworth & Schlosberg, 1954, Ch. 5).

Thus, the need for a reasonably general set of categories to characterize communication is readily demonstrated. Without it, how can one know what behaviors he should select to study as a part of nonverbal communication? And on what would he base his selection? Indeed, one of the problems has been the apparent arbitrariness with which nonverbal behaviors are isolated as being a part of communication.

In the present approach, the basic categories are developed from a detailed consideration of the referents, and not of the communication behaviors or the communicator-addressee attributes. The dimensions that are used to characterize the referents in turn provide a framework for classifying and studying the effects of the latter factors. Referents were chosen as the starting point because the existing nonverbal communication literature provides adequate evidence to characterize them in a quite general way. Considering some of this evidence, the referents of nonverbal behavior are described in terms of a three-dimensional framework: evaluation, potency or status, and responsiveness. Positive evaluation is communicated by facial and vocal cues (which express variations in liking) and also by several postures and positions (e.g., a closer position, more forward lean, more eye contact, and more direct orientation). Postural relaxation conveys potency or status, and increasing nonverbal activity (e.g., facial or vocal activity) expresses responsiveness to another person.

Facial and Vocal Expressions

One of the first attempts for a more general characterization of the referents of nonverbal behavior and, therefore, possibly of the

behaviors themselves, was that of Schlosberg (1954). He suggested a three-dimensional framework involving pleasantness-unpleasantness, sleep-tension, and attention-rejection. Any feeling could be assigned a value on each of these three dimensions, and different feelings would correspond to different points in this three-dimensional space. This shift away from the study of isolated feelings and their corresponding nonverbal cues and toward a characterization of the general referents of nonverbal behavior on a limited set of dimensions was seen as beneficial. It was hoped that it could aid in the identification of large classes of interrelated nonverbal behaviors.

Recent factor-analytic work by Williams and Sundene (1965), Osgood (1966), and Mordkoff (1971) provided further impetus for characterizing the referents of nonverbal behavior in terms of a limited set of dimensions. Williams and Sundene (1965) found that facial, vocal, and facial-vocal cues can be categorized primarily in terms of three orthogonal factors: general evaluation, social control, and activity.

For facial expression of emotions, Osgood (1966) suggested the following dimensions as primary referents: pleasantness (e.g., joy and glee versus dread and anxiety), control (e.g., annoyance, disgust, contempt, scorn, and loathing versus dismay, bewilderment, surprise, amazement, and excitement), and activation (e.g., sullen anger, rage, disgust, scorn, and loathing versus despair, pity, dreamy sadness, boredom, quiet pleasure, complacency, and adoration). He further noted:

One would expect to find a close relation between the dimensions operating here and those repeatedly found with the semantic differential technique . . . applied to linguistic signs. Pleasantness and Activation appear to be semantically identical with Evaluation and Activity, two of the three major factors in the general semantic space; what we have called the Control dimension is similar in semantic tone to the Potency factor—*scorn*, *sullen anger* and the like seem to imply strength and *bewilderment*, *surprise* and the like weakness—but the relation is not as compelling. [P. 27]

Hand Gestures

In one of the few studies that are available in this area, Gitin (1970) presented 36 photographs of hand gestures to subjects who

rated each of the photographs on 40 semantic differential scales. Her first three factors were characterized by the following sets of scales.

Factor I: active-passive, sharp-dull, interesting-uninteresting, tense-sleepy, exciting-boring, curious-indifferent, meaningful-senseless, and intentional-unintentional.

Factor II: pleasant-unpleasant, friendly-unfriendly, good-bad, and beautiful-ugly.

Factor III: submissive-dominant, weak-strong, unarmed-armed, doubtful-certain, shy-brave, and slow-fast.

Gitin's first factor corresponds to our responsiveness dimension, which is referred to as "activation" or "activity" in other studies. Her second factor is the counterpart of our evaluation dimension, and her third factor relates to the potency or status dimension. The semantic differential scales corresponding to these three factors help to further clarify the referential significance of an important aspect of nonverbal behavior (hand gestures) as well as other nonverbal behavior in general.

Thus, at least for facial, vocal, and manual expression, it is interesting to find that similar dimensions characterize the referents of nonverbal as well as verbal behaviors. Such a correspondence is reassuring in that it confirms the expected similarity for cognitive categories, despite the dissimilarity of communication channels. It further suggests that, as with verbal communications, it should be possible to identify other classes of nonverbal communication which relate primarily to one of the three referential dimensions. This indeed seems to be the case for those aspects of nonverbal interaction involving stationary postures and positions.

Postures and Positions

Schefflen (1964, 1965, 1966) provided detailed observations of an informal quality on the significance of postures and positions in interpersonal situations. Mehrabian (1968d, 1969b) reviewed experimental findings relating to the communication of attitudes (evaluation and liking) and status (potency or social control) via posture and position cues. Physical proximity to an addressee,

more eye contact with him, a forward lean toward him rather than a backward lean away, and an orientation of the torso toward rather than away from him have all been found to communicate a more positive attitude toward the addressee. A second set of cues which indicate postural relaxation include asymmetrical placement of the limbs, sideways lean and/or reclining position of a seated communicator, and specific relaxation measures of a communicator's hands or neck. This second set of cues has been found to relate primarily to status differences between a communicator and his addressee: a communicator is more relaxed with an addressee of lower status than himself, and less relaxed with one of higher status. Although the relaxation cues are intercorrelated and have been extracted as factors in some experiments (e.g., Mehrabian & Williams, 1969), the proxemic (Hall, 1963, 1966) or immediacy (Mehrabian, 1967a; Wiener & Mehrabian, 1968) cues are not intercorrelated. However, insofar as the set of immediacy cues (a) do together reflect a more positive attitude toward an addressee, (b) can be conceptually related as increasing the physical proximity between a communicator and his addressee, and (c) increase the mutual sensory stimulation between the communicators, there is some basis for grouping the cues as part of a single nonverbal dimension. Mehrabian (1969c) provided the scoring criteria for relaxation and immediacy and suggested a set of weights for the computation of total immediacy and relaxation from specific posture and position variables.

Reanalysis of the fourth experiment of Mehrabian (1968a) using these measures yielded simple relationships, in contrast to the rather elaborate ones which were reported in that study. Mehrabian's (1968a) factorial design included two levels of liking of the addressee (liked versus disliked), two levels of status relative to the addressee (high versus low), addressee sex, and communicator sex. For the standing communicators of this experiment, analysis of variance of the immediacy measure indicated only one significant effect: communicators were more immediate with liked than disliked addressees. A similar analysis of the relaxation scores yielded two effects: communicators were more relaxed with lower- than with higher-status addressees, and they were also more relaxed with females than with males.

Findings by Mehrabian and Friar (1969) for communicators in a seated position were reanalyzed with a factorial design which included communicator and addressee sex and two levels each of attitude and status. The results of this reanalysis indicated that communicators who were seated assumed a more immediate position to liked than to disliked addressees; female communicators were generally more immediate to their addressees than male communicators; and when the communicator was of lower status than the addressee, there was no significant effect due to addressee sex.

The analysis of the relaxation scores obtained in the Mehrabian and Friar (1969) study indicated that a communicator was more relaxed when he was of higher status than his addressee; furthermore, for male communicators there was greater relaxation with moderately disliked than with moderately liked addressees, there being no corresponding difference for female communicators. Finally, opposite-sexed communicators were more relaxed with each other than same-sexed communicators.

A third study which also provided data that was reanalyzed for immediacy and relaxation involved the communication of five degrees of attitude toward an addressee (Mehrabian, 1968b). The results of that study indicated a direct linear relationship between immediacy and attitude. Also, relaxation was a decreasing linear function of positive attitude toward an addressee. There was one final interaction effect due to Communicator Sex $\times$ Addressee Sex $\times$ Attitude. The means for this effect indicated that, in all instances, relaxation linearly increased with increasing dislike of the addressee, with the exception that male communicators who addressed an extremely disliked male exhibited their lowest level of relaxation. This was interpreted as being the result of vigilance elicited by a threatening other.

Incidentally, Wiener and Mehrabian (1968) also used the concept of immediacy to elaborate a method for inferring positive-negative communicator attitudes from different classes of verbal behavior. The inference of communicator attitudes on the basis of their method independently supplements any explicit (verbal) information that a communicator provides about his feelings.

Their approach is based on an analysis of the forms of the communicator-object relationship in verbal contents that are ostensibly

equivalent with respect to the *explicit* communication of feelings. For example, the two statements "I am looking at X" and "We are looking at X" vary with respect to the form of communicator-object relationship (i.e., the relationship between "I" and "X"), but both statements are neutral with respect to the expressed feeling toward X. Similarly, "I dislike X" and "I dislike X's habits" vary with respect to the form of communicator-object relationship, but both statements are ostensibly equivalent with respect to the speaker's feeling toward X. Such variations have been categorized with respect to the degree of "nonimmediacy" between the communicator "I" and the object "X" in the communication. Communicator-object "nonimmediacy" is a measure of the degree of attenuation of directness and intensity of interaction between the communicator and the object, as inferred from verbal contents. In the above examples, "We are looking at X" is categorized as less immediate than "I am looking at X," since the former involves a dilution of the interaction with X. Again, "I dislike X's habits" is categorized as less immediate than "I dislike X," since the former restricts interaction to some aspect of X.³

Encoding studies by Gottlieb, Wiener, and Mehrabian (1967), Mehrabian (1965, 1966a, 1967b), and Mehrabian and Wiener (1966) have consistently shown that communications about liked persons or events contain greater verbal immediacy. Decoding studies by Mehrabian (1966b, 1967c, 1967d, 1968c) have also consistently shown that more immediate communications are judged by untrained subjects as conveying greater liking. Thus, the immediacy phenomena and hypothesis that have been elaborated for postural cues have greater generality and may be applicable across a diversity of communication channels.

In sum, the findings from studies of posture and position and subtle variations in verbal statements show that immediacy cues primarily denote evaluation. Postural relaxation cues denote status or potency in a relationship. It is interesting to note a weaker effect:

3. Acknowledgment is given to Duke University Press for their permission to use a slightly revised version of the preceding two paragraphs which originally appeared in my "Attitudes in relation to the forms of communicator-object relationship in spoken communications," *Journal of Personality*, 1966, 34, 80-93. Copyright © Duke University Press.

less relaxation of one's posture does also convey a more positive attitude toward another. One way to interpret this overlap in the referential significance of less relaxation and more immediacy in communicating a more positive feeling is in terms of the implied positive connotations of higher status in our culture. A respectful attitude (i.e., when one conveys that the other is of higher status) does indeed have implied positive connotations. Therefore it is not surprising that the communication of respect and the communication of positive attitude exhibit some similarity in the nonverbal cues which they require. However, whereas the communication of liking is more heavily weighted by variations in immediacy, that of respect is weighted more by variations in relaxation.

The studies reviewed above were not designed within the framework presently being proposed; rather, the framework evolved from those studies. The general correspondence of the findings with those of Gitin (1970), Osgood (1966), Osgood, Suci, and Tannenbaum (1957), and Williams and Sundene (1965) suggested further exploration of the approach for other nonverbal cues. Therefore, this framework is used below to discuss various aspects of facial movement, vocal, and verbal communication.

Movements and Implicit Aspects of Verbalizations

There have been several approaches to the study of movements and of the more subtle qualities of verbalizations. One set of studies investigated the interdependence of behaviors in different channels. For instance, a study by Boomer (1963) showed a direct correlation between speech disturbance (particularly the filled pause) and a composite measure of head, hand, and foot movements of one patient. Dittmann and Llewellyn (1969) explored the differential occurrence of movements at various positions of a phonemic clause—"a string of words, averaging five in length, in which there is one and only one primary stress and which is terminated by a juncture" (p. 99). Head and hand movements occurred more frequently with primary-stressed words, but this relationship accounted for only 7% of the variance in body movement. This finding suggested that "if a person wishes to convey the idea that what he is expressing is important or difficult to conceptualize or exciting, he will introduce

movements along with his speech to get this extra information across. The timing of these movements will tend to follow the pattern of timing he is familiar with: that is, early in encoding units or following hesitations in speech" (p. 105). One implication of the findings, of course, is that there are other determiners of movement besides the structural qualities of the statements which they accompany.

According to Condon and Ogston (1966) and Kendon (1967b), one such source of movements is the synchronous quality of interpersonal interaction. These investigators have attempted a micro-analysis of movement sequences of participants in a conversation. Some of the forms of synchrony are "movement mirroring," "punctuation," as in the Dittmann and Llewellyn study, and "speech analogous" movements.

There is a small amount of research which suggests that when subjects are exposed to an input that has a rhythmic organization, such as music, they tend to move in time to it . . . and that if they are already performing some activity, such as tapping, or typing, they may bring the rhythm of this activity into relation with the rhythm of the input. . . . We have seen here, both from the data we have reported on, and also very strikingly from the data reported by Condon and Ogston, that the synchrony of the listener's behavior to that of the speaker may be very precise indeed. The precision of the synchrony suggests that the listeners are responding to a rhythm with which they are thoroughly familiar. This rhythm is, of course, largely the rhythm of speech, the rhythmical character of the syllabic pulse, and for those who have a given language in common this rhythm must be familiar. . . . It seems plausible, thus, that the minute synchrony observable between interactants is a product of their attention to an input where rhythmical structuring is highly familiar to them. [Kendon, 1967b, pp. 36-37]

A third approach has attempted to develop typologies for movement. Such attempts are exemplified by the work of Bird-whistell (1952), Efron (1941), and, more recently, Ekman and Friesen (1969b) and Freedman and Hoffmann (1967). Ekman and Friesen (1969b) suggested a quite thorough system for categorizing movements and related it to the systems of the other investigators. More evidence is needed for the referential significance of the proposed categories, and there is a need for the empirical justification of the separate categories proposed by these investigators.

A fourth approach has focused on the emotion- and attitude-communicating significance of nonverbal behavior. Mahl, Danet, and Norton (1959) suggested that movement information complements verbal messages by anticipating, contradicting, or concurring with the referents of the verbal channel. More specific work by Ekman and Friesen (1967) on the referents of movements of various body parts showed that stationary positions communicate gross affects (i.e., attitudes), whereas movements and facial expressions communicate specific emotions. Along similar lines, Kendon (1967a) and Exline and his colleagues have explored the many-faceted significance of eye contact with, or observation of, another (Exline, 1962, 1963; Exline & Eldridge, 1967; Exline, Gray, & Schuette, 1965; Exline & Winters, 1965). Rosenfeld (1966a, 1966b) used a role-playing paradigm in which his subjects were requested to interact with someone and elicit varying degrees of liking from him. The nonverbal behaviors of the subjects were the dependent measures and indicated that higher speech rates, lengthier communications, frequent verbal reinforcers to the addressee, gesticulation, smiling, positive head nods, and less frequent self-references were associated with the attempt to elicit more liking.

In the two studies described below, it was assumed that in certain interpersonal situations, the nonverbal communication of attitudes is either more appropriate or a necessary concomitant of the communicator's affect. For instance, Zaidel and Mehrabian (1969) found that communicators were able to express variations in negative affect better than variations in positive affect, whether using facial or vocal channels. Perhaps nonverbal expressions of negative attitude are practiced more than positive ones because it is seldom appropriate to express negative feelings openly. Thus, they are delegated to the subtle, nonverbal channels more frequently than are positive feelings, and people become more proficient at expressing their negative feelings nonverbally.

In other situations, such as being under stress, once again nonverbal channels may become salient indicators, particularly when the communicator is unwilling to express his feelings explicitly. Early psychoanalytic interest in nonverbal behavior was primarily motivated by this assumption (e.g., Deutsch & Murphy, 1955), and the recent interest in the detection of deceit from

nonverbal behaviors also seems to be related (Ekman & Friesen, 1969a).

The importance of nonverbal behaviors is also highlighted in situations in which unfamiliar persons interact and one seeks to influence the other (as in political speeches or advertising). Verbal expression of feelings toward another is less permissible in these situations than is an argument or information relating to the topic in question. In the experiments summarized below, the interactions involved dyads, mostly between peers. One member of each dyad was a confederate of the experimenter and exhibited a prearranged set of behaviors designed to seem "normal" for that situation. The other member of the dyad, the actual subject, was observed through a one-way mirror and his behaviors were video recorded.

Perceived and Intended Persuasiveness. In the first two experiments reported by Mehrabian and Williams (1969) subjects presented messages to someone else, employing varying degrees of persuasion. Subjects' nonverbal, vocal, and verbal behaviors were recorded and analyzed. The movement cues rated were lateral swivels in a desk chair, rocking, head nodding, gesticulation, self-manipulation such as scratching or tapping one part of a hand with another, and leg and foot movements. Measures relating to the facial expressions included facial pleasantness and activity. Measures relating to verbalizations were length of communication in terms of number of words or duration, speech rate, the unhalting quality of speech, speech error rate (Kasl & Mahl, 1965; Mahl, 1959), volume, and activity (Huttar, 1967; Starkweather, 1964). The criteria for scoring these categories of nonverbal behavior have been summarized by Mehrabian (1969c).

The analyses of these data led to the postulation of an activity dimension for nonverbal behaviors. The variables grouped under this dimension included facial and vocal activity, speech volume, and speech rate. Whereas immediacy and relaxation indicate variations in liking and status, respectively, activity communicates responsiveness (e.g., note Bentler's, 1969, data for adjectives), and is a function of the salience of the addressee.

The findings from the persuasion studies indicated simply that a communicator's activity increases with his intention to persuade,

and the perceived persuasiveness of a message is correlated with the level of activity exhibited nonverbally by the communicator. Both studies reported by Mehrabian and Williams (1969) yielded this one major effect relating activity and persuasion. A second, though weaker, relationship occurred between attempted persuasiveness and immediacy: communicators were more immediate to an addressee when they attempted to be more persuasive. Further, in two experiments, more immediate communications were also perceived as more persuasive.

Thus, findings for the nonverbal concomitants of persuasion can be readily summarized: nonverbal positive responsiveness to an addressee enhances the perceived persuasiveness of a message, and when a person attempts to be persuasive, he exhibits more positive responsiveness to the addressee.

Deceit. In three experiments we have explored the nonverbal concomitants of deceitful and of truthful communications (Mehrabian, 1971a). A variety of paradigms were used in which a subject communicated deceitfully or truthfully to someone else. All the behaviors noted in the preceding discussion of persuasion were recorded and scored. Findings from two of the experiments indicated that immediacy toward an addressee is greater when one is truthful than when deceitful.

In the first experiment, the subject was either promised a reward for successful deceit or threatened that he would be shocked if his deceit was detected. Subjects who were promised a reward were more immediate when truthful than when deceitful, but there was no corresponding significant difference when subjects were threatened with shock. The second experiment involved role playing of deceit versus role playing of truth, and subjects were found to be more immediate while they were role playing at being truthful than when role playing at being deceitful.

Relaxation was not a discriminator between deceit and truth in any of the experiments. Subjects in the first experiment who anticipated possible reward were more relaxed than those who anticipated possible shock. In the second experiment, while being deceitful, high-anxious males were more relaxed than low-anxious males. In contrast, while being deceitful, female high-anxious

communicators were less relaxed than female low-anxious communicators. There were no corresponding effects in the truthful conditions. The second experiment also indicated that males were generally more relaxed than females. Finally, in the third experiment, extroverts were more relaxed than introverts.

Thus, these deceit studies provided further validity for the relaxation cues, and suggested a relationship between immediacy of postures and deceitful versus truthful communication, while not providing any relationship between activity level and deceit.

The experimental data reviewed thus far provided a preliminary basis for grouping nonverbal and implicit verbal communication cues, and indicated the primary significance of each of three sets of cues in a variety of social situations. These three sets of cues provide a way of objectively characterizing social interaction. To facilitate further exploration of the interrelationships among these cues and their relation to the personality of participants and the social situations in which they interact, the following section touches on the theoretical significance of these groupings.

A Rationale for the Choice of Semantic Dimensions

It is of some interest to speculate briefly about why the three proposed referential dimensions emerged as particularly relevant in nonverbal communication. Our answer is based on the premise that nonverbal behavior is a developmentally earlier and more primitive form of communication which man shares with animals (e.g., Werner, 1957; Werner & Kaplan, 1963). Such a premise implies that nonverbal behavior reflects very basic social orientations which are correlates of major categories in the cognition of social environments (Piaget, 1960). Positive-negative affect and evaluation are basic cognitive distinctions made from early infancy and retained in adult life—they determine approach and avoidance tendencies toward objects or persons. The evaluation of objects and persons is a crucial aspect of intelligent functioning and even of survival. It is therefore not surprising that people possess behavioral correlates for this cognitive distinction—the immediacy cues—which are ever present in social interaction.

The second dimension, status or potency, relates to social control. It is particularly salient in the social life of animals, as observed in the phenomenon of territoriality (e.g., Calhoun, 1962) and is a major determiner of social interaction patterns among humans. This is especially evident in highly stratified, authoritarian cultures but can be seen in even the most democratic societies (e.g., Hall, 1966).

Responsiveness is conceptualized as the nonverbal-social counterpart of the orienting reflex (e.g., Maltzman, 1967). As such it is another elementary and basic aspect of social life. The degree of responsiveness to another indicates his salience for oneself and is elicited by nonneutral events or persons (extreme instances being unusually reinforcing or threatening ones). In cognition (as in responsiveness) unusual events of either positive or negative quality are grouped and reacted to similarly, as exemplified by the concept of mana in many primitive cultures (e.g., Cassirer, 1953-1957). The differential responsiveness of humans or animals to various aspects of their social environment is characteristic of their alive quality and distinguishes them from the inanimate world. Together with the preceding two cognitive distinctions (evaluation and judgment of social power) it is a basic aspect of intelligent (adaptive, *à la* Piaget, 1960) functioning.

Noting the rather general quality of these cognitive and behavioral dimensions for both animal and human social systems provides a plausible basis for using data obtained from the social interaction of animals. Primates, in particular, can provide complementary information about certain aspects of affect and attitude communication in humans. For instance, Sommer (1967) summarized some of the research which related the spatial arrangement of persons in a variety of social situations to their social status. A number of the studies Sommer reviewed were motivated by the more familiar phenomenon of territoriality observed in animals (e.g., Ardrey, 1966; Lorenz, 1967; McBride, 1964). Even informal observation of chimpanzees living together reveals impressive differences in the postures, positions, movements, and facial expressions of dyads differing in status. Since status or potency is readily specified in terms of size or strength in such animal social systems, investigation of the nonverbal correlates of potency is

considerably simplified and may yield nonverbal interaction cues that have transcultural relevance. More generally, the observation of animal social interactions can complement the study of individuals of a single culture (e.g., American college students) and provide corroboration for identified dimensions of social interaction.

FACTOR ANALYSES OF IMPLICIT COMMUNICATION CUES⁴

Two recent experiments were designed to explore the relationships among nonverbal and implicit verbal behaviors in a waiting situation with a stranger (Mehrabian, 1971b; Mehrabian & Ksionzky, 1971c). In both of these experiments, one of the pair of strangers who waited together was an experimental confederate, but this was not evident to his partner, the subject in the experiment. Confederates were initially coached in detail regarding where to stand, how to orient, how much eye contact to have with the subjects, the degree of their facial pleasantness and positive vocalization, and the number and length of their verbal utterances. Two different sets of 22 confederates, equally divided as to sex, were trained and participated in each of the two experiments. The training of confederates and the use of a large number of them was designed to minimize the confounding of results by confederate attributes or physical appearance.

In the experimental situations, one subject and a confederate of the same sex were led into a "waiting" room while the experimenter ostensibly went to prepare the materials for the experiment. Actually, this 2-minute waiting period was the experiment proper, and both the subject's and the confederate's behaviors were recorded on video and audio tape. This method was quite effective in eliciting spontaneous and natural social behaviors from subjects.

Experiment I

In the Mehrabian (1971b) study, the waiting room was 9 × 20 feet in size and was empty except for a table placed in one corner.

4. I am indebted to Academic Press, Inc., for their permission to use rewritten segments, including Tables 1 and 2, of my "Verbal and nonverbal interaction of strangers in a waiting situation," *Journal of Experimental Research in Personality*, 1971, 5, 127-138.

Thus, both the confederate and the subject were standing. A standing rather than a seated arrangement was used to make possible the exploration of distances and orientations in relation to other cues. The confederate's behaviors toward the subject were predetermined to be either slightly positive or negative, as follows.

Confederate slightly negative toward the subject: The confederate, who entered the waiting room ahead of the subject, took a preassigned position near one corner and faced diagonally across to the opposite corner of the room. He stood with his legs in a moderately asymmetrical position and both feet resting flat on the floor. His hands and arms were moderately relaxed—his arms in a slightly asymmetrical position or held behind his back, or one arm hanging loosely with the other holding that forearm. In general, then, the confederate's posture was intended to communicate a moderate level of relaxation that seemed natural in the waiting situation. The confederate had been trained to look toward the subject's head 25% of the time, and to do so especially if the subject addressed him. The confederate's facial expressions, which were also scored, obtained a mean rating of 1.5 on a scale ranging from 0 (no positive expressions) to 4 (extremely positive expression). As the confederate entered the waiting room with the subject, he looked at the subject and smiled once, and did not exhibit any negative facial expressions during the waiting period. He never initiated a conversation, nor did he ask any questions, but he always responded if the subject initiated a topic or made a remark. His responses were brief, averaging 1.5 words.

Confederate slightly positive toward the subject: In this condition the confederate's behaviors were identical to those in the slightly negative condition, with the following exceptions. His facial expressions were more positive, having been rated 2.6 on the same 0-to-4 scale. The confederate initiated conversation once for every three verbal initiations of the subject. In a typical initiation, the subject's question was first answered and then a similar question was asked in return (e.g., "I'm majoring in chemistry; how about you?"). The verbal responses of the confederate were longer than in the preceding condition, averaging 4.5 words.

Each confederate was partner to approximately 12 subjects and served in only one condition, the slightly positive or the slightly

negative. All confederates received the same information, regardless of the condition they served in. They were told that the experiment was to study the ways in which strangers interact in a waiting situation, that we were using several confederates to ensure generality of results, that to ensure comparability in the behaviors of various confederates we needed to train them in great detail, and that more natural behaviors would be elicited from subjects if they remained unaware that their partners were experimental confederates. In the final portion of the experiment, the subjects were requested to answer questionnaire measures of affiliative tendency, sensitivity to rejection (Mehrabian, 1970d) and achieving tendency (Mehrabian, 1968e, 1968f, 1969a).

Each subject's behavior during the 2-minute waiting period was observed and recorded through a one-way mirror. Observers scored eye contact and distance, since these are difficult to score from video recordings. The remaining dependent measures and confederate behaviors were scored subsequently from the audio and video recordings. The entire set of dependent measures from the waiting period are included in Table 1. Two observers independently scored the audio recordings first and then scored the video recordings for movements. Reliability estimates for the dependent measures have been provided by Mehrabian (1969c) and justified averaging the pair of scores obtained by the two observers for each dependent measure.

The names of the variables in Table 1 are self-explanatory. Rate measures, unless otherwise specified below, were in terms of number of units (e.g., movements, statements) per minute. Speech rate, speech volume, and vocal activity (i.e., a composite of intensity range and fundamental frequency range) were estimated on scales ranging from 0 to 4. The positive-negative quality of both the vocal component and the verbal contents was scored on scales ranging from -2 to +2. A statement was defined as a simple sentence or an independent clause; a subject's statements were also subdivided into "declaratives," "questions," and "answers." Verbal reinforcers (e.g., "yeah," "uh-huh," "really?" and "hmm") were scored as a separate category and did not qualify as statements. Speech duration of the subject (or the confederate) was the percentage of the waiting period during which he talked.

Behavioral data from the waiting period were factor analyzed, and varimax rotation of the primary factors yielded the groupings listed in Table 1. Variables are listed in order according to the magnitude of their loadings, and direction of loading for each variable on the corresponding factor is also indicated. Each subject's *z* scores for the variables of a given factor were summed algebraically to serve as a composite score for that factor. For instance, an "intimate-close position" score was simply a subject's *z* score for "shoulder orientation" minus his *z* score for "distance."

TABLE 1
SUMMARY OF THE FACTORS CHARACTERIZING SOCIAL INTERACTION
IN MEHRABIAN'S (1971b) STUDY

	Direction of Loading on Factor
<i>Factor I: Affiliative Behavior</i>	
1. Total number of statements per minute	(+)
2. Number of declarative statements per minute	(+)
3. Number of questions per minute	(+)
4. Percent duration of subject's speech	(+)
5. Percent duration of confederate's speech	(+)
6. Percent duration of eye contact with confederate	(+)
7. Head nods per minute	(+)
8. Pleasantness of facial expressions	(+)
9. Number of verbal reinforcers per minute	(+)
10. Positive verbal content	(+)
11. Hand and arm gestures per minute	(+)
12. Pleasantness of vocal expressions	(+)
<i>Factor II: Responsiveness to (or Salience of) Target</i>	
1. Vocal activity	(+)
2. Speech volume	(+)
3. Speech rate	(+)
<i>Factor III: Relaxation</i>	
1. Leg and foot movements per minute	(-)
2. Rocking movements per minute	(-)
3. Body lean	(+)
<i>Factor IV: Intimacy (or Close Position)</i>	
1. Shoulder orientation away from confederate	(+)
2. Distance from confederate	(-)
<i>Factor V: Behavioral Index of Distress</i>	
1. Percent duration of walking	(+)

To compute an affiliative behavior index, however, it was noted that a number of the variables were simply redundant measures of amount of speech. Therefore, the corresponding index included only "statement rate" as the representative measure for the various related cues:

Affiliative behavior =
total number of statements per minute
+ percent duration of eye contact with the confederate
+ head nods per minute + pleasantness of facial expressions
+ number of verbal reinforcers per minute
+ positive verbal content + hand and arm gestures per minute
+ pleasantness of vocal expressions

Since the cues for affiliative behavior are of primary interest, the intercorrelations among the variables in this first factor are reported in Table 2.

The intercorrelations among the variables subsumed within the first factor and reported in Table 2 show that positive affect cues were significantly correlated with various indexes of amount of conversation. Together, the positive affect cues in verbalization (e.g., verbal reinforcement rate, positive verbal content, positive vocalization), positive affect cues in nonverbal behavior (e.g., eye contact, head nods, pleasant facial expressions, gesticulation), and various indicators of amount of conversation (total number of statements per minute, duration of speech) defined a unitary dimension of social behavior. These intercorrelations provided support for Mehrabian and Ksionzky's (1970) hypothesis that affiliative behavior is not simply the exchange of verbalizations, but rather encompasses a broader realm of social cues which consist of the exchange of positive reinforcers. Their model of affiliative behavior was based on the assumption that affiliation is elicited by positive reinforcement and is discouraged by negative reinforcement. The correlational data of the present experiment support this basic assumption of the interdependence of affiliation and exchange of positive reinforcers.

One result was contrary to expectations: distance and orientation were not found to be part of the primary affiliative behavior factor. Rather, together they defined a separate factor referred to as

TABLE 2
CORRELATIONS AMONG VARIABLES DEFINING THE AFFILIATIVE BEHAVIOR FACTOR^a

	2	3	4	5	6	7	8	9	10	11	12
1. Total statements per minute	.99	.74	.87	.78	.73	.62	.56	.54	.54	.46	.35
2. Declarative statements per minute		.75	.86	.75	.73	.61	.55	.54	.53	.46	.33
3. Questions per minute			.63	.69	.66	.47	.43	.62	.49	.22	.32
4. Percent speech duration of subject				.79	.67	.52	.52	.45	.47	.51	.32
5. Percent speech duration of confederate					.70	.55	.52	.53	.51	.36	.32
6. Percent duration eye contact with confederate						.52	.59	.44	.41	.41	.33
7. Head nods per minute							.41	.37	.40	.22	.30
8. Pleasantness of facial expressions								.32	.38	.30	.33
9. Verbal reinforcers per minute									.39	.20	.29
10. Positive verbal content										.16	.44
11. Hand and arm gestures per minute											.19
12. Pleasantness of vocal expressions											

^a With 254 cases, correlations of .17 are significant at the .01 level.

"intimate-close position." This finding was surprising since smaller distances have consistently been found to be correlates of greater liking. More direct orientation has also been found, though less consistently, to correlate with positive attitudes toward the listener (Mehrabian, 1967a). In the present experiment the absence of a correlation between affiliative behavior and a smaller distance or a more direct orientation may have been due to the averaging of distances and orientations over the total interaction duration. Earlier experiments have usually been based on the initial choice of distance or orientation (e.g., Mehrabian, 1969b). Perhaps the averaging minimized the attitudinal significance of a subject's initial choice of distance from the confederate.

Although the initial distance and orientation may be more indicative of like-dislike of the other, the present close position factor could also be indicative of some other aspects of social interaction considered by Sommer (1967, 1969). In several of his experiments, Sommer found a consistent difference in the pattern of seating depending on the activity of the subjects, such that cooperative situations typically involved a closer position (i.e., smaller distance and less direct orientation) relative to competitive ones. Other studies have also shown an inverse relationship between distance and orientation, and have led some investigators to posit a limited tolerance for intimacy: the increasing intimacy due to a smaller distance is compensated for in terms of less direct orientation (e.g., Argyle & Dean, 1965; Argyle & Kendon, 1967). The results of the present experiment showed only a few effects for this intimacy (or close position) factor, but did serve to identify it as a part of social interaction which is distinct from affiliative behavior. In other studies where there are variations in the prior familiarity of subjects, or experimentally determined variations in their mutual interdependence in a task, the intimacy index may be of greater value.

The results of the factor analysis indicated that the measure of highest loading on affiliative behavior was "total number of statements per minute." Thus statement rate (i.e., total number of simple sentences or independent clauses uttered per minute) is a more satisfactory measure than speech duration, though it is somewhat more cumbersome to score. When audio tape recordings of social interaction are available and a more stable index of

affiliative behavior is desired, scores for total statement rate, verbal reinforcer rate, positive verbal content, and positiveness of the vocal component can be standardized and summed. Such an index can serve as a convenient dependent measure for most studies of affiliative behavior. The obtained intercorrelations of these verbal cues with nonverbal communications of positive affect serve as assurance that such a composite measure that is based on the verbal interchange is reasonably representative of general affiliative behavior.

A consideration of the literature in the nonverbal communication area led to the postulation of three orthogonal dimensions for characterizing the nonverbal aspects of social interaction: communications of liking (which include all of the nonverbal cues within the first factor), responsiveness to the target (or, alternatively, the salience of the target for oneself), and potency or status as conveyed by greater relaxation (Mehrabian, 1970a). The present results show that when verbal cues are also considered within the complex of social interaction, the same three factors emerge, and that most of the verbal cues which measure amount of verbal interchange are part of the first factor, liking-affiliation. The second factor, responsiveness, is correlated only slightly with the communication of liking, and reflects the extent to which the subject is reacting to another, whether in a positive or negative way. For instance, in persuasive communication situations in which the nonverbal expression of liking may be construed as manipulative and insincere, it has been found that increased attempts at persuasion are associated with increased responsiveness to the listener, but with only slight increases in actual positiveness toward the listener (Mehrabian & Williams, 1969).

Postural relaxation has been found to be a correlate of higher status of the speaker relative to his listener. The composition of the relaxation index is somewhat different for standing and seated positions. For seated postures, asymmetry in positioning of the limbs and the degree of reclining or sideways lean are the best indicators; for standing positions, sideways lean of the body again serves as a measure of relaxation, but rocking movements and leg and foot movements while in the same place are also important indicators.

In addition to the above factor analytic results for the interrelationships among the various cues, the experiment yielded a number of relationships between the factors characterizing social behavior, the experimental condition, and the personality of the participants. Highlights of these results are briefly summarized below. Subjects reciprocated the positive (or negative) behaviors of experimental confederates; those with higher scores on a measure of affiliative tendency communicated more positive affect and were more in tune to the degree of positiveness they received from a confederate. Two kinds of significance were attached to bodily tension, depending on the degree of positive attitude communicated simultaneously. Tension in the generally more positive high affiliators conveyed respect, but in the slightly negative subjects who were sensitive to rejection, it conveyed vigilance. There was also more tension during interaction with others of higher status. With same-sexed targets, females affiliated more than males, and were more intimate and submissive. Birth order failed to relate significantly to either affiliative behavior or the questionnaire personality measures of affiliative tendency, sensitivity to rejection, or achieving tendency.

Experiment II

This experiment by Mehrabian and Ksionzky (1971c) explored the contribution of a different set of experimental factors to the social interaction of a subject with an experimental confederate. The dependent measures, however, were essentially the same as those in the preceding experiment and were similarly scored and factor analyzed. The 22 experimental confederates were initially coached to behave in the slightly positive way described under Experiment I. The confederates were unaware of the experimental condition to which a subject was assigned. The audio and video recordings were scored using criteria given by Mehrabian (1969c). Two raters independently scored each category and their scores were averaged. No information about subjects' personality scores was available to the raters, since those questionnaires were scored last.

The measures taken during the waiting period were factor analyzed and a principal component solution was obtained.

Varimax rotation of the primary factors yielded the groupings of these cues given in Table 3. For each factor in Table 3, the variables are listed starting with those having the highest loadings, on down to the variable with the lowest loading on the factor. Table 3 also provides the direction of loading of the variables on their corresponding factors.

TABLE 3
SUMMARY OF FACTORS CHARACTERIZING SOCIAL INTERACTION
IN THE MEHRABIAN AND KSIONZKY (1971c) EXPERIMENT

	Direction of Loading on Factor
<i>Factor I: Affiliative Behavior</i>	
1. Total number of statements per minute	(+)
2. Number of declarative statements per minute	(+)
3. Percent duration of eye contact with confederate	(+)
4. Percent duration of subject's speech	(+)
5. Percent duration of confederate's speech	(+)
6. Positive verbal content	(+)
7. Head nods per minute	(+)
8. Hand and arm gestures per minute	(+)
9. Pleasantness of facial expressions	(+)
<i>Factor II: Responsiveness to (or Salience of) Target</i>	
1. Vocal activity	(+)
2. Speech rate	(+)
3. Speech volume	(+)
<i>Factor III: Relaxation</i>	
1. Rocking movements per minute	(-)
2. Leg and foot movements per minute	(-)
3. Body lean	(+)
<i>Factor IV: Ingratiation</i>	
1. Pleasantness of vocal expressions	(+)
2. Negative verbal content	(-)
3. Verbal reinforcers given per minute	(+)
4. Number of questions per minute	(+)
5. Self-manipulations per minute	(+)
<i>Factor V: Behavioral Index of Distress</i>	
1. Percent duration of walking	(+)
2. Object manipulations per minute	(+)
3. Arm position asymmetry	(+)
<i>Factor VI: Close Position</i>	
1. Shoulder orientation away from confederate	(+)
2. Distance from confederate	(-)
3. Head turns per minute (looking around)	(+)

The results in Tables 1 and 3 are in general agreement. The fourth factor of Table 3 was found to be part of the affiliative behavior factor in Table 1. In this study, it emerged as a relatively independent aspect of social behavior and connoted greater dependency and subservience to another. Other data from this experiment showed that such a distinction between affiliative and ingratiating behavior is helpful when situational factors (the cooperative condition of this experiment and, more generally, situations in which one person is less confident of his abilities and/or is in a more subservient role relative to another) force mutual dependency between participants.

The contribution of arm position asymmetry to the behavioral index of distress is a by-product of object manipulation, which in the experimental situation involved the use of one hand only (e.g., writing or drawing designs on a blackboard—another evasive maneuver). Thus, the first two variables of this factor are sufficient for characterizing distress.

Additional results which related the dependent measures to the independent effects in the study indicated that the results for affiliative behavior were mostly consistent with a model proposed by Mehrabian (1970b) and Mehrabian and Ksionzky (1970, 1971a, 1971b). The behavioral correlates of the personality variables were more pronounced when the stimulus cues bearing on those behaviors were more ambiguous. For instance, persons who scored high on a measure of affiliative tendency tended to be more affiliative with the confederates who had not been clearly positive or negative in evaluating them prior to the waiting period. Similarly, those who scored high on a measure of sensitivity to rejection tended to be less affiliative with the confederates who had not been clearly positive or negative in evaluating them earlier on.

A second general result was that the frustration of characteristic goals associated with each of two personality attributes was especially distressing to persons possessing those attributes. For instance, positive affiliators showed more distress when anticipating cooperation with others who disliked them. Also, high achievers, who prize success more than low achievers, showed the highest level of distress when they had to depend on the cooperation of someone who disliked them.

Finally, although the effects of birth order were also explored, it was found to be an extremely disappointing predictor of behavioral cues in social interaction.

EXPERIMENTS WHERE AFFILIATIVE BEHAVIOR (POSITIVE AFFECT)
IS ASSESSED FROM AUDIO RECORDINGS⁵

The preceding two experiments presented the results of factor analyses of verbal and nonverbal cues in social situations. Frequently an experimenter cannot afford the extensive effort which is involved in assessing affiliative behavior (or positive affect communication) from nonverbal cues. In such cases, it is possible to readily obtain a subtle measure of affiliative behavior on the basis of implicit verbal cues. This procedure was used by Mehrabian and Diamond (1971a, 1971b) in four experiments which explored the facilitating and inhibiting effects of various furniture arrangements and two types of objects on social interaction.

The dyads in all three experiments of the Mehrabian and Diamond (1971b) study were strangers (neither one of whom was an experimental confederate) and thought they were waiting for the "music listening" experiment to start. Actually, this waiting period was the experiment proper and their informal social interaction was recorded and studied as a function of various furniture arrangements and objects in the waiting room.

The audio recording of each pair's interaction was subsequently scored for the following: (1) total statement rate—the number of simple sentences or independent clauses of each subject per minute; (2) percent speech duration—the percentage of the 5-minute interaction period during which the subject spoke; (3) percent speech duration for the pair; (4) verbal reinforcer rate—the number of "uh-huh," "yes," or other agreements given to the partner; (5) latency of the initial statement—the duration of silence of each subject before his first statement in the interaction; (6) positive verbal content—rated on a 5-point scale; and (7) negative verbal content—also rated on a 5-point scale.

5. This section includes rewritten segments from Mehrabian and Diamond's "The effects of furniture arrangement, props, and personality on social interaction," *Journal of Personality and Social Psychology*, 1971, in press. Copyright © 1971 by the American Psychological Association and reproduced by permission.

TABLE 4
INTERCORRELATIONS AMONG IMPLICIT VERBAL CUES^a

	2	3	4	5	6	7
1. Total statement rate	.86	.76	.56	.23	-.42	.31
2. Percent speech duration of subject		.82	.45	.27	-.38	.26
3. Percent speech duration of pair			.58	.50	-.46	.20
4. Positive verbal content				.42	-.39	.03
5. Verbal reinforcer rate					-.26	-.01
6. Latency						-.19
7. Negative verbal content						

^a With *df* = 286, correlations in excess of .16 are significant at the .01 level.

Again, data from all three of the present experiments supported the hypothesis of Mehrabian and Ksionzky (1970) that positive communications of attitude and amount of conversation are correlated and define an affiliative behavior factor. These data indicated that negative contents in communication are not part of this factor. The representative intercorrelations for the various affiliative cues and negative content scores of one experiment are given in Table 4.

Total statement rate, speech duration of a subject, singly or with his partner, frequency of verbal reinforcers, and a separate index of positive verbal content are positively intercorrelated and all of these are negatively correlated with latency of a subject's initial statement.

There are three redundant measures of amount of conversation in Table 4: total statement rate, percent speech duration, and percent speech duration of the pair. To avoid disproportionate contribution from this source to a composite index of affiliative behavior, the best single measure of amount of conversation, total statement rate, was used in computing the following index, where all the variables were first normalized.

Affiliative behavior = total statement rate + positive verbal content
+ verbal reinforcer rate - latency

In addition to the correlational data of Table 4, the experiments in this study provided confirmation that the proposed measure of affiliative behavior is indeed a direct correlate of an individual's affiliative tendency (R_1) and an inverse correlate of his sensitivity to rejection (R_2). For instance, the following regression equation

indicates the contributions of the various main effects to affiliative behavior in the first experiment of the study. All variables are normalized in this equation and (O) represents the sum of the angles at which both subjects would have to turn in order to assume a face-to-face position.

$$\text{Affiliative behavior} = .21R_1 - .14R_2 + .21R'_1 - .16R'_2 - .23(O)$$

The primed factors are the partner's scores on the personality measures. These findings indicate that those with higher scores on the affiliative tendency measure (Mehrabian, 1970d) exhibited more affiliative behavior and especially when their partners were also more affiliative. Further, those who had scored high on a sensitivity to rejection measure (Mehrabian, 1970d) exhibited less affiliative behavior and were even less affiliative with partners who were also sensitive to rejection.

Additional findings of incidental interest were as follows. The first two experiments included all possible combinations of four distances and three orientations for the seating of dyads who were left alone to wait in a room. Both experiments showed that the less direct orientations (such as when sitting side by side on a couch) were less conducive to conversation, and particularly inhibiting for the otherwise more sociable pairs—that is, those in which at least one was a more affiliative person. The first experiment also included measures of relaxation, and indicated a general increase in relaxation with increasing distance between the pairs.

The results of this and the Mehrabian and Diamond (1971a) study suggest that just as more immediate positions are assumed to those who are better liked, more immediate positioning of persons in social situations may facilitate the communication of liking.

MULTICHANNEL COMMUNICATION⁶

Now that the significance of individual cues in communication has been reviewed, we will consider more complex communica-

6. This section includes modified segments from Mehrabian and Ferris's "Inference of attitudes from nonverbal communication in two channels," *Journal of Consulting Psychology*, 1967, 31, 248-252; and Mehrabian and Wiener's "Decoding of inconsistent communications," *Journal of Personality and Social Psychology*, 1967, 6, 109-114. Copyright © 1967 by the American Psychological Association and reproduced by permission.

tions—those involving the simultaneous use of messages in several channels. The basic issue behind the study of multichannel communications is the meaning or function of inconsistent versus consistent (redundant) messages. The concept of inconsistent communication (e.g., double bind communication, Haley, 1963; Schuham, 1967; Weakland, 1961) has received considerable attention in the past decade, but only recently has it been formulated as a measurable phenomenon.

Implicit in any discussion of inconsistent communication is a referent. In an inconsistent message, various components denote contradictory referents, whereas information provided by various components of a consistent message is redundant. We have seen that the referent of any message can be described in terms of the liking, potency, and responsiveness which it signifies. Thus there can be inconsistency in the denotation of a referent on any one of these three dimensions. In most of the studies to be reviewed, positive-negative feelings (levels of liking) were the referents of communication. However, the methods and questions are also applicable to the study of communications of potency and responsiveness.

There are several interrelated issues in the study of multichannel communications: (a) How does one combine consistent or inconsistent communications of attitude received in several channels to infer the attitude implied in the entire message? (b) Why do people use inconsistent communications at all? If the joint combination of inconsistent verbal and nonverbal cues leads to a certain attitude which could also have been communicated with a consistent message, why is the inconsistent message preferred in some cases? (c) Are inconsistent communications more difficult to decode? Do they involve more inaccuracy or ambiguity? (d) If inconsistent communications *are* more difficult to decode, do they contribute to the development of psychopathology in one who frequently receives them, as double bind theorists have suggested?

Both a communicator's verbalizations and his nonverbal behaviors express his attitudes, and the referents implied by his verbalizations may be either consistent or inconsistent with those implied in his nonverbal behaviors. How, then, is the total attitude inferred from a complex (i.e., multichannel) message a function of the attitude communicated in each channel alone? For instance, if

a communicator uses two channels, verbalizations and facial expressions, to indicate his attitude, how is the total expressed attitude a function of the attitudes expressed in the facial and verbal components separately?

Whereas there have been many studies of nonverbal attitude or feeling communication in single channels, investigation of feelings or attitudes transmitted in two or more channels simultaneously is just beginning. Gates (1927) found that children were more accurate in their judgments of facial than of vocal expressions of feeling. Unfortunately, her method allowed only a tentative conclusion that discrimination of feeling is easier on the basis of facial than of vocal cues. But there was some corroboration of Gates's findings in studies by Levitt (1964) and Zaidel and Mehrabian (1969). In the Levitt study communicators were filmed as they attempted to convey six emotions facially and vocally, using neutral verbal materials. The decoding of facial and vocal stimuli in combination was only as accurate as the decoding of facial stimuli alone, and both conditions were more accurate than the decoding of vocal stimuli alone. This finding indicates that in a two-channel facial-vocal communication of emotion, the facial channel contributes more than the vocal channel to the decoding of the total message. The Zaidel and Mehrabian findings more directly indicated that variations in liking are conveyed more readily with facial than with vocal expressions.

Williams and Sundene (1965) also explored the characteristics of two-channel communications of emotion. They used the semantic differential method (Osgood, Suci, & Tannenbaum, 1957) to obtain judgments of the same emotions communicated facially, vocally, and in facial-vocal combinations. All three modes of communication were found to be recognized in terms of three factors: general evaluation, social control, and activity.

It should be noted that none of the foregoing studies investigated two-channel communications in which the emotion communicated in the facial expression was inconsistent with that communicated vocally. While experimental studies of multichannel communications from any particular population (e.g., children or adults) were lacking, theories about the effects of such communications were proposed. Bateson, Jackson, Haley, and Weakland (1956)

proposed a "double bind" theory of schizophrenia according to which schizophrenics develop maladaptive responses because they are the frequent recipients of inconsistent attitude communications. A double bind communication is defined as involving two or more inconsistent attitude messages which are assumed to elicit incompatible responses from the addressee. For example, a mother asks her son to come over and kiss her while she nonverbally communicates indifference to what he is requested to do. It is assumed that the child is left with the dilemma of responding to either the verbal or the nonverbal component, knowing that response to either one will elicit a rebuff. The recipients of frequent double bind messages are assumed to learn to respond with their own double bind messages. In the example considered, the child may respond with, "I can't come because my leg hurts," or "I can't come because Trap is holding me," the hurt leg and Trap (a nonexistent companion) being figments of his imagination.

Whereas it is assumed that double bind communications lead to the development of maladaptive patterns of interpersonal functioning, Haley (1963) also conceptualized most psychotherapeutic processes as being interpretable within a beneficial double bind paradigm. His thesis was that applications of the beneficial double bind serve to successfully eliminate the secondary gain which is associated with a symptomatic behavior and therefore eliminate that behavior.

The above assumptions can be partially clarified through investigation of the ways in which multichannel attitude communications are decoded.

A Linear Model for the Inference of Attitudes from Multichannel Communications

Mehrabian and Wiener (1967) and Mehrabian and Ferris (1967) investigated the combined effects of consistent and inconsistent verbal-vocal communications and consistent and inconsistent facial-vocal communications of attitude, respectively. Both studies involved nine sets of communication stimuli.

In the Mehrabian and Wiener (1967) study, verbal-vocal communications were prepared so that three degrees of positive verbal content were associated with each of three degrees of vocally expressed attitude. Having been judged for amount of liking conveyed, the words *honey*, *thanks*, and *dear* were selected as instances of positive contents (the judgments of these words had comparable mean values and standard deviations). Similarly, the words *maybe*, *really*, and *oh* were selected as comparable instances of neutral contents; and the words *don't*, *brute*, and *terrible* were selected as comparable instances of negative contents.

Two female speakers were employed to read each of the nine selected words in positive, neutral, and negative tones. For the positive, neutral, and negative tone conditions, respectively, the speakers spoke the words, regardless of content, to convey liking, high evaluation, or preference; a neutral attitude, that is, neither liking nor disliking; and an attitude of dislike, low evaluation, or lack of preference toward the target person. All possible combinations of two speaker conditions, three vocal conditions, three content conditions, and three instances of each content condition were recorded on tape.

To obtain the independent effects of the vocal and content components of these recordings and to relate them to the effects of the total vocal-content message, Mehrabian and Wiener (1967) had three different groups of subjects listen to the recorded messages. One group was asked to judge the degree of liking conveyed by each message, relying only on the meanings of the words used and not on the intonation. The second group was asked to judge the degree of liking conveyed by each message, relying only on the vocal component and not on the meanings of the words used. Finally, the third group formed their judgments of liking on the basis of all the information combined in each message.

The results showed that the vocal component in the various messages primarily determined subjects' judgments of affect from the total messages (i.e., content and vocal components combined), and that the content component of inconsistent messages had a negligible contribution to the affect inferred from such statements.

In the Mehrabian and Ferris (1967) study, 25 subjects first rated the amount of liking implied by each of 15 written words.

From these judgments, the word *maybe* was selected as an appropriate neutral verbal carrier of vocal communications. Three female speakers were then instructed to vary their tone of voice while saying the word *maybe* so as to communicate like, neutrality, and dislike toward an imagined addressee. Each speaker said the word *maybe* twice in the same way while her statements were being audio recorded.

The facial communications of three degrees of attitude were selected in a similar manner. Photographs of three female models were taken as they used facial expressions to communicate like, neutrality, and dislike toward another person. On the basis of subjects' judgments of the vocal and facial communications, three vocal communications (i.e., positive, neutral, and negative) obtained from each of two speakers and three facial communications obtained from each of two models were selected. The facial attitude communications of a given value (e.g., positive) were selected to match the vocal attitude communications of the same value. Standard deviations of judgments as well as their means were matched. In other words, for the Mehrabian and Ferris (1967) experiment, the independent effects of all vocal communications of like-dislike were comparable to the independent effects of all facial communications of like-dislike within each of the three levels of liking.

Thus, in both experiments, the separate effect of each component was independently assessed. It was therefore possible to express the dependent measure, the degree of attitude inferred from the total message, in terms of the values of the separate components. The results of the Mehrabian and Wiener (1967) study indicated that most of the variability in judgment of total attitude was accounted for by variations contained in the vocal component.

In the Mehrabian and Ferris (1967) study, the combined effect of the facial and vocal components was a weighted sum of their independent effects, since there was no significant interaction between them. The following regression equation summarizes the approximate relative contributions of facial and vocal components to interpretations of combined facial-vocal attitude communications:

$$A_{\text{Total}} = .60A_{\text{Facial}} + .40A_{\text{Vocal}} \quad (1)$$

A_{Total} represents attitude inferred on a scale of -3 to $+3$ from the two-channel communications. A_{Facial} represents attitude communicated in the facial component alone on the same scale. Similarly A_{Vocal} represents attitude communicated in the vocal component alone. The findings given in equation 1, together with those from the Mehrabian and Wiener (1967) study, suggest that the combined effect of simultaneous verbal, vocal, and facial attitude communications is a weighted sum of their independent effects as follows:

$$A_{\text{Total}} = .07A_{\text{Verbal}} + .38A_{\text{Vocal}} + .55A_{\text{Facial}} \quad (2)$$

where all four attitude variables are measured on the same scale (e.g., a scale of liking ranging from -3 to $+3$).

In general, then, it is hypothesized that when there is inconsistency between verbally and nonverbally expressed attitudes, the nonverbal portion will dominate in determining the total message. For instance, when there are inconsistencies between attitudes communicated verbally and posturally, the postural component should dominate in determining the total attitude which is inferred. The results reported earlier for communication of attitude via posture and position cues make it possible to test this hypothesis. Also, in two recent studies, Argyle, Salter, Nicholson, Williams, and Burgess (1970) and Argyle, Alkema, and Gilmour (1971) provided support for the proposed hypothesis. They found that nonverbal cues make a greater contribution than verbal cues to the communication of a more dominant (or potent) or a more positive attitude.

A note of caution is in order regarding the summary of findings given in equation 2. The Bugental, Kaswan, and Love (1970), Mehrabian and Wiener (1967), and Lampel and Anderson (1968) studies indicated that attitudes conveyed in various channels interact to determine the total inferred attitude. Therefore, equation 2 is only a first-order approximation. More detailed study of the main and interactive effects of various channels is needed and might include the preparation of videotaped stimuli involving four channels of communication: verbal, vocal, facial, and immediacy of position cues.

For example, three levels of verbal attitude could be combined with each of three levels of vocal, facial, and position cues. To facilitate analysis of the results, the levels of the three attitudes communicated in each channel would be equated so that, for instance, the positive facial cues were equal in value to the positive vocal, positive verbal, and positive position cues. Thus, 81 types of communication stimuli, with replications over different communicators of both sexes, would yield a large set of stimuli for decoding. Addressees could vary in personality characteristics (e.g., affiliative tendency) or level and kind of psychopathology. The dependent measures could include not only mean judgments for each of the 81 communication types, but also the variability and latency of judgments. By examining the variability of responses to inconsistent communications, one could assess the difficulty in decoding them. Such difficulty could be measured also from the latency of judgments of total attitude and might have some additional implication for double bind theory, which suggests that addressees should take a longer time, or have more disagreement, in judging the total attitude conveyed in inconsistent or ambiguous messages.

Such a study would provide detailed answers to the question of how one combines consistent or inconsistent communications to infer an attitude for the entire message, and whether inconsistent communications involve more inaccuracy or ambiguity, thus making them more difficult to decode. If several replications of the 81 stimuli were used, the analysis of variance of the data obtained from each subject (e.g., as suggested by Anderson, 1962, 1964) would provide a direct check on the linear model proposed in equation 2, since it would indicate the extent to which the inferences of total attitude deviate from linearity. For instance, it is hypothesized that the coefficients in the equations for pathological individuals (weighted sums such as equation 2) are more varied than those of normals. This hypothesis is based on the assumption that more maladjusted individuals tend to be more idiosyncratic or nonconsensual in their weighting of each component in a total message—that is, in the ways they make inferences from complex communications.

*When Are Feelings Communicated Inconsistently?*⁷

To this point we have considered the ways in which consistent and inconsistent communications are decoded. There still remains the question of why a person selects an inconsistent message when he has the choice of using a consistent message to convey the same attitude. Why does he select sarcasm, for instance, a message in which he uses a negative vocal component with positive content (e.g., "I really like that!"), thereby communicating a negative attitude to the addressee? He might also have communicated negative attitude in both the verbal and vocal channels. The question, then, is the significance of consistency or inconsistency per se. Could it be that redundancy contributes to intensity? One interesting implication of the linear model summarized in equation 2 is that the effect of redundancy (i.e., consistent attitude communication in two or more channels) is to intensify the attitude communicated in any of the component channels. Thus, pushing a child away while turning away from him communicates a more negative feeling toward the child than only pushing him away or only turning away from him. Similarly, holding and kissing a child communicates a more positive attitude toward him than only holding or only kissing him.

The model in equation 2 indicates that inconsistent attitude communications can be readily classified into two categories—one in which the total impact is positive and another in which it is negative. Positive inconsistency is evidenced when someone verbally insults another while smiling (a girl says, "I don't like you much," to her boyfriend with a smile and loving vocalization). Negative inconsistency might involve an irritated facial expression accompanied by positive vocal and/or verbal expressions (someone yells, "Oh, that's beautiful! Just great!" when angry). These two categories can in turn be distinguished from consistent attitude communications in which all the components are judged as either positive or negative in quality.

Given these distinctions, the problem can be restated in two

7. Acknowledgment is given to Academic Press, Inc., for their permission to use, in this section, rewritten segments from my paper "When are feelings communicated inconsistently?" *Journal of Experimental Research in Personality*, 1970, 4, 198-212.

parts: When are inconsistent negative attitude communications preferred, with preferences for consistent negative attitude communications of the same degree used as a baseline; and when are inconsistent positive communications preferred, using consistent positive attitude communications as the base of comparison? Thus, it is important to experimentally and/or statistically control for the attitudinal level of the messages produced by, or given to, subjects in various situations.

Mehrabian (1970e) used such controls in four experiments briefly described below. For each inconsistent communication used as a stimulus, a consistent control communication was obtained which contained an equal degree of the same overall attitude. Subjects expressed their preferences for each kind of message in a variety of social situations. In one set of analyses of covariance, preferences of inconsistent positive communications were the dependent measure and preferences of consistent positive communications were the covariate. A second set of analyses of covariance involved preferences of inconsistent negative communications as the dependent measure and preferences of consistent negative communications as the covariate.

In all the four experiments, two channels of communication, verbal and vocal, were employed. The inconsistent positive communications involved positive vocal and negative verbal components, and the inconsistent negative communications involved negative vocal and positive verbal components. The control stimuli for these two sets of messages consisted of moderately positive verbal and vocal communications on one hand, and moderately negative verbal and vocal communications on the other. Several instances of each of the four types of communication were recorded on tape. Subjects listened and indicated preferences for these while imagining a variety of social situations.

The study was an exploratory search for relationships. In the absence of any experimental literature bearing directly on the problem, the choice of factors was made on tentative grounds. The factors included negative affect-arousing cues in combination with social situations varying in formality.

The two personality variables explored in the study were communicator social approval-seeking tendency, as measured by the

Crowne and Marlowe (1960) Social Desirability scale, and communicator anxiety as measured by the Mandler and Sarason (1952) Test Anxiety Questionnaire. These two variables were selected because higher social approval-seeking tendency and anxiety were expected to make the overt expression of negative feelings more difficult.

The results of each experiment showed that consistent communications of attitude are preferred over inconsistent ones, and that among inconsistent communications, the positive are less preferred than negative ones. These findings corroborated informal observations made during the preparation of the stimuli, where it was noted that subjects had greater difficulty producing the inconsistent messages, a difficulty which was even more pronounced when the inconsistent messages were positive. The implication is that, because of their less frequent use, inconsistent messages are more difficult to produce, and that less frequent use reflects a lower preference for them. Another observation during preparation of stimuli was that inconsistent communications of attitude frequently rely on facial expressions. For instance, when subjects were instructed to say something negative with a positive vocal component, they actually used a neutral vocal component but assumed a positive facial expression, so that audiotape recordings of their statements did not really reflect the intended inconsistency. It thus seems that any further exploration of preference for inconsistent messages should include facial as well as verbal and vocal expressions.

The second generalization that emerged from Mehrabian's (1970e) data related preference for inconsistent communications to formality of communication situations. The experiments included a series of factors for various aspects of formality. In some conditions, the situation was simply described as formal versus informal; in others formality was implied by indicating that the addressee was of a higher rather than lower status. Still others involved the presence versus absence of bystanders or observers, the assumption being that observers in a situation tend to increase its formality. A fourth manipulation involved an explicit versus implicit insult from the addressee as a cue to which the communicator responded. It was expected that a situation in which the addressee was explicitly insulting would be more informal than one in which an insult was

implicit. A final manipulation involved the addressee's tolerance for criticism, based on the assumption that persons who can tolerate criticism tend to elicit more informal interaction than those who cannot.

The results for all these formality factors showed 16 effects in support and 2 opposed to the following generalization: inconsistent communications are preferred more in the more informal communication settings.

Without exception, the remaining results from the four experiments were consistent with the following general conclusions: (1) The verbal component of an inconsistent message conveys evaluation of an addressee's action, and therefore is the basis for selecting a message when the addressee behaves pleasantly versus unpleasantly. (2) The nonverbal component of an inconsistent message conveys evaluation of the addressee's person, and therefore is the basis for selecting a message when the addressee is liked versus disliked.

Also, without exception, the significant effects indicated that the more anxious subjects had more preference for positive inconsistent messages and less preference for negative inconsistent messages. This finding showed that more anxious persons were less willing to convey negative feelings to the person of the addressee, since they preferred messages with positive nonverbal components and avoided those with negative nonverbal components. There were no consistent results for communicator social approval-seeking tendency.

The individual difference measures included in the study were selected to reflect a communicator's unwillingness to express negative feelings to others. A measure of sensitivity to rejection was not available when the study was designed, so measures of communicator anxiety and approval-seeking tendency were used; however, it was felt that a direct measure of sensitivity to rejection (e.g., Mehrabian, 1970d) would be more appropriate since such persons would be more hesitant to openly convey negative feelings to others.

The research summarized in equation 2 showed that different nonverbal cues exhibit similar relationships to verbal cues when they accompany the latter. Thus, one extrapolation of the findings of the Mehrabian (1970e) study is that even when other nonverbal

cues are also involved and contribute to inconsistency, the preceding interpretations of the findings still hold: verbal components of inconsistent messages convey evaluative attitudes toward another's actions, whereas the nonverbal (e.g., facial or postural) components convey evaluative attitudes to the person himself. In general, then, positive inconsistent messages should be more frequent with liked than disliked addressees and when the addressee's actions are unpleasant. In contrast, negative inconsistent messages should be more frequent with disliked than liked addressees and when the addressee's actions are pleasant.

*Inconsistent Communications and Psychopathology*⁸

A more direct test of the double bind hypothesis was made by Beakel and Mehrabian (1969). They explored the frequency of occurrence of consistent and inconsistent attitude communications of parents toward their more or less disturbed adolescent children. According to the double bind hypothesis, it is expected that parents of the more disturbed children communicate inconsistency in attitude more frequently than parents of less disturbed children.

In the experiment, inconsistency of communication was assessed from the attitudes conveyed verbally and posturally. Postural, rather than facial or vocal, cues were selected because of their more subtle quality. We could have relied on facial cues, but in the presence of an "evaluative" therapist it seemed that parents would be less able to censor their communication of attitude via postural cues than to censor or control their facial expressions.

A sample of 21 families who had a disturbed adolescent member were the subjects who provided the communications analyzed in the experiment. Verbalizations and postures were measured from audio and video recordings of adolescents and their parents as they discussed a family problem stemming from the child's disturbance. In no case were the participants aware that their actions were being

8. This section includes rewritten segments from Beakel and Mehrabian's "Inconsistent communications and psychopathology," *Journal of Abnormal Psychology*, 1969, 74, 126-130. Copyright © 1969 by the American Psychological Association and reproduced by permission.

recorded through a one-way mirror. All family members were seated during the session.

Three clinical psychologists, who were familiar with the problems presented in the entire sample, ranked the 21 adolescents concerned for severity of pathology, without regard to diagnostic classification. The communication data in the experiment were taken from the parents of the five adolescents receiving the lowest severity scores and the parents of the five receiving the highest scores.

The results of the experiment did not support the double bind hypothesis; there was no greater incongruity in the postural-verbal communications of parents of more disturbed adolescents than in the communications of parents of less disturbed adolescents. Two different measures of incongruity were employed. For one incongruity measure (based on separate judgments of the verbalizations and postures of the parents), there was no significant difference in incongruity of communications between parents of the more and of the less disturbed group. For a second incongruity measure (based on anticipated postures in comparison to actual postures for a verbalization), the mothers of the less disturbed group of adolescents were found to show a greater amount of incongruity. Thus, the data generally failed to support the hypothesis and, for one measure, provided contradictory evidence for the communication of mothers. These findings which contradict the double bind hypothesis are consistent with the conclusions which Schuham (1967) drew from his review.

Whereas the findings involving the incongruity measures are difficult to interpret in terms of the double bind idea, those from measures of degree of positive-negative attitude communication can be interpreted. The parents of the more disturbed adolescents showed more negative attitudes toward these adolescents (in their verbalizations, but not in their posture) than parents of the less disturbed adolescents.

The relationship between psychopathology of children and the negative attitude messages of their parents can be due to either or both of the following. The parents may have more negative feelings toward these more disturbed children because the latter create more problems for them than less disturbed children do for their parents. Alternatively, initially negative attitudes of the parents may

have contributed to the psychopathology of the children. In either case, negative attitudes of parents at least contribute to the maintenance of the children's maladjustment. In discussing their findings, Mehrabian and Wiener (1967) suggested, "It could be argued that unusually frequent negative attitude communicating messages do contribute to severe psychopathological functioning . . . for example, indiscriminate negative reinforcement is not conducive to learning the numerous interpersonal and social skills which are lacking in individuals classed as schizophrenics" (Mehrabian & Wiener, 1967, p. 114). Rogers's (1959) conceptualization of psychopathology also suggests a relationship between negative attitude communications of parents and psychopathology of their children. In his theory, greater psychopathology of a child is associated with greater degrees of "conditional positive regard" of parents toward the child. "Conditional positive regard" refers to the conditional quality of the love or liking of one person toward another.

One way to interpret and measure Rogers's concept of conditional versus unconditional positive regard is simply in terms of the frequency and/or intensity with which one individual expresses negative attitudes toward another. Thus, it is not so much the distinction between attitudes communicated toward a person's actions and attitudes toward that person himself which is the critical variable, as Rogers would suggest. Rather it is a question of the intensity of total negative attitude expressed toward another person.

In sum, the findings of the Beakel and Mehrabian (1969) study show that exploration of the overall quality of positive-negative attitude, rather than inconsistency in attitude communication, is a more useful avenue for investigating the relationship between communication patterns and psychopathology.

APPLICATIONS

In a variety of contexts, we have seen that nonverbal behaviors are more important or basic (possibly because they are more difficult to censor) than verbal ones: untrained observers assign greater weight to the feelings communicated nonverbally in vocal

and facial expressions than to the feelings expressed verbally. Further, some nonverbal channels are more subtle than others. For instance, communications of attitude or status with posture and position cues are more subtle and probably less subject to censorship or deliberate control than are facial or vocal expressions of the same attitudes. Finally, some of the findings show individual differences in channel preference for the expression of unacceptable feelings (e.g., Zaidel & Mehrabian, 1969).

The preceding generalizations can serve as a basis for applying the findings of implicit communication in both everyday and experimental situations. In social psychological experiments, it is sometimes important to obtain valid indexes of a communicator's feelings and attitudes toward a certain group of persons, beliefs, or experiences, but the experimenter may not feel confident about his subject's verbal reports. For example, if the topic of experimentation deals with prejudice, honest and explicit verbal responses may be confounded by a subject's social approval-seeking tendency or by the general social discouragement of openly expressing certain attitudes or feelings (e.g., males being discouraged from admitting they are afraid or feel threatened). Consequently, the researcher must rely on more subtle measures. Some of the nonverbal or implicit verbal cues which have been considered in this study lend themselves readily to the assessment of attitudes in such experimental situations. For instance, suppose an experimenter wishes to explore prejudice toward Negroes, and creates a situation to test the effects of cooperative or competitive interaction on attitude change. Verbal and postural immediacy measures could be obtained both before and after the subject's interaction, and changes in the degree of postural or verbal immediacy would serve as indexes of attitude change and also provide a basis for assessing the generalization of new attitudes toward other Negroes as well.

Nonverbal and implicit verbal cues can also be used in everyday situations, for example to assess candidates' attitudes as expressed in their political speeches. Exploring these findings for persons from different cultures may yield valuable applications in the context of diplomatic negotiations as well. These would provide not only clues to determine which nonverbal behaviors inadvertently communicate misleading attitudes (e.g., Hall, 1959), but also ways to assess the

attitudes of various participants in negotiations where the verbal communications are not sufficiently informative. A by-product of the less controlled nature of implicit cues is that they help not only to identify feelings or attitudes that a communicator is hesitant to express because of social pressure or conformity, but also to detect deceit.

The subtle quality of nonverbal cues has been used intuitively in various forms of advertising to induce particular attitudes toward various products. They can be used yet more systematically, since implicit cues lend themselves in a variety of ways toward maximizing the persuasive impact of communications (Mehrabian & Williams, 1969).

The concepts of reinforcement-learning theory are receiving increasing attention and application in behavior modification. When using the principles of instrumental learning to modify interpersonal behaviors, the choice of reinforcers is quite critical. This is especially the case when the person being influenced is not dependent upon the person who reinforces or influences (i.e., he is not a child, a hospital patient, or a prison inmate). When the client and the modifying agent are of equal status, having potentially equal power to materially reinforce each other, social reinforcers can serve as important vehicles for the modification of behavior (Mehrabian, 1970c). Social reinforcers may be viewed as ways of communicating liking or respect and higher status to a person whose behaviors are being shaped. For instance, head nodding is a way of communicating respect to the addressee, as in agreement with him. Thus, it is expected that both cues should function as reinforcers, and the findings show this to be the case (Krasner, 1958; Matarazzo, Wiens, & Saslow, 1965). Communications of agreement and head nodding show respect and positive attitude, but the analyses and groupings of nonverbal cues in terms of liking and status differences (respect) suggest that the cues which primarily express liking are also quite relevant and important in the shaping of interpersonal behavior. The findings we have reported provide a basis for the experimental control of the level and kind of social reinforcers that can be used to explore the function of nonverbal cues in behavior modification. Experimenters could select from a diversity of nonverbal cues those which are best suited to

their particular experimental requirements. For instance, they could explore the differential effectiveness of the communication of respect versus the communication of liking in shaping the behaviors of different types of subjects, such as children versus adults.

The use of inconsistent reinforcers in the shaping of behavior may also be of some interest here. What, if any, is the value of using inconsistent messages, such as positive or negative inconsistent messages, in the process of social influence? Haley (1963) suggested that one way to view the typical psychodynamic therapy is in terms of inconsistent messages to the client. For example, the therapist verbally asserts an unwillingness to be directive, because being directive would imply his higher status in the situation and might be resented by the client. But both informal observations and recent experimental findings have shown that even those who completely deny a directive therapeutic role nevertheless use nonverbal cues to shape their clients' behaviors (e.g., Truax, 1966). Since they have denied the use of shaping in their procedures, psychodynamically oriented therapists have not presented a theoretical analysis of the rationale for such a method. The choice of this method is nevertheless significant and requires analysis. Why is it that such inconsistency is used?

Mehrabian (1970c) suggested a possible rationale for the development of this technique among psychoanalytic or Rogerian therapists. This same technique can be experimentally explored with a variety of simple methods by shaping a subject's behaviors through systematic use of inconsistent cues, the experimenter's nonverbal cues being used for shaping while his verbal cues are neutral or even contradictory. The differential effectiveness of such inconsistent messages in shaping the behaviors of different types of subjects should be of considerable interest. It would seem that when the verbal component includes a denial of manipulative intent but the nonverbal cues nevertheless systematically communicate liking or respect, more effective shaping of another person's behavior will result, particularly when that other person is openly resistant to influence or manipulation by a peer.

Some additional applications of findings from studies of implicit communication can occur in the exploration of characteristic attitude communications. Concern for individual differences in

nonverbal behavior (expressive qualities) was partially responsible for the study of nonverbal behavior in the first place. Conceptualizing the referents of nonverbal behavior in terms of evaluation, potency, and responsiveness, it is expected that (1) affiliative dispositions correlate with more immediate nonverbal behaviors toward others; (2) dominant personality dispositions correlate with relaxation; (3) anxious or disturbed individuals exhibit less relaxation and, depending on the form of psychopathology, possibly less immediacy, as in the case of withdrawn schizophrenia; and (4) depressive tendencies, which are associated with withdrawal and less responsiveness to people in general, are reflected in low levels of activity.

Individual differences can be explored also by investigating preferences for expressing negative feelings in more or less obvious channels. It is assumed that the various channels of attitude communication, in the order listed, convey increasingly obvious negative feelings: verbal nonimmediacy (Wiener & Mehrabian, 1968), postural nonimmediacy, negative vocal, negative facial, and negative verbal communications. For instance, Zaidel and Mehrabian (1969) found that in the relatively obvious facial and vocal channels, high social approval seekers were less able to communicate variation in negative feelings than low social approval seekers.

In general, then, individual differences in the use of implicit communication cues can be conceptualized in three ways: (1) in terms of the three-dimensional framework (i.e., consistent individual differences in the expression of positive feelings and differences in the expression of dominance and responsiveness); (2) in terms of a person's tendency to use implicit and nonobvious, versus more obvious and explicit, channels to express his feelings; and (3) as one aspect of social skills—the appropriate communication of attitude and status through nonverbal cues. At one extreme, pathology can be detected from grossly inappropriate manifestations of immediacy or tension-relaxation, as when a communicator is too immediate with an unfamiliar addressee or when his tension level communicates fear to an addressee who is not actually threatening. Variations in the effectiveness of more normal individuals in their social dealings may be partially due to the attitude or status which they typically convey. For instance, an individual who indiscriminately assumes a generally high level of postural relaxation with addressees of differ-

ent status may experience persistent but puzzling problems with high-status others. Finally, individual differences in persuasive ability may be due partially to the ability to communicate appropriate levels of positive attitude and status to different kinds of addressees.

The relation of characteristic attitude communications to level of psychopathology of the communicator can also be explored. Attitudes could be experimentally assessed from both verbal and nonverbal behaviors, thus yielding not only a measure of the inconsistency in the communication of liking, but also the extent of total negative attitude conveyed to addressees. Such measures could be related in turn to the level of psychopathology of children who are frequent recipients of such attitudes; to their personality; or, finally, to the level of psychopathology or the personality of those who frequently use such communications.

The implicit communications of like or dislike or the characteristic implicit communications of a more or less dominant attitude may contribute to inaccuracy in communications (Mehrabian & Reed, 1968). Thus, knowledge of implicit cues can also assist in a variety of settings where inaccuracy detracts from effective communication, such as between supervisors and employees, or teachers and students.

OVERVIEW

The rationale for the research we have reviewed and reported here differs from earlier approaches to the study of nonverbal and subtle verbal behaviors. In contrast to those approaches, which sought discrete nonverbal behaviors and explored their specific referents, or, conversely, identified the discrete behaviors associated with certain feelings, the present approach relies on a multi-dimensional characterization of the referents of implicit communication as variations in liking, potency, and responsiveness. It has thus been possible to identify, in a variety of channels, the behaviors that consistently convey varying degrees of each of these referents.

The advantage of our approach is that encoding paradigms can be used readily to identify large numbers of behaviors associated with each of these referential dimensions. The disadvantage is that

the approach does not permit the identification of specific feelings which may convey varying degrees of each of the referential dimensions. Thus, just as the general characterization of the referents of speech in terms of evaluation, potency, and activity accounts for only about 65% of the referential significance of speech (e.g., Osgood, Suci, & Tannenbaum, 1957, p. 61), likewise the use of a multidimensional framework certainly does not exhaust the referents of implicit behavior. Nevertheless, such a description accounts for about half of the variance in the significance of nonverbal and implicit verbal cues.

The reliance on a multidimensional framework does seem desirable at this point because it provides a reasonably simple and general scheme with which to identify and study quite diverse sets of behaviors. As more work relating to each of these referential dimensions becomes available, it will be not only possible, but desirable, to identify the specific behaviors which convey more subtle shades of feeling (e.g., the Mona Lisa smile), and to place them as points in this three-dimensional semantic space.

This being a paper on "communication research," it seems appropriate to close with a note on methodology. There are two complementary avenues for exploring communication phenomena. In the first, *decoding*, subjects are presented with prepared stimuli and instructed to infer feelings and attitudes from those stimuli. Such a method is advantageous since it allows a comparison of the effects of a number of cues, singly or in combination, on inferred attitudes. It also allows the investigation of the relative effects of these cues for various communicator and addressee groups (e.g., different sex or personality). Finally, possible confounding effects of communications in other channels (e.g., facial expressions, verbalizations, or gestures) can be eliminated. A decoding method yields considerable information because it makes possible the systematic control of a large number of variables.

In the second method, *encoding*, subjects are placed in experimental situations which elicit different kinds of attitude-related behavior. Typical encoding methods employ role playing, in which a subject is requested to assume a certain role or attitude toward his addressee (e.g., Rosenfeld, 1966a, 1966b). Occasionally there are studies which take advantage of existing likes and dislikes or status

differences among subjects, and other studies which actually induce like or dislike in a subject toward the addressee (e.g., Exline & Winters, 1965).⁹

Thus, an encoding method, unlike a decoding one, cannot include the systematic study of interactions among communication cues. But a decoding study requires factorial designs for the study of the interactions, and thus limits the number of cues which can be investigated, since a design involving more than six or seven factors is unmanageably large. In an encoding method, although it is possible to study the interactive effects of only one cue at a time with communicator and addressee characteristics, there is no limit to the number of communication cues which can be readily included and interpreted in the design. The use of regression or discriminant analyses (e.g., Anderson & Bancroft, 1955) in conjunction with an encoding method can provide the relative strengths of the various communication cues which connote attitudes.

Almost all communication research is based on either the encoding or the decoding method. There would be some value in a third methodology which encompasses the major advantages of both the encoding and decoding methods. In one such method, stimuli are prepared as they would be with a decoding method. They are then presented to subjects, who are asked to indicate their preference for using these stimuli in various social situations. There are several advantages to this method. First, if the experimenter prepares a series of stimuli which are inappropriate for the communication of the particular referents he is studying, subjects will characteristically show very low preference scores for the use of those stimuli. This informs the experimenter just how well suited his stimuli actually are for the communication of the particular referents—an inference which is not possible when the decoding method is used. This third method allows a systematic control of the communication cues which are employed. Factorial designs can be used to assess the independent and interactive effects of various communication cues in determining a referent, an advantage

9. The preceding two paragraphs were adapted from my article "Significance of posture and position in the communication of attitude and status relationships," *Psychological Bulletin*, 1969, 71, 359-372. Copyright © 1969 by the American Psychological Association and reproduced by permission.

which is not available with encoding methods. Mehrabian's (1970e) study of inconsistent messages illustrates the use of this third encoding-decoding method.

The latter method does not require the experimenter to possess an advanced understanding of the phenomenon he is about to explore. Extensive knowledge is, however, required to prepare an appropriate set of stimuli when one uses a decoding method. Thus, whereas encoding methods are appropriate in the beginning stages of communication research, the proposed encoding-decoding method is appropriate for intermediate stages, and decoding methods are appropriate during the highly developed phases of such research.

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