DYADIC BEHAVIOR IN SMALL GROUPS

by

Steven D. Levy

SUBMITTED IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE

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1962

Signature of Author. . . . . . Signature redacted . . . .
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Certified by . . . .
Faculty Advisor of the Thesis

23 Manchester Road
Brookline, Massachusetts
April 30, 1963

Professor Philip Franklin
Secretary of the Faculty
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

Dear Professor Franklin:

In accordance with the requirements for graduation, I
herewith submit a thesis entitled "Dyadic Behavior in Small
Groups."

I would like to take this opportunity to express my deep
gratitude to Professor Warren G. Bennis and to Professor Peer
O. Soelberg for their unselfish assistance and encouragement in
both the exploratory and experimental stages of this research.

I want to express my thanks also to Robin D. Willits for
his helpful comments and observations during the writing stage
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with the study, and for his help in organizing Chapters I and V.

Finally, I owe much to Mrs. Hazel Bright for her
extremely patient and competent work in typing both the initial
and final copies of this thesis.

Sincerely yours,

Steven D. Levy

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SUBMITTED TO THE SCHOOL OF INDUSTRIAL MANAGEMENT ON APRIL 30, 1963

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

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A B S T R A C T

The purpose of this thesis was to see whether or not dyadic pairing in small groups could be predicted from prior knowledge of the interactants' interpersonal orientation in social environments. The basis for the study derived from the interpersonal behavior theory of William C. Schutz, as described in his book, FIRO-A Three Dimensional Theory of Interpersonal Behavior. Schutz suggests the existence of three need areas: inclusion, control, and affection. In order to establish and maintain satisfying relationships, the individual must interact with some other person who fulfills his needs in these three areas.

Inclusion refers to the need for interaction with other people. Control connotes needs to both assume and accept authority and dominance. Affection refers to the establishment of warm and close relations with other individuals.

Given an individual's interpersonal needs, it is possible to calculate how relatively well the other persons in his social environment will satisfy them. From this one can predict whom will be chosen by the given individual as first choices on a sociometric questionnaire. This process is defined as determining the interpersonal compatibility of a given person vis-a-vis everyone else in the group.

Four sociometric questions were given to every participant. These were friendship, communication, similarity, and negative feelings.

Friendship refers to the feelings of intimacy or "liking" which the person felt for other members of his group. Communication refers to the degree to which the person is aware of the presence and actions of the other people. Similarity means the extent to which the person feels other members are like him. Negative feelings refers to sentiments of annoyance, antagonism and irritation with the other people.

The following hypotheses were made:

1. Sociometric choice along the friendship dimension will be related to compatibility between the chooser and the chosen in all three of the need areas.

2. Sociometric choice along the communication dimension will be related inversely to compatibility in the control area.

3. Sociometric choice along the similarity dimension will be related to dyad compatibility in the inclusion and control areas.

4. Sociometric choice along the negative feelings dimension will be related inversely to compatibility in the control area.

The testing procedure was to compare the number of times a compatible (or incompatible for communication and negative feelings) person was actually chosen first on a particular sociometric dimension with the probability of obtaining this number of occurrences or more by chance.

In general it was found that the hypotheses relating interpersonal compatibility to sociometric choice were not confirmed. Only in the cases of similarity and negative feelings did the results tend to follow the predicted direction.

Thesis Advisor: Warren G. Bennis

Title: Professor of Industrial Management

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CHAPTER I

INTRODUCTION

The purpose of this study was to investigate whether or not dyadic pairing in small groups, as revealed by responses on sociometric questionnaires, could be predicted from prior knowledge of the interactants' interpersonal orientation in social environments.

In recent years there has been considerable interest in the dynamics of small group behavior. Extensive literature exists on the subject of how group members interact with one another, and how the group as a composite unit develops.[1] In addition to this theoretical concern, many experimental studies have been performed to determine the important variables affecting both group performance and two-person behavior within groups.[2]

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[1] W. G. Bennis and H. A. Shepard, "A Theory of Group Development," Reprinted in The Planning of Change, ed. by W. G. Bennis, K. D. Benne, and R. Chin, (Holt, Rinehart and Winston, 1961) pp. 321-340; W. R. Bion, "Experiences in Groups I-II," Human Relations, 1948, 1, pp. 314-320, pp. 487-496; W. C. Schutz, FIRO--A Three-Dimensional Theory of Interpersonal Behavior (Holt, Rinehart and Winston, 1960), Chapter 9.

[2] W. G. Bennis et al, "A Note on Some Problems of Measurement and Prediction in a Training Group," Group Psychotherapy, Vol. X, No. 4, 328-341, December, 1957 (the results on page 334 are particularly relevant to the present study); W. C. Schutz, op. cit., Chapter 7; W. G. Bennis and D. Peabody, "The Conceptualization of Two Personality Orientations and Sociometric Choice," reprinted from The Journal of Social Psychology, 1962, 57, pp. 203-215.

The growing interest in managerial circles in the relative advantages and disadvantages of groups, both as training devices for executive personnel and as mechanisms for planning and executing corporate activity, has generated considerable activity among researchers to examine group processes. The equivocal nature of the results obtained in the studies to date further stimulates the desire to formulate operationally feasible frameworks with which to explain and predict group dynamics at both a micro and macro level. It is from considerations such as these that the motivation and rationale for the present research was derived.

The theoretical foundation of this study lies in the theory of interpersonal behavior developed by William C. Schutz.[3] An elaboration of his ideas is presented in some detail in Chapter II of this report. In general, however, Schutz postulates three areas of interpersonal need: inclusion, control, and affection. Inclusion refers to behavior involving the initiating and receiving of interactions with other people. Control includes such concepts as power and authority. Affection refers to the giving and receiving of warmth and love. In order to establish satisfying relationships with other people, the individual must succeed in finding other persons with whom he is comfortable behaviorally in these areas. Schutz has constructed a measuring instrument, FIRO-B, which yields data on the individual's

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[3]Schutz, op. cit.

interpersonal behavioral orientation in each of the three need areas.
In each area, two scores are obtained, one expressing the person's need
to initiate behavior, the second stating his need to receive behavior
from others.

Given FIRO-B data for each member of a group one can construct
combinations of the various people's individual scores to obtain a com-
patibility measure for every individual to every other individual. Com-
patibility, in the present usage, means the degree to which other per-
sons satisfy a given individual's needs in one or all of the areas of
inclusion, control, and affection. Once such a measure is obtained, it
is possible to predict which person should be selected by someone else
on a sociometric questionnaire. The detailed theoretical and methodo-
logical concepts pertaining to compatibility appear in Chapter II and
Chapter III, respectively.

Each of the 28 subjects, divided into groups of 7, 7, 6 and 8
people, were asked to rank every other member of their respective
groups along four dimensions. These rankings are based on sociometric
procedures (see Chapter III). The four dimensions were: friendship,
communication, similarity, and negative feelings. The descriptions of
these dimensions are included in Chapter II. In general, friendship
refers to the feelings of intimacy or "liking" which people felt
for other persons in their group. Communication refers to the degree
to which they are aware of the presence and actions of other members.
Similarity means the extent to which they feel that other members

are like them. Negative feelings refers to sentiments of annoyance,

antagonism, and irritation with the other people.

For each of the four dimensions predictions were made indicating

which types of interpersonal compatibility would be related to socio-

metric choice. A detailed description of the specific hypotheses is to

be found in Chapter II of this report. In general, the following major

predictions were made:

1. Sociometric choice along the friendship dimension will be

related to compatibility between chooser and chosen in all

three of the interpersonal need areas. In other words, it

will be related to total compatibility.

2. Sociometric choice along the communication dimension will be

related inversely to compatibility between the two inter-

actants in the control area. That is, people will select

persons with whom they are incompatible in the control area.

3. Sociometric choice along the similarity dimension will be

related to dyad compatibility in the inclusion area and in

the control area.

4. Sociometric choice along the negative feelings dimension will

be related inversely to compatibility in the control area of

interpersonal need.

Methodology

The methodology employed is described in detail in Chapter III. In general, the procedure was to compare the actual number of times a compatible[4] person was chosen first on a particular sociometric dimension with the probability of obtaining this number of occurrences or more by chance.

The procedure for determining who was compatible with the given person doing the sociometric choosing was straightforward. The compatibility scores for each individual with the individual doing the selecting were computed. These individual scores were then arranged in order, going from most compatible to least compatible. Approximately one-half the group was then defined as being compatible with the given individual. The remaining persons were defined as incompatible.

Results

In general, it was found that the hypotheses relating FIRO-B compatibility to sociometric choice were not confirmed. Only in the cases of similarity and negative feelings did the results tend to follow the predicted direction. The distribution of other significant compatibility measures was random.

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[4]For the sociometric dimensions of communication and negative feelings the number of times an incompatible person was selected was counted.

CHAPTER II

THEORETICAL BACKGROUND

It is hypothesized that in a small social setting in which the
individuals are interacting quite frequently and often quite inten-
sively, that one can expect dyadic formations to occur.[1] That is, one
can expect any given individual to select from among the other partici-
pants one or more individuals whom he regards as particularly significant
for one or more reasons. It is difficult, perhaps, for any person to
meaningfully rank order every other person according to some specific
criteria, but it is reasonable to expect that at least one person in a
group will have a particular significance for some other individual.
The identification of dyad formation was accomplished by having each
individual fill out sociometric questionnaires for each of the areas
discussed below.

Before presenting the definitions of the four sociometric dimen-
sions employed in this study, it will be useful to provide some back-
ground material on the interpersonal behavior theory developed by
Schutz.[2] From this theory emerges the basis for predicting dyad
formation.

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[1]W. R. Bion, "Experiences in Groups I-II," Human Relations, 1948,
1, pp. 314-320, pp. 487-496.

[2]W. C. Schutz, FIRO--A Three-Dimensional Theory of Interpersonal
Behavior (Holt, Rinehart and Winston, 1960), Chapter 9.

FIRO--A THREE-DIMENSIONAL THEORY OF INTERPERSONAL BEHAVIOR[3]

William C. Schutz has hypothecated that every individual has "three interpersonal needs: inclusion, control, and affection." (13) An interpersonal situation is one involving two or more persons who interact in some manner. "An interpersonal need is one that may be satisfied only through the attainment of a satisfactory relation with other people." (15)

1. The interpersonal need for inclusion is defined behaviorally as the need to establish and maintain a satisfactory relation with people with respect to interaction and association.

2. The interpersonal need for control is defined behaviorally as the need to establish and maintain a satisfactory relation with people with respect to control and power.

3. The interpersonal need for affection is defined behaviorally as the need to establish a satisfactory relation with others with respect to love and affection.

   "This type of formulation stresses the interpersonal nature of these needs. In order to be anxiety-free the person must find a comfortable behavioral relation with others with regard to the exchange of interaction, power and love. The need is not wholly satisfied by having others respond toward the self in a particular way; nor is it wholly satisfied by acting toward others in a particular fashion. A satisfactory balance must be established and maintained." (18-20) (emphasis mine).

Fundamentally, the foregoing provides the foundation for Schutz's theory. The three areas of inclusion, control, and affection are

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[3]The discussion in this section is a digestion of Schutz's book. When direct quotations are employed the page numbers in parentheses indicate their location in the text.

necessary and sufficient concepts with which to describe, explain, and predict interpersonal behavior.

Subsequent to the development of the conceptual framework Schutz tackled the problem of constructing a questionnaire which would serve two purposes:

1. Measure how an individual acts in interpersonal situations (58)

2. Predict interaction between people based on data <u>from the measuring instruments alone.</u> (58)

The measuring instrument[4] was designed "to measure the individual's behavior toward others (e) and the behavior he wants from others (w) in the three areas of interpersonal interaction."

> This measure leads to six scores--expressed inclusion behavior (e^I), wanted inclusion behavior (w^I), expressed control behavior (e^C), wanted control behavior (w^C), expressed affection behavior (e^A), and wanted affection behavior (w^A). The table below presents the basis statement of the content of the e and w aspects of each need area. (59)

Dimension	Expressed Behavior	Wanted Behavior
Inclusion	I initiate interaction with people	I want to be included
Control	I control people	I want people to control me
Affection	I act close and personal toward people	I want people to get close and personal with me

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[4]The instrument is known as FIRO-B (Fundamental Interpersonal

The details of how FIRO-B was constructed will not be gone into here. The interested reader can refer to Schutz's book, pages 59 through 65 in particular. Suffice it to say that the test has been demonstrated to be statistically reliable.

Thus we have an instrument which describes the individual's behavior in interpersonal situations along three dimensions. For each person who takes the test we obtain six integer scores, one each for e^I, w^I, e^C, w^C, e^A, and w^A. Each of these scores may range from zero to nine, inclusive.[5]

Compatibility

At this time it becomes necessary to introduce the concept of interpersonal compatibility. If we have FIRO-B scores for the individuals under study, we theoretically know how each person acts (e) and wants to be acted towards (w scores) in an interpersonal situation. What is needed is some basis for determining how well various pairs of individuals fulfill each other's needs. In the chapter on methodology, the detailed description of the various types of compatibility measures employed in the study are discussed. At this stage we want to introduce

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Relations Orientation-Behavior (The Behavior term is employed to distinguish it from some other instrument which might be used to measure, for example, feelings.

[5]The scale used is a nine point Guttman scale.

the concept that some person(s) will better fulfill the needs of a given individual than others.

Consider two individuals, A and B, who received the following scores on the FIRO-B inclusion scales.

FIRO-B Score

		e^I	w^I
MAN	A	2	2
	B	8	2

A expresses little inclusion behavior, i.e., he initiates relatively little interaction with people. B, on the other hand, has relatively little desire to be included, i.e., to receive interaction behavior from A. Thus, A and B will be compatible in the sense that one's desire to initiate interaction is equally matched by the other's desire to receive it. Intuitively we have a notion of some sort of interpersonal compatibility.

Consider, however, the opposite diagonal. B expresses a great deal of interaction behavior. A, on his account, has relatively little desire to be included. Thus A fails to satisfy B's expressed inclusion need, and B will likely exhibit too much such behavior for A's liking. There is some sort of interpersonal incompatibility.

This general analysis can be repeated for the interpersonal need areas of control and affection, as well as for combinations of some or

all of the three. In Chapter III different kinds of possible compatibility are discussed. In general, one can compute a compatibility measure of one kind or another for every individual relative to every other individual in the social environment we are studying. Obviously an individual will be more compatible with some persons than with others. In Chapter III a method is discussed pertaining to the definition of a binomial decision rule of overall compatibility. That is, every person in a group is defined as compatible with certain members of his group, and incompatible with the remaining people.

The next task is to define the specific dimensions employed in the sociometric questionnaire. Obviously, one can hypothecate many areas in which two persons may reasonably be expected to interact. For the purposes of this study four dimensions were utilized. It was felt that these represented a cross section of the various pertinent values involved in two-person interpersonal behavior.

Sociometric Dimensions

The students were asked to rank order every other member of their respective groups along four dimensions. The specific instructions to the subjects are to be found in Exhibit 1. Following is a description of the four dimensions:

1. Friendship

Friendship is a concept which means different things to different

people. In this study it was defined by a number of statements which were intended to include interpersonal variables of primarily an <u>inclusion</u> and <u>affectional</u> nature. The concept of <u>control</u> was not explicitly employed in the description of friendship given to the students on the sociometric questionnaire. The specific statements used are found in Exhibit 1.

The basic purpose of the description used was to direct the students' thinking along lines pertaining to a <u>total relationship</u> with the other individuals in their group. It was felt that too limiting a definition of friendship would be subject to the danger of restricting student thinking, and might inhibit choice of people with whom a total relationship existed. By a total relationship is meant one which includes the three areas of inclusion, control and affection. Although control factors are not explicitly described, they undoubtedly enter into an individual's concept of friendship at some behavioral level.

2. Communication

This dimension was intended to uncover the existence of dyads which were formed out of a feeling of concern for and awareness of the presence of others. The specific description is included in Exhibit 1. There is a possibility that some of the factors influencing the formation of friendship dyads will also be present in this situation. The possible interaction of these two dimensions will be discussed later in the chapter.

3. Similarity

The definition of similarity was intended to get at an individual's perception of how much alike he was to the other people in his group. The specific description may be found in Exhibit 1.

4. Negative Feelings

This dimension was intended to uncover feelings of antagonism, resentment, and irritation among group members. The description is included in Exhibit 1. This dimension was included because it was felt that sentiments of these sorts could not necessarily be assumed to be the reverse of feelings along the friendship dimension. Thus it is entirely possible that the two sets of feelings could co-exist in the same dyad.[6]

It should be noted that none of the dimensions are in any sense rigidly defined. Since it is believed that none of the sociometric areas can be monolithically described, it was decided to structure only the <u>respondents' general direction of thought.</u>

The Relation Between Sociometric Choice and FIRO-B

As has already been described, each individual was asked to rank order the other persons in his group on each of the four dimensions,

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[6]Much like the old adages that "we always hurt the ones we love" or "love and hate are but two sides of the same coin."

friendship, communication, similarity, and negative feelings. In this
section we are concerned with predicting sociometric choice on the basis
of the person's FIRO-B scores. Following is a discussion of the rela-
tionship between FIRO-B and dyad formation for each dimension.

Friendship. It is postulated that those people chosen on the
friendship dimension will be compatible[7] on all three of the inter-
personal need areas with the chooser. Furthermore, if one examines
separate area compatibility, these will be related to sociometric choice
in the following order of importance:

1. Affection

2. Control

3. Inclusion.

That is, one would expect an individual to select someone with whom he
is only affectionately compatible more frequently than a person will
choose someone with whom he is compatible only in the inclusion need
area.

The basis for predicting that total compatibility will be related
to sociometric choice is to be found in the hypothesis that "friendship"
is a total relationship. That is, people tend to choose as friends per-
sons with whom their total needs are most satisfied. Since the basis of
FIRO-B is that inclusion, control, and affection are necessary and

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[7]The concept of compatibility refers to compatibility as deter-
mined by FIRO-B.

sufficient to describe an individual's total interpersonal behavioral needs, it follows that we would anticipate dyadic compatibility in all of these need areas to be related to sociometric choice on a friendship dimension.

If one considers the nature of the friendship relation further, it is reasonable to suggest that successful resolution of the affection needs will be most important to successful dyad formation along this dimension. Thus, if two people are incompatible in other need areas, the fact that they are able to satisfy each other's need for closeness may be enough to permit feelings of friendship to exist, since friendship is that relationship between people which is most concerned with the affection area. On the basis of this reasoning one may predict that compatibility on the affection area alone will lead to dyadic choice more often than will compatibility in the other areas alone.

Similarly, one may reason that compatibility in the control area will be more important than compatibility in the inclusion area. The tenet here is that incompatibility in the control area will lead to more dyadic friction than will incompatibility in the inclusion area.

There is one reservation to be made. It is entirely conceivable that friendships begin to form along the inclusion dimension first. When two individuals meet it is reasonable to expect that the initial interactions will be primarily in the inclusion area, i.e., talking, dancing, casual interaction. The relationship, if satisfactory at this stage, will then move into the control and affection areas. Undoubtedly

the ultimate formation and maintenance of close friendly relations is most importantly determined by compatibility in the affection area. If, however, the participants have not known each other long enough to make affection need satisfaction critical, sociometric choice may be affected more importantly by inclusion compatibility, when one examines the three areas separately.

In the experimental situation of this study, it is difficult to say whether or not the participants had enough contact with each other to make affection compatibility of greater significance than inclusion.

Communication. It is hypothesized that the people selected on this sociometric dimension will be incompatible with the chooser in the control area. This dimension is concerned primarily with awareness of the other people in a group and with concern for their actions and presence in general. There are a number of possible reasons why someone might pay attention to another individual. In the dynamics of small group behavior, however, particularly in the early and middle stages of its development, the control issue is of prime importance.[8]

Conflict in the control area is perhaps one of the greatest sources of friction that a group experiences. Thus, one might suggest that during the early to middle stages of group life,[9] members are very

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[8] W. G. Bennis and H. A. Shepard, "A Theory of Group Development," Reprinted in The Planning of Change, ed. by W. G. Bennis, K. D. Benne, and R. Chin (Holt, Rinehart and Winston, 1961), pp. 321-340; W. C. Schutz, op. cit.

[9] The study was conducted after the groups had met for approximately

keenly aware of cues which derive from this area. Thus one would predict

that the individual is particularly interested in listening to, observ-

ing, and in general attending to someone with whom he is incompatible in

a very crucial area. In a sense, one might say that the attention given

to such an incompatible person arises from a type of dyadic competition.

Another possible basis of sociometric choice prediction arises

from some consideration of the friendship dimension. It is certainly

reasonable to expect that one will pay attention to one's friends. It

is suggested here, however, that in a sense the individual takes his

friends for granted. In the highly charged drama which generally

unfolds during the control phase of group life, the individual is far

more concerned with his "enemies" than with his "allies." It is the

people with whom he is in conflict that he watches!

Similarity. The ability to select the individual to whom one is

most similar will depend on the extent to which one can observe and

interact with the other persons in the group. In the environment in

which the members interact during group sessions, one is able to per-

ceive primarily inclusion and control similarities. The affection area

will not be intellectually evaluated. Since similarity is primarily an

intellectual perception, whereas friendship is perhaps more emotionally

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8 sessions. I believe most experts in the field of group dynamics would
consider this to be the early to middle phase, and certainly the group
observers in this study felt that the prime issues in which the group
was involved were of a control or power nature.

determined, it is predicted that sociometric choice on this dimension
will occur when the chooser is compatible with the chosen in the inclu-
sion and control areas.

Negative Feelings. It is predicted that incompatibility in the
control area will lead to sociometric choices along this dimension.
This is because the control issue, as discussed before, is of key
importance in the group life at this time. Hence, incompatibility in
the control area will give rise to feelings of annoyance, irritation,
and antagonism. The inclusion area should not affect sociometric
choice. The reason for this lies in the fact that inclusion incompati-
bility can be resolved by the individual's turning his attention to some
other member of the group. In a similar manner he can resolve affection
incompatibilities. Control, however, is like the proverbial skeleton in
the closet. Incompatibility in this area cannot be as easily avoided as
the other two. This follows both from the aggressive nature of control
interaction and from the fact that it is a prime concern of the group at
this time in its development.

EXHIBIT 1

The following set of questions are designed with the intention of finding out how you feel about the other members in your 15.371 T-Group.

You are being asked to rank order the other members in your group on four (4) separate dimensions. On the following pages you will find a description of each of these dimensions, along with a list containing the names of all the people in your group.

It is important that you rank everyone in the group (excluding yourself) on all of the questions. It is also important that a different rank be assigned to each member. Thus, as an example, in ranking your feelings of friendship towards the other people in the group, it is essential that only one person receive a rank of 1 beside his name. (This would be the person to whom you feel most friendly).

The questionnaire is written so that the person to whom the question best applies should receive a 1 beside his name, while the person to whom it least applies should have the highest number beside his name. (If there are seven other people in the group besides yourself, this last person would have a 7 beside his name). Thus as in the preceeding example, the person with whom you are least friendly would have the number 7 beside his name.

In answering the questions, try and consider only your own feelings toward the other persons in your group. Do not try and adjust for how you believe the other people feel about you.

EXHIBIT 1 (Continued)

Please be sure to hand this questionnaire in to the staff

observer before the end of the session. Make sure your name is on the

questionnaire.

Your answers will be kept confidential. Your assistance is very

much appreciated.

EXHIBIT 1 (Continued)

FRIENDSHIP

By FRIENDSHIP is meant the degree to which you like the other
persons in the group. It includes such factors as:

a. Desire to be with these people in various social settings.

b. Affection for these people.

c. Degree of interest and concern for their welfare.

d. Consideration for their well-being, feelings, etc.

EXHIBIT 1 (Continued)

COMMUNICATION

By COMMUNICATION is meant the degree to which you attend to the other members of your group. It includes such factors as:

    a. Interest in hearing what the other people have to say.

    b. The degree of attention which you give to the other people.

    c. The degree to which you react to their presence and observe their reactions.

EXHIBIT 1 (Continued)

SIMILARITY

By SIMILARITY is meant the degree to which you are similar to the other persons in your group. It includes such factors as:

      a. Common background.

      b. Similar philosophy of life.

      c. Similar values, beliefs.

      d. Similar type of overt behavior.

      e. Similar ways of thinking about problems.

      f. Similar personality traits.

Notice that SIMILARITY is not necessarily the same as FRIENDSHIP, although the two may overlap. Thus you may feel yourself to be very similar to some member of your group with whom you are not particularly friendly.

EXHIBIT 1 (Continued)

NEGATIVE FEELINGS

By **NEGATIVE FEELINGS** is meant the degree to which you feel negatively towards the other members in your group. It includes such factors as:

      a. Feelings of antagonism toward these people.

      b. Feelings of resentment.

      c. Feelings of annoyance and irritation.

Please note that this question is not the simple reverse of the question on FRIENDSHIP.

CHAPTER III

METHODOLOGY

The study was performed on four small groups (with memberships
ranging from six to eight persons) of students. These students were
participating in the basic social psychology course offered by the
Graduate School of Industrial Management at the Massachusetts Institute
of Technology. The course was structured so as to combine lectures
delivered by one or the other of two professors in charge of the course
with Training Group[1] experience. This latter aspect of the course
attempted to combine the usual Training Group concern for process with
the performance of certain tasks by the group.

Two sets of data were collected during this study from each of
the 28 students participating in the program. These included:

1. The individual's interpersonal orientation as measured by
   FIRO-B[2] (see Chapter II).

2. Sociometric choice data for each student (see Exhibit 1).

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[1]The literature on Training (T) Groups is extensive. For a con-
cise statement of the purposes and functions of Training Groups relative
to other possible types of organizations see Matthew B. Miles, "The
Training Group" in The Planning of Change, ed. by W. G. Bennis and R. D.
Benne and R. Chin (Holt, Rinehart and Winston, 1961), pp. 716-725; see
also Herbert A. Shepard, "The T-Group as Training in Observant Power."

[2]W. C. Schutz, FIRO-A Three-Dimensional Theory of Interpersonal
Behavior (Holt, Rinehart and Winston, 1960), in particular Chapter 4,
pp. 57-65.

The FIRO-B data were collected during the first session of the course. The sociometric information was obtained after the students had been meeting for approximately six weeks (about eight group sessions).

From the FIRO-B data compatibility[3] measures for each individual were computed relative to each of the other members of his group. To summarize from Schutz's[4] text, a brief description of these compatibilities follows.

Reciprocal Compatibility (rK)

The foundation underlying reciprocal compatibility may be found in the hypothesis that "a person wants to act a certain way toward the other (in a dyad), and wants to be acted toward in a certain way." (107) Two aspects must be considered:

1. "Does j express the behavior wanted by i?" (108)

2. "Does j respond favorably to the type of behavior i characteristically expresses?" (108)

Reciprocal compatibility (rK) may be indicated quantitatively by letting e_i and e_j stand for the score on the expressed behavior for the first and second members of the dyad respectively, and w_i and w_j the score of the behavior wanted from others. A comparison is made between

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[3]Schutz, op.cit., pp. 106-115. In total sixteen compatibility measures were computed for each individual. These are summarized in Table 6-1 of Schutz's book, on page 115.

[4]Op.cit. Where direct quotations are made, the number in parenthesis following the quotation indicates the page location in Schutz's book.

the way member i likes to be acted toward (w_i) and the way member j likes to act toward others (e_j), and similarly between w_j and e_i. The smaller the discrepancy between each pair of scores, the better will each person satisfy the needs of the other. Hence a measure of the reciprocal compatibility of persons i and j is given by

$$rK_{ij} = \left| e_i - w_j \right| + \left| e_j - w_i \right|$$

Absolute measures are used since at this point the main concern is with the size rather than the direction of the differences." (108)

If two people are perfectly compatible, rK_{ij} is equal to zero. Four types of reciprocal compatibility were computed for each dyad. These are:

a) rK_{ij}^I = reciprocal compatibility along the <u>inclusion</u> dimension of FIRO-B.

b) rK_{ij}^C = reciprocal compatibility along the <u>control</u> dimension of FIRO-B.

c) rK_{ij}^A = reciprocal compatibility along the <u>affection</u> dimension of FIRO-B.

d) $rK_{ij}^T = rK_{ij}^I + rK_{ij}^C + rK_{ij}^A$ = total reciprocal compatibility

<u>Originator Compatibility</u> (oK)

Originator compatibility measures the way two people operate regarding their respective desires to "originate relations and to receive them." "For two people to operate effectively together, their preferred behavior regarding originating and receiving should be complementary." (109)

"To obtain a measure of originator compatibility (oK) a score for
each individual, to express his degree of preference for initiating and
not receiving is obtained. . . . that is $(e_i - w_i)$" (109) Highest compat-
ibility occurs when the algebraic sum of the two persons' originator
scores is zero, that is, when the two scores are equal in magnitude and
opposite in sign. "If both persons prefer to originate rather than
receive, the sum of their scores will be positive, reflecting competi-
tive incompatibility. If both prefer receiving, the sum of their scores
will be negative, indicating apathetic incompatibility." Hence, origin-
ator compatibility for a dyad is given by

$$oK_{ij} = (e_i - w_i) + (e_j - w_j) \qquad (109)$$

As with the measurement of reciprocal compatibility, the highest dyadic
compatibility occurs when oK_{ij} is zero. Similarly, four types of
originator compatibility were computed, one each for the areas of inclu-
sion, control, and affection, and one for total originator compatibility
equal to the algebraic sum of the first three.

Interchange Compatibility (xK)

Interchange refers to the total degree to which an individual
wishes to participate in the dyadic interaction. The assumption under-
lying this concept is that the individual's total desire for interac-
tion, whether originating or receiving, may be by the sum of his scores
on the expressed and wanted scales--$(e_i + w_i)$. Thus, interchange com-
patibility is measured by the absolute value of the difference between

the persons' interchange scores--(e+w). As an illustration from the
control area, an individual who "wants to follow the rules from above
and the rules below (high interchange) would conflict with the one who
wants to do neither (low interchange)." (111)

"Hence, the interchange compatibility score for two persons, i
and j, is given by

$$xK_{ij} = \left| (e_i + w_i) - (e_j + w_j) \right|" \qquad (112)$$

As with the reciprocal and originator compatibilities, the highest
dyadic compatibility occurs when xK_{ij} is zero. Similarly, four such
interchange compatibilities are measured, one each for the areas of
inclusion, control, and affection, and one which expresses total inter-
change compatibility.

Area Compatibility (K)

For each of the areas--inclusion, control, and affection--there
are three compatibility measures, one each for reciprocal, originator,
and interchange. Total area compatibility is defined to be the sum of
the three types of compatibility for that area. Thus:

$$K^I = \text{Total inclusion compatibility} = rK^I + oK^I + xK^I$$
$$K^C = \text{Total control compatibility} = rK^C + oK^C + xK^C$$
$$K^A = \text{Total affection compatibility} = rK^A + oK^A + xK^A$$

Total Compatibility (K^T)

Total compatibility is defined as

$$K^T = K^I + K^C + K^A = rK^T + oK^T + xK^T$$

The following diagram summarizes the foregoing discussion.

		Areas of Compatibility		
		I	C	A	
	r	rK^I	rK^C	rK^A	rK^T
Types of Compatibility	o	oK^I	oK^C	oK^A	oK^T
	x	xK^I	xK^C	xK^A	xK^T
		K^I	K^C	K^A	K^T

Definition of Overall Compatibility

As was described above, the compatibility of each of the individuals relative to every other person in his group was computed. Thus, as an example, computations for rK^T for man A in Group 1 might appear as follows:

Man A: -- Total Reciprocal Compatibility (rK^T) with:

B	C	D	E	F	G
1	2	3	4	5	6

where the numbers represent the scores and the letters signify the other persons in the group. For the analysis that followed, these definitions were made:

Seven-Man Groups (Groups 1 and 2)

1. A man was defined as compatible to those three persons in his group with whom his individual compatibility scores were closest to zero (i.e., with those three members with whom he was closest to being perfectly compatible). Conversely, a man was defined as incompatible with those three people whose compatibility scores with him were furthest from zero. Thus in the foregoing example, A would be compatible with members B, C and D. He would be incompatible with E, F and G.

Six-Man Group (Group 3)

In this group, two definitions of compatibility were used. In the first of these a man was defined as compatible with the two men with whom his scores were closest to zero. For the second calculation, a man was compatible with those three men with whom his scores were closest to zero. Thus in the following example:

Man C: -- Total Reciprocal Compatibility (rK^T) with:

A	B	D	E	F
1	2	3	4	5

Man C was defined as compatible with A and B, and incompatible with D, E and F in the first instance. In the second case C would be compatible with A, B and D, and incompatible with E and F.

<u>Eight-Man Group</u> (Group 4)

In the eight-man group two separate definitions of compatibility were employed. For the first set of calculations, the cutoff between compatibility and incompatibility occurred after the first three men (as in Groups 1 and 2). In the second test, the cutoff occurred after the first four men.

As an example, the following total reciprocal compatibility scores for man B relative to the other seven men in his group might occur.

Man B: -- Total Reciprocal Compatibility (rK^T) with:

A	C	D	E	F	G	H
3	4	5	6	7	8	9

Under the first criterion of compatibility man B would be <u>compatible</u> with men A, C and D. He would be <u>incompatible</u> with men E, F, G and H. Using the second criterion, man B would be compatible with A, C, D and E. He would be incompatible with F, G and H.

<u>Method of Analysis</u>

The basic objective in the data analysis was to compare the number of times which a <u>compatible</u> man was selected as first choice on the various sociometric dimensions with the chance probability that he might be selected.

Consider the following situation in one of the two seven-man groups (Group 1 or Group 2). Each man in the group was rated as <u>compatible</u> with three of the other six persons and incompatible with the remaining three. That is, in the following example, A is compatible with B, C and D, and incompatible with E, F and G.

Man A: -- Total Reciprocal Compatibility (rK^T) with:

B	C	D	E	F	G
1	2	3	4	5	6

We are interested in whether A chooses B, C or D as his first choice on, for example, the friendship dimension of the sociometric questionnaire. If no forces other than chance are at work in influencing whom A selects (i.e., FIRO-B compatibility or incompatibility is not related to sociometric choice), then the probability of B or C or D being chosen by A is equal to one-half.[5]

This procedure may be repeated for all of the seven men in the group. This is equivalent, then, to a binomial process where the chance probability of a compatible man being picked first on a sociometric questionnaire is equal to one-half. It follows naturally that the number of events in this process is equal to seven (the number of men in the group who made sociometric choices).

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[5]The value of one-half is equal to the sum of the probabilities of either B or C or D being chosen (i.e., p(B) = 1/6, p(C) = 1/6, p(D) = 1/6 and p(B or C or D) = 3 (1/6) = 1/2).

It is evident that two possibilities exist. Either a compatible man is chosen first on the sociometric, or he is not. We will assume the framework whereby an _occurrence_ is defined as the situation where a compatible man is chosen first on the sociometric, and a _nonoccurrence_ as the situation where a compatible man is not chosen first. We then compare the number of _occurrences_ observed in a group _with the binomial probability that the observed number of occurrences or more than the observed number of occurrences_ might be expected by chance alone. Thus, suppose in a seven-man group, with the probability of an _occurrence_ equal to one-half, the observed number of _occurrences_ was equal to six. The binomial probability of six or more[6] occurrences is equal to 0.0625.[7] In other words, one could expect the observed number of occurrences or more only about six times in one hundred by chance alone (one-tailed test).

Now that the general method has been discussed, we can briefly describe the probabilities associated with the six-man group (Group 3) and the eight-man group (Group 4). The only difference between these two and the seven-man groups, other than size, is that the chance probability of each occurrence is not equal to one-half. The process itself, however, is still binomial in nature.

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[6] In this case it would be the binomial probability of six or seven occurrences, since seven is the maximum possible.

[7] See Table I of this report.

Six-Man Group

1. Two-person Compatibility Criterion

In the case where one individual is judged to be compatible with the two other persons with whom his scores are closest to zero on a particular FIRO-B compatibility measure, the chance probability of a man selecting someone with whom he is compatible as his first choice on a sociometric dimension is equal to 2/5.[8]

2. Three-Man Compatibility Criterion

When a compatible person is defined to be any of the three men with whom a given individual's scores are closest to zero, the probability, by reasoning similar to that above, of a compatible person being selected first on a sociometric dimension is equal to 3/5.

Eight-Man Group (Group 4)

1. Three-Man Compatibility Criterion

When three men in the group are defined as compatible with the given individual, the chance probability of one of these three being selected first on the sociometric is equal to 3/7, i.e., 1/7 and 1/7 and 1/7.[9]

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[8]Since any individual can choose from among five others, the probability of any one man being chosen first is equal to 1/5. The probability of either of two men being selected is thus equal to 2 (1/5) = 2/5.

[9]In the eight-man group, for example, any individual can select

2. Four-Man Compatibility Criterion

By reasoning similar to that above, the probability of a compatible man being selected is equal to 4/7.

Table I gives the binomial distribution parameters for each group with each compatibility cutoff definition.

Table II gives the discrete and summed binomial distribution for each group.

The foregoing discussion has used as an example the cases where we are concerned with sociometric choice and compatibility. On the second and fourth dimensions of the sociometric questionnaire, communication and negative feelings,[10] the purpose is to relate sociometric choice to incompatibility of the chosen with the chooser. The binomial probabilities associated with these cases will, of course, follow the same pattern as those outlined above.[11] For anyone to whom this is not evident, refer to the previous discussion substituting the words "incompatible and incompatibility" for "compatible and compatibility," respectively. Also substitute "farthest from zero" for "closest to zero." This practice will be followed for the remainder of this chapter as well.

from among seven other persons. Thus the probability of a particular man being picked first is = 1/7.

[10] See Exhibit 1 and Chapter II.

[11] I.e., in a seven-man group, the probability of an incompatible person being selected first is = 1/2.

It should also be emphasized that with the definitions of compatibility employed in this study, two people are not necessarily reciprocally compatible in an overall sense. The following example should serve to illustrate this point.

Total Reciprocal Compatibility (rK^T) with:

MAN A:	B	C	D	E	F	G
	1	2	3	4	5	6

D:	B	C	E	A	F	G
	1	2	2	3	4	5

By our definition A is deemed compatible with B, C and D, while D is deemed compatible with B, C and E. Note that the dyad scores are the same, i.e., there is only one score whether one looks at A's individual compatibility with D or vice versa.

A word is in order as to why the compatibility-incompatibility measures employed in this study were selected over some other one(s). It was felt that this measure was appropriate for a number of reasons.

1. The compatibility criteria used divided the group into two sections at approximately the midpoint. It was felt that if FIRO-B compatibility was related to sociometric choice then an indication of such would have been revealed. To have employed a looser definition of compatibility, i.e., to have included more people as compatible with the given individual, would have meant increasing the chance probability of an occurrence to a value so large that the detection of some mechanism

other than chance which might be operating would have been extremely difficult. This was primarily due to the small size of the groups.

2. In addition, from a theoretical standpoint, one is interested in attempting to refine the compatibility definition to include as few persons as possible. Thus, if in the seven-man group, five of the other six persons are defined as compatible with the chooser, the fact that one of these five is indeed selected first along a sociometric dimension does not supply one with much predictive ability about dyadic formation!

It was felt that if the results obtained using the compatible-incompatible criteria described above tended to support the hypothesis, then one could refine the measures to include even fewer people, i.e., to include only one of two people as compatible with a given individual.

Tied Scores

It is entirely probable that a given individual may be equally compatible with two or more persons. While this does not pose a problem when the ties occur to one side or the other of the cutoff point, it does need resolution when the cutoff occurs between two persons who are equally compatible with the chooser. Consider the following compatibility scores of the other people in a group with man A.

Man A: -- Total Reciprocal Compatibility (rK^T) with:

B	C	D	E	F	G
1	2	3	3	4	5

By our criterion, A would be defined compatible with B, C and D. But
certainly A is as compatible with E as he is with D, since both have
compatibility scores of 3 with A.

The problem was handled in the following manner. Suppose A
selected D as first choice on one of the sociometric dimensions. If we
consider the case where A is deemed compatible with B, C and D, then the
selection of D represents one <u>occurrence</u>. But if A is deemed compatible
with B, C and E, the selection of D is a <u>nonoccurrence</u>. When such a
situation arose the net occurrence or nonoccurrence was <u>equal to the
average</u> of the possible outcomes. In this case it would be recorded <u>as
one-half of one occurrence</u>.

In general, then, when tied scores occurred the net occurrence
recorded was equal to the number of occurrences divided by the total
number of compatible combinations possible. Some examples should fur-
ther elucidate this point.

Man A: -- Total Reciprocal Compatibility (rK^T) with:

B	C	D	E	F	G
1	1	2	3	4	5

If A selects B or C on his sociometric, the number of <u>occurrences</u> is
equal to 1.

Man A: -- Total Reciprocal Compatibility (rK^T) with:

B	C	D	E	F	G
1	2	2	2	6	7

If A selects B on his sociometric, the number of <u>occurrences</u> is equal to 1.

If A selects C on this sociometric, the number of <u>occurrences</u> is equal to 2/3.

That is, there are <u>three</u> possible combinations[12] with whom A is compatible. C will be in two of these three. Since C is in fact chosen, a compatible man is selected two out of three, or 2/3.

Sociometric Choice

The criterion used in this study was the number of times a compatible man was selected as <u>first</u> on a sociometric dimension. The decision to look at first choices only was made for two reasons.

1. It was felt that the rather narrow ranking system of the sociometric questionnaire was such that determination of the relative strength of the differences between places on the questionnaire would be impossible to determine either for an individual chooser or between individuals selecting. Thus one could not say whether, in the mind of the chooser, the difference between first and second choice was the same as that between second and third. In other words, sociometric scales provide an ordinal, not a metric, measurement. In addition, one had no

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[12]

B	C	D
B	C	E
B	D	E

Note that we are concerned with the possible combinations and not the permutations. Thus BCD = BDC.

way of judging whether the difference between the same two positions was
equivalent for different individuals. Although the second of these prob-
lems still exists when one examines the first choice only, the first is
eliminated.

2. Even granting the presence of the inter-chooser rating prob-
lem, the fact remains that the first sociometric choice is known to be
the most significant individual for the chooser on a given dimension.

The Groups

The four groups were constructed by the leaders of the course
such that the means of the FIRO-B scores of the individuals within each
group were equivalent.

Use of the Binomial Distribution for Analysis

As has been suggested earlier in this chapter the binomial distri-
bution was employed as the main statistical tool in this study. For
each of the 16 types of FIRO-B compatibility measures, the observed num-
ber of occurrences was recorded for each of the four dimensions on the
sociometric questionnaire for each of the groups separately. The
binomial distribution for each group and each compatibility measure was
used to determine what the probability was of obtaining the observed
number of occurrences or more than the observed number of occurrences by
chance alone. It should be pointed out that when the number of occur-
rences was not an integer number, the apporpriate binomial probability
was obtained by linearly interpolating between the integer probabilities.

TABLE I

BINOMIAL PARAMETERS AND COMPATIBILITY CRITERIA

$$\text{General Binomial Formula: } P(X) = C_x^n \, p^x \, (1-P)^{n-x}$$

where x = observed number of <u>occurrences</u>

n = number of events in sample

p = probability of an <u>occurrence</u>

<u>Group</u>	<u>Compatibility Criterion</u>		<u>n</u>	<u>p</u>
1		1st 3 men	7	1/2
2		1st 3 men	7	1/2
3	a)	1st 2 men	6	2/5
	b)	1st 3 men	6	3/5
4	a)	1st 3 men	8	3/7
	b)	1st 4 men	8	4/7

TABLE II

DISCRETE AND SUMMED BINOMIAL PROBABILITIES

Group	When x is	Probability of x	Probability of Getting x or more Occurrences
1 & 2	0	0.008	1.000
	1	0.055	0.992
	2	0.164	0.937
	3	0.273	0.773
	4	0.273	0.500
	5	0.164	0.227
	6	0.055	0.063
	7	0.008	0.008
3	0	0.047	1.000
	1	0.137	0.953
a) p=2/5	2	0.311	0.766
	3	0.276	0.455
	4	0.138	0.179
	5	0.037	0.041
	6	0.004	0.004
3	0	0.004	1.000
	1	0.037	0.996
b) p=3/5	2	0.138	0.959
	3	0.276	0.821
	4	0.311	0.545
	5	0.187	0.234
	6	0.047	0.047
4	0	0.011	1.000
	1	0.068	0.989
a) p=3/7	2	0.179	0.921
	3	0.269	0.742
	4	0.252	0.473
	5	0.151	0.221
	6	0.057	0.070
	7	0.012	0.013
	8	0.001	0.001
4	0	0.001	1.000
	1	0.012	0.999
b) p=4/7	2	0.057	0.987
	3	0.151	0.930
	4	0.252	0.779
	5	0.269	0.527
	6	0.179	0.258
	7	0.068	0.079
	8	0.011	0.011

CHAPTER IV

FINDINGS

In discussing the findings of the study each of the four socio-metric dimensions will be looked at separately. The chapter will conclude with an overall evaluation of the findings.

Friendship

The most significant observation to be gained from the study is the rather low levels of confidence which can be attached to the observed results. On the basis of our hypotheses pertaining to the friendship dimension, we would have expected observed results significantly better than chance on the compatibility measures, rK^T, oK^T, xK^T and K^T, i.e., those measures which indicate total compatibility.

In Group 1, the only observed result which had a 0.5 chance or less of occurring by chance was oK^T, and this measure had an observed confidence exactly equal to 0.5. In Group 2, oK^T, xK^T and K^T had confidences of 0.333, 0.500, and 0.500, respectively. In Group 3, using the first of the two compatibility criteria, oK^T was significant[1] at the 0.455 level only. When the second of the two measures was employed, none of the total compatibility measures were significant.[2] The _average_

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[1] The term _significant_ refers to the summed binomial probability associated with obtaining the observed number or more occurrences.

[2] When the term _significant_ is employed without qualification it signifies significance at the 0.5 level or better.

result[3] in Group 3 indicates that none of the total compatibility
measures were significant at the 0.500 level or better. The most
significant results occurred in Group 4 when the three-man compatibility
criterion was employed. rK^T, oK^T, xK^T and K^T were significant at the
0.305, 0.473, 0.473 and 0.221 levels, respectively. When the second of
the two criteria, i.e., four-man, was used, only rK^T (0.438) and K^T
(0.079) were significant. The combined result for Group 4 indicated
that rK^T and K^T were significant at the 0.372 and 0.150 levels, respec-
tively. The results just presented are contained in Table III.

No pattern among groups emerges from our examination of the
results shown in Table III. The four compatibility measures appear as
significant (by the 0.500 or better criterion), approximately the same
number of times. Only oK^T appears as significant in all four groups in
at least one of the compatibility criteria. When the average result in
Group 3 and Group 4 is calculated for oK^T, the measure is not signifi-
cant in either.

The hypothesis relating total compatibility to sociometric choice
on the friendship dimension is not confirmed. With the exception of
Group 2, there is no evidence at all in the predicted direction.

The results do not tend to confirm the hypotheses relating
separate area compatibility to sociometric choice along this dimension.
Table IV indicates the number of times which the inclusion, control, and

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[3]In Group 3 and Group 4, where two compatibility criteria were
used, an average significance level was also calculated.

affection compatibilities were related to sociometric selection, i.e., the number of occurrences for each compatibility. Table V contains the significance of the observed number of occurrences for the various inclusion, control, and affection compatibilities.

The data compiled in Tables IV and V indicates that there is little if any difference between the number of occurrences and/or the number of significant occurrences of any of the area compatibilities. The total occurrences are approximately equal and the number of significant compatibility measures in each area is also much the same.

Communication

It was predicted that sociometric choice along this dimension should be related to incompatibility in the control area. Table VI summarizes the results. It indicates whether the observed occurrences were significant at the 0.500 level or better.

It is evident that the significant compatibilities vary from group to group, both in total number which are significant, and in the specific ones which are within the 0.500 confidence level. Group 1 has three significant relations while Group 4 has none. Group 2 exhibits significance in oK^C and xK^C, while Group 3 displays it for rK^C and K^C.

The hypothesis relating sociometric choice along the communication dimension with incompatibility in the control area is not confirmed.

Similarity

It was predicted that sociometric choice along this dimension would occur when the chooser and the chosen were compatible in the inclusion and control areas. Tables VII and VIII present the data for these areas respectively.

Table VII indicates that the results in the inclusion area are rather ambiguous. The observations from Group 1 and Group 3 lend no support to the hypothesis that inclusion compatibility will be related to sociometric choice along the similarity dimension. Group 2 and Group 4, however, have three significant results out of the four inclusion compatibility measures.

The results in the control area are more encouraging. While Group 1 has no significant observation, Groups 2, 3 and 4 have significance in three of the four measures.

One may tentatively conclude that compatibility in the control area is somewhat related to sociometric choice along the similarity dimension, but the relation is by no means clear-cut. The results in the inclusion area indicate that the relation of compatibility to sociometric choice is extremely unclear, although there is some evidence in support of the hypothesis.

Negative Feelings

It was postulated that sociometric choice along this dimension

will be related to incompatibility in the control area. Table IX

presents the results pertaining to this hypothesis.

The results are once again ambiguous. Group 4 has no significant

results (on the average) while Groups 2, 1 and 3 have two, three and

four significant observations, respectively. On the basis of this, one

may conclude that incompatibility in the control area is somewhat

related to sociometric choice along the negative feelings dimensions.

It should be pointed out that the results for the group were not

pooled for a number of reasons. The experimental situation was such

that each man was making sociometric choices only from among the other

members of his group. While FIRO-B compatibility scores could have been

calculated for each person with every other person in the course, the

individual obviously did not have the entire population on which to base

his sociometric selections.

The next step was to obtain the statistic known as collective

significance.[4] This is a technique for combining the significance

measures of independent samples which cannot legitimately be lumped

together. Inspection of the data, however, reveals that the significant

compatibility measures in each group are not the same throughout the

groups. It was felt that a prerequisite to using the collective signif-

icance test should be the existence of confidence levels of 0.500 or

better in all groups on the particular compatibility measure for which

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[4]G. P. Wadsworth, G. T. Bryan, _Introduction to Probability and Random Variables_, McGraw-Hill, 1960, pp. 176-179.

it was desired to combine the data. Since this situation never existed,
the test was not employed. The next thought was to see if one could
justify eliminating the data from one of the groups in order to achieve
the condition for using the collective significance test, as described
above. There are two conditions under which this was felt to be
allowable.

1. One or more of the groups could be eliminated if it could be
   shown statistically that it (they) differed from the others.
2. Perhaps one could eliminate some of the data if it could be
   shown that the group(s) from which they came were qualita-
   tively different from the other groups.

In answer to the first of these points an attempt was made[5] to
determine whether one or more of the groups had less (more) significant
results than the others, in general. This in essence is testing
whather, for some reason(s) unknown to the experimenter, the sample in
question is statistically different than the rest. The result was
negative. In terms of the overall responses the groups were similar.

Qualitatively one might reject the data from one or more of the
samples if it could be reasoned that the group was undergoing some
experience, or was subject to some conditions, which the others were
not. To the best knowledge of this writer, no such argument could be

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[5] By X^2 and Fisher Test which compared significant and nonsignifi-
cant results between groups.

upheld. The groups were of approximately the same size, so that the members of each group all had the same opportunity to observe and inter-act with one another. There is no reason to believe that the persons in any one group had more or less extracurricular contact with each other. In terms of the tasks given to the students, these were identical for everyone. Finally, there is no cause to anticipate significant differ-ences in the developmental stages of the various groups. Thus all of them were probably in the stage where members' concern was with the "handling and distribution of power."[6] Thus it was not possible to discard any of the data.

General Results

As part of the process of testing the specific hypotheses, observations were also made relating all of the compatibility measures to sociometric choice. The number of _occurrences_ for all of these measures along each dimension are contained in Tables X through XIII. The significances of the observed occurrences are found in Table XIV through Table XVII. In general, one notices that there are no patterns evident in the distribution of significant measures, other than those already suggested earlier in the chapter.

These observations are as one might expect. The lack of any tentative pattern in the distribution of significant compatibility

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[6]See W. G. Bennis and H. A. Shepard, "A Theory of Group Develop-ment," Reprinted in The Planning of Change, ed. by W. G. Bennis,

measures, other than those predicted to be related to sociometric
choice, suggests that the postulates about which need areas are import-
ant have some support, tenuous though it is.

There is also no a priori reason why some significance in other
compatibility measures should not occur. The hypotheses developed for
this research suggest only that certain types of compatibility will be
related significantly to certain sociometric dimensions. They do not
claim that other significant compatibilities should never occur.
Indeed, one would expect persons compatible in a predicted area to some-
times be compatible in other areas. What one would hypothecate is that
the distribution of these other measures in various samples will be
unpredictable.

An Unanticipated Finding

With the FIRO-B data available for all 28 persons in the study,
it was decided to determine whether or not there was a significant dif-
ference between those people who were chosen on the various sociometric
dimensions, and those people who did the choosing. In other words, the
hypothesis was tested that those persons chosen first on a particular
dimension a disproportionate number of times were somehow different than
the other persons in the study, and that this difference was one which
would appear upon examination of the FIRO-B scores of the two groups.

K. D. Benne, and R. Chin (Holt, Rinehart and Winston, 1961), p. 322.
For a slightly different elaboration of the same theme, see Schutz, FIRO-
A Three Dimensional Theory of Interpersonal Behavior (Holt, Rinehart and
Winston, 1960), Chapter 9 (page 171 in particular).

Methodology

1. For each of the four sociometric dimensions those individuals who were selected as first choices on two or more occasions were identified. Samples composed of such people will be referred to as "chosens." Samples composed of the remaining persons in the study will be referred to as "choosers." These data are presented in Table XVIII.

The people who met the "two-or-more times picked" criterion represented 71.4 per cent, 64.3 per cent, 57.1 per cent and 67.9 per cent of the total possible choices (28) on the friendship, communication, similarity and negative feelings dimensions, respectively.

2. For each dimension the means of the chosens groups and of the choosers groups were calculated for each of the six sets of FIRO-B scores.[7] The Student's T-test was performed to determine whether there were any significant differences in the means of the scores of the two groups for any of the FIRO-B measures.

3. For each sociometric dimension the variances of the scores of the chosens groups and the variances of the scores of the choosers groups were calculated for each of the six FIRO-B measures. F-tests were performed to determine whether there were any significant differences in the variances of the groups.

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[7] I_e, I_w, C_e, C_w, A_e, A_w.

Expectations

1. If the population of chosens does differ from the population
of choosers with respect to their FIRO-B scores, one would expect the
means of the scores of the first set of groups to be significantly dif-
ferent from the means of the scores of the latter samples. The direc-
tion of difference is not a priori predictable. The null hypothesis is
that the means are not significantly different.

2. One would also predict the variances of scores of the chosens'
groups to be significantly less than the variances of scores of the
choosers' samples. That is, one would expect the scores of the chosens'
groups to cluster around some so-called optimal values. The null
hypothesis is that the variances of the chosens groups are not signifi-
cantly greater than the variances of the choosers groups.

(a) Table XIX presents the results of the T-tests. In no
cases were the means of the chosens' groups significantly different from
the means of the choosers' groups at the 10 per cent level or better
when using a two-tailed test. The null hypothesis is not rejected.

(b) Table XX presents the results of the F-tests.

(1) On the friendship dimension, two of the six tests,
w^I and e^C were significant at the 5 per cent level or better. w^I was
significant in the predicted direction, but e^C was significant in the
opposite direction.[8] Hence, the null hypothesis is not rejected for
five of the six FIRO-B measures.

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[8] I.e., the variance of the "two or more times picked" group was

(2)   The results along the communication dimension are similar. While e^A is significant in the desired direction, e^I is significant in the opposite one. None of the remaining four measures are significant at the 10 per cent level of confidence. Hence the null hypothesis is not rejected along the communication dimension for five of the six FIRO-B measures.

(3)   Along the similarity dimension only e^C is significant at the 10 per cent level. The null hypothesis is not rejected on five of the six tests.

(4)   Along the negative feelings dimension, e^A is the only significant measure at the 5 per cent level. However, it is significant in the opposite direction from that predicted. Hence the null hypothesis is not rejected for all six of the tests.

In general the hypotheses predicting differences in the means and variances of the groups composed of persons picked two or more times as first choice along a given sociometric dimension and the groups composed of the remaining people are not validated.

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significantly greater than the variance of the scores of the remaining people.

TABLE III

CHANCE PROBABILITY[*] OF OBTAINING OBSERVED NUMBER OF OCCURRENCES OR MORE

FOR rK^T, oK^T, xK^T and K^T FOR EACH GROUP,

AND COMPATIBILITY CRITERION

FRIENDSHIP DIMENSION

Group	Compatibility Criterion	Significance of			
		rK^T	oK^T	xK^T	K^T
1	3 man	--	0.500	--	--
2	3 man	--	0.333	0.500	0.500
3	2 man	--	0.455	--	--
3	3 man	--	--	--	--
3	Average of 2 tests	--	--	--	--
4	3 man	0.305	0.473	0.473	0.221
4	4 man	0.438	--	--	0.079
4	Average of 2 tests	0.372	--	--	0.150

*When the chance probability is not 0.500 or better, no entry is made in the table. This procedure will be used in all the tables presented in this report.

TABLE IV

NUMBER OF OBSERVED OCCURRENCES FOR rK^I, rK^C, rK^A, oK^I, oK^C, oK^A, xK^I, xK^C, xK^A, K^I, K^C and K^A

FOR EACH GROUP, AND COMPATIBILITY CRITERION AND TOTAL NUMBER OF OCCURRENCES IN EACH NEED AREA

Group	Compatibility Criterion	Number of occurrences											
		rK^I	rK^C	rK^A	oK^I	oK^C	oK^A	xK^I	xK^C	xK^A	K^I	K^C	K^A
1	3 man	4.33	3.0	1.4	4.33	2.0	3.5	4.33	0.5	2.0	5.0	5.0	2.0
2	3 man	3.0	4.0	4.83	2.5	3.5	1.75	4.5	3.5	4.33	3.3	4.67	
3	2 man	1	3.33	2	2	4.67	2	3	3	2	1	2	2
3	3 man	2	3.67	2	2	5.5	3	4	3	2	2	4	3
3	average	1.5	3.5	2	2	5.09	2.5	3.5	3	2	1.5	3	2.5
4	3 man	3.67	5.67	4.83	4.5	4.0	3.5	3.67	5	4	4.33	5	4
4	4 man	4.33	6	5	5	6	5.5	5	7.5	5.5	5	6	6
4	average	4.0	5.84	4.92	4.75	5	4.5	4.34	6.25	4.75	4.17	5.5	5

TOTALS*

	I	C	A
rK	12.83	16.34	13.15
oK	13.58	15.59	12.25
xK	16.67	13.25	13.08
K	13.67	16.50	14.17
	56.75	61.68	52.65

*Total is the sum of occurrences in Group 1 and Group 2 and average occurrences in Group 3 and Group 4.

TABLE V

CHANCE PROBABILITY OF OBTAINING OBSERVED NUMBER OF OCCURRENCES OR MORE

FOR THE SEPARATE AREA COMPATIBILITIES; AND TOTAL

NUMBER OF SIGNIFICANT LEVELS IN EACH AREA

Group	Significance of											
	rK^I	rK^C	rK^A	oK^I	oK^C	oK^A	xK^I	xK^C	xK^A	K^I	K^C	K^A
1	0.409	--	--	0.409	--	--	0.409	--	--	0.227	0.227	
2	--	0.500	0.333	--	--	--	0.365	--	0.409	--	--	0.318
3	--	0.363	--	--	0.087	--	0.455	--	--	--	--	--
3	--	--	--	--	0.141	--	--	--	--	--	--	--
3 (avg)	--	--	--	--	0.114	--	0.500	--	--	--	--	--
4	--	0.120	0.264	0.347	0.473	--	--	0.221	0.473	0.389	0.221	0.473
4	--	0.258	--	--	0.258	0.373	--	0.045	0.373	--	0.258	0.258
4 (avg)	--	0.289	0.396	0.437	0.366	--	--	0.133	0.423	0.458	0.240	0.366
Total 1	2	2	2	2	0	3	1	2	1	1	2

Total in Inclusion Area   7

Total in Control Area   6

Total in Affection Area   6

TABLE VI

CHANCE PROBABILITY OF OBTAINING OBSERVED NUMBER OF OCCURRENCES OR MORE

FOR rK^C, oK^C, xK^C AND K^C FOR EACH GROUP,

AND INCOMPATIBILITY CRITERION

COMMUNICATION DIMENSION

Group	Incompatibility Criterion	Significance of			
		rK^C	oK^C	xK^C	K^C
1	3 man	0.227	0.227	0.500	--
2	3 man		0.227	0.364	
3	2 man	0.224	--	--	0.179
3	3 man	0.338	--	--	--
3	average	0.284	--	--	0.362
4	3 man	--	--	--	--
4	4 man	--	--	0.258	--
4	average	--	--	--	--

TABLE VII

CHANCE PROBABILITY OF OBTAINING OBSERVED NUMBER OF OCCURRENCES OR MORE

FOR rK^I, oK^I, xK^I and K^I FOR EACH GROUP,

AND COMPATIBILITY CRITERION

SIMILARITY DIMENSION

Group	Compatibility Criterion	Significance of Observed Occurrence			
		rK^I	oK^I	xK^I	K^I
1	3 man	--	--	--	0.008
2	3 man	--	0.364	0.364	0.500
3	2 man	--	--	--	--
3	3 man	--	--	--	--
3	average	--	--	--	--
4	3 man	0.473	0.347	--	0.221
4	4 man	--	0.258	--	--
4	average	0.500	0.303	--	0.374

TABLE VIII

CHANCE PROBABILITY OF OBTAINING OBSERVED NUMBER OF OCCURRENCES OR MORE

FOR rK^C, oK^C, xK^C and K^C FOR EACH GROUP,

AND COMPATIBILITY CRITERION

SIMILARITY DIMENSION

Group	Compatibility Criterion	Significance of Observed Occurrence			
		rK^C	oK^C	xK^C	K^C
1	3 man	--	--	--	--
2	3 man	0.227	0.364	--	0.500
3	2 man	0.179	0.041	--	0.455
3	3 man	--	0.234	--	--
3	average	0.362	0.138	--	0.500
4	3 man	0.221	0.347	--	0.221
4	4 man	0.169	0.169	--	0.258
4	average	0.199	0.258	--	0.240

TABLE IX

CHANCE PROBABILITY OF OBTAINING OBSERVED NUMBER OF OCCURRENCES OR MORE

FOR rK^C, oK^C, xK^C and K^C FOR EACH GROUP,

AND EACH INCOMPATIBILITY CRITERION

NEGATIVE FEELINGS

Group	Incompatibility Criterion	Significance of Observed Occurrence			
		rK^C	oK^C	xK^C	K^C
1	3 man	0.500	0.500	--	0.063
2	3 man	0.500	--	0.227	--
3	2 man	0.179	0.317	0.179	0.179
3	3 man	0.234	0.389	0.234	--
3	average	0.207	0.353	0.207	0.362
4	3 man	--	--	--	--
4	4 man	--	0.393	--	--
4	average	--	--	--	--

TABLE X

NUMBER OF OBSERVED OCCURRENCES FOR EACH GROUP AND

EACH COMPATIBILITY MEASURE

FRIENDSHIP DIMENSION

Compatibility	Group 1	Group 2	Group 3a[1]	Group 3b[2]	Group 4a[3]	Group 4b[4]
rK^I	4.33	3.00	1.00	2.00	3.67	4.33
rK^C	3.00	4.00	3.33	3.67	5.67	6.00
rK^A	1.40	4.83	2.00	2.00	4.83	5.00
rK^T	3.00	3.00	1.00	2.00	4.67	5.33
oK^I	4.33	2.50	2.00	2.00	4.50	5.00
oK^C	2.00	3.50	4.67	5.50	4.00	6.00
oK^A	3.50	1.75	2.00	3.00	3.50	5.50
oK^T	4.00	4.00	3.00	3.00	4.00	4.00
xK^I	4.33	4.50	3.00	4.00	3.67	5.00
xK^C	0.50	3.50	3.00	3.00	5.00	7.50
xK^A	2.00	4.33	2.00	2.00	4.00	5.50
xK^T	3.00	4.00	2.00	2.00	4.00	4.50
K^I	5.00	3.00	1.00	2.00	4.33	5.00
K^C	5.00	3.00	2.00	4.00	5.00	6.00
K^A	2.00	4.67	2.00	3.00	4.00	6.00
K^T	2.00	4.00	2.00	2.00	5.00	7.00

[1] 2-man compatibility criterion   [3] 3-man compatibility criterion

[2] 3-man compatibility criterion   [4] 4-man compatibility criterion

TABLE XI

NUMBER OF OBSERVED OCCURRENCES FOR EACH GROUP AND

EACH INCOMPATIBILITY MEASURE

<u>COMMUNICATION DIMENSION</u>

Compatibility	Group 1	Group 2	Group 3a[1]	Group 3b[2]	Group 4a[3]	Group 4b[4]
rK^I	1.67	5.00	1.50	3.00	4.17	5.00
rK^C	5.00	3.00	3.83	4.67	3.00	3.50
rK^A	3.60	1.67	3.00	3.50	3.67	5.00
rK^T	3.50	4.00	2.00	3.00	3.83	4.67
oK^I	5.00	6.50	0.00	0.00	5.00	5.00
oK^C	5.00	5.00	2.00	3.00	3.00	4.50
oK^A	2.67	4.25	3.00	4.50	2.50	4.50
oK^T	2.00	3.50	2.50	3.00	5.00	6.00
xK^I	2.67	3.50	3.00	3.00	3.67	4.00
xK^C	4.00	4.50	2.00	3.50	1.67	6.00
xK^A	3.00	1.00	3.00	3.00	2.00	3.00
xK^T	4.00	4.00	4.00	4.00	3.00	4.00
K^I	2.00	5.00	2.00	2.50	2.00	2.50
K^C	3.00	2.00	4.00	4.00	2.00	2.50
K^A	3.00	1.00	2.00	3.00	2.00	3.00
K^T	4.00	2.00	1.00	4.00	2.00	3.00

[1]2-man incompatibility criterion [2]3-man incompatibility criterion

[3]3-man incompatibility criterion [4]4-man incompatibility criterion

TABLE XII

NUMBER OF OBSERVED OCCURRENCES FOR EACH GROUP AND

EACH COMPATIBILITY MEASURE

SIMILARITY DIMENSION

Compatibility	Group 1	Group 2	Group 3a[1]	Group 3b[2]	Group 4a[3]	Group 4b[4]
$_rK^I$	1.83	4.00	1.00	3.00	4.00	5.00
$_rK^C$	2.00	5.00	4.00	4.00	5.00	6.50
$_rK^A$	0.40	4.50	0.00	1.00	2.83	4.17
$_rK^T$	1.00	4.67	0.00	2.00	4.33	4.67
$_oK^I$	3.83	4.50	2.00	3.00	4.50	6.00
$_oK^C$	1.00	4.50	5.00	5.00	4.50	6.00
$_oK^A$	4.17	4.25	3.00	3.00	3.83	4.67
$_oK^T$	2.00	2.67	3.00	3.00	3.83	4.67
$_xK^I$	1.83	4.50	1.00	4.00	3.00	5.00
$_xK^C$	2.50	3.00	2.00	2.00	3.00	4.33
$_xK^A$	0.00	4.33	0.00	1.00	2.00	3.50
$_xK^T$	1.00	4.00	0.00	1.00	4.00	4.50
K^I	3.00	4.00	1.00	3.00	5.00	5.00
K^C	6.00	4.00	3.00	4.00	5.00	6.00
K^A	0.00	3.67	0.00	2.00	2.00	3.50
K^T	1.00	5.00	0.00	2.00	5.00	6.00

[1] 2-man compatibility criterion   [3] 3-man compatibility criterion

[2] 3-man compatibility criterion   [4] 4-man compatibility criterion

TABLE XIII

NUMBER OF OBSERVED OCCURRENCES FOR EACH GROUP AND

EACH COMPATIBILITY MEASURE

NEGATIVE FEELINGS DIMENSION

Compatibility	Group 1	Group 2	Group 3a[1]	Group 3b[2]	Group 4a[3]	Group 4b[4]
rK^I	3.67	2	2	2	2.17	3.33
rK^C	4.00	4	4	5	1	2.83
rK^A	2.60	4	0	3.5	2.67	3
rK^T	3.50	4	2	4	1.83	3.67
oK^I	3.50	1	2	5	2	5.5
oK^C	4.00	3	3.5	4.5	1.5	5.5
oK^A	4.17	1.5	2	4	2	2.5
oK^T	2.00	3.83	4	3	3.33	6.17
xK^I	3.67	2	2	3	2.67	4.33
xK^C	2.50	5	4	5	2.67	3
xK^A	2.00	4	0	4	5.50	6
xK^T	2.00	3	1	4	2	2
K^I	3.00	2	2	3	3	4
K^C	6.00	3	4	4	2.5	4
K^A	2.00	4	1	3	6	6
K^T	2.00	4	2	4	2	4

[1]2-man incompatibility criterion   [3]3-man incompatibility criterion

[2]3-man incompatibility criterion   [4]4-man incompatibility criterion

TABLE XIV

CHANCE PROBABILITIES OF OBTAINING OBSERVED OR GREATER NUMBER

OF OCCURRENCES FOR EACH COMPATIBILITY MEASURE

<u>FRIENDSHIP DIMENSION</u>

Compatibility Measure	GROUP							
	1	2	3a[1]	3b[2]	3average	4a[3]	4b[4]	4average
rK^I	0.409	--	--	--	--	--	--	--
rK^C	--	0.500	0.363	--	--	0.120	0.258	0.189
rK^A	--	0.333	--	--	--	0.264	--	0.396
rK^T	--	--	--	--	--	0.305	0.438	0.372
oK^I	0.409	--	--	--	--	0.347	--	0.437
oK^C	--	--	0.087	0.141	0.114	0.473	0.258	0.366
oK^A	--	--	--	--	--	--	0.373	--
oK^T	0.500	0.500	0.455	--	--	0.473	--	--
xK^I	0.409	0.365	0.455	--	0.50	--	--	--
xK^C	--	--	0.455	--	--	0.221	0.045	0.133
xK^A	--	0.409	--	--	--	0.473	0.373	0.423
xK^T	--	0.500	--	--	--	0.473	--	--
K^I	0.227	--	--	--	--	0.389	--	0.458
K^C	0.227	--	--	--	--	0.221	0.258	0.366
K^A	--	0.318	--	--	--	0.473	0.258	0.366
K^T	--	0.500	--	--	--	0.221	0.079	0.150

[1] 2-man compatibility criterion

[2] 3-man compatibility criterion

[3] 3-man compatibility criterion

[4] 4-man compatibility criterion

TABLE XV

CHANCE PROBABILITIES OF OBTAINING OBSERVED OR GREATER NUMBER

OF OCCURRENCES FOR EACH INCOMPATIBILITY MEASURE

COMMUNICATION DIMENSION

Incompatibility Measure	GROUP							
	1	2	3a[1]	3b[2]	3average	4a[3]	4b[4]	4average
rK^I	--	0.227	--	--	--	0.430	--	0.479
rK^C	0.227	--	0.224	0.338	0.284	--	--	--
rK^A	--	--	0.455	--	--	--	--	--
rK^T	--	0.500	--	--	--	--	--	--
oK^I	0.227	0.035	--	--	--	0.221	--	0.374
oK^C	--	0.227	--	--	--	--	--	--
oK^A	--	0.432	0.455	0.390	0.420	--	--	--
oK^T	--	--	--	--	--	0.221	0.258	0.239
xK^I	0.500	--	0.455	--	--	--	--	--
xK^C	--	0.364	--	--	--	--	0.258	--
xK^A	0.500	--	0.455	--	--	--	--	--
xK^I	--	0.227	--	--	--	--	--	--
K^I	--	0.227	--	--	--	--	--	--
K^C	--	--	0.179	--	0.362	--	--	--
K^A	--	--	--	--	--	--	--	--
K^T	0.500	--	--	--	--	--	--	--

[1] 2-man incompatibility criterion   [3] 3-man incompatibility criterion

[2] 3-man incompatibility criterion   [4] 4-man incompatibility criterion

TABLE XVI

CHANCE PROBABILITIES OF OBTAINING OBSERVED OR GREATER NUMBER

OF OCCURRENCES FOR EACH COMPATIBILITY MEASURE

SIMILARITY DIMENSION

Compatibility Measure	GROUP							
	1	2	3a[1]	3b[2]	3average	4a[3]	4b[4]	4average
rK^I	--	0.500	--	--	--	0.473	--	0.500
rK^C	--	0.227	0.179	--	0.362	0.221	0.169	0.199
rK^A	--	0.364	--	--	--	--	--	--
rK^T	--	0.318	--	--	--	0.389	--	--
oK^I	--	0.364	--	--	--	0.347	0.258	0.303
oK^C	--	0.364	0.041	0.234	0.138	0.347	0.169	0.258
oK^A	0.454	0.421	0.455	--	0.500	--	--	--
oK^T	0.454	--	0.455	--	--	--	--	--
xK^I	--	0.364	--	--	--	--	--	--
xK^C	--	--	--	--	--	--	--	--
xK^A	--	0.409	--	--	--	--	--	--
xK^T	--	0.500	--	--	--	0.473	--	--
K^I	0.008	0.500	--	--	--	0.221	0.258	0.240
K^C	--	--	0.455	--	0.500	0.221	0.258	0.240
K^A	--	0	--	--	--	--	--	--
K^T	--	0.227	--	--	--	0.221	0.258	0.240

[1] 2-man compatibility criterion

[2] 3-man compatibifity criterion

[3] 3-man compatibility criterion

[4] 4-man compatibility criterion

TABLE XVII

CHANCE PROBABILITIES OF OBTAINING OBSERVED OR GREATER NUMBER

OF OCCURRENCES FOR EACH INCOMPATIBILITY MEASURE

<u>NEGATIVE FEELINGS DIMENSION</u>

Incompatibility Measure	G R O U P							
	1	2	3a[1]	3b[2]	3average	4a[3]	4b[4]	4average
rK^I	--	--	--	--	--	--	--	--
rK^C	0.500	0.500	0.179	0.234	0.207	--	--	--
rK^A	--	0.500	--	--	--	--	--	--
rK^T	--	0.500	--	--	--	--	--	--
oK^I	--	--	--	0.234	--	--	0.393	--
oK^C	0.500	--	0.317	0.389	0.353	--	0.393	--
oK^A	0.462	--	--	--	--	--	--	--
oK^T	--	--	0.179	--	--	--	0.228	--
xK^I	--	--	--	--	--	--	--	--
xK^C	--	0.227	0.170	0.234	0.207	--	--	--
xK^A	--	0.500	--	--	--	0.145	0.258	0.197
xK^T	--	--	--	--	--	--	--	--
K^I	--	--	--	--	--	--	--	--
K^C	0.063	--	0.179	--	0.362	--	--	--
K^A	--	0.500	--	--	--	0.070	0.258	0.164
K^T	--	0.500	--	--	--	--	--	--

[1] 2-man incompatibility criterion   [3] 3-man incompatibility criterion

[2] 3-man incompatibility criterion   [4] 4-man incompatibility criterion

TABLE XVIII

INDIVIDUALS CHOSEN TWO OR MORE TIMES AS FIRST CHOICE

ON THE SOCIOMETRIC DIMENSIONS

Friendship

Group	Individual	No. of Times Chosen First
1	A	2
	C	2
	E	2
2	D	3
	G	2
3	B	2
	C	3
4	A	4

Communication

2	D	4
	F	2
1	B	3
3	C	3
	D	2
4	A	4

Similarity

1	E	3
2	F	3
3	B	3
	C	2
4	E	2
	H	3

Negative Feelings

1	F	3
	G	2
2	F	3
	A	2
3	D	2
	E	2
4	G	5

TABLE XIX

RESULTS OF T-TESTS COMPARING MEANS OF FIRO-B SCORES OF "CHOOSERS" AND "CHOSENS"

Are Means of FIRO-B Scores of "Choosers" and "Chosens"
Significantly Different @ 5% Level (2-Tail Test)

	e^I	w^I	e^C	w^C	e^A	w^A
Friendship	No	No	No	No	No	No
Communications	No	No	No	No	No	No
Similarity	No	No	No	No	No	No
Negative Feelings	No	No	No	No	No	No

To see if mean of chosens is significantly different than means of choosers.

TABLE XX

RESULTS OF F-TEST COMPARING VARIANCES OF FIRO-B SCORES OF "CHOOSERS" WITH "CHOSENS"

	e^I		w^I		e^C		w^C		e^A		w^A	
	a*	b*	a*	b*	a*	b*	a*	b*	a*	b*	a*	b*
Friendship	No	No	Yes	Yes @ 5%	No	Yes @ 2%	Yes	No	No	No	No	No
Communications	No	Yes @ 2%	Yes	No	Yes	No	Yes	No	Yes	Yes @ 5%	Yes	No
Similarity	No	No	Yes	No	Yes	Yes @ 5%	Yes	No	No	No	No	No
Negative Feelings	No	No	Yes	No	Yes	No	No	No	No	Yes @ 5%	Yes	No

Confidence level is set at $p \leq 5\%$

* a = Is Choosers' σ^2 Greater than Chosens'?

b = Is F ratio Significant?

CHAPTER V

DISCUSSION

The disappointing results obtained in this study are not unique.[1]
It would appear that the success of FIRO-B as a predictive device vis-a-
vis sociometric choice is limited. The task is to explain why this is
the case, and, if possible, to see whether the instrument and/or its
application can be improved such that it would be a useful tool in
future research.

The discussion which follows may be logically categorized into
five areas.

The Nature of Interpersonal Behavior. Freudian theory pertaining
to the ego, super-ego, defense mechanisms, reaction formation and the
like, lends support to the notion that people's behavior is often[2] dis-
similar to their feelings and unconscious motives and needs. This
merely says that there is often quite a difference between the individ-
ual's unconscious and/or preconscious desires and his manifest actions.
At a less sophisticated level one is aware that people often behave in a

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[1] W. G. Bennis and H. A. Shepard, "A Theory of Group Development,"
Reprinted in The Planning of Change, ed. by W. G. Bennis, K. D. Benne,
and R. Chin (Holt, Rinehart and Winston, 1961), pp. 321-340; and W. C.
Schutz, FIRO-A Three-Dimensional Theory of Interpersonal Behavior (Holt,
Rinehart and Winston, 1960), Chapter 7.

[2] Some might say "usually" or "always."

fashion which differs from what might be expected in the absence of cultural and social norms and expectations.

Dyadic Relationships. If one examines the nature of the dyadic relationship, particularly a relationship which is considered to be important by one or both of the persons involved, it is reasonable to anticipate that the formation of such a two-person relationship will be influenced more by the interactants' feelings and emotions than by manifest behavioral traits.[3] This is not to suggest that behavioral compatibility (or incompatibility) does not affect dyad behavior at all. It merely suggests that it may be secondary to compatibility in the area of feelings and emotions.

Relevant Compatibility. On the basis of the foregoing discussion, one would expect that if it is to be possible to predict sociometric dyad choice, a measure will have to be designed which calculates compatibility between the chooser and the chosen of the level of feelings and emotions. FIRO-B is a test which yields a behavioral profile of the individual in the areas of inclusion, control and affection. Hence the dyad compatibility scores calculated from the individuals' scores measure behavioral compatibility. What is needed is a modification of the present FIRO-B test if it is to be applied to dyads. Schutz himself anticipates the value of a test which will measure a person's

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[3]This hypothesis certainly seems reasonable, if one stops and considers dyads in friendship, marriage, hostility.

interpersonal orientation at the level of feelings and at the unconscious level.[4]

Viability of the Three-Dimensional Theory. Another question arises regarding the viability of the basic concepts of Schutz's theory. Is it profitable to think of interpersonal behavior and needs in terms of inclusion, control and affection? The favorable results of a number of studies[5] suggest that it may well be. FIRO-B has had considerable success in predicting overall group interaction and performance. If one accepts the notion that behavioral compatibility in a task group is more important than emotional compatibility, then it follows that FIRO-B should have had greater success with groups than with dyads. This suggests that when one is studying a situation where behavioral similarities among interactants is most important, Schutz's three-dimensional theory seems to have operational meaning. Thus it is likely that if measures can be developed which yield three-dimensional profiles at the appropriate[6] level to the situation being studied, i.e., behavior, feelings, unconscious, that Schutz's theory will be extremely useful.

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[4]See W. C. Schutz, op. cit., page 58.

[5]Ibid., Chapter 7.

[6]By appropriate is meant that level which best describes the nature of the important interactions. Thus for task groups it would be behavior, for dyads it might be feelings or motives.

<u>Modification of a Behavioral Approach to Dyadic Behavior</u>. To people who prefer to think of dyad formation at the behavioral level, as opposed to the emotional or unconscious level, the results of this study would seem to indicate that Schutz's three-dimensional orientation is not an appropriate framework. It is this writer's belief, however, that the fault lies not in the theory or the measuring instrument, but rather in the compatibility scores which are computed from FIRO-B. It is conceivable that what is really significant in two-person behavior is <u>crucial compatibility</u>. By <u>crucial compatibility</u> is meant compatibility between chooser and chosen in an interpersonal need area which is <u>particularly vital</u> to the person who is doing the selecting. One might predict, as was done in this study, that friendship choice will be related to total compatibility in all three need areas. If, however, an individual has particularly strong and important needs in the affection area, he will likely choose someone who is especially compatible with him in this area, even if he is incompatible with this other person in one or both of the other areas. What is needed is to supplement FIRO-B data with information, derived perhaps from projective tests or self-evaluation questionnaires, on the subject's special needs, so that a more fertile and sensitive compatibility measure can be constructed.

In general, then, this writer believes that more fruitful results will be obtained from pursuing an approach to dyadic behavior which considers feelings and/or unconscious motives rather than merely manifest behavior. In either event, supplementary data on the subjects' unique

needs should improve the predictive value of the three-dimensional theory. Future effort should be directed toward the construction of measuring instruments which will yield data on the subject's feelings and/or unique needs. When this task is accomplished the nature of a dyadic relationship can be studied with more relevant instruments than are available in FIRO-B alone.

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