

EFFECTS OF INTERPERSONAL ORIENTATION
AND LANGUAGE SIMILARITY ON VERBAL
COMMUNICATION IN DYADIC
INTERPERSONAL RELATIONSHIPS

By
DONALD M. HARTSOUGH

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TO MY WIFE

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CHAPTER I
INTRODUCTION

"Communication," "interpersonal behavior" and "interpersonal relationship" are frequently attributed to events as if the terms were synonymous and referred to the same phenomena. That they are distinct from one another can be seen by reference to a systems model. An individual may be regarded as an open system, i.e., a relatively stable entity which has the capacity to transmit and receive information across its boundaries. Communication refers to transmission--reception exchanges with another system. Interpersonal behavior refers to the same interaction process, but also includes the content of messages. Thus, the exchange of messages between two people may be effective while the content of messages is disturbing to one or both. For example, a person may communicate rejection or anger, and while his message may be effectively communicated, the content may be deleterious to another person. On the other hand, interpersonal behavior which is satisfying to both participants may take place in spite of temporary communication disturbances. An interpersonal relationship refers to another, broader system which includes both individual systems, as subsystems, the roles attributed to the systems, and the communication process between the individuals. It usually denotes a system which is maintained over time.

Students of communication have come to regard it as an essential variable in changing interpersonal relationships. For example, a psychotherapist who wishes to help his client modify unsatisfactory relationships with others must himself establish a therapeutic relationship with

the client. To do this, his interpersonal behavior must be in keeping with the needs of the client, and he must communicate with precision, appropriateness, efficiency and flexibility (Ruesch, 1961; Greenhill, 1958).

Just as communication may provide the means of modifying interpersonal relationships, there is evidence that the pattern of communication which characterizes a person may be related to his present and past relationships with significant others. Reiss (1957) found that in psychotherapy, hysteric patients tended to use past progressive and active tenses, whereas obsessive-compulsives more frequently used evaluative words, comparative adverbs and polar-opposites. (It is assumed here that personality type is determined in part by relationships with significant others.) Lorenz and Cobb (1954) found the communication of neurotics, as contrasted to normals, characterized by more verbs and pronouns, and fewer adjectives and prepositions. They interpreted this as reflective of the neurotic's greater concern for action and affiliation, and greater avoidance of description and abstract relationships. Weakland (1962) analyzed letters written by mothers of hospitalized schizophrenics; he found subtle contradictions which tended to confuse overt messages and which in some cases visibly upset the patients. Finally, Berg (1958) found patient improvement in therapy associated with a change in pronouns used by the patient. The ego words "I," "me," and "my" decreased and the empathic words "you," "we," and "us" increased with improvement.

In accord with ideas and findings such as these, it seemed worthwhile to devise a study which investigated the general proposition that

communication between two people is related to dimensions of their interpersonal behavior and the relationship which they create. The present study investigated effectiveness of dyadic communication in a face-to-face situation as is influenced by subjects' interpersonal orientations, the compatibility of their relationship, and the similarity of their language systems. Effectiveness of communication was evaluated by analysis of feedback communication patterns between dyadic partners. Following Ruesch (1957, 1961), communication was regarded as an exchange of messages in a social context. Since the publication of Wiener's book on cybernetics in 1948, and the extensive use of communication theory which followed, the term "communication" has been used in such a diversity of ways that it is perhaps in danger of being rendered meaningless as a concept. Communication was therefore amended by the term "interpersonal" to limit its application to the exchange of messages between people who interact in a face-to-face relationship.

The dimension of interpersonal behavior selected for study was interpersonal orientation. Interpersonal orientation refers to the fact that people develop expectations about the dimensions along which interpersonal relationships are formed, and thus tend to approach interactions with others in certain ways. Schutz (1958) has posited three dimensions (inclusion, control and affection) which he regards as the significant orientations available for most relationships. A dimension of interpersonal relationships was also selected for study; this was the relative compatibility or incompatibility of relationships. This refers to the different combinations of needs and orientations found in relationships, and the degree of satisfaction offered by the combinations.

The general proposition that interpersonal behavior and relationships are related to communication was refined to two specific problems: (1) the assertion that an interpersonal orientation toward controlling others is associated with more effective communication than an orientation toward inclusive and affective relationships, and (2) the assumption that compatibility of relationship results in more effective communication than incompatibility. It was supposed that in a task situation the control-oriented individual would communicate more effectively in order to maintain control and in keeping with his greater concerns about roles and tasks. The second problem was based on the assumption of a positive relationship between compatible psychological needs and the ability to exchange messages effectively.

Communication effectiveness in a face-to-face situation was considered highly associated with use of feedback circuits, or the feedback contingency, in the communication process. Wiener describes feedback in the following terms: "In its simplest form, the feedback principle means that behavior is scanned for its result, and that the success or failure of this result modifies future behavior." (Wiener, 1950, p. 69) Thus, feedback provides a means by which a process is regulated or controlled. This control results when a system which is producing a process interacts with something outside of the system.

Ruesch treats feedback as a structural property of human communication. He contends that the structural properties determine successful or unsuccessful communicative interactions, and states that utilization of feedback is perhaps the foremost criterion of successful communication

(Ruesch, 1957). It provides a means of relaying back to the original sender the effects that his message has had on other participants. It thus enables him to modify constantly the communication process as the process itself takes place. By reference to the principle of individual differences in human behavior, it seemed reasonable to assume that individuals vary in the extent to which they utilize feedback circuits in communicating with others. Part of this variation was expected to be accounted for by interpersonal orientation and interpersonal compatibility.

A third variable was included in the study to control for non-interpersonal factors in feedback communication. Some measure of language similarity seemed necessary in light of the fact that communication in a face-to-face situation is a cognitive as well as an interpersonal event. If two individuals literally do not speak the same language, i.e., have different language systems, there can be little or no feedback communication. Hence a procedure was employed to assess the similarity of language systems of dyadic communication partners.

Review of the Literature

The research data of five verbal conditioning experiments supported the possibility that interpersonal orientation and dyadic (two-person) compatibility influence a subject's response to a communication interchange. These studies investigated the relationship between personality variables and the response to verbal conditioning.

Sapolsky (1960) found that subjects who were given a set to find the experimenter an attractive person had a different response rate from

other subjects who were given a set to find the experimenter an unattractive person. During acquisition trials the High Attractive (HA) subjects established a significant level of conditioning, while the Low Attractive (LA) subjects did not. During extinction trials, in which the experimenter was absent from the room, the HA subjects decreased their rate only slightly, but the response rate of the LA subjects increased significantly.

These results led Sapolsky to a second experiment which tested the hypothesis that interpersonal compatibility between subject and experimenter would influence verbal conditioning. Five experiments were selected from the same population as the subjects on the basis of scores on the FIRO-B (Fundamental Interpersonal Relations Orientation--Behavior, Schutz, 1958). All were high in the control dimension. Each experimenter verbally conditioned six subjects, three of whom were compatible and three of whom were incompatible with him, according to the FIRO-B. Subjects made up sentences using one of six pronouns, two of which were reinforced by the experimenter's "Mm-hm". Extinction trials began when the experimenter left the room and the subjects were asked to continue making up sentences into a tape recorder. Results showed that during acquisition trials the Compatible subjects increased and the Incompatible subjects decreased in use of the reinforced words. During the extinction phase, the Incompatible subjects increased significantly in response rate to a level comparable to that of the Compatible subjects.

A communication theory interpretation of these results would indicate that the dyads comprised of Compatible subjects established and

maintained feedback circuits during the acquisition phase but that dyads comprised of Incompatible subjects either did not establish feedback circuits or actively avoided the feedback contingency. Because the output of one participant (E) was fixed a priori by the output of the other (S), an extrapolation of the verbal conditioning paradigm to the communication paradigm was a rather obvious step. The subject's emitted response was considered as a sender's message or statement and the experimenter's reinforcing stimulus was considered as the receiver's acknowledgement. In this context the subject's readiness to participate in feedback communication is roughly comparable to his conditioned response rate in that it was evidence that the receiver's acknowledgements had an effect on his subsequent messages to the receiver. While the extrapolation from verbal conditioning to the communication paradigm appeared obvious, it was necessary to recall that in the conditioning situation it was the receiver (E) who maintained control over the communication process by virtue of his knowledge of the reinforcement contingency. In other communication dyads, the sender maintains another kind of control by virtue of possessing more content information than the receiver (e.g., teacher and student).

Although Sapolsky's study gave no indication of the role of personality variables as such on communication, it indicated that dyadic interpersonal compatibility influenced the extent to which feedback circuits were used during the communication process. That the crucial variable was an interpersonal one was further supported by Sapolsky's finding that on a sociometric scale completed by both subject and experimenter, 19 of 30 pairs rated each other as predicted from their FIRO-B compatibility scores. This result reached statistical significance.

Cairns and Lewis (1962) investigated the relationship between dependency and response to verbal conditioning. The Edwards Personal Preference Scale was used to select High Dependent (HD) and Low Dependent (LD) groups. The task consisted of making up sentences using one of three verbs supplied by the experimenter. The HD and LD groups were further divided; one-half of each was reinforced for using verbs with strong aggressive connotations, and the other for using verbs with high dependency connotations. In line with the author's expectations, HD subjects conditioned to a higher level than LD subjects, although conditioning for the HD subjects was strongly influenced by the type of verb reinforced. The HD dependency-reinforced subjects initiated a high rate of response before reinforcement began, and maintained this level during reinforcement. HD aggressive-reinforced subjects showed initial avoidance of the aggressive terms, but during reinforcement responded positively. For all LD subjects the type of word reinforced had no differential effect; in addition, subjects in both LD groups became more resistant to the conditioned stimulus during reinforcement than they had during the pre-reinforcement series. This result approximated the "negative" response of Sapolsky's Incompatible dyads to the reinforcing stimulus. In communication terms, the findings of Cairns and Lewis were interpreted to mean that highly dependent subjects were not only more likely to maintain feedback communication than low dependent subjects, but that they were also more sensitive to the content of messages.

Timmons and Noblin (1963) found a differential verbal conditioning performance between subjects identified as Oral and those identified as Anal. Orality and anality were determined from a group administration

of the Blacky Test. Scoring was done according to the method developed by Blum (1950). Orality referred to incorporating perceptions, and anal-ity to withholding perceptions. Subjects used one of six pronouns to complete a sentence supplied by the experimenter, and were reinforced for two of them on a 75 per cent variable ratio schedule. The reinforcing stimulus was a "mild, affirmatory utterance." The Orals showed a typical learning curve, i.e., one which ascended during reinforcement and descended during extinction. The Anals (true to character, perhaps) produced the opposite sort of learning curve, one that demonstrated a less frequent response during reinforcement than during either pre-reinforcement or extinction. Changes in the Orals' conditioning curve reached statistical significance, whereas the Anals' curve approached, but did not reach, the accepted significance level.

Crowne and Strickland (1961) used the Marlowe-Crowne Social Desirability Scale to select subjects who were high in need for social approval and others who were low on the same scale. Half of each was positively reinforced and the other half negatively reinforced during a 25-minute session in which subjects were instructed to produce words ad lib. Positive reinforcement was "Ma-hm" plus the experimenter nodding his head affirmatively; negative reinforcement was "Uh-uh" plus the experimenter's nodding negatively. Only plural nouns were reinforced; the response rate was the ratio of plural nouns to total output for the session. Results supported the hypothesis that subjects with a high need for social approval would show significantly greater increases in response rate under conditions of positive reinforcement and significantly greater decreases under conditions of negative reinforcement than subjects to whom social

approval was of less consequence. In fact, the low need-for-approval subjects could not be distinguished from control subjects who received no reinforcement.

Marlowe (1962) extended the work of Crowne and Strickland to an interview situation but used only positive reinforcement. High and low need-for-approval subjects were reinforced by the experimenter's "mm-hm" for statements of positive self-regard (PSR) made during a 15-minute interview in which the subject described his "personality characteristics and traits." When compared with control subjects who did not receive reinforcement, high-need subjects emitted more PSR responses and significantly increased their rate, while low-need subjects emitted fewer PSR responses and significantly decreased their rate in much the same way as had control subjects. A statistically significant correlation of +.42 between need for approval and PSR was obtained for experimental subjects, but for control subjects the corresponding correlation of +.23 was non-significant. Marlowe interpreted his results as reflecting a greater sensitivity and responsiveness to social reinforcers on the part of subjects with high needs for social approval.

The results of these studies may be summarized as follows:

1. Sensitivity to the verbal feedback contingency (or more precisely, the tendency to maintain feedback circuits in a dyad) depended in part on at least one dimension of personality. This was variously described as high vs. low dependency, orality vs. anality, and high vs. low need for social approval. From the authors' descriptions and their means of selecting subjects, this seemed to represent the extreme

positions of a single personality dimension. In terms of interpersonal theory, this dimension approximates a dichotomy between an orientation toward social and affective needs and an orientation towards needs to express control over others.

2. While the positive responsivity of the dependent, oral and high need-for-approval subject was uniformly demonstrated, the response pattern of the low-dependent, anal and low need-for-approval subject was less clear. Two studies reported statistically significant or almost significant decrements in response during reinforcement of the latter type of subject from the pre-reinforcement level (Cairns and Lewis, 1962; Timmons and Noblin, 1963). In two other studies (Crowne and Strickland, 1961; Marlowe, 1962), these subjects responded in much the same manner as the non-reinforced control groups, and would be described as nonresponsive rather than negatively responsive. Both nonresponsivity and negative responsivity may be interpreted as this subject's attempt to maintain control of the communication and to resist becoming part of an interpersonal process over which he feels he has no control.

3. Sapolsky's findings demonstrated that differential responsivity can be produced in dyads of naive subjects as well as with experimenter and subject. However, since Sapolsky did not provide the FIRO-B scores for his Compatible and Incompatible groups, it was not possible to determine whether or not his dyads varied according to the personality dimension described above.

As stated above, the findings summarized here seemed to have implications for the study of interpersonal communication as well as for

verbal conditioning. The communication pattern as applied to the conditioning procedure (i.e., the pattern of statement-acknowledgement-feedback-statement) represents simply a translation of terms from verbal conditioning (i.e., from the procedure of stimulus-response-reinforcement-stimulus) to communication theory. This same communication pattern, however, may be extended to more complex, natural dyadic communication, in which both participants are free to select the content of statements and acknowledgements, and in which the pattern of statements and acknowledgements becomes modified by the introduction of communication blocks and other structural properties. Further, it appeared significant that in the conditioning studies the subject was forced to enter into a rigidly controlled feedback circuit with the experimenter. The fact that it was a rigidly controlled system--and controlled by the experimenter--may have influenced the control- and independence-conscious subject to withdraw from the system. It could be argued, in fact, that given the opportunity to be in a more controlling role in the system, for example as a sender with more information than the receiver, the low-dependent, high-control subject would produce more feedback communication than his opposite.

Statement of the Hypotheses

The present study investigated the effects of interpersonal orientation, compatibility, and language similarity on interpersonal communication in a face-to-face situation. Following Ruesch (1957), the primary measure of communication was regarded as the extent of use of the feedback contingency.

The hypotheses were as follows:

1. Individuals highly oriented toward controlling interpersonal relationships attempt to do so by producing more feedback communication than individuals highly oriented toward social and affective aspects of interpersonal relationships.

The first hypothesis was derived from a reinterpretation of the results of the verbal conditioning studies reviewed above. While these results indicated that subjects who were oriented primarily toward social and affective relationships more readily participated in feedback communication than those who were control-oriented, these results were suspected to be situationally determined by the inability of the subject to control the feedback contingency. When control of the communication process is not so rigid, the latter type of subject was expected to make greater use of feedback circuits.

2. Dyads which are interpersonally compatible make greater use of the feedback contingency than dyads which are interpersonally incompatible.

The second hypothesis was derived from Sapolsky's (1960) finding regarding interpersonal compatibility and conditioning.

3. Individuals who are highly control-oriented make greater use of the feedback contingency as senders than as receivers.

The third hypothesis was an elaboration of the first in that the control-oriented subject was expected to be especially sensitive to the feedback contingency when in the sender role. The sender role may be assigned to the communicator with the most information about the communication process itself or about the content of communication. This hypothesis, supported by results of a pilot study, was based on the assumption

that control orientation included greater sensitivity to role and task factors, hence would produce greater communication differences according to role.

4. Similarity of the language systems of dyadic partners is positively related to the dyad's use of feedback communication in a face-to-face situation.

The fourth hypothesis concerned a non-interpersonal variable in relation to interpersonal communication. Because it was reasonable to assume that a dyad's capacity for use of feedback circuits has cognitive determinants, a measure of the similarity of written language was included in the present study.

CHAPTER II

METHOD AND DESIGN

To test the hypotheses relating communication to interpersonal orientation, compatibility, and communication role, pairs of subjects were selected according to FIRO-B orientation scores and assigned to dyads according to compatibility criteria; a second measure assessed the similarity of their language systems, and finally a sample of their communication in both sender and receiver roles was obtained. A 2 X 2 X 2 factorial design assigned each subject to one of four treatment conditions and each of two communication roles. Similarity of language system was evaluated by separate correlational procedures.

Subjects

The subjects were juniors and seniors (N=170) from the P. K. Yonge Laboratory School of the University of Florida. Both sexes were used, but dyads were formed on a like-sex basis. Since Marlowe (1962) and Crowne and Strickland (1961) found no sex differences in their conditioning data, this variable was not expected to demand differential treatment excepting the assignment of equal numbers of both sexes to each experimental group.¹ Additional information regarding age and intelligence was obtained from school records. The extent of acquaintance of dyadic partners was obtained from a brief questionnaire administered subsequent to all other procedures. Characteristics of subjects by experimental groups are provided in Chapter III.

¹ Subsequent analysis of the data sustained this expectation.

Experimental Groups

Sixty-four subjects were selected for placement into one of two experimental groups on the basis of FIRO-B scores. The FIRO-B is a questionnaire of 54 statements developed by Schutz (1958) to measure interpersonal orientation according to three interpersonal needs--inclusion, control, and affection. These needs are further subdivided into an "expressed" and a "wanted" need, thereby recognizing the distinction between need to give and need to receive each of the three types of behavior. Subjects rate themselves on a ⁹six point rating scale according to degree of agreement or disagreement with the statements. Typical statements are: "I join social groups," "I try to take charge of things when I'm with people," and "My personal relations with people are cool and distant." Each subject is described by six scores, a wanted and expressed score for each need area. The FIRO-B was administered to both junior and senior classes during a regular class period.

Half of the 64 subjects were selected for high scores in inclusion plus affection ($I + A$), and the other half for high scores in expressed control (ec). Generally, males ($N = 32$) were selected for the former group if $I + A$ was 21 or more and e^c was less than five, and for the latter group if $I + A$ was less than 21 and e^c exceeded five. For females ($N = 32$), the corresponding values were $I + A$ score of 23 and e^c score of four. These criteria provided one group significantly oriented toward inclusive and affective needs and a second group significantly oriented toward control needs. For convenience, they were called the Personal Oriented (PO) and Control Oriented (CO) groups.

Experimental Dyads

Thirty-two like-sexed dyads were formed from subjects selected for the PO and CO groups. To test the hypothesis that compatibility in interpersonal relationships produces more communication than incompatibility, formation of the dyads was related to compatibility procedures of the FIRO-B. Compatibility is defined by Schutz (1958) as the property of interpersonal relationships which leads to mutual satisfaction of interpersonal needs and harmonious coexistence. Measures have been developed by Schutz (1958) for three types of compatibility: originator compatibility, reciprocal compatibility, and interchange compatibility. Interchange compatibility describes the relative similarity of two individuals according to the need areas, whereas the other two types describe their relative similarity according to some combination of expressed and wanted scores. Interchange compatibility seemed the most appropriate measure for use with a short-term communication dyad. It is expressed in the formula: $xK = |(e_i + w_i) - (e_j + w_j)|$, where e and w refer to expressed and wanted scores for a need area.

Sixteen dyads were compatible and sixteen were incompatible. The compatible dyads were made up of eight pairs of subjects from the PO group and eight pairs of subjects from the CO group. The sixteen incompatible dyads consisted of one subject from each of the PO and CO groups. Assignment was made according to a ranking of I + A and e^c scores within each group. Dyad assignment by this procedure accomplished counterbalancing for partner rank and initial communication role. This method also permitted the use of multi-variate analysis of variance procedures to test the first three hypotheses.

Measurement of Language Similarity

A measure of language similarity was obtained for each dyad for correlation with dyad communication measures. This measure was used to test the fourth hypothesis, but was not used for establishing the experimental groups. Use of a written sample of language from each partner eliminated the possibility that face-to-face effects contaminated the measure. At the group administration of the FIRO-B, all 170 subjects were instructed to write a 150-200 word story or essay in response to card 17BM of the Thematic Apperception Test (TAT). To be included in the experiment, a subject's passage had to total at least 100 words. The passages were prepared by the Cloze Procedure and administered prior to the experimental test for communication to groups of subjects who were not partners.

The Cloze Procedure was developed by Taylor (1953) as a means of measuring readability. He describes the Cloze score as appearing to measure the aggregate influences of all factors which interact to affect the degree of correspondence between the written language patterns of transmitter and receiver. This technique deletes every n^{th} word in a passage and substitutes a blank in its place; subjects then fill in the missing word. Each of the 64 subjects completed his partner's typewritten passage after every fifth word had been deleted. Each passage contained a total of 20 blanks and the complete sentences in which the deletions appeared. Responses were scored as either correct or incorrect by comparing them with the words deleted from the original passage. The completed passage of each subject was compared to the original passage written by his

partner. The scores of dyadic partners were then summed to provide the measure of language similarity for the dyad.

Experimental Task

To determine the readiness of a subject to utilize feedback, it was necessary to create a communication situation in which measurement could be readily obtained without subjects becoming aware of the critical variable being measured. The situation also demanded procedural control to the extent that the communication measures did not become confounded with one another. An experimental communication task meeting these criteria was devised and successfully tested in a pilot study. This task consisted of a pseudo-problem which required each subject in the dyad to make oral responses to the experimenter and permitted (but did not require) him to enter into a communication relationship with the partner, i.e., to influence the partner's messages or be influenced by them. Thus, the degree to which partners communicated with one another or simply made oral responses to the experimenter was the dependent variable.

Dyadic partners were seated opposite one another at an oblong table longitudinally divided by a board one foot high. The divider enabled them to see one another but screened material on the partner's half of the table. The experimenter, seated at one end of the table, directed the subjects' attention to a photograph mounted on the end of the divider at the opposite end of the table.

The pseudo-problem consisted of a "personality description" of a person shown in a photograph. (Two anonymous photographs were selected for this purpose; both were of young adult males.) The subjects were

told that the experimenter was gathering information about the impressions people get from photographs of people whom they do not know, and from personal history information about these same people. Instructions were given which gave the psuedo-problem a rationale and which made it seem a worthy investigation. (The complete instructions are found in Appendix A.)

Before the personality description began, one of the subjects was given a "sheet of information" describing the person in the photograph. (The information sheets for both photographs are included in Appendix B.) A different sheet was devised by the experimenter for each photograph. The personal histories were roughly parallel in that both men were born in the South, went to college after experiencing difficulties, served in the armed forces, received vocational counseling, married college women, and made tentative career choices following graduation.

The provision of the history information to one subject per photograph made possible the establishment of communication roles in the dyad. That is, the subject who had the information was "sender" and the other subject was "receiver"--although subjects were given no instructions to establish the roles. This also made the experiment more believable, as it demonstrated the necessity of testing two subjects at a time.

Description of the person in the photograph was accomplished by means of a set of cards containing phrases appropriate for such a task. Each subject had a different set of 16 cards. Each card contained four phrases, making a total of 128 for both sets. The description task consisted of each subject choosing, in turn, one of the four phrases which he thought best fit the person in the photograph.

The instructions gave each partner a different task. The subject receiving the information sheet was required to select one phrase for every card. The other subject, i.e., "receiver," had the option of either selecting a phrase or of making no selection at all. This was included in the procedure to resemble the alternative of noncommunication characteristic of a natural dyad, and to provide a measure of receiver nonacknowledgement of messages. The latter was thought a sensitive measure of tendency to withhold communication, and as such would be reciprocal to a measure of "need to communicate."

After the subjects had used, alternatively, each of their 16 cards to describe one photograph, a second one was substituted by the experimenter. For the 16 trials of the second photograph, the subjects exchanged card sets and also exchanged roles. The subject who was sender for the first photograph became receiver for the second, and vice versa. A second sheet of information was supplied the sender before the description trials began for the second photograph.

As subjects announced their selections from the cards, the experimenter recorded each choice. He thus made certain that both subjects heard all choices, as words mispronounced or omitted were repeated by the experimenter as if for clarity.

Communication Statements

The 128 phrases supplied on the 32 cards (16 per set) constituted the population of communication statements from which partners selected messages. To determine whether messages influenced subsequent messages, i.e., were part of a feedback circuit, the statements had to be systemati-

cally related to one another. This requirement was met in 128 statements appropriate for personality description selected from the Interpersonal Check List (ICL) developed by Leary (1957). Leary's interpersonal theory is a behavior-oriented, multi-level system which classifies data according to eight dimensions of interpersonal behavior, each dimension bearing a constant relationship with every other dimension. The basic model employed is a circle with each dimension represented by an octant of the circle. Octants opposed to one another represent opposing behaviors and adjacent octants represent similar behaviors. Leary's principle measuring device, the ICL, is a self-report technique containing 128 statements describing interpersonal behavior, 16 statements for each of the eight dimensions. The eight dimensions as described by Leary, and a representative adjective phrase for each, are listed below:

- | | |
|------------------------------------|-----------------------------|
| 1. Managerial - Autocratic | "Able to give orders" |
| 2. Competitive - Exploitive | "Able to take care of self" |
| 3. Blunt - Aggressive | "Can be frank and honest" |
| 4. Skeptical - Distrustful | "Able to doubt others" |
| 5. Modest - Self-effacing | "Can be obedient" |
| 6. Docile - Dependent | "Appreciative" |
| 7. Cooperative - Over-conventional | "Friendly" |
| 8. Responsible - Hypernormal | "Helpful" |

Statements were selected so that for each item appearing on a card in Set A, the next adjacent item from the ICL appeared on the same card in Set B. That is, the 128 ICL items were taken in the order 1-128, every other item belonging to the same set. This procedure produced two

cards for each of the 16 trials, each card containing descriptions which resembled one another but were not identical. For example, the items selected for card No. 3 for each set appeared (in randomized order) as:

<u>A</u>	<u>B</u>
friendly	affectionate and understanding
can be obedient	usually gives in
can be frank and honest	forceful
able to give orders	critical of others

Statements were selected for the cards from every other octant of Leary's circular model. The even numbered cards contained statements from octants 2, 4, 6, and 8 (as numbered above), and the odd numbered cards from octants 1, 3, 5, and 7. The opposing octants around the circle are: 1-5, 2-6, 3-7, and 4-8. Thus, statements were selected from two pairs of diagonally opposed octants. Because diagonally opposed octants represent contradictory forms of interpersonal behavior in the Leary system, each pair of phrases appearing on a card described contradictory interpersonal behavior. A sample from card No. 3, Set B, is the pair "affectionate and understanding" and "critical of others." In addition, pairs themselves were perpendicular to one another so that for each phrase on a card there was one contradictory phrase and two other phrases neutral to it. The four phrases thus selected were randomly placed on the card.

Items as they appear on the ICL vary in an intensity dimension within each octant, from low to high intensity of the behavior. As items were selected for the cards in order from 1-128, the cards varied in the intensity dimension from 1-16. (A sample scoring sheet containing the population of 128 communication statements appears in Appendix C.)

Communication Responses

Subjects selected messages from cards containing parallel sets of statements. Thus, messages could be compared according to their similarity or dissimilarity with one another by reference to the ICL octants from which they were drawn. Experimentation with various methods of scoring and categorizing messages indicated the most suitable scoring procedure to be a similar--dissimilar dichotomy. When subjects' messages were compared with one another according to this criterion, four types of communication responses were defined. Definition of the responses was in terms of the similarity or dissimilarity of the message to the two previous messages, i.e., one by the respondent and one by his partner. The responses were labeled congruent, redundant, confirming, and novel. From the standpoint of receiver, the four responses could be operationally described in the following manner:

1. Congruent response: Receiver's message was similar to both sender's message and his own previous message.
2. Redundant response: Receiver's message was similar to his own previous message, but dissimilar to sender's message, i.e., he repeated himself without response to sender.
3. Confirming response: Receiver's message was similar to sender's message, but dissimilar to his own previous message, i.e., he changed his message to confirm that of sender.
4. Novel response: Receiver's message was dissimilar to both

his own and sender's messages, i.e., he introduced a new message.

Since receiver had the option on each trial of not selecting a phrase, a problem arose as to the most appropriate way of categorizing this message. This was done as follows: Non-selections by receiver were categorized as novel responses if, on the previous trial, receiver had made a selection, i.e., his non-selection was a "new" message of non-communication; however, if his non-selection followed a non-selection on the previous trial, it was categorized as a redundant response, i.e., it was a repetition of the message of non-communication.

Responses which sender made to receiver were also categorized by comparing his message to his own previous message and to the intervening message of receiver. This seemed justifiable as, after the first trial, he received as well as sent messages. Categorizing of communication responses of both sender and receiver commenced with the second trial.

The congruent response, although indicative of agreement, was not considered a sufficient criterion for detecting communication. Although this undoubtedly resulted in omission of some communication which took place, it also eliminated instances in which congruence of response signified nothing more than agreement in judging the photograph. Redundant responses were accepted as lack of communication, as they reflected repetition of a message following sender-receiver disagreement. Communication, that is, utilization of the feedback circuit, was considered demonstrated by a confirming response. In this case a subject confirmed his partner's message by selecting a statement of greater similarity to the partner's than to his own previous message. In one sense this repre-

sents conformity, but since conformity usually connotes pressure and there was little in this situation which created pressure to confirm, the term "conforming" seemed more appropriate. In this sense the response meant "to support" or "to verify."

To make comparisons between trials, it was again necessary to refer to Leary's octant system. Trials alternated in the four octants from which they drew items from the ICL, the odd-numbered trials drawing from odd-numbered octants and even-numbered trials drawing from even-numbered octants. It was therefore necessary to decide which odd-numbered octants represented a dissimilar statement for a statement made from an even-numbered octant, and vice versa. The most conservative decision was to use only the octants that were adjacent to the opposite octant, and to consider all three octants "dissimilar." The following is a list of each octant and the octants considered dissimilar to it for scoring purposes; all other octants were considered "similar."

<u>Octant</u>	<u>Dissimilar octants</u>
1	4, 5, 6
2	5, 6, 7
3	6, 7, 8
4	7, 8, 1
5	8, 1, 2
6	1, 2, 3
7	2, 3, 4
8	3, 4, 5

In practice, subjects' messages were first translated into octant numbers, and by reference to the above list, categorized into one of the

four communication responses. As responses were scored starting with the second trial, each subject had 15 responses per communication role and 30 for the complete test of communication.

One technical adjustment was necessary in order to equate the number of receiver confirming responses per photograph to those for sender. Because receiver had a $3/4$ by-chance choice of responding to sender with a similar message, whereas all other comparisons between messages operated on a $2/4$ chance basis, it was necessary to subtract from receiver's confirming response total, one-third of that total. The formula was expressed: $SCR = RCR (2/3)$, where SCR is sender confirming response and RCR is receiver confirming response.

Summary of Method and Design

The following is a summary in chronological order of steps taken to select subjects for the experiment, form experimental groups, and test for the presence of communication between subjects. Rationale for the procedures is provided in the foregoing discussion.

1. The FIRO-B was administered to the junior and senior classes at the P. K. Yonge Laboratory School. At the same time, each student was instructed to write a story or essay in response to card 17 BM of the TAT.
2. Sixty-four students were selected as subjects for study. Sixteen males and 16 females were selected for each of the PO and CO groups on the basis of their FIRO-B score; $I + A$ and e^C scores were the criteria for this selection.
3. PO and CO groups were equally divided to form dyads for testing by the experimental procedures. Half the subjects were in compatible

dyads and the other half in incompatible dyads. Compatible dyads were comprised of eight PO-PO and eight CO-CO combinations, and incompatible dyads were comprised of 16 PO-CO combinations. All dyads were like-sexed.

4. Subsequent to selection of dyads each subject was given his partner's typewritten TAT passage which had been prepared by the Cloze Procedure. He was unaware of the authorship of the passage. He was instructed to fill in the missing words. Cloze scores for each dyad were obtained by summing the scores of the subjects in the dyad. This measure was used to test the fourth hypothesis.

5. Dyadic partners were tested for communication together, one pair of subjects at a time. They were instructed to describe a photograph by means of selecting one of four statements on a card. Sixteen cards were used for each of two photographs. One subject was given additional information about the person in the photograph; he was required to select a statement from each of the sixteen cards. The other subject was given the option of selecting a statement from each card or of not responding. Partners exchanged roles for the second photograph.

6. Statements used to describe the photographs were from the ICL. Since the statements were related to one another in a systematic manner it was possible to record the pattern of a subject's agreements and disagreements with his partner's and with his own previous statements. From these patterns, four communication responses were defined. The confirming response indicated use of the feedback contingency, whereas the redundant response represented lack of sensitivity to the feedback contingency. These responses were used to test the first three hypotheses.

7. Subsequent to all other procedures, all subjects filled in a questionnaire on which they indicated the extent of their acquaintance with the person who had been their partner in the communication test. This was used to control for this variable in consideration of the other results.

CHAPTER III

RESULTS

Experimental procedures were designed to test hypotheses relating communication to interpersonal orientation, compatibility, and language similarity. Subjects were assigned to one of four independent treatment groups, hereafter called orientation-compatibility groups. This term refers to the PO-compatible, PO-incompatible, CO-compatible, and CO-incompatible groups, where PO means personal-oriented and CO means control-oriented approaches to interpersonal relationships. This chapter presents characteristics of the subjects, gives the communication results which tested the hypotheses, and presents additional findings pertaining to the general problem under investigation.

Characteristics of Subjects

PO and CO groups were each comprised of 16 males and 16 females according to the double criteria of I + A and e^c scores, as described in Chapter II. Mean score differences between PO and CO groups according to these measures were significant ($p < .001$) in the required direction. (See Table 2 in Appendix D.)

From the PO and CO groups, dyads were formed of which half had a compatible relationship and half had an incompatible relationship. Compatibility scores for interchange, originator, reciprocal, and total compatibility were calculated for each dyad. (See Table 3 in Appendix E.) Interchange compatibility was regarded the most appropriate criterion measure for differentiating dyadic groups for a short-term communication

relationship; it referred to the relative emphasis placed on the three need areas by the partners. Originator compatibility referred to each subject's tendency to initiate or receive behavior within a need area, while reciprocal compatibility referred to his tendency to initiate compared to his partner's tendency to receive. Total compatibility was the sum of the three separate compatibility measures (Schutz, 1958).

The mean difference between compatible and incompatible dyads on interchange compatibility scores was significant ($p < .001$) in the required direction. Compatible dyads were also more compatible according to reciprocal compatibility scores ($p < .001$) and total compatibility scores ($p < .01$) but were less compatible according to originator compatibility scores ($p < .01$).

The age range of the 64 subjects was 15-18. There were no significant differences in mean age among the four orientation-compatibility groups. A non-significant t of 1.34 ($p > .05$) was obtained for the greatest mean difference between two groups.

Intelligence test scores on the California Test of Mental Maturity ranged 77-133. The CO-incompatible group was higher in mean intelligence score than the PO-compatible group ($t = 2.34$; $p < .05$). Differences for all other orientation-compatibility group comparisons were non-significant ($p > .05$). In addition, a non-significant correlation of +.26 ($p > .05$) was obtained between intelligence test scores and the communication ratios for each subject discussed in the next section.

Extent of acquaintance of partners with one another was evaluated by the median test. There were no significant differences between PO and

CO groups or between compatible and incompatible dyads ($p > .05$) in median years of acquaintance.

Orientation, Compatibility, and Communication

Frequencies of the four communication responses (confirming, redundant, congruent, and novel) were obtained for each subject by communication role. (See Table 4 in Appendix F.) The transformation, $X = \sqrt{X + .5}$, was applied to the response frequencies to eliminate zero totals and to insure adequate variability (Edwards, 1950, p. 200). A communication ratio was obtained for each subject in each role by dividing his sum of confirming responses by his sum of redundant responses. This ratio was considered the most accurate index of use of feedback circuits. Under conditions of a discrepancy in subject-partner messages, this ratio compared the subject's tendency to change messages in the direction of his partner, to his tendency to ignore the partner by repeating his own previous message.

Table 1 shows the analysis of variance of the communication ratios by orientation, compatibility, and communication role. Since orientation and compatibility were independent observations, residual variance between subjects was used as the error term for their evaluation. Communication role was a repeated observation, thus the error term for its evaluation was residual variance within subjects. The criterion accepted for statistical significance was $p < .05$.

The first hypothesis predicted communication differences by interpersonal orientation. A non-significant F for the orientation variable indicated a lack of support for this hypothesis.

TABLE 1
ANALYSIS OF VARIANCE OF THE COMMUNICATION RATIOS

Source	Sum of Squares	df	Mean Square	F
Independent observations:				
Orientation (O)	.24	1	.24	.73
Compatibility (C)	1.02	1	1.02	3.09
O X C	.22	1	.22	.67
Residual between subjects (error)	<u>19.90</u>	<u>60</u>	.33	--
Total, independent	21.38	63		
Correlated observations:				
Role (R)	14.16	1	14.16	42.91*
R X C	.05	1	.05	.15
R X O	.11	1	.11	.33
R X C X O	0	1	0	0
Residual within subjects (error)	<u>19.75</u>	<u>60</u>	.33	--
Total, within subjects	<u>34.07</u>	<u>64</u>		
Total for experiment	55.45	127		

*p < .001

The second hypothesis predicted greater use of feedback circuits by compatible dyads than by incompatible dyads. The F for communication ratios by the compatibility variable approached but did not reach significance at the accepted level. Examination of the mean difference showed incompatible dyads to have a higher average ratio than compatible dyads. (See Table 5 in Appendix G.) To the extent that this difference was reliable, the second hypothesis was contradicted. Further, a correlation of +.34 was obtained between communication ratio for each dyad and its interchange compatibility score; this fell just short of significance ($p > .05$). Since the magnitude of compatibility scores is inverse to compatibility, this was further evidence toward contradiction of the second hypothesis.

The third hypothesis predicted greater use of feedback circuits for CO subjects as sender than as receiver. A significant F was obtained for the role variable, but in a direction opposite that predicted for CO subjects. When CO subjects were considered separately, mean sender ratio was exceeded by mean receiver ratio to a significant degree ($t = 2.82$; $p < .01$). This was also true of PO subjects ($t = 2.77$; $p < .01$). Thus, the third hypothesis was contradicted as a result of a highly significant tendency for all subjects to use feedback circuits more as receiver than as sender.

The fourth hypothesis predicted a positive relationship between similarity of partners' language systems and their use of feedback communication. Cloze scores for the partners of each dyad were summed to give a dyad Cloze score. The possible range of the dyad measure was 0-40,

and the obtained range was 11-33. Since the correlation of $-.25$ between dyad Cloze scores and dyad communication ratios was non-significant ($p > .05$), the fourth hypothesis was not supported.

Additional Findings

Results are given below in addition to those which tested the hypotheses and which concerned the general problem under study. They pertain to: (1) additional variables which were significantly related to the communication ratio; and (2) variables related to the congruent response.

Although the second hypothesis (which predicted greater use of feedback by compatible dyads) was contradicted in terms of interchange compatibility, it was supported in terms of originator compatibility. A correlation of $-.41$ ($p < .05$) was obtained between originator compatibility scores and communication ratios. Since compatibility scores are inverse to compatibility, this finding signified a positive relationship between the two variables. This was consistent with the foregoing finding that dyads labeled "incompatible" were actually more compatible than dyads labeled "compatible" according to originator compatibility scores.

Subjects when in the role of receiver had the option on each trial of not selecting a statement. Non-selection was regarded as a message of "non-communication" and thus, perhaps, reciprocal to a "need to communicate." This possibility was supported by a correlation of $-.30$ ($p < .05$) between the number of non-selections per subject and subject communication ratios. Thus, subjects who were more sensitive to the feedback

contingency also tended to transmit more messages of content to the partner.

The congruent response was regarded as indicating agreement between partners in describing the photograph. Since agreement in the experimental situation was possible without use of feedback circuits, congruent responses were not used to test the hypotheses. However, the finding of a correlation of $+0.66$ ($p < .001$) between frequency of congruent responses per subject and subject communication ratios lends support to the possibility that congruent responses, in general, were indicative of communication. The reverse is also true, i.e., that use of feedback circuits may have been strongly influenced by partners' tendencies to agree. To an extent, this correction may have been inflated because the communication responses were correlated measures. The use of a ratio, rather than raw scores, for the index of communication was considered a sufficient correlation to permit computation of the correlation.

Three additional findings related the compatibility and orientation variables to the tendency of partners to agree or disagree. Just as congruent responses indicated agreement, redundant responses were interpreted as indicating disagreement. Incompatible dyads produced more congruent responses than compatible dyads, as sender ($p < .001$) and as receiver ($p < .01$). Conversely, compatible dyads produced more redundant responses than incompatible dyads, as sender ($p < .01$) and as receiver ($p < .02$). Since the communication responses were correlated measures, it was not unexpected that high frequency of congruent responses was

associated with low frequency of redundant responses, and vice versa. However, the finding remains that compatibility of relationship was associated with disagreement in describing the photographs.

The tendency toward lack of agreement found in compatible dyads was largely due to PO subjects within the compatible group. The 16 PO-compatible subjects produced fewer congruent responses than the 16 CO-compatible subjects; the difference was significant for the receiver role only ($p < .01$).

The positive findings may be summarized as follows:

1. Communication role was the only main effect significant in the variability of communication ratios. All subjects as receiver tended to use the feedback circuits far more than as sender.
2. Compatibility as related to the communication ratio was complicated by the negative relationship of originator compatibility to the other compatibility measures. Interchange, reciprocal and total compatibility scores were negatively related to the communication ratio, whereas originator compatibility was positively related to it.
3. A low and positive relationship was found between tendency to transmit statements (under conditions of choice, i.e., as receiver) and the communication ratio.
4. A relatively high and positive relationship was found between subject's tendency to agree with partner and subject communication ratios.
5. Compatible dyads demonstrated significantly less agreement in describing the photograph than incompatible dyads.
6. PO-compatible subjects were significantly less prone to agree than CO-compatible subjects.

CHAPTER IV
DISCUSSION AND CONCLUSIONS

The present study examined communication effectiveness from the standpoint of interpersonal behavior and relationships. The prediction that an interpersonal orientation toward controlling interpersonal relationships results in greater sensitivity to the feedback contingency was not supported. A related prediction that control-oriented individuals use feedback circuits more as senders than as receivers was contradicted by the finding that all subjects tended to use them more in the role of receiver. A third prediction stated that interpersonal compatibility is associated with greater use of feedback circuits than incompatibility. For originator compatibility, this was supported; the finding that reciprocal, interchange, and total compatibility resulted in less use of feedback circuits was contradictory to the prediction. Finally, the prediction that similarity of the language systems of communicative participants is associated with use of the feedback contingency was not supported. Thus, none of the four hypotheses was directly supported and two were at least partially contradicted.

Despite these negative findings, there was support for the general proposition that communication is influenced by interpersonal variables. Additional findings provided evidence that sensitivity to the feedback contingency was influenced primarily by the presence of communication roles and the acceptance or non-acceptance of these roles by participants.

Roles and Communication

Communication role was the only independent variable shown, without qualification, to be a determinant of subjects' communication patterns. The F ratio for the role variable was significant at $p < .001$, and the pattern of greater mean receiver communication ratio was consistent for all orientation-compatibility groups. (See Table 5 in Appendix G.)

This finding was interpreted as stressing the importance of situational factors for dyadic communication, i.e., aspects of the interpersonal relationship which are imposed on partners. In the experimental procedures, roles were not directly assigned to subjects per se, nor could they use "ready-made" roles. Instead, roles were suggested indirectly by means of instructions and procedures. Sender had information unknown to receiver, was required to transmit a message with content on every trial, and responded first on every trial. Thus, factors external to the dyadic relationship defined three role-related aspects of the task. Apparently, subjects were more sensitive to the situationally-suggested roles than to any other interpersonal factors present. This corresponds to Schutz's assertion that groups develop first through an inclusion phase in which each member finds where he "fits," i.e., he seeks his role within the group (Schutz, 1958). To the extent that subjects may have perceived the sender role as "privileged" this finding also corresponds to the finding by Thibaut (1950) that members of a low status group increased communication toward members of a high status group as the privileged position of the latter group became more clearly defined.

Compatibility and Communication

The finding that incompatible dyads tended to utilize feedback circuits more than compatible dyads was unexpected. Both the F ratio for compatibility and a correlation between interchange compatibility and communication ratio approached, but did not reach, significance.

Two alternative interpretations may be offered to account for the less frequent use of feedback circuits by compatible dyads: (1) that subjects in compatible dyads could not formulate effective role-relationships for the sender-receiver dimension because both attempted to relate via the same role; and (2) that subjects in compatible dyads circumvented the roles in order to relate on an individual-to-individual rather than role-to-role basis, i.e., their compatibility encouraged greater freedom of response to the total situation.

Supporting the first alternative was the finding that dyads labeled "compatible" were actually less compatible than dyads labeled "incompatible" according to originator compatibility scores. The difference in mean originator compatibility scores was significant at $p < .01$. According to Schutz (1958), originator compatibility refers to the preference of a subject to initiate or to receive the behaviors related to a given need area. It is expressed by the formula: $oK = (e_i - w_i) + (e_j - w_j)$, where e and w refer to expressed and wanted needs for a need area, and i and j to the partners of the dyad. Positive scores signify preference for initiating, and negative scores preference for receiving. Compatibility is indicated by complementary scores, i.e., by one subject's preference for initiating complemented

by the other's preference for receiving. Since the sign is retained, complementary scores sum to zero, indicating greatest compatibility. High positive scores indicate competitive incompatibility (e.g., both wanting to initiate control), and high negative scores indicate apathetic incompatibility (e.g., both wanting to be controlled). (Schutz, 1953.)

Of the 16 compatible dyads, ten had originator compatibility scores above the mean for all dyads. Of the 16 incompatible dyads, only five had originator compatibility scores above the same mean. Thus it appears likely that in compatible dyads more than in incompatible dyads partners experienced difficulty in adopting the suggested communication roles, and that this role confusion interfered with sensitivity to the feedback contingency.

The second alternative to explain differences between compatibility groups in use of feedback circuits offers a different line of reasoning. It assumes that subjects in compatible dyads were, in fact, more compatible, and that they rejected a role-oriented relationship in favor of relating to each other and to the situation as individuals. That is, compatibility engendered security of relationship, which in turn encouraged personal freedom of response and made the restriction of roles undesirable to participants. Conversely, in incompatible dyads participants were less sure of the relationship and restricted themselves to role-relating.

Since the communication roles were suggested by the experimenter, i.e., external to the dyadic relationship, it is possible that compatible partners cooperated in rejecting them. Schutz recognizes this possibility,

". . . if members of the group do not want to do their assigned task, compatibility will contribute to their efficiency in not doing it (for example, a compatible group should be more capable of mutiny)." (Schutz, 1958, p. 115.) The second alternative was supported by the finding that compatible subjects produced significantly fewer congruent responses, indicating less agreement, and significantly more redundant responses, indicating greater disagreement. The probability values ranged from .02 to .001 for differences in mean number of responses by communication role. Further, PO-compatible subjects as receiver produced fewer congruent responses than CO-compatible subjects ($p < .01$). These findings suggested more sensitivity toward personal factors than situational factors by partners in compatible dyads, especially partners oriented toward inclusive and affective relationships. The last finding draws attention to the PO-compatible group. These subjects, as contrasted to all others, were less prone to agree with one another and tended to disagree more with one another. This suggested that for them interpersonal orientation may have contributed to responses to the task even though orientation as a variable was nonsignificant.

Conformity Behavior and Communication

Results of the present study showed a positive relationship between conformity behavior, in the sense of partner agreement, and use of the feedback contingency. A correlation of +.66 was found between subject communication ratios and the frequency of congruent responses per subject. Incompatible dyads were higher than compatible dyads in both mean communication ratio and mean frequency of the congruent

response. The issue may be raised: Under conditions of sender-receiver differences in the content of messages, does subsequent similarity in messages represent conformity behavior or effective use of feedback circuits? The issue cannot be resolved from results of the present study. The procedures were designed so that pressure to conform was minimal, but it can be assumed that subjects had internal pressures to conform. (Indeed, in a recent study investigating agreement and disagreement in dyads, responses similar to the communication responses of this study were considered indicative of various types of conformity behavior) (Willis, 1964).

One finding did support the assumption that the communication ratio was reflective of communicative behavior. A correlation of $-.30$ ($p < .05$) was obtained between subjects' number of non-selections as receiver and subject communication ratio. Thus, subjects who were more sensitive to the feedback contingency also tended to communicate more content messages to the partner.

Verbal Conditioning and Communication

Inferences about how interpersonal factors influence communication were made from verbal conditioning studies, as reviewed in Chapter I. These inferences were given little support by results of the present study, and were contradicted for the compatibility variable. Incompatible dyads in this study tended to use feedback circuits more than compatible dyads, whereas in Sapolsky's (1960) study the reverse was true.

These discrepancies may be attributed, in part, to differences between this and Sapolsky's study in roles suggested for subjects, to-

gether with differences in the locus of control of the communication process. In the present study subjects shared control over the communication process and role was defined primarily in terms of knowledge of content, i.e., by sender's possession of information about the person in the photograph. In the verbal conditioning studies, subjects were in the sender role, i.e., they transmitted messages to the experimenter. As senders, however, they did not have effective control over the communication process, as the experimenter controlled it with his knowledge of the reinforcement contingency. To an extent, the conditioning situation represents a discrepancy in communication roles from the natural pattern in which a sender shares control of the communication process with a receiver.

Assuming that subjects in incompatible dyads were more control-conscious and role-conscious than subjects in compatible dyads, one may speculate that they rejected the role of sender-without-control in the verbal conditioning studies but found the communication roles of the present study acceptable. Since there are no data to support this explanation, it must remain speculative.

Interpersonal Influences on Dyadic Communication

The primary goal of the present study was contribution to a clearer understanding of influences which interpersonal factors have on communication. As defined by procedures used, interpersonal orientation was not significantly related to use of feedback circuits. Language similarity of dyadic partners was also non-significant in relation to use of feedback circuits. However, it is possible that a more heterogeneous popula-

tion than one composed of high school juniors and seniors from a relatively small school would provide a greater range of orientation scores from which to select subjects for experimental study. It is also possible that procedures used rejected subjects for study whose interpersonal orientations might be highly related to communication effectiveness. By selecting subjects who had high scores on either $I + A$ or e^c , the study omitted those who made low scores in all interpersonal need areas. Assuming the interpersonal orientation of these individuals to be avoidance of any kind of interpersonal relationships, it might be this orientation which most influences communication effectiveness. This appears a problem worthy of future research.

The most distinctive finding of the study was that externally suggested or imposed roles significantly altered communication patterns. Subjects as receiver used feedback circuits far more than they did as sender. Apparently this was a function of sender's having more information relating to the task of describing the person in the photograph.

The question of whether receiver was conforming or using effective communication techniques cannot be answered by results of this study. The general question of whether changes in an individual's messages represent conformity behavior or effective communication is perhaps best answered by examining the general nature of the relationship in which these changes occur. It may be that as relationships become oriented toward dominance-submission and/or inclusion-exclusion, the changes represent conformity, and that as relationships become oriented toward affective and/or cognitive understanding, the changes represent effective communication. For

example, a therapist who frequently makes use of feedback circuits to develop with a client a mutual understanding of the client's messages may be thought of as communicating effectively. On the other hand, the junior executive who invariably changes his statements in accord with the domineering boss may be thought of as conforming. This general question is open to future study.

A second significant finding was the tendency toward a negative relationship between use of feedback circuits and interpersonal compatibility. Two interpretations of this finding were offered above. The first was that so-called incompatible dyads were actually more compatible on a compatibility dimension significant for dyadic communication, i.e., originator compatibility. If this were true, the apparent negative results relating compatibility to communication would be reversed, and the finding would then be in agreement with those of Sapolsky (1960). However, this appears unlikely in light of Sapolsky's statement that his incompatible dyads were incompatible for all need areas.

The second interpretation explained the incompatible dyads' tendency toward greater use of feedback circuits in terms of role acceptance. If incompatible dyads accepted the communication roles and compatible dyads did not, differences in use of feedback would occur. It was argued that incompatibility of relationship increased the need for relating via roles, and that compatibility encouraged a feeling of freedom from the external situation and a sensitivity toward the individual.

Role acceptance was also inferred as a critical factor in explaining the discrepancy between verbal conditioning measures and

dyadic communication measures as influenced by interpersonal compatibility. It was assumed that incompatibility increased role-sensitivity and also sensitivity to the control dimension of communication. It was then suggested that subjects in incompatible relationships, without means of effective control over the communication process as in verbal conditioning, might have withdrawn from a communication role, but that given control, as in dyadic communication, might have accepted the same role. Since the argument depends on a series of inferences, it must be considered highly tentative.

Two general conclusions may be stated regarding the effects of interpersonal variables on communication: (1) externally suggested or imposed communication roles are significant determinants of communication patterns, and (2) acceptance of these roles by participants contributes to communication effectiveness.

One major limitation must be noted regarding generalization of the above conclusions. In the present study, effective communication referred simply to exchanges of messages, i.e., it asked the general question, "Did a subject acknowledge that he heard the other's message?" Thus, the study disregarded what may be called "exchanges of understanding." The latter refers to use of the feedback contingency to acknowledge not only that a message has been received, but that the meaning which it has for the sender has also been received and understood. For this reason, the above conclusions that communication is altered by the presence of roles, and is facilitated by role-acceptance on the part of participants, do not necessarily apply when communication is defined as a total understanding of another's messages. In fact, if one considers

only the restrictive characteristics of roles, they may be considered to inhibit communication in a broader sense of exchanges of understanding.

An issue similar to the above distinction between types of exchanges was explored by Rogers (1951). In attempting to formulate the counselor's role, Rogers first thought of it as clarifying and objectifying the client's feelings, i.e., to acknowledge that his feelings were messages which could be received and codified. He later found this formulation too intellectualistic and prone to promote a declarative rather than an empathic attitude on the part of the counselor. He states:

But when the counselor statement is declarative, it becomes an evaluation, a judgment made by the counselor, who is now telling the client what his feelings are. The process is centered in the counselor, and the feeling of the client would tend to be, "I am being diagnosed." In order to avoid this latter type of handling, we have tended to give up the description of the counselor's role as being that of clarifying the client's attitudes.
[Rogers, 1951, p. 28.]

The effects that interpersonal variables have on an "exchange of understanding" between individuals would appear a topic worthy of separate investigation.

Summary

The present study investigated the general proposition that effective communication between two people is related to dimensions of their interpersonal relationship and to the similarity of their language systems. Communication effectiveness was defined as use of feedback

circuits in a face-to-face situation. Hypotheses predicted that: (1) subjects oriented toward controlling others would communicate more effectively than subjects oriented toward inclusive and affective interpersonal relationships; (2) pairs of subjects compatible to one another would communicate more effectively than pairs of subjects incompatible to one another; (3) control-oriented subjects would communicate more effectively in a sender role than as receivers; and (4) language similarity of communication pairs would have a positive relationship to their communication effectiveness in a face-to-face situation.

The FIRO-B was used to select 64 subjects from junior and senior high school classes for placement into either a personal-oriented (PO) or a control-oriented (CO) group. PO subjects were selected for an interpersonal orientation toward inclusive and affective relationships and CO subjects for an interpersonal orientation toward controlling relationships. Subjects were paired to form 16 compatible and 16 incompatible dyads. Compatible dyads consisted of eight PO-PO combinations and eight CO-CO combinations; incompatible dyads consisted of 16 PO-CO combinations. Each subject completed a passage written by his partner which the experimenter had prepared by the Cloze Procedure. Dyad Cloze scores provided a measure of dyadic language similarity. Dyads were tested separately for communication effectiveness by means of a task which permitted, but did not require them to respond to each other's messages as they described a photograph. Four communication responses were defined by comparing a subject's message to the previous message of his partner and his own previous message. Analysis of variance was

performed on a communication ratio calculated for each subject. This was determined by dividing the confirming response by the redundant response.

Interpersonal orientation and language similarity were not significantly related to communication effectiveness. There was a tendency for subjects in incompatible dyads to be more effective communicators than those in compatible dyads; the F ratio for compatibility approached but did not reach statistical significance. All subjects tended to communicate more effectively in the role of receiver than that of sender. Thus, none of the hypotheses was supported and two were at least partially contradicted.

Analysis of the results revealed several additional findings beyond those used to test the hypotheses. There was a low and positive relationship between tendency to transmit statements (under conditions of choice) and the communication ratio. A relatively high and positive relationship was found between partners' tendency to agree and their communication ratios. Compatible dyads demonstrated significantly less agreement in describing the photograph than incompatible dyads. PO subjects in compatible dyads were less prone to agree than CO subjects in compatible dyads.

Discussion of results focused on the importance of externally suggested or imposed communication roles for dyadic communication, and on the significance of acceptance or non-acceptance of the roles by participants. It was concluded that communication roles contributed signifi-

cantly to communication patterns and that role acceptance by partners increased communication effectiveness when communication effectiveness was defined as the use of feedback circuits.

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APPENDICES

APPENDIX A

INSTRUCTIONS FOR THE EXPERIMENTAL TASK

"First, I will tell you the purpose of the research and then what your specific job will be during the experiment.

"In this experiment we are getting information on how well people can judge a person whom they do not know by looking at his photograph and by reading some factual information about him. We are interested in the practice of businesses, government agencies, and colleges of requesting photographs and personal history data from applicants along with their application papers. We would like to find out what kind of impressions people get from photographs and from the personal histories which are written. We will look at two photographs during the experiment.

"I will put up a photograph for you to see. Look at it closely, especially for clues as to what kind of a person this person might be. For the purposes of the experiment, one of you will be Subject A and the other will be Subject B. The cards on the table tell you which one you are.

"For the first photograph, I will give Subject A a sheet of paper which tells something about the person shown in the photograph. Only Subject A may see this sheet or know the information for the first photograph. Therefore, I am asking that subjects refrain from making random comments or from asking questions once the experiment has begun. When we look at the second photograph, Subject B will have the information sheet for that picture.

"Now I will tell you the method for judging or describing the person in the photograph. To do this, use the stack of 16 cards which is on the table in front of you. Subject A has List A and Subject B has List B. Both lists have cards numbered 1-16, but otherwise they are different.

"Each of these cards has four short statements which could describe someone. Only one statement can be chosen from each card. You are to look at these cards, one at a time, and tell me which of these statements you think best fits the person in the photograph. We will alternate, Subject A choosing first, then Subject B.

"Now listen carefully, because your tasks are somewhat different. Subject A will look at each card in turn and decide which of the statements best fits the person in the photograph. Subject B will also look at each of his cards in turn to see which statement best fits the person in the photograph, but should he decide that none of the statements fits at all, he should say nothing. In other words, each time A looks

at a particular card, he will select one statement from his card, and after he has chosen, Subject B will be able to turn to his card of the same number and either choose one statement from his card or will remain silent. In case B does not choose one, I will direct A to the next card after a few seconds, indicating the beginning of another trial. Remember, B is the only one that has a chance of not saying anything on a particular card, as A selects one every time.

"Let me summarize the procedure for you. First I will put up the photograph. Then Subject A will get the information sheet and will have a minute to read it. He may refer to this at any time, but cannot reveal its contents to Subject B. Then I will ask A to turn to card #1, and he can begin right away by choosing a statement from his card. After he has done this, B can turn to his card, and should either select a statement or not say anything, indicating that he thinks that none of the statements fits at all. We will use the same procedure for all 16 cards.

"Are there any questions about the procedure?"

"You will have sufficient time to look at all four statements and to make your selection, but it is best to decide as quickly as you can, on a first-impression basis. Do not be concerned with whether you think your answers are right or wrong, as it is your impressions that we want you to give. Don't be concerned with duplications or contradictions.

"I will call out the cards for each of you one at a time. Please do not turn to any card until I have told you to. For example, when I say 'A - 1' only the person who has List A should turn to the first card."

(Another query about questions.)

(Place photograph, give A time to read information sheet.)

(16 trials for first photograph)

"We are still in the middle of the experiment, so I will ask you not to make any comments while I put up the second photograph. We will use the same procedure as for the first one, except that B will now have the sheet of information for the person in the photograph, and will select a description from every card. And A will be able to select one for each card or remain silent if he thinks that none of the descriptions fits at all. In other words, you will switch tasks for the second photograph. I want you also to change lists, so that Subject B has List A, and vice versa. You may do this now, but please do not turn to any cards until I tell you to. [Place photograph, give B time to read information sheet] I am going to call out the card numbers as I did last time. As before, we will start with the person who has List A. Card A-1."

[16 trials for second photograph. Thank Ss for participation and caution them not to discuss experiment.]

APPENDIX B
INFORMATION SHEET FOR PHOTOGRAPH #1

Name: Joe M _____

Age: 26

Mr. M _____ was born in a large southern city and went to high school there. He was active in sports, especially baseball. He worked part-time during high school for his uncle who owned a small manufacturing company. After high school he joined the Army and served in the Quartermaster Corps for three years. Mr. M _____ planned to enroll in the University of Georgia immediately after his discharge from the Army, but his father died suddenly and he had to help support the family for a year. He had several jobs, most of them working on home construction crews.

Using the G.I. Bill, Mr. M _____ enrolled at the University of Georgia and obtained his degree in 1950. During college, he went out for the baseball team in his freshman year but gave up baseball altogether after he married one of his classmates. One of his main hobbies now is fishing, and he and his wife are active in a square dancing club. Mr. M _____ was undecided about what job to take after college and asked for help from a Veteran's Administration vocational counselor. After several interviews, he decided to return to his home city to work for the same uncle he worked for in high school, as the company was now large enough for him to have a supervisory position.

APPENDIX B, Continued
INFORMATION SHEET FOR PHOTOGRAPH #2

Name: Bryan W _____

Age: 25

Mr. W _____ was born in a large southeastern city, but his family moved to the West when he was six years old. His father was in the Navy, and the family moved three times while Mr. W _____ was in high school. He was active in the school band in each school. His main hobbies were reading, music, and water sports. After high school graduation, Mr. W _____ worked for almost a year as clerk in a local bookstore to save money for college. At this time the family moved back to the Southeast again, and Mr. _____ enrolled in the University of Georgia. He attended college for only one year because of financial difficulties. He joined the Army to fulfill his military obligations, and served in the Medical Corps.

After his discharge from the Army, Mr. _____ sought help from a Veteran's Administration vocational counselor. When he found that he had good potential for finishing college, he returned to the University of Georgia immediately. Two and a half years later, in 1950, he obtained his degree. Soon after graduation he married a girl whom he had met during his freshman year at the university. He and his wife water ski a great deal, and he enjoys a new-found hobby of coin collecting.

He was undecided about what to do after college and went back to the vocational counselor. There he made tentative plans to join the training program of a nearby industrial firm.

APPENDIX C, Continued

SAMPLE SCORING FOR EXPERIMENTAL TASK

	1	2	1	2	
	A	B	B	A	
8.					5.
businesslike					likes to compete with others
hard to impress					touchy and easily hurt
accepts advice readily					trusting and eager to please
enjoys taking care of others					gives freely of self
9.					9.
always giving advice					acts important
impatient with other's mistakes					self-seeking
self-punishing					shy
too easily influenced by friend					will confide in anyone
10.					10.
boastful					proud and self-satisfied
bitter					complaining
dependent					wants to be led
forgives anything					oversympathetic
11.					11.
bossy					dominating
outspoken					often unfriendly
passive and unaggressive					meek
fond of everyone					likes everybody
12.					12.
thinks only of himself					shrewd and calculating
jealous					slow to forgive a wrong
lets others make decisions					easily fooled
generous to a fault					overprotective of others
13.					13.
tries to be too successful					expects everyone to like him
sarcastic					cruel and unkind
timid					always ashamed of self
wants everyone's love					agrees with everyone
14.					14.
somewhat snobbish					rebels against everything
resentful					egotistical and conceited
hardly ever talks back					clinging vine
too lenient with others					tries to comfort everyone

APPENDIX D

TABLE 2

MEAN FIRO-B INCLUSION PLUS AFFECTION (I + A) SCORES AND EXPRESSED CONTROL (e^c) SCORES FOR PERSONAL ORIENTED (PO) AND CONTROL ORIENTED (CO) GROUPS, BY SEX, AND TOTAL FOR BOTH GROUPS

	<u>I + A*</u>		<u>e^{c**}</u>	
	<u>M</u>	<u>σ</u>	<u>M</u>	<u>σ</u>
PO, Males	25.88	4.77	2.44	1.62
CO, Males	12.81	6.29	5.69	.90
PO, Females	27.50	3.54	1.00	1.17
CO, Females	18.06	4.50	5.25	1.48
PO, Total	26.69	4.11	1.72	1.58
CO, Total	15.44	6.06	5.47	1.24

* All mean PO minus CO differences significant at $p < .001$

** All mean CO minus PO differences significant at $p < .001$

APPENDIX E

TABLE 3

MEAN FIRO-B INTERCHANGE, ORIGINATOR, RECIPROCAL AND TOTAL COMPATIBILITY SCORES FOR COMPATIBLE AND INCOMPATIBLE DYADS*

	<u>Compatible Dyads</u>		<u>Incompatible Dyads</u>		<u>t</u>
	<u>M</u>	<u>σ</u>	<u>M</u>	<u>σ</u>	
Interchange Compatibility	8.88	4.57	18.56	7.72	5.98***
Originator Compatibility	9.96	6.42	5.31	4.20	3.13****
Reciprocal Compatibility	14.75	5.42	19.94	5.19	4.12***
Total Compatibility**	33.31	10.88	43.81	13.66	3.29****

*Greater FIRO-B compatibility score = less compatibility

**Total compatibility score = sum of interchange, originator, and reciprocal scores

***Mean difference significant at $p < .001$

****Mean difference significant at $p < .01$

APPENDIX F

TABLE 4

FREQUENCY OF COMMUNICATION RESPONSES BY ORIENTATION-COMPATIBILITY
GROUP AND COMMUNICATION ROLE*

	<u>Communication Role</u>							
	<u>Sender</u>				<u>Receiver**</u>			
	CF	R	C	N	CF	R	C	N
PO- compatible	26	97	70	70	55	42	73	68
PO- incompatible	28	72	93	47	43	22	99	55
CO- compatible	28	84	74	54	38	39	100	46
CO- incompatible	<u>27</u>	<u>69</u>	<u>97</u>	<u>47</u>	<u>32</u>	<u>31</u>	<u>113</u>	<u>49</u>
Total	109	322	334	203	154	134	385	218

*CF = confirming response; R = redundant response; C = congruent response; N = novel response; PO = personal oriented group; CO = control oriented group.

**Receiver confirming responses (CF) adjusted by the formula:
Sender confirming response (SCR) = Receiver confirming response (RCR) times two-thirds (2/3).

APPENDIX G

TABLE 5

MEAN COMMUNICATION RATIOS BY ORIENTATION-COMPATIBILITY
GROUP AND COMMUNICATION ROLE*

	<u>Sender</u>		<u>Receiver</u>	
	<u>M</u>	<u>σ</u>	<u>M</u>	<u>σ</u>
PO- compatible	.58	.22	1.28	.66
PO- incompatible	.33	.61	1.56	.75
CO- compatible	.66	.26	1.20	.50
CO- incompatible	.68	.26	1.37	.80

*Communication ratio = confirming response/redundant response; PO = personal oriented group; CO = control oriented group.

APPENDIX II

TABLE 6

COMMUNICATION RESPONSES BY PHOTOGRAPH, ORIENTATION-COMPATIBILITY GROUP,
AND COMMUNICATION ROLE*

<u>Photograph Number 1</u>								
	<u>Sender</u>				<u>Receiver**</u>			
	<u>CF</u>	<u>R</u>	<u>C</u>	<u>N</u>	<u>CF</u>	<u>R</u>	<u>C</u>	<u>N</u>
PO-compatible	11	46	32	31	19	20	36	34
PO-incompatible	13	44	45	18	17	15	44	35
CO-compatible	18	40	40	22	24	13	55	15
CO-incompatible	<u>18</u>	<u>37</u>	<u>41</u>	<u>24</u>	<u>10</u>	<u>20</u>	<u>63</u>	<u>22</u>
Total	60	167	158	95	70	68	198	106

<u>Photograph Number 2</u>								
	<u>CF</u>	<u>R</u>	<u>C</u>	<u>N</u>	<u>CF</u>	<u>R</u>	<u>C</u>	<u>N</u>
	PO-compatible	12	51	33	24	21	22	33
PO-incompatible	15	28	48	29	25	7	55	20
CO-compatible	10	45	33	32	14	24	45	30
CO-incompatible	<u>8</u>	<u>29</u>	<u>59</u>	<u>24</u>	<u>21</u>	<u>11</u>	<u>50</u>	<u>27</u>
Total	45	153	173	109	81	64	183	110

*CF = confirming response; R = redundant response; C = congruent response; N = novel response; PO = personal oriented group; CO = control oriented group.

**Receiver confirming responses (CF) adjusted by the formula: Sender confirming response (SCR) = Receiver confirming response (RCR) times two-thirds (2/3).

APPENDIX I

TABLE 7

GROUP MEAN COMMUNICATION RATIOS BY PHOTOGRAPH, ORIENTATION-COMPATIBILITY GROUP, AND COMMUNICATION ROLE*

	<u>Photograph Number 1</u>		<u>Photograph Number 2</u>	
	Sender	Receiver	Sender	Receiver
PO-compatible	.24	.95	.24	.95
PO-incompatible	.30	1.33	.54	3.57
CO-compatible	.45	1.85	.22	.58
CO-incompatible	.49	.50	.28	1.91

*Communication ratio = confirming response/redundant response; PO = personal oriented group; CO = control oriented group.

BIOGRAPHICAL SKETCH

Donald M. Hartsough was born November 27, 1934, at Seville, Ohio. He was graduated from Cuyahoga Falls High School in June, 1951. He attended the College of Wooster, where he served as Student Body President, and in June, 1955, received the degree of Bachelor of Arts with a major in economics. The following year from February until June he attended the University of California. In 1956 he enrolled in the Graduate School of the University of Florida. He worked as a graduate assistant in the Department of Psychology from February, 1957, until August, 1958, when he received the degree of Master of Arts. During the academic years 1958-1959 and 1960-1961, he received a training grant from the Bureau of Vocational Rehabilitation in order to pursue work toward the degree of Doctor of Philosophy in clinical psychology. From September, 1959, until August, 1960, he was a research assistant in the College of Health Related Services of the University of Florida. His clinical internship was served at the J. Hillis Miller Health Center the following year. In August, 1961, he joined the Alachua County Health Department at Gainesville, Florida, as staff psychologist. From August, 1962, until the present, he has held the combined appointment of psychologist at the P. K. Yonge Laboratory School and instructor in the College of Education of the University of Florida.

Donald M. Hartsough is married to the former Dalyle Rose Ellis and is the father of three children. He is a member of the Florida Psychological Association and the American Association of University Professors. He is an associate member of the American Psychological Association.

This dissertation was prepared under the direction of the chairman of the candidate's supervisory committee and has been approved by all members of that committee. It was submitted to the Dean of the College of Arts and Sciences, and to the Graduate Council, and was approved as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

April 18, 1964



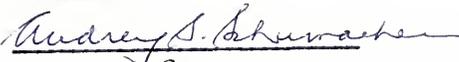
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