GROUP COMPOSITION AND INSTRUMENTED FEEDBACK

EFFECTS ON GROUP VERBALIZATION

By

STEPHEN RADLEY CLOSE
//
Bachelor of Science

University of Missouri – Rolla

Rolla, Missouri

1970

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
MASTER OF SCIENCE
July, 1974

GROUP COMPOSITION AND INSTRUMENTED FEEDBACK

EFFECTS ON GROUP ORGANIZATION VERBALIZATION

Thesis Approved:

Donald K. Fromme

Thesis Adviser

Robert J. Weber

Dean of the Graduate College

ACKNOWLEDGMENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

STATEMENT OF THE PROBLEM

Purpose of the Study

The purpose of the present study was to determine the effects of

intragroup compatibility (group composition) as determined by the Funda-

mental Interpersonal Relations Orientation-Behavior (FIRO-B) test on

affective verbalizations in a group setting. In addition, the effects

of reinforcement and discriminative cues on such verbalizations were

examined.

Group Composition

Research on group behaviors and the interpersonal relationships

which exist in groups is very difficult due to the complexity of the

behaviors and their interrelationships. It is not surprising, therefore,

that there is little agreement on how to conduct such research. Basic

controversies have developed about which group characteristics are most

relevant, and what the relationships between the important variables

are. In the context of group learning and individual change, for

instance, some believe that similarity of particular personality char-

acteristics among group members is desirable, while others argue that

dissimilarity of these characteristics is desirable. This dilemma has

resulted in research which is difficult to organize. A coherent state-

ment about group behavior and dynamics which ties this research

together is nearly impossible. There are a few investigators, however, whose work illustrates the major conflicts currently found in group research. In order to make clear where this present study fits into the controversy, the salient characteristics of their viewpoints will be discussed.

Harrison (1965) and Harrison and Lubin (1965) have investigated the effects of group composition on sensitivity groups. Harrison believes that heterogeneity of personalities is vital for group change, because he feels that it is necessary for group members to receive both support and confrontation in order for changes to occur. Heterogeneity of group composition, such that members' basic feelings, attitudes, or manner of relating are challenged, insures the confrontation which is basic to the process of change. Homogeneous groups lack these built-in aspects and are less productive as a result. Harrison provides evidence that incompatible persons (i.e. those which confront each other) more readily explore alternative modes of behavior when grouped than inter-personally compatible persons. He argues that incompatibility, or heterogeneity, is desirable for groups. His point of view is supported by Hoffman and Maier (1966) who presented evidence that diversity of personality profiles facilitates group problem solving. There is some reason to believe, then, that heterogeneity aids in the attainment of certain types of group goals. It is important to note that Harrison (1965) defined heterogeneity in terms of his own personality types. He mixed his heterogeneous groups with "low structure" and "high structure" personalities, while Hoffman and Maier (1966) described personality with the Guilford-Zimmerman Temperament Survey (GZTS) and defined heterogeneity in terms of GZTS profiles.

Schutz (1960) developed the FIRO-B, a six faceted description of
personality and a related theory of compatibility which easily lends
itself to group behavior research. The FIRO-B measures interpersonal
needs. The ability of persons to work together productively in groups
is purportedly determined by certain complex relationships between these
interpersonal needs. Comparisons of FIRO-B scores allow prediction
of a group's compatibility of needs and potential group productivity.
The utility of this approach has been demonstrated with some degree of
success. Compatibility is defined in terms of very specific relation-
ships among interpersonal needs and thus, in a sense, the complementarity
of needs. This fact is construed by some to imply homogeneity of needs,
which is not necessarily true. Due to the complex nature of the defini-
tion of compatibility in Schutz's (1960) sense, needs may be comple-
mentary without being similar, although the effect of similarity varies
with the particular type of compatibility being considered. Neverthe-
less, Schutz and Harrison are often viewed as holding diammetrically
opposed views of the personality characteristics necessary for group
learning. Complementarity of needs is incorrectly equated with homo-
geneity, which Harrison views as anti-productive. The basis of this
disagreement appears to be whether or not confrontation is desirable
for group change. Harrison manipulates group composition such that
confrontation is inevitable. Compatibility as defined by Schutz (1960)
reduces the interpersonal difficulties in groups, and thus presumably
reduces group conflict. It is not clear, however, if confrontation is
used in exactly the same sense by Harrison and Schutz. A compatible
group with a lack of interpersonal difficulty may allow intimate com-

munications which could open up confrontation (i.e. comparison of basic feelings and attitudes).

Winch (1958) has developed a theory of interpersonal need as related to interpersonal attraction, which grew out of this study of marriage and family relationships. The central hypothesis of this concept is that the need pattern of each spouse will be complementary rather than similar to the need-pattern of the other spouse. This complementariness takes two forms. Type I complementarity involves gratification of the same need in both persons A and B but at very different levels of intensity. A negative interspousal correlation of these needs is hypothesized for complementary relationships. Type II complementarity involves gratification of different needs in A and B. The interspousal correlation may be hypothesized to be positive or negative, contingent upon the pair of needs involved. The measures of two mutually gratifying needs are related by a linear correlation according to Winch. The mathematical relationship of complementary needs in Schutz's compatibility is quite different. A comparison of these two theories would entail the validation of the mathematical relationships as they relate to the accurate prediction of mutual gratification of needs. The approaches are not directly comparable since Winch is concerned with interpersonal attraction and Schutz deals with compatibility, which is a measure of how well one person works with another. Compatibility and interpersonal attraction probably co-vary, but the presence of one does not insure the presence of the other.

The point of view taken by Schutz is the basis of the present study on group composition. Compatibility is easily applied to groups,

and concrete values of compatibility are readily obtained. Schutz presents the most coherent, and logically stated theory of behavior prediction along with this easily calculated index of behavior. These attributes made Schutz's concepts attractive as a means of group selection. The efficacy of compatibility as a predictor of affective group verbalizations was studied in particular. A more detailed description of Schutz's theory will first be presented before the relevant studies from the literature are discussed.

Interpersonal need is the basis of the theory of interpersonal behavior postulated by Schutz (1960). According to this theory, the interpersonal needs of inclusion (I), control (C), and affection (A) constitute a sufficient set of areas of interpersonal behavior for the prediction and explanation of interpersonal phenomena. The interpersonal need for inclusion is defined in behavioral terms as the need to establish and maintain a satisfactory relation with people with respect to interaction and association. The interpersonal need for control is defined in behavioral terms as the need to establish and maintain a satisfactory relation with people with respect to control and power. The interpersonal need for affection is defined in behavioral terms as the need to establish and maintain a satisfactory relation with others with respect to love and affection.

Leary (1957) and Bion (1949) observed individual and group behaviors, respectively, and described what they felt were the major types or classes of behavior. Extensive factor analytic studies have also been carried out which reduced the description of interpersonal instructions to a few discrete areas (Carter, 1955; Carson, 1968; Swensen, 1973). In all cases they roughly correspond to the inter-

personal needs of inclusion, control, and affection.

The FIRO-B is designed to measure how an individual acts in inter-personal situations and to allow predictions about the interaction be-tween people, within the schema just discussed. The scores from the FIRO-B describe what behavior an individual expresses (e) toward others and how he wants (w) others to behave toward him in each of the areas of interpersonal needs. This results in six behavioral scores: expressed inclusion (eI), wanted inclusion (wI), expressed control (eC), wanted control (wC), expressed affection (eA), and wanted affection (wA). An individual may be described by a set of six scores in terms of the FIRO-B. The FIRO-B profiles of individuals can be compared with one another and an assessment of the compatibility of their behaviors can be made. Schutz (1960) invokes the concept of compatibility to explain the interaction of individuals. He states that compatibility leads to mutual satisfaction of interpersonal needs and harmonious coexistence. It is important that compatibility does not necessarily imply liking in this conception, although they are probably often linked. Rather, compatibility may best be described sociometrically by the relation "works well with." A quantitative measure of compatibility for a dyad can be computed on the basis of FIRO-B scores. It is contended that predictions about the relative satisfaction of interpersonal needs between two persons can be made on the basis of FIRO-B scores as reflected by a compatibility score. Further, it is believed that group compatibility is positively related to the goal achievement of a group.

Dyadic compatibility may occur within each interpersonal need area (I, C or A) independently. For any particular dyad, there could be mutual satisfaction of the interpersonal need of I, for instance, and

little mutual satisfaction of C and A needs. Compatibility or incompatibility in the areas of I, C, and A can occur in any combination. A complete description of the compatibility of a dyad would necessarily include a separate compatibility score for I needs, C needs, and A needs.

Currently, Schutz (1960) describes and provides quantitative descriptions for three types of compatibility: reciprocal (rK), originator (oK) and interchange (xK). Each type reflects a different aspect of need satisfaction. Reciprocal compatibility can be understood by examining individual A's description of how he likes to be acted toward (i.e. wanted inclusion by A, wI_A) in relation to individual B's description of how he likes to act toward people (i.e. expressed inclusion by B, eI_B) and vice versa. If B exhibits the behavior that A desires, then they possess reciprocal compatibility. This compatibility type is expressed quantitatively by: $rK = |e_i - w_j| + |e_j - w_i|$. Originator compatibility refers to the <u>degree</u> that A originates behavior (i.e. $eI_A > wI_A$) in relation to the <u>degree</u> that B wishes to receive it (i.e. $eI_B < wI_B$). If A originates or initiates certain behaviors (i.e. eI_A) <u>more</u> than he wishes others to initiate that behavior (i.e. wI_A), and B initiates that behavior (i.e. eI_B) <u>less</u> than he wishes others to initiate the behavior (i.e. wI_B) and this discrepancy is equally large for both A and B, then they possess originator compatibility. In the inclusion area, individual A would have a preference for always being in interpersonal activities but not wanting to be asked in by others, while B would prefer not actively participating but wait to be invited to join. Originator compatibility is quantitatively described by: $oK = |(e_i - w_i) + (e_j - w_j)|$. Interchange compatibility refers to the mutual expression of the "commodity" in a given need area. If A prefers

to experience a particular amount of one area of behavior (i.e. $eI_A + wI_A$) and B also prefers to experience the same amount of this behavior (i.e. $eI_B + wI_B$) then they possess interchange compatibility. In the inclusion area, individual A would have a preference to join and be asked to join in interpersonal activities to the same extent that individual B would prefer joining and being asked to join in such activities. This aspect of compatibility is expressed quantitatively by: $xK = |(e_i + w_i) - (e_j + w_j)|$. All three types of compatibility can be calculated for dyads only.

There is not a direct relationship between compatibility and need similarity or need complementarity, although compatibility includes these and other more complex relationships. There may be some justification for comparing similarity to interchange compatibility and complementarity to reciprocal compatibility, but this is an over-simplication. It must be remembered, too, that the concept of compatibility is based on all three types just discussed, and one other (need compatibility) which Schutz has not yet quantitatively defined. Experimental scrutiny of need similarity and complementarity alone does not evaluate the utility of compatibility as a total concept. For a more detailed explanation of compatibility refer to Schutz (1960).

It would seem plausible that one particular type of compatibility might be more relevant than the others in a certain interpersonal situation. There is currently insufficient evidence, however, to determine what situations each compatibility type is best applied to. As a result, a composite compatibility (K) was used in the present study which was the arithmetic mean of reciprocal, originator, and interchange compatibility. This average dyadic compatibility is quantitatively defined by: $K = (rK + oK + xK)/3$.

The quantitative formulas for compatibilities can be computed by dyads only. In order to determine group compatibility (K group), the arithmetic mean of all possible group dyads can be used. For groups of four persons, there are six possible dyads. The group compatibility would quantitatively be expressed: K group = $(K_{ij}+K_{ik}+K_{il}+K_{jk}+K_{jl}+K_{kl})/6$. To review, the K group reflects average dyadic compatibility (K) where K is determined by values of rK, oK and xK. The group compatibility is influenced by all three types of compatibility over all possible group dyads.

The K group is a measure of the mutual satisfaction of interpersonal needs among all group members. It is a mean statistic ($\bar{x}$) which is derived from the average of many separate compatibility scores. It is possible to obtain a particular value for a mean statistic from con-stituent values that are very near the mean, or to obtain the same mean statistic from constituent values that are widely disparate from the mean. The following example illustrates this point: $\bar{x} = 10 = (9+11)/2$, or $\bar{x} = 10 = (5+15)/2$. In both cases the mean is 10. In the first instance, the mean is derived from values which are very similar to its own. Nine and 11 are numerically very close to 10. In the second instance, the mean is derived from values which are dissimilar to its own. Five and 15 are numerically distant from 10. The standard deviation statistic (SD) can be used to indicate how much variation around the mean is present. The second case noted above would have a larger SD than the first case. Although K group measures the average amount of mutual satisfaction of interpersonal needs among group members, a standard deviation is necessary to indicate how far above and below this value individual compatibility scores vary. A low value for the

SD indicates that a K group is composed of compatibility scores all of which are very similar to K group. Alternatively, a high value for the SD indicates that a K group is composed of compatibility scores many of which are very dissimilar to K group. In the latter case, the K group could be composed of scores which indicate both the mutual satisfaction and mutual frustration of interpersonal needs, although K group would accurately reflect the average level of satisfaction.

It will be remembered that $K = (rK+oK+xK)/3$, and that K group = $(K_{ij}+K_{ik}+K_{il}+K_{jk}+K_{jl}+K_{kl})/6$. Mathematical substitution yields the following formula:

$$K \text{ group} = [(rK+oK+xK)_{ij}+(rK+oK+xK)_{ik}+(rK+oK+xK)_{il}+(rK+oK+xK)_{jk}$$
$$+(rK+oK+xK)_{kl}]/18$$

This representation reflects every score which goes to make up K group. The standard deviation statistic used in this study is based on all the scores comprising K group as shown in the above formula. Thus a low value for the SD of a particular K group indicates that each individual reciprocal compatibility, originator compatibility, and interchange compatibility for every possible group dyad is near the value of K group.

Compatibility indices, or scores, range from 0 to 18. A score of zero for K group indicates the mutual satisfaction of interpersonal needs in the group. Therefore, this group would be considered a compatible group (G_{com}). A group with a K group value of 18 would exhibit the mutual frustration of interpersonal needs, and would be considered an incompatible group (G_{ncom}). As pointed out earlier, there are interpersonal needs in the inclusion, control and affection areas. Therefore, a complete description of the mutual satisfaction of

interpersonal needs for a group would necessarily include a K^I group, K^C group, and a K^A group. Consider a group with the following characteristics:

$$K^I \text{ group} = 2, \ K^C \text{ group} = 16, \text{ and } K^A \text{ group} = 2$$

These group members would experience mutual satisfaction of inclusion and affection needs and mutual frustration of control needs. If the value of the SD for all of three K group indices was very low, each possible dyad would experience nearly the same level of satisfaction in I and A areas, and nearly the same level of frustration in the C area. The above group could be labeled or described as: G^I_{com}, G^C_{nom}, and G^A_{com}.

The description of a group in terms of compatibility allows a prediction of that group's behavior. Compatibility implies a lack of interpersonal difficulties and anxieties. As a result, a compatible group consists of persons who get along well with each other. That property should allow them to cooperate and achieve group goals. In addition, members should be able to communicate more freely due to the group's cohesiveness and lack of interpersonal anxiety. The description of a group in terms of compatibility is potentially very useful. Another important aspect is the interpersonal attraction among group members. As previously noted, compatibility and interpersonal attraction are probably related, although they are clearly not identical. Since compatibility is the basis of group composition in this study, a discussion of interpersonal attraction is appropriate.

The implications of attraction for group interaction are many. Tedeschi, Schlenker, and Bonoma (1973) reviewed the consequences of liking, and concluded that it arouses the expectancy for cooperation in

interactions, induces actual cooperation in mixed-motive situations, renders a target individual more susceptible to persuasive communications, induces conformity to group judgments and demands, mediates more imitation of a model, increases the effectiveness of social reinforcers, and reduces the probability that another will use coercion or mediate harm. Some of these affects appear related to compatibility and group processes. Measurement of interpersonal attraction among group members is potentially valuable for predicting group behavior. The following studies on interpersonal attraction have implications on various aspects of group processes.

Knecht (1973) investigated the relationship of similarity, attraction and self-disclosure. Subjects completed an attitude questionnaire and then were given a bogus questionnaire which they believed had been completed by another subject who would be their partner later in the experiment. The fake questionnaire was experimentally manipulated to be either similar or dissimilar to the subjects. The subjects were then asked to complete Byrne's Interpersonal Judgment Scale (IJS), indicating how much they like their partner, and how much they expected to like working with him. Finally, the subjects selected from a prepared list, items of varying levels of self-disclosure that they felt willing to discuss with their partner. It was found that subjects assigned to a dissimilar-partner condition liked their partners less than did subjects in the similar-partner condition. Also, subjects with similar partners indicated that they would disclose more items of a particular intimacy level than subjects with dissimilar partners. Of particular interest was the fact that items of a more intimate level were selected as disclosure items for similar partners. It was suggested that their

<u>attraction</u> toward the unseen partner had determined subjects' willing-
ness to disclose intimate information about themselves. Since self-
disclosure is nearly a universal group goal, attraction is suggested
as an important consideration for group selection.

In another study Good and Nelson (1971) had subjects evaluate myth-
ical three-person stimulus groups in terms of perceived group attrac-
tiveness and group cohesiveness. Both the proportion of attitude
similarity among the subject and the mythical group and the proportion
of similarity within the mythical group itself was varied, using the
Byrne-Nelson attraction function as the criterion for similarity.
Group attractiveness was measured by scales for liking and desire to
work with the group, and the group cohesiveness was assessed with
scales asking for evaluations of the group's probable level of pro-
ductivity, efficiency, feelings of belongingness, and morale. The
results were that perceived group attractiveness was a positive function
of the subject to mythical group similarity, and that perceived group
cohesiveness was a positive function of the mythical group's similarity
between members. An individual's expectancy for his behavior in a
group and his attitude toward a group is clearly affected by perceived
similarity of group participants. Group cohesiveness is generally con-
sidered an important characteristic, and group similarity may be a
means of controlling it. Attraction would be, too, since there is con-
vincing evidence that similarity is associated with attraction (cf.
Byrne, 1969).

Canfield and LaGaipa (1970) conducted a factor analytic study of
expectations associated with friendship. Friendship can be viewed as
a relationship in which there is a good deal of interpersonal attraction,

and therefore aspects of friendship are relevant to the properties of
interpersonal attraction. The experimenters derived 80 Likert-Type
items from 1800 friendship statements, which were the product of 150
open-ended interviews with college students. Over 1000 high school and
college students evaluated the 80 statements in terms of each one's
relevance to those five levels of friendship: best friends, close
friends, good friends, social acquaintances, and casual acquaintances.
Eight major factors were found across ratings and people: (1) Genuine-
ness (2) Intimacy potential (3) Acceptance (4) Utility potential (the
willingness to endure high costs as the intensity of the relationship
increases) (5) Ego-reinforcement (6) Admiration (7) Similarity (8)
Ritualistic social exchange (exchanging gifts). That many of the above
factors are intimately involved in group processes is easily recognized.
These are aspects of a relationship relevant to interpersonal attraction
as determined by this experiment technique. Byrne's (1969) contention
that similarity is an important part of attraction is supported by
factor 7. Factor 2, intimacy potential, also appears similar to self-
disclosure, and lends validation to Knecht's (1973) conclusion that
attraction and self-disclosure are related.

Tedeschi, Schlenker, and Bonoma (1973) reviewed the factor analytic
studies of small group behavior and of influence settings. They con-
cluded that expertise, prestige, status, trustworthiness, and attraction
account for most of the variance in interpersonal influence interactions.
In their terms, expertise refers to special abilities. Prestige is
related to power, and includes the aspects of the capability of action
along with the willingness to act. Status refers to a recognized posi-
tion in the role structure. Trustworthiness indicates that a person

intends to communicate a valid message. Although these characteristics set out certain different personal attributes that are important in interpersonal interactions, they are apparently inter-dependent to some extent. Blau (1964) noted that experts are generally liked. Other studies have shown that higher status persons are more liked than lower status persons (Masling, Greer, and Gilmore, 1955; Petersen, Komorita, and Quay, 1964). A person who has the capability of rewarding others along with the intention to do so (prestige) is also generally liked (Pepitone and Kleiner, 1957). Tedeschi (1973) noted that attraction and trust are related to each other, and that they produce separate effects in mixed-motive situations. A relationship between interpersonal trust and learning how to roleplay positive, interpersonal behaviors was demonstrated by Piper (1972). A clear understanding of these attributes and the ability to manipulate them experimentally will depend on elucidation of their inter-relationships.

Without the ability of one group member to exert some influence on another, very little would happen in groups. Exchange of ideas and opinions and subsequent personal re-evaluations is at the heart of the sensitivity groups and therapy groups. Full knowledge of the process of interpersonal influence is essential for total understanding of groups. Clarification of the relationships between compatibility, attraction, and their antecedents will become increasingly important as more research is generated in this area.

While studies relating to interpersonal attraction aid understanding of group processes, there are others that apply more directly to the use of compatibility as it is used in this study. Reddy (1971) contrived four sensitivity groups of 10 members each which were controlled

for affection interchange compatibility (xK^A) as previously defined in Schutz's schema. Two groups were compatible and two groups were incompatible. The incompatible groups were composed of individuals who had high combined expressed/wanted affection scores on the FIRO-B, and some of which had low combined expressed/wanted affection scores. One compatible group was composed of indivuals who had low expressed/wanted affection scores, and the other was composed of indivuals who had high expressed/wanted affection scores. The incompatible groups made greater gains on selected aspects of self-actualization as measured by the Personal Orientation Inventory than the compatible groups in this study. Compatibility in the inclusion and control areas was not controlled for, nor was reciprocal and originator compatibility. The effects on this study of including these in the definition of compatibility are unknown. Their exclusion seriously weakens any conclusions drawn about the utility of compatibility as a concept. Due to the correlations between the I, C and A scales and the complex mathematical relationships between rK, oK and xK, the uncontrolled types of compatibility for all three need areas were very likely not randomly distributed throughout the four groups. Since a comprehensive or global view of these groups' compatibility is not known, the total implication of this study on Schutz's theory of compatibility cannot be evaluated. Reddy interpreted his results as a confirmation of Harrison's (1965) view that interpersonal conflict is desirable for group change.

Pollack (1971) used FIRO-B control scores to define homogeneous and heterogeneous groups. He used four types of homogeneous groups composed of individuals with these scoring patterns: (a) high expressed/

wanted control, (b) low expressed/wanted control, (c) high expressed
and low wanted control, or (d) low expressed and high wanted control.
The heterogeneous groups were composed of individuals who had low
moderate and high scores on expressed and wanted control. Group out-
come was determined by a relatively complicated system based on the
differences between pre and post FIRO-B control scores. More desirable
changes in FIRO-B control scores as defined by Pollack were noted for
heterogeneous groups. The conclusion was that heterogeneity leads to
more productive groups. Since the inclusion and affection scores of
subjects were not recorded, compatibility in these areas is not known.
Some experimental affects could possibly have been caused by these
unknown compatibilities. Pollack's selection basis for control scores
did not allow evaluation of control compatibility as Schutz (1960)
defines it. Control compatibility possibly exerted some unknown in-
fluence on the results also. Considering the definitions of homo-
geneity and heterogeneity used, it is possible that heterogeneous
groups were actually more compatible than homogeneous groups. Pollack
interpreted his results as a confirmation of Harrison's (1965) assertion
that heterogeneous groups are more productive than homogeneous groups.

Baum (1971) had judges measure the amount of self-disclosure be-
havior in groups of four persons with varying composition as measured
by inclusion and affection FIRO-B scores. Three sets of groups were
used. The scoring patterns were as follows: (a) high inclusion and
affection scores, (b) low inclusion and affection scores, or (c) both
low and high inclusion and affection scores. The low inclusion and
affection groups were significantly more self-disclosing than high in-
clusion and affection groups, on three scales of self-disclosure, and

the low and high inclusion and affection groups were more self-disclosing

than the high inclusion affection groups on one scale. Although the

effects of FIRO-B compatibility per se cannot be evaluated in most

studies, it is a consistent finding that FIRO-B scores are useful in

predicting group behavior.

Schutz (1960) cited a study in which he examined compatibility in

terms of his quantitative definitions. Two particular types of relation-

ships, among others, were investigated. Fraternity members completed

a questionnaire in which they listed their choices of other members

they would like to have as roommates or traveling companions. All

members had taken the FIRO-5B3 test (an early form of the FIRO-B). The

results indicated that affection compatibility was a significant pre-

dictor for roommate choice, and that control compatibility was a sig-

nificant predictor of traveling companion choice. This study more

directly validates the concept of compatibility than most investigations.

The most general conclusion to be drawn from the literature is

that group composition does affect group behavior. Both the measures

of composition and behavior are varied, with no general agreement on

which of these is best. It is apparent, however, that personality

characteristics have effects on group behavior, and more specifically

that the FIRO-B is an effective predictor of group behavior. The

questions raised over the desirability of homogeneity, complementarity

of needs, similarity of needs, and compatibility are unanswered. It

can be stated that in specified situations, some types of homogeneity,

complementarity and similarity of needs, and compatibility seem to

result in preferred group behaviors of certain types. The extreme lack

of comparibility between studies yields these narrow conclusions. It

is encouraging, though, that group composition effects have been demon-

strated, and more research is called for. Considering the lack of

experimental controls in those studies using the FIRO-B, Schutz's

theory of compatibility has been neither confirmed nor disconfirmed.

The conceptual organization and ease of measurement of this technique

make it a promising theory which deserves more extensive evaluation.

Validation of compatibility should be interpreted very carefully. Im-

plications on the validity of the concepts of homogeneity and the com-

plementarity and similarity of needs would have to be carefully

qualified.

Although Schutz discussed compatibility primarily as measure of

the ability of persons to work well together, most studies have used

compatibility to determine various types of personal or group growth.

There is certainly some justification for this application, since com-

patibility is related to interpersonal attraction and its antecedents

as well as working relations. Interpersonal anxiety, which compatibility

contra-indicates, is undoubtedly a factor in sensitivity and therapy

groups. The available studies lacked the necessary controls to allow

a clear evaluation of compatibility, though, and its efficacy in this

setting is still undetermined. The present study is concerned with

group composition as it limits or enhances the number of affective

group verbalizations. Compatibility was chosen as the criterion for

group selection, and a comprehensive test of its ability to predict

group behavior in this particular setting was attempted.

Operant Technique

Since about the time that Greenspoon (1955) demonstrated that he

could verbally reinforce subjects for particular speech categories,
there has been a growing interest in verbal conditioning in the litera-
ture. This interest has also shown up in reinforcement of verbal out-
put in groups. Cohen et al. (1954) demonstrated that the use of
personal pronouns (I, We) in small groups can be increased by a verbal
reinforcement technique. Oakes, Droge, and August (1960) increased
or decreased participation of subjects in a group discussion by using
a light flash as a positive or negative reinforcer, respectively.
Bavelas et al. (1965) increased the verbal output of a target person
in a group by a similar reinforcement technique. A light flash signaled
a subject privately that he was interacting in such a way as to aid
the group in arriving at intelligent solutions. Zdep and Oakes (1967)
increased the verbal output of a target person using the light flash
reinforcement procedure, and noted that the sociometric status of the
target person increased as well as his verbal output.

Attempts have been made to modify verbal response classes. Verbal
initiations were investigated by Hauserman, Zweback, and Plotkin (1972),
giving of opinions by Oakes (1962), order of speaking by Levin and
Shepiro (1962), conclusions reached by Oakes, Droge, and August (1961),
and personal or group references by Dinoff et al. (1960). Reinforce-
ment is effective in not only increasing verbal output, but is also
effective in modifying particular classes of verbalizations.

Salzinger, Portway, and Feldman (1963) and Ullmann, Krasner, and
Gelfand (1963) demonstrated that affect words can be conditioned in an
individual setting. Ince (1968) increased the emission of positive
self-reference statements with the use of a fixed-interval reinforce-
ment technique. Three female college students were the subjects in a

setting which simulated an actual counseling situation. Ullman,

Krasner and Collins (1961) reinforced affect words while telling TAT

stories, and found that this led to increased verbalizations in a sub-

sequent group therapy session. Salzinger and Pisoni (1960) had a

therapist reinforce affect behavior of subjects in a group therapy.

This technique was effective for both normal and schizophrenic sub-

jects. The reinforcer consisted of a verbal agreement by the therapist

immediately following an affect statement.

Although the frequency of affective verbalizations have been in-

creased in groups, little attention has been given to modifying specific

kinds of affective responses in groups. The only attempt known to the

author is a study by Fromme, Whisenant, Susky, and Tedesco (1973). An

audible click from a cumulative counter was the reinforcer. All members

in a group of four persons had their own counter (reinforcer) although

all persons in the group could hear the click from any counter and

identify which member received the reinforcement. Using this technique,

affective verbalizations corresponding to specified response categories

were effectively modified. Fromme et al. (1973) provided evidence that

these categories could be reliably judged and therefore reinforced in

a consistent manner. The verbal responses that were selectively re-

inforced were suggested by Yalom (1970), as those responses which are

conducive to interpersonal learning in a group therapy setting. A

distillation of Yalom's comments yielded these responses as desirable:

(a) expressions of feelings toward other group members as they arise

('here and now'), (b) feedback and consensual validation of behavior,

and (c) expressions of understanding others feelings and behaviors

(empathy). Yalom views groups as a social microcosm in which members

exhibit the behaviors that characterize their actions outside the group.
This allows examination in the group of the maladaptive behaviors that
they exhibit in their interpersonal relationships with others. The re-
evaluation of interpersonal behavior in a group and subsequent change
also allows a person to carry his new knowledge out into his other
social relationships and alter his extra-group behavior. The pro-
duction of verbalizations in the above categories seems to mediate this
process. Conditioning of these verbal responses would then be desirable
in order to facilitate interpersonal learning in groups. Fromme et al.
(1973) demonstrated that these verbal responses can be conditioned by
his instrumentation technique.

Yalom's (1970) discussion included a therapist as the facilitator
of the desirable verbal responses and the group process. Fromme et al.
used both led and leaderless groups. They attempted to simulate the
desirable group process as described by Yalom with the operant technique.
There are differences of opinion regarding the efficacy of having group
leaders. Wolf (1961) suggested that an antitherapeutic dependence on
the therapist impedes personal growth. Some investigators found that
differences in emotional climate between led and leaderless groups was
slight, although those with therapists exhibited more depression and
tension, and slightly less warmth (Harrow et al., 1967). Slavson (1964),
however, feels that disruptive acting out may occur in leaderless groups.
There are certainly both advantages and disadvantages to therapist led
groups. In the context of experimental investigation of variables af-
fecting group processes and outcome, the task may be considerably
simplified and facilitated by conducting research with leaderless groups.
Elimination of the therapist can be regarded as an experimental control

which reduces the number of variables affecting the group process. This approach is particularly attractive considering the present lack of sophistication in group research.

Summary of the Problem

The present study replicated Fromme et al.'s procedures for modifying affective, feedback, and empathetic statements. In addition, the effect of inclusion, control, and affection compatibility on the ability of group members to produce these verbalizations was investigated. The production of these responses could reasonably be expected to reflect productive group behavior if Yalom's (1970) conception of group process is accepted. If compatibility affects these responses, then it follows that compatibility can predict group productiveness. It is hypothesized: (a) affective, feedback and empathetic verbal responses can be modified using operant techniques in a small group setting, and (b) the production of these verbal responses is a positive function of one or any combination of inclusion, control and affection compatibility as determined by FIRO-B scores.

CHAPTER II

METHOD

Subjects

An initial randomly selected pool of 53 male and 43 female subjects
were given the FIRO-B as a part of their classroom activity in an intro-
ductory psychology course. The intercorrelations, means and standard
deviations of the six FIRO-B scores for all 98 subjects are presented
in Tables I and II, respectively. There was an average interval of two
months between the test administration and subject participation in the
experiment. Subjects were aware that their FIRO-B scores were a pre-
requisite for participation, although the significance of scores for
the experimental design was unknown to them.

These 96 subjects were divided into five groupings of about 20 sub-
jects each. Within each grouping, all possible combinations of four
subjects were generated as one step of a computer program. Group
compatibility scores for the FIRO-B dimensions of inclusion, control
and affection (i.e. K^I group, K^C group, K^A group) were computed for
each four person group. Appendix A lists the entire computer program.
A visual scan of group compatibilities and their standard deviations
on a computer print out, located those groups which best fit the group
selection criteria. These compatibility scores theoretically range
from zero (extremely compatible) to 18 (extremely incompatible), al-
though no groups exhibited these extreme scores. Grand mean scores for

TABLE I

FIRO-B SCORE INTERCORRELATIONS FOR THE INITIAL POOL OF 96 SUBJECTS

		Expressed Behavior			Wanted Behavior		
		Inclusion	Control	Affection	Inclusion	Control	Affection
Expressed Behavior	Inclusion	1.000	0.093	0.471	0.581	0.039	0.408
	Control		1.000	-0.010	0.226	-0.295	0.077
	Affection			1.000	0.334	0.113	0.632
Wanted Behavior	Inclusion				1.000	0.014	0.465
	Control					1.000	0.207
	Affection						1.000

TABLE II

FIRO-B SCORE MEANS AND STANDARD DEVIATIONS
FOR THE INITIAL POOL OF 96 SUBJECTS

Expressed Behavior						Wanted Behavior					
Inclusion		Control		Affection		Inclusion		Control		Affection	
$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
4.66	2.10	2.75	2.37	3.43	2.18	4.83	3.05	3.31	1.97	4.85	2.56

inclusion, control, and affection compatibility in the total subject
population were determined by computing these compatibilities for all
possible groups of four in the pool of 96 subjects. Selection criteria
were chosen so as to maximize compatibility or incompatibility on one
FIRO-B dimension, and hold scores on the other two dimensions very near
their respective grand means, while minimizing all the standard deviations
(dyadic variabilities). This process yielded groups either compatible
or incompatible on one FIRO-B dimension and of average compatibility
(neither compatible nor incompatible) on the other two dimensions.
Selection in this manner institutes total experimental control of com-
patibility. While the experimental effect of one dimension (i.e. I) of
compatibility or incompatibility is being evaluated, interference or
confounding due to the other two dimensions (i.e. C and A) is kept to a
practical minimum. Two groups compatible on either the inclusion, con-
trol or affection dimension, and two groups incompatible on either the
inclusion, control, or affection dimension were chosen. The 12 resulting
groups were comprised of 30 male and 18 female subjects. Tables III and
IV present intercorrelations, means and standard deviations, respectively,
of the six FIRO-B scores for these 48 subjects. A visual comparison of
Tables I and II with III and IV indicate that the intercorrelation,
means and standard deviations of FIRO-B scores of the original and ex-
perimental pool of subjects are similar. The mean age was 20.1 years
with a standard deviation of 2.5. The compatibility characteristics of
the experimental groups are contained in Table V. Some characteristics
of the FIRO-B scores for each experimental group is appropriate. Table
VI, Appendix B, presents the FIRO-B scores and various combinations of
these scores by group, in order to elucidate possible differences among

TABLE III

FIRO-B SCORE INTERCORRELATIONS FOR THE 48 EXPERIMENTAL SUBJECTS

		Expressed Behavior			Wanted Behavior		
		Inclusion	Control	Affection	Inclusion	Control	Affection
Expressed Behavior	Inclusion	1.000	0.152	0.428	0.460	0.050	0.323
	Control		1.000	0.084	0.344	0.051	0.396
	Affection			1.000	0.157	0.101	0.603
Wanted Behavior	Inclusion				1.000	0.209	0.323
	Control					1.000	0.205
	Affection						1.000

TABLE IV

FIRO-B SCORE MEANS AND STANDARD DEVIATIONS
FOR THE 48 EXPERIMENTAL SUBJECTS

Expressed Behavior						Wanted Behavior					
Inclusion		Control		Affection		Inclusion		Control		Affection	
$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
4.79	1.87	2.38	2.08	3.29	1.91	5.33	3.01	3.60	1.82	5.10	2.22

TABLE V

EXPERIMENTAL GROUP DESCRIPTION IN TERMS OF COMPATIBILITY SCORES ON INCLUSION, CONTROL, AND AFFECTION

		Reinforced											
		Compatible						Incompatible					
		Inclusion		Control		Affection		Inclusion		Control		Affection	
		$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
FIRO-B	I	0.50	0.50	4.78	2.68	3.67	2.13	7.06	2.41	3.72	2.21	4.94	2.88
	C	2.78	1.27	0.89	0.57	3.72	1.99	3.00	1.53	7.28	2.66	3.11	2.47
Need Area A		3.72	1.48	4.44	2.41	1.61	0.76	3.44	1.54	4.50	2.06	6.89	2.85
		Non-Reinforced											
FIRO-B	I	2.06	0.76	5.00	1.77	5.06	1.63	6.78	2.32	4.39	2.52	4.06	1.65
	C	4.39	2.20	0.72	0.52	4.89	1.47	3.11	2.02	6.33	2.60	3.72	1.63
Need Area A		4.94	1.88	3.67	1.45	1.83	0.50	5.06	2.12	4.39	1.86	7.17	2.27

groups on these measures.

Response Categories

The three factors in the experimental design are: (1) compatibility on two levels (compatible and incompatible), (2) FIRO-B dimension of compatibility on three levels (inclusion, control and affection), and (3) reinforcement on two levels (reinforcement and non-reinforcement). Groups within each of the compatibility and dimension of compatibility conditions were randomly assigned to either a reinforcement or non-reinforcement condition. The verbal categories which were reinforced (or counted in non-reinforced groups) were taken from Fromme et al. (1973) and are as follows: (1) feeling - labeling one's internal, subjective, affective state, produced by interaction with other group members; (2) giving feedback - labeling one's perception of another's current behavior; (3) seeking feedback - seeking information concerning one's own current behavior; (4) empathy I - attempting, successfully or not, to clarify the nature or source of another's current affective state; (5) empathy II - seeking information regarding another's current affective state. On a total of 681 statements, Fromme et al. (1973) found an interjudge agreement of 96% between the experimenter's protocol for actual reinforcements and the consensus of three independent judges. Accepting the consensus as criteria, most of the experimenter's errors in their study were in omitting reinforcements, thus further strengthening conclusions concerning the reliability of experimenter's judgments. They did not make distinctions among categories for reliability purposes, which were present mainly to provide task definition. Fromme et al. (1973) did note, however, that

categories (3) and (5) were underrepresented in their experimental protocols, relative to other categories.

Although Fromme et al. (1973) did not discuss the effects of false positives, false negatives and delay of reinforcement on a subject's responses, they will be briefly considered. False negatives or omissions were the most frequent errors. They would, in effect, introduce an intermittent reinforcement schedule, which should not seriously alter any conclusions drawn about the effectiveness of the technique, particularly since experimental extinction was not included in the present design. False positives should reduce the power of this technique to increase the frequency of responses. If experimental effects due to reinforcement are not present, false positives could be partially responsible. Delay of reinforcement should have an experimental effect similar to false positives. In the present study, the experimenter judged the frequency of the two latter errors to be very low in relation to false negatives. In nearly every case reinforcement occurred one to two seconds after the response.

Verbal responses which fit any of these five categories were recorded for each group number. The dependent variable was the total of all such responses given by all four group members. This was a single index of each group's behavior, which reflected the cumulative number of all five categories of verbal responses given by the group.

Apparatus

The experimental room was 9 feet by 15 feet with a one-way mirror centered in one of the 15-foot walls. Subjects were seated in a semi-circular arrangement around a small table, facing the one-way mirror.

A 5 x 8 inch card was taped on the table in front of each subject's position with the five response categories enumerated. Each experimental group's conversation was tape recorded and simultaneously monitored by experimenter via the one-way mirror and headphones. A four channel relay control panel, with push buttons operating digital counters and a multiple event recorder, was used to record those instances where the experimenter judged that a group member's statement fit one of the reinforcable response categories.

In the reinforcement conditions a digital counter placed in front of each subject was simultaneously advanced, producing an audible click. In addition to providing feedback to subject concerning his performance, it was expected that the clicks would provide information to the other subjects for modeling or vicarious learning. A red light attached to each subject's counter was also used to provide two types of discriminative cues: (1) all four lights were automatically flashed on by an interval timer whenever three minutes elapsed with no reinforcements being given to the group; (2) when a subject fell 10 or more counts behind the leader, his particular light was switched on until he caught up to within nine counts. Subjects were instructed that when all four lights flashed on, this was a signal that their conversation was not conducive to developing close interpersonal relations and that they should change the topic. They were also informed that when one light was switched on, that person was having difficulty in expressing himself and required help from the others. It was thought that this latter procedure, together with the counters, would enhance subject's motivation by encouraging a moderate degree of competitiveness. Finally a 50-minute interval timer, started at the beginning of the experiment,

was used to signal the end of each group session.

Procedure

As subjects arrived they were told to wait in an outer room. When all four subjects were present, they were led into the experimental room and told to seat themselves in any order they desired around the experimental table. The experimenter then gave instructions suggesting the social desirability of sharing one's feelings, being empathetic, and providing feedback. Each subject was provided with definitions of the response categories on notecards, as shown in Appendix C. Subjects were told that expressing themselves in this fashion would provide a more rewarding group experience.

Before beginning the 50-minute session, a brief warm-up exercise was undertaken under the supervision of the experimenter. This exercise provided a brief learning experience which helped subjects recognize responses which fit the response categories, and served as a stimulus for discussion after the experimenter left the room. The two subjects at each end of the table were instructed to turn and face each other, hold hands, and maintain eye contact. After the subjects were in this configuration for about 15 seconds, one subject was chosen at random to express his current subjective affective state. His reply was discussed by the experimenter. If it did not correspond to any of the five response categories an appropriate response was offered. While still maintaining their posture, another subject was asked to give a first impression of one of the other subjects. This response was similarly evaluated by the experimenter. The subjects were then told to turn back to the table. It was explained that they would be

observed through the one-way mirror and tape recorded for purposes of data analysis. A more complete description of this warm-up is provided in Appendix D. The experimenter then stated that he was leaving the room and would be back in 50 minutes.

At the end of the experiment, subjects were asked to complete a seven item Likert-type scale, detailing their attitudes toward the experiment. Tables VII and VIII present intercorrelations, means and standard deviations, respectively, of the responses. Inspection of these values indicate that the distribution of responses is regular enough to allow a regression analysis. It was hoped that subjective attitudes (positive or negative) towards the experience would be a function of the experimental condition to which the subject was assigned. Subjects also answered a 14 item questionnaire which gave details about family status, college and high school extracurricular activities, and subject's perceived relationship between themselves and other group members. Refer to Appendix E for the exact questionnaire. These data could be used to give a general description of the experimental participants. Groups were then given the option of continuing interaction, although no groups wishes to do so.

The 12 groups were run by the experimenter in a random order. The experimenter was unaware of the status of any group's compatibility.

TABLE VII

INTERCORRELATIONS OF THE LIKERT-TYPE ITEM
SCORES FROM THE QUESTIONNAIRE

		Questionnaire Items						
		1	2	3	4	5	6	7
	1	1.00	0.31	-0.03	0.05	0.24	0.34	0.12
	2		1.00	0.33	0.47	0.43	0.46	0.15
	3			1.00	0.23	0.16	0.31	0.14
Questionnaire	4				1.00	0.27	0.50	0.26
Items	5					1.00	0.45	0.11
	6						1.00	0.16
	7							1.00

TABLE VIII

MEANS AND STANDARD DEVIATIONS OF THE LIKERT-TYPE ITEM SCORES FROM THE QUESTIONNAIRE

Questionnaire Item													
1		2		3		4		5		6		7	
$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
6.42	5.78	3.90	0.96	3.29	0.97	3.42	0.96	2.85	1.22	3.23	1.04	4.38	0.73

CHAPTER III

RESULTS

Mean frequencies of reinforcable statements for each of the experimental conditions are presented in Table IX. A completely randomized 2 x 2 x 3 factorial analysis of variance (AOV) resulted in significant main effects for reinforcement (F = 93.78, df = 1/36, p < .001) and compatibility (F = 23.18, df = 1/36, p < .001). Significant interactions were obtained between reinforcement and compatibility (F = 23.18, df = 1/36, p < .001), reinforcement and FIRO-B dimension (F = 4.34, df = 2/36, p < .025), and compatibility and FIRO-B dimension (F = 11.73, df = 2/36, p < .001). The AOV solution was derived from the Bio-Med Computer Programs (1964), program 08V. Table X contains the AOV solution summary.

The Newman-Keuls method was used to test simple effects (α = .01) (Winer, 1971). Mean frequencies of reinforcable statements for each interaction are presented in Figures 1, 2, and 3. The mean number of verbal responses which fit the response categories was significantly increased by the presence of reinforcement across all other conditions. The operant technique significantly increased verbalization of desirable responses regardless of a group's classification on compatibility or FIRO-B dimension of compatibility. Compatible groups produced significantly more desirable responses than incompatible groups under the reinforced condition, and the control and affection conditions.

38

TABLE IX

MEAN FREQUENCIES OF REINFORCIBLE STATEMENTS
FOR EACH EXPERIMENTAL GROUP

Reinforced					
Compatible			Incompatible		
Inclusion	Control	Affection	Inclusion	Control	Affection
8.25	14.25	18.75	6.50	7.75	4.75
Non-Reinforced					
1.00	3.25	3.50	5.25	0.50	2.00

TABLE X

ANALYSIS OF VARIANCE FOR THE EXPERIMENTAL GROUPS

Variable	df	MS	F
Reinforcement (R)	1	667.52	93.78**
Compatibility (C)	1	165.02	23.18**
FIRO-B dimension (D)	2	16.19	2.27
R x C	1	165.02	23.18**
C x D	2	30.90	4.34*
R x D	2	83.52	11.73**
R x C x D	2	20.64	2.90
Error	36	7.12	-----

**p 0.001

*p 0.025

Compatibility classification had no significant effect on the number of responses given by groups in the non-reinforced and inclusion condition. The dimension of compatibility produced no effect on desirable verbalizations for the non-reinforced and incompatible conditions. In no instance was there a significant difference between the number of desirable responses given by control and affection condition groups. The control and affection condition groups did yield significantly more categorized verbalizations than the inclusion condition groups for both the reinforced and compatible conditions.

The presence of reinforcement significantly increased group performance (production of desirable responses) regardless of group composition. In this experimental paradigm, reinforcement was a very powerful technique. In fact, group composition demonstrated significant experimental effects only for the reinforced groups. Differences in groups' performances under the non-reinforced condition were all negligible. In terms of group composition, compatibility classification (i.e. compatible or incompatible) on control and affection dimensions produced significant effects for reinforced groups. Also, the groups which were compatible in the control and affection dimensions performed significantly better than inclusion compatible groups. In contrast, dimension of compatibility had negligible effect for incompatible groups. Dimension of compatibility significantly predicted behavior only for compatible groups, not incompatible groups. Again, dimension of compatibility had no effect on non-reinforced groups' performance. Under the reinforced condition, the control and affection condition groups performed significantly better than inclusion condition groups. It is important to remember that these groups' verbal response scores
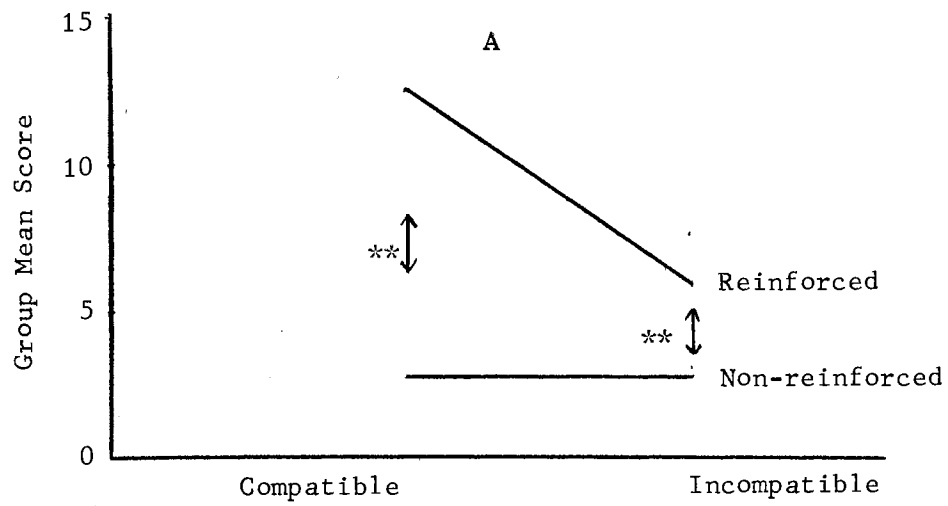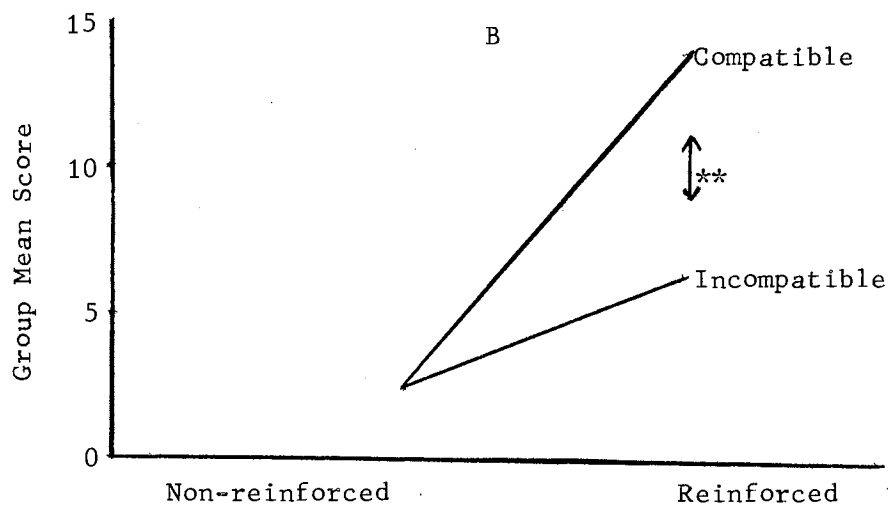
Figure 1. Mean Frequencies of Reinforcable Statements for the Compatibility by Reinforcement Interaction
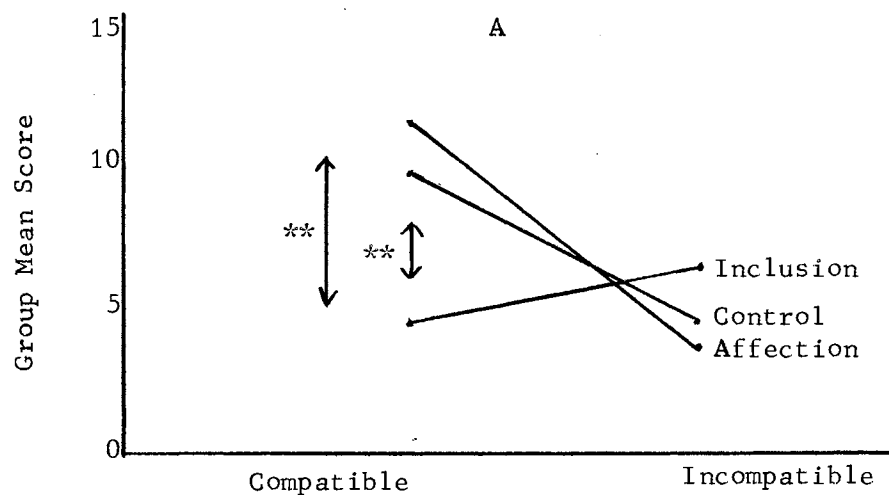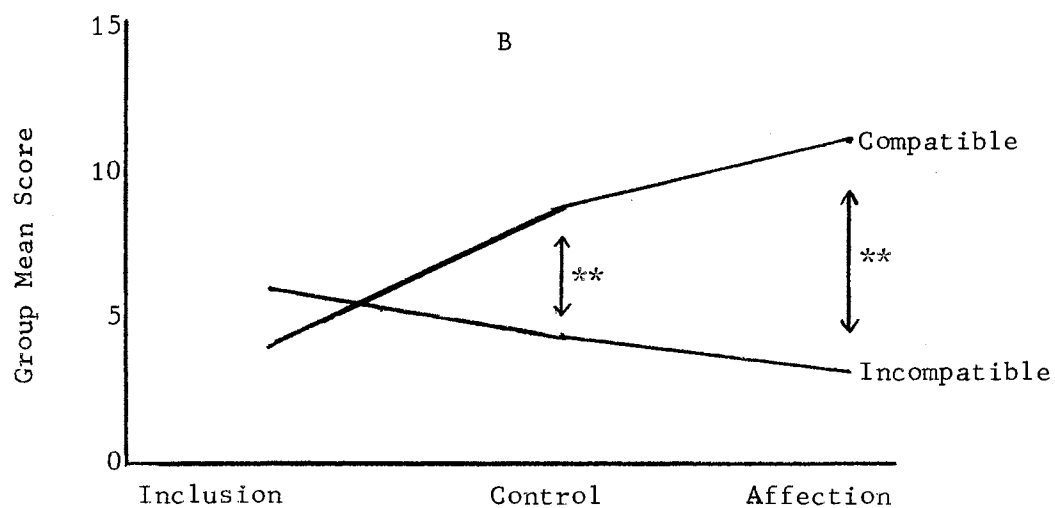
Figure 2. Mean Frequencies of Reinforcable Statements
         for the Compatibility by FIRO-B Dimension
         Interaction
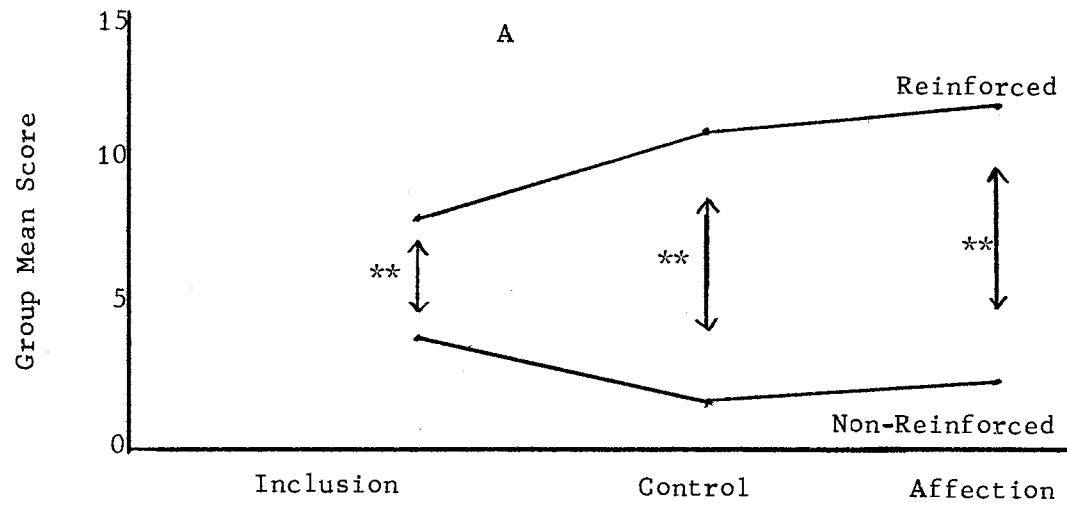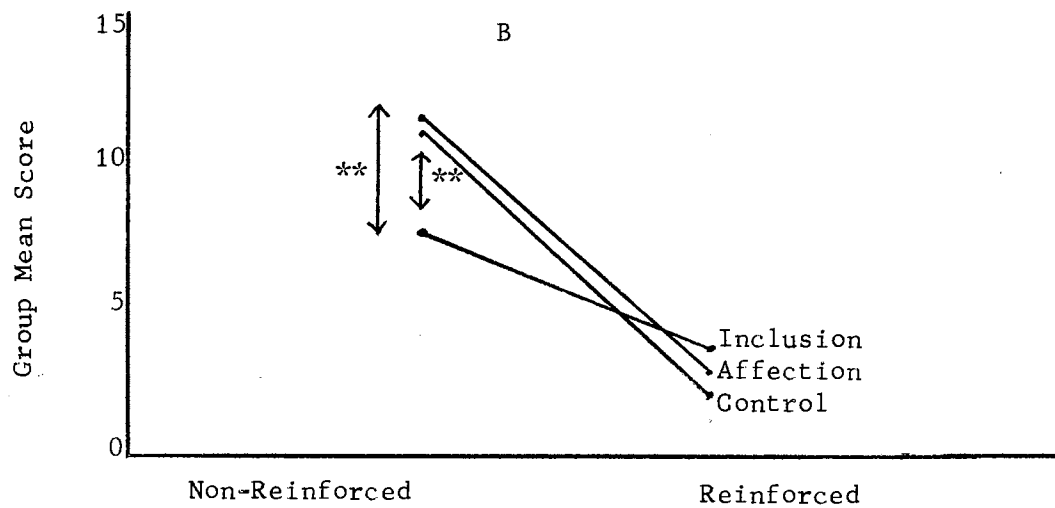
Figure 3. Mean Frequencies of Reinforcable Statements for the FIRO-B Dimension by Reinforcement Interaction

reflect the average of compatible and incompatible groups combined for the inclusion, control and affection conditions.

A step-wise linear regression analysis from the Bio-Med Computer Programs (1964), number 02R, was used to analyze responses to the questionnaire concerning attitudes toward the experiment. Two of the seven items proved to be significant predictors of an individual's response frequency. Subjects who felt the experience would help them in other situations ($F = 6.12$, $df = 1/46$, $p < .01$) or who enjoyed the experiment ($F = 2.69$, $df = 2/45$, $p < .05$) performed at the highest rate.

The questionnaire responses were also analyzed with a step-wise discriminant analysis from the Bio-Med Computer Programs (1964), number 07M. It was found that subjects in reinforced groups enjoyed the experiment more than those in non-reinforced groups ($F = 2.94$, $df = 1/46$, $p < .10$). Subjects in the affection condition groups also enjoyed the experiment more than those in control groups, and the control groups more than inclusion groups ($F = 9.86$, $df = 2/45$, $p < .005$). The compatible group subjects generally liked to compete more than incompatible group subjects ($F = 3.83$, $df = 1/46$, $p < .10$).

CHAPTER IV

DISCUSSION

Before a discussion of the results is attempted, some comments
about the characteristics of the experimental subjects are necessary,
since the results of a study are appropriately applied only to persons
similar to the subjects. In the present study, 48 subjects were chosen
for experimental participation on the basis of their FIRO-B scores from
an initial pool of 96 randomly selected students enrolled in intro-
ductory psychology courses. A large percentage of the total college
population enrolls in these introductory psychology courses, and as a
result these students are fairly representative of college students in
general. Providing that the selection process is unbiased, the 48 ex-
perimental subjects should be similar to the initial pool. Inspection
of Tables I and II and Tables III and IV, which present characteristics
of the initial pool and the experimental subjects, respectively, reveals
that the FIRO-B score distributions for the two groups are similar.
This is a somewhat surprising result considering the complexity of the
selection process, but very fortunate, since the groups in this study
have FIRO-B score characteristics similar to general college popula-
tions. Therefore, these results should be applicable to general col-
lege populations with little reservation. Since the critical property
was the comparison of individual FIRO-B scores rather than their abso-
lute values, differences in the absolute values between the initial and

experimental subject populations would not seriously limit the implications of the results, even if they existed in greater magnitude.

The first result to be considered is the striking increase in performance caused by the introduction of the feedback technique. The powerful effects of feedback on the incidence of affective verbalizations demonstrated in this study replicates the findings of Fromme et al. (1973). Part of the effect is due to its value as a reinforcer. It will be remembered that the audible click from each member's cumulative response counter signaled whenever that member's verbalization fit in the response categories. In addition, each group member had been previously instructed that this mechanical feedback would indicate when he was acting according to the experimental expectation, and that he would have a more meaningful group experience as a result of this behavior. Thus, the demand characteristics of this paradigm set up by the instructions and the social pressures of the group made a good performance desirable, and the audible clicks subsequently very reinforcing. This instrumented feedback was a very strong instructional tool as well as a reinforcer. Subjects in non-reinforced conditions had difficulty discriminating desirable from irrelevant verbal responses. Even the combination of an encounter type warm-up procedure and a set of detailed instructions yielded nothing more than a low, variable rate of responding in non-reinforced groups. In contrast, reinforced groups were able to recognize, and therefore use the response categories with relative ease. They also reported a subjectively more enjoyable experience than non-reinforced groups. The operant technique, due to its instructional and reinforcing qualities, allowed groups to interact in a highly desirable manner that corresponds closely to that

of productive groups as described by Yalom (1970).

The effects of the compatibility condition (i.e. compatible and incompatible) on group performance will presently be considered for both reinforced and non-reinforced groups. All groups without feedback were so unable to use the response categories that compatibility demonstrated no effect on the verbalizations of these groups. Reinforced groups, however, responded within the categories much more often, and exhibited a generally higher level of interaction. Compatibility effects emerged under the reinforcement condition, in which compatible groups easily outperformed incompatible groups. This is consistent with Schutz's (1960) statement that compatible groups will have a greater goal achievement than incompatible groups, and experience a higher level of mutual need satisfaction. A more detailed explanation of compatibility will help explain its effects in this study. Schutz (1960) explains that compatibility facilitates goal achievement through a lack of interpersonal anxiety which allows communication and cooperation. Thus, goal achievement is increased through the beneficial effect of compatibility on the interaction process. Compatibility seems to have a peculiar two-fold effect on goal achievement in the present experiment. First, compatibility facilitates the use of affective verbalizations because the production of these responses is the group goal. Compatibility aids communications necessary for group cohesiveness and cooperation, and for the accomplishment of a group goal. Secondly, compatibility facilitates the use of affective verbalizations directly, because they are an integral part of the interaction process itself. Since compatibility facilitates productive communication, it also directly facilitates the use of the categorized responses, the use

of which is a direct measure of meaningful, productive interactions. Therefore, compatibility aids the elicitation of the categorized responses as a result of the fact that: (1) affective verbalizations are included in the group goal, and (2) affective verbalizations are involved in the communication process that is facilitated by compatibility. The effect of compatibility, as a result, is a dramatic increase in production of these responses for reinforced groups, which have sufficient interaction for compatibility to be a factor.

A comparison of the present study with Fromme et al. illustrates the compatibility effect very nicely. They found a mean response frequency of 9.75 for their random composition reinforced groups, while reinforced compatible and incompatible groups obtained mean response frequencies of 13.75 and 6.33, respectively. The effect of compatibility was to increase the mean rate of response by 4.0, while incompatibility decreased the rate by 3.4, in relation to the response rate of the random composition groups in Fromme et al.'s (1973) study. An atmosphere of mutual supportiveness derived from compatibility seems to allow subjects to feel free enough to express feelings and work toward the group goal. Incompatibility inhibits such expressions due to the interpersonal anxiety which is generated.

As demonstrated earlier, the major thrust of the literature on groups is that compatibility is detrimental to group performance. These results support the opposite hypothesis. A closer examination of the group dynamics and the assumptions of each approach clarifies this contradiction to some extent. In one of the self-report measures administered after each session, members of compatible groups indicated that they generally like to compete with others. It seems that the less

anxious atmosphere in these groups allowed members to be "open" enough

to use the categories and compete with others in their use, and this

sense of security was reflected by the enjoyment of competition that

they reported. This lends support to Yalom's (1970) conclusion that

compatible groups are most likely to function effectively, while the

"dissonance" effects expected in incompatible groups may be illusory.

Compatible groups in this study engaged in open communication and com-

parison of thoughts attributed to the presence of "dissonance." Pre-

vious investigators concluded that heterogeneous groups are more

desirable than homogeneous groups because the former possess sufficient

"dissonance" or conflict to have productive interactions (Harrison,

1965; Pollack, 1971). Reddy (1971) tested this hypothesis with respect

to the compatibility concept. He found that affection interchange

compatibility, which he equated with homogeneity, contraindicated pro-

ductive group interaction, and concluded that heterogeneity or incom-

patibility is the desirable form of group composition. Confrontation,

or being "open," is the characteristic of heterogeneous groups that

these investigators believe make them more productive than homogeneous

groups. The present results, however, suggest that an atmosphere con-

ducive to "testing out" behaviors or to the clash of opinions and

ideas does not have to be the result of confrontation. The compatible

groups in this study interacted in an open manner in which differences

of opinion emerged. In fact, confrontation and clash do not necessarily

indicate open communication. The results suggest that mutual need

satisfaction and the reduction of interpersonal anxiety due to compati-

bility enhance this feedback, which is purportedly the consequence of

confrontation inherent in heterogeneous or incompatible groups.

Undoubtedly, many properties affect the group interaction process, and it is certainly plausible that compatible and incompatible groups differ with respect to some of these. This probability is increased since it appears that many factors seem related to compatibility, and since this selection process was very specific and exercised strict control over the values of compatibility. Tight control of compatibility implies some extent of control over related factors, and subsequently, an uneven distribution of these across compatible and incompatible groups. Some of these possibilities will be discussed in order to examine the compatibility effect in a larger context.

It is likely that compatible groups generally possess more interpersonal attraction among their members than incompatible groups. Schutz (1960) suggested this relationship, and it was inadvertently substantiated by Canfield and La Gaipa (1970). They conducted a study which derived seven factors important to the maintenance of friendships. Their factors comprised a constellation of related attributes present in a friendship. Since compatibility and attraction seem related to one or more of these factors, this study presented evidence of a connection or covariance between the two.

On the basis of the above argument, Tedeschi et al.'s (1973) study, in effect, extended the implications of compatibility when they found that attraction is involved in interpersonal influence interactions. Compatibility is likely to be a factor in this type of interaction, too, due to its previously discussed relationship with attraction. Interpersonal attraction increases the amount of interpersonal influence subjects exert on each other, and so should compatibility. Subjects that are attracted to each other and therefore compatible to some extent,

have a potentially higher reinforcing value for each other. Hence, compatible groups probably experienced more social reinforcement than incompatible groups.

In addition, people probably spend most of their time with others to which they are attracted. That is, people are more familiar with interpersonally attractive, compatible others. Since it is likely that familiarity increases the ability to understand or correctly interpret behaviors, empathic statements may come easier to compatible groups. These groups would be less anxious, more supportive and more empathic than incompatible groups if these conclusions are correct. Therefore, social reinforcement and empathy are aspects of group interaction which covary with compatibility and may increase its effects on group use of the categorized responses.

Another factor was discovered which, like social reinforcement, appears to be both related to group process and a covariant of compatibility. Inspection of FIRO-B score profiles for groups revealed that the discrepancies between expressed and wanted FIRO-B scores in each need area covaried with the compatibility classification (i.e. compatible and incompatible) of each group. These average expressed/wanted discrepancies by need area (i.e. I, C, and A) are presented in Table VI, Appendix B, for each experimental group. This group characteristic is worth examining because an expressed/wanted difference of three or more in any need area indicates anxiety about the satisfaction of needs in that area (Ryan, 1970), and it warrants a more detailed explanation. An expressed/wanted difference is a property of just one individual's FIRO-B score profile. It is not a result of its relation to another profile, which is the case for compatibility. The

expressed/wanted discrepancy indicates an idiosyncratic anxiety that is part of each person, and is brought to any interpersonal relationship regardless of its compatibility. In addition, the presence of these discrepancies is used as a rough index of personal maladjustment, which is logically a factor in group processes. Consequently, maladjustment has its own effects which combine in some proportion with compatibility to determine group process and outcome. The mathematical relationship between compatibility and FIRO-B profiles does not demand an expressed/wanted discrepancy covariance with compatibility. The particular group definition of compatibility used in this study, however, did cause a discrepancy-compatibility relationship. It would not necessarily re-occur with a different subject sample or another group definition of compatibility.

The relevance of the preceding discussion is that there seemed to be confounding of compatibility and incompatibility with social rein-forcement, familiarity, and expressed/wanted discrepancies. If these factors strongly affect group performance, then this confound is an important consideration for the interpretation of compatibility effects. The experimental effects caused by the compatibility conditions (i.e. compatible and incompatible) may be due to both the effects of com-patibility per se, and the effects of social reinforcement, familiarity, and personal adjustment (determined by expressed/wanted discrepancies). Applications of the compatibility concept stemming from this study should take the possible contributions of these factors into considera-tion.

The concept of compatibility was certainly substantiated by the results with respect to the efficacy of compatibility versus incompati-

bility. A further demonstration of the strength of the compatibility
concept was the significant effect shown for compatibility dimension
(i.e. I, C, or A) on group performance. These effects were evident,
however, only for compatible groups, not incompatible groups. Several
explanations for the lack of effects for incompatible groups are offered.

It is suggested that compatibility dimension effects were not
present for incompatible groups because they were unable to formulate
a group goal. Neither inclusion, control or affection incompatible
groups could interact well enough to attempt adoption of the group goal.
Compatibility demonstrates effects on goal achievement through its
beneficial effect on communication among members of the group. In-
compatibility indicates the inability to communicate or interact well,
which subsequently results in difficulty achieving a group goal. This
process was altered somewhat in the present study, since the group goal
dealt with the communication process itself. Therefore, incompatibility
directly inhibited accomplishment of the goal (use of the categorized
responses), instead of affecting group achievement through the com-
munication process. Normally the goal is some other concrete task, so
that incompatibility, or the inability to communicate, only indirectly
affects goal achievement. As a result of this direct inhibition, incom-
patibility very powerfully affected goal achievement in the present
study. In fact, the goal of using the categorized responses was so
difficult that none of the incompatible groups (inclusion, control, or
affection) were able to use them at more than a serendipitous rate.
The level of cooperation was so low that none of them could agree to
get involved in a united effort. In effect, they could not formulate
a group goal. In this sense the incompatible groups were equals; they

were equally unable to use the categorized responses, or achieve the group goal. An easier task, however, might have allowed incompatible groups to formulate a group goal and use the responses. In that event, the relative inability of inclusion, control, and affection incompatible groups to effectively communicate and exhibit goal achievement might have been demonstrated.

Another factor contributing to the lack of discrimination by compatibility dimension for incompatible groups may have been the restriction of range effect, which may have acted alone or in combination with the effects of lack of goal formulation. Although the potential range of the dependent variable (number of group affective responses) was zero to infinity, incompatible groups scored an average of 1.6 responses per group member. A person having a little more difficulty than average might score zero. A problem arises now, because a person having a great deal more difficulty than average would also score zero, since that is the bottom of the scale. The point is that there is no way to discriminate between these two people in terms of their difficulty of performance measured by the number of responses. Since the dependent variable would be insensitive to the degree of interpersonal difficulty, the effects of compatibility dimension could be masked. The low scores obtained by incompatible groups might not allow discrimination of different levels of performance caused by compatibility dimension (i.e. I, C, and A).

As stated previously, effects for dimension of compatibility were apparent in compatible groups, even though they were not apparent in incompatible groups. It was found that control and affection compatible groups performed significantly better than inclusion compatible groups.

Schutz (1960) provided one of the several explanations of this result which will be discussed. He theorized that the effect of compatibility on productivity increases as the task situation requires more interchange (interaction) in the three need areas. If the demand characteristics of this experimental paradigm required interaction primarily within control and affection need areas rather than inclusion, then inclusion behavior was not an important part of group interaction. In that case, little interchange in the inclusion area was necessary, and therefore inclusion compatibility had little effect on productivity. Since control and affection were areas of interchange, compatibility in those areas increased productivity. The result was control and affection compatible groups which outperformed inclusion compatible groups.

Another possibility is that inclusion was an area of interchange, but that effects due to inclusion compatibility were not detected. If the categorized responses did not reflect the particular type of behaviors related to inclusion, then they could not reflect the effects of inclusion compatibility. It will be remembered that inclusion compatible groups have a low compatibility score in the inclusion area, and average or intermediate compatibility scores in the control and affection areas. If the categorized responses are only sensitive to control and affection behaviors, then an inclusion compatible group's score reflects the effect of average control and affection compatibility. The result would be control and affection compatible groups (low compatibility scores in these areas) which performed better than inclusion compatible groups (intermediate scores in the control and affection areas).

Another way to view the low inclusion groups performances involves

an alteration of the personality theory offered by Schutz (1960). Carson (1969) and Swensen (1973) reported numerous factor analytic studies which yielded only two dimensions of personality, corresponding closely to the control and affection need areas. If these are primary factors, then inclusion compatibility would be expected to be a relatively insignificant aspect of group composition, since they are not important aspects of personality in general. As in the previous explanation, the result would be inclusion compatible groups whose important characteristics were their intermediate scores on control and affection compatibility. Therefore, inclusion compatibility would not significantly affect group performance, while control and affection compatibility would. Schutz (1960) would argue that inclusion needs are just not important for this particular social situation, but Carson (1969) and Swensen (1973) would argue that inclusion needs are not really important in any social situation.

While control and affection compatibility were demonstrated to be more facilitative than inclusion compatibility, no distinction between the former two could be made. A number of possibilities which may explain this occurrence are worthy of consideration. Control and affection may be equally important areas of interaction for this group situation, and consequently, control and affection compatibility have equal effects on group production. On the other hand, there may have been a confounding variable which masked the differential effects of control and affection compatibility.

Table VI, Appendix B, contains data which lend credence to this proposition. The relationship between expressed/wanted score discrepancies and control and affection compatibility may have constituted an experimental

confound. This relationship will be presented in more detail. It was found that low compatibility scores were associated with small expressed/ wanted discrepancies and that high compatibility scores were associated with large expressed/wanted discrepancies. Therefore, compatibility in a need area indicated personal adjustment in that area, and incompatibility in a need area indicated maladjustment in that area. For instance, inclusion compatible groups had a low score on inclusion compatibility and an associated low expressed/wanted discrepancy for inclusion. Conversely, a large expressed/wanted inclusion discrepancy was associated with an inclusion incompatible group. These compatible and incompatible inclusion groups had low and high compatibility on the control and affection areas. It was found that the expressed/wanted discrepancies for the control and affection areas in these cases were of intermediate values also, neither high nor low. Across compatibility groups of all types (I, C, and A), a low compatibility score in an area indicated a low discrepancy score, an intermediate compatibility score indicated an intermediate discrepancy score, and a high compatibility score indicated a high discrepancy score. The one exception to this pattern was the control compatible groups, which had low expressed/ wanted discrepancies in both the control and affection areas. A control compatible group had intermediate scores of compatibility on inclusion and affection, and intermediate discrepancy scores would be predicted. However, there was a low affection discrepancy for this group. Control and affection compatible groups, while different in terms of compatibility, were similar in terms of expressed/wanted discrepancy. If discrepancies significantly affect group performance, then the experimental results do not reflect the effects of control and

affection compatibility alone. Although no significant difference was found between the performance of control and affection compatible groups, differences may exist which were masked by the confounding factor of expressed/wanted discrepancy.

The last experimental effect to be presented is the higher level of performance that control and affection reinforced groups exhibited in contrast to inclusion reinforced groups. It is believed that this effect was caused by a three-way interaction which was not significant in the present analysis due to the small number of subjects per condition. This explanation is based on the fact that the scores for inclusion, control, and affection condition groups are actually the mathematical average of the compatible and incompatible groups under each condition. The contention is that there were experimental effects for reinforced compatible groups but not for reinforced incompatible groups. The latter's scores were essentially a constant, with some random variation of scores among the inclusion, control, and affection reinforced incompatible groups, while reinforced compatible groups exhibited definite experimental effects, in which control and affection groups performed better than inclusion groups. The addition of a constant (i.e. reinforced incompatible group scores) to a mathematical relationship (i.e. C or A reinforced compatible group scores $>$ I score) leaves the relationship intact (i.e. C reinforced compatible score + constant $>$ I score + constant, and A reinforced compatible score + constant $>$ I score + constant). This effect should be statistically substantiated in a replication study with more subjects per condition.

Conclusions

Previous studies in group behavior have often used ambiguous group composition criteria which could be difficult to duplicate. For a selection criteria to be of real value, it must be reproducible, so that independent studies can comprise groups which are identical with respect to the salient characteristics. Similarly, the group behavior which is used as the criterion (dependent variable) should be an important one which can be measured reliably across many groups. Both of these methodological concerns have been violated repeatedly in studies on groups. Heterogeneity has been defined at least a dozen different ways in various experiments, yet used in the discussion sections as if it were the same well-defined entity. Group behavior criteria have ranged from the performance of various tasks to pre-post score changes on personality tests. Even studies such as Reddy's (1971) which directly investigated the effects of Schutz's (1960) compatibility used incomplete definitions of group composition. The concept of compatibility includes interpersonal interactions in all three need areas, and an evaluation of this concept necessitates experimental control and manipulation of the three compatibility dimensions. The effects of affection interchange compatibility do not reflect the efficacy of the compatibility concept. The advantage of the present study was that it incorporated reciprocal, originator and interchange compatibility across the need areas of inclusion, control, and affection. The experimental design allowed a comparison of the effects of inclusion, control, and affection compatibility, since all of these aspects of compatibility were under experimental control (manipulation).

There were limitations to the present study, too, however. Since

there was little data available on the effects of reciprocal, originator, and interchange compatibility, the index of compatibility used was an average of the three. This gave the advantage of including every aspect of compatibility in a test of its effect on behavior, but the disadvantage of not allowing an evaluation of their relative effects. Just as control and affection needs were more important than inclusion needs, one of the three types of compatibility (i.e. reciprocal, originator, and interchange) may have been more important than the others in this paradigm. The results would also have been clearer if a larger number of subjects were used and the three-way interaction was significant. More confidence generally could be put in the interpretations if the results were from an extended number of sessions instead of just one meeting. Other measures of group productivity and achievement would have been useful, too, so that personal growth could be related to the use of categorized responses.

This study unequivocally substantiates the efficacy of this feedback technique and compatibility in determining the ability of leaderless groups to elicit affective, feedback and empathic verbalizations. The correct specification of group composition in conjunction with instrumented feedback allows groups to interact in a meaningful manner, so that the probability of group success and growth is greatly increased. The best performance in the present paradigm is forthcoming from control or affection reinforced compatible groups, and they would be expected to gain the most from the group experience. These groups have a relatively low level of interpersonal anxiety and interact with a minimum of interference from its associated unproductive communication.

There are a myriad of applications for both the feedback technique

and group composition specification. Their use in therapy groups which interact over an extended period of time is indicated from the results of the present study. The operant technique is probably capable of affecting the production of many types of verbalizations, which are of varying interest and importance for various group situations. Group composition is very likely to be an important consideration for industrial task groups, co-workers in general, and possibly even the choice of therapist-group combinations. Compatibility can be applied to any situation in which productive interpersonal interaction is desired. It can also be used as a diagnostic tool, in that it could allow insight into the reason why a particular group is not functioning well. The concept of compatibility is very appealing because it is effective, and yields a quantitative score easily derived from two FIRO-B profiles. The FIRO-B has the advantage of being a short, self-administered test that is relatively non-threatening.

Future experiments are called for which will elucidate the efficacy of compatibility on many varieties of group behavior. Correlational studies of FIRO-B scores with other reliable personality tests might allow insight into other personality characteristics which are related to compatibility, and therefore allow a more powerful and comprehensive definition of group composition. Pre and post administration of personal adjustment tests taken over many group sessions would help clarify the implications of compatibility on long term personal progress as the result of group interaction. The concept of compatibility is clearly useful in predicting group behavior, all that remains is empirical validation of its efficacy for all the possible areas of application.

CHAPTER V

SUMMARY

This study was designed to investigate the ability of FIRO-B
determined compatibility and an instrumented feedback technique (re-
inforcement) to facilitate the production of certain desirable group
verbalizations. Forty-eight subjects were assigned to groups of four
in such a manner as to control their compatibility characteristics, and
then participated in a 50 minute group experience under either a re-
inforced or non-reinforced condition. The elicitation rate of desirable
verbalizations was measured and analyzed for all the groups in order to
determine the effects of compatibility and feedback.

Both compatibility and feedback were shown to be significant posi-
tive predictors of desirable group verbalizations. Reinforced com-
patible groups scored highest, and non-reinforced compatible and
incompatible groups scored lowest. Compatibility in the interpersonal
need areas of control and affection was a better positive predictor
of desirable verbalizations than compatibility in the inclusion area,
for reinforced groups. Reinforced groups in the control and affection
conditions scored higher than reinforced groups in the inclusion condi-
tion. In addition, subjects in reinforced groups reported enjoying the
experiment more than subjects in non-reinforced groups, and subjects in
compatible groups reported generally liking to compete with others more
than subjects in incompatible groups.

There are two principal conclusions from the study. First, the reinforcement technique greatly increases the ability of groups to elicit verbal responses considered to be indicative of therapeutically productive groups. Secondly, the specification of group composition in terms of compatibility can also be used to increase the ability of groups to elicit these verbalizations. The best performance was from a reinforced, control or affection compatible group. It is plausible that other factors related to compatibility, such as interpersonal attraction and personal adjustment, contributed to the compatibility effect, although their presence does not necessarily detract from the efficacy of the concept. Subjects of groups that performed well generally enjoyed the group experience; and a good performance indicated group behavior that is considered to be therapeutically productive. Thus, the use of this instrumented feedback technique in conjunction with the specification of control and affection group compatibility allows the prediction of productive group interaction.

A SELECTED BIBLIOGRAPHY

Baum, R. C. (U. Cincinnati). "Self-Disclosure in Small Groups as a
    Function of Groups Composition." Dissertation Abstracts Inter-
    national, 1972 (Jan.), Vol. 32 (7-B), 4200-4201.

Bavelas, A., Hastorf, A. H., Gross, A. E., and Kite, W. R. "Experi-
    ments in the Alteration of Group Structure." Journal of Experi-
    mental Social Psychology, 1965, 1, 55-70.

Bion, W. "Experiences in Groups: III, IV." Human Relations, 2,
    1949, 13-22.

Blau, P. M. Exchange and Power in Social Life. New York: Wiley, 1964.

Byrne, D. "Attitudes and Attraction." In L. Berkowitz (Ed.), Advances
    in Experimental Social Psychology. Vol. 4. New York: Academic
    Press, 1969, pp. 35-89.

Canfield, F. R., and La Gaipa, J. J. "Friendship Expectations at Dif-
    ferent Stages in the Development of Friendship." Paper read at
    the annual meeting of the Southeastern Psychological Association,
    Louisville, April, 1970.

Carson, R. C. Interaction Concepts of Personality. Chicago: Aldine,
    1969.

Carter, L. "Recording and Evaluating the Performance of Individuals as
    Members of Small Groups." In A. P. Hare, E. F. Borgatta, and
    R. F. Bales (Eds.), Small Groups: Studies in Interaction. New
    York: Knopf, 1955.

Cohen, B. D., Kalish, H. I., Thurston, J. R., and Cohen, E. "Experi-
    mental Manipulation of Verbalization." Journal of Experimental
    Psychology, 1954, 47, 106-110.

Dinoff, M., Horner, R. G., Kurpiewski, B. S., Rickard, H. C., and
    Timmons, E. O. "Conditioning Verbal Behavior of a Psychiatric
    Population in a Group Therapy-Like Situation." Journal of
    Clinical Psychology, 1960, 16, 371-372.

Fromme, D. K., Whisenant, W., Susky, H. H., and Tedesco, J. R. "Mofi-
    fication of 'Here-and-Now' Affective, Feedback and Empathic
    Verbalizations in Led and Leaderless Groups." Paper read at the
    annual meeting of the Southwestern Psychological Association,
    Dallas, April, 1973.

Good, L., and Nelson, D. "Effects of Person-Group and Intragroup Attitude Similarity on Perceived Group Attractiveness and Cohesiveness." Psychonomic Science, 1971, 25, 215-217.

Greenspoon, J. "The Reinforcing Effect of Two Spoken Sounds on the Frequency of Two Responses." American Journal of Psychology, 1955, 68, 409-416.

Harrison, R. "Group Composition Models for Laboratory Design." Journal of Applied Behavioral Science, 1965, 1, 409-423.

Harrison, R., and Lubin, B. "Personal Style, Group Composition, and Learning. Part II." Journal of Applied Behavioral Science, 1965, 1, 286-294.

Harrow, M., Astrachen, B. M., Becker, R. E., Miller, J. C., and Schwartz, A. H. "Influence of the Psychotherapist on the Emotional Climate in Group Therapy." Human Relations, 1967, 20, 49-64.

Hauserman, N., Zweback, S., and Plotkin, A. "Use of Concrete Reinforcement to Facilitate Verbal Initiations in Adolescent Group Therapy." Journal of Consulting and Clinical Psychology, 1972, 38, 90-96.

Hoffman, L. R., and Maier, H. R. F. "An Experimental Reexamination of the Similarity-Attraction Hypothesis." Journal of Personality and Social Psychology, 1966, 3, 145-152.

Ince, L. P. "Modification of Verbal Behavior Through Variable Interval Reinforcement in a Quasi-Therapy Situation." Behavior Research and Therapy, 1968, 6, 439-445.

Knecht, L., Lippman, D., and Swap, W. (Tufts U.) "Similarity, Attraction, and Self-Disclosure." Proceedings of the 81st Annual Convention of the American Psychological Association, Montreal, Canada, 1973, Vol. 8, 205-206.

Leary, T. The Interpersonal Diagnosis of Personality. New York: Ronald, 1957.

Levin, G., and Shapiro, D. "The Operant Conditioning of Conversation." Journal of Experimental Analysis of Behavior, 1962, 5, 309-316.

Masling, J., Greer, F. L., and Gilmore, R. "Status, Authoritarianism, and Sociometric Choice." Journal of Social Psychology, 1955, 41, 297-310.

Oakes, W. F. "Reinforcement of Bale's Categories in Group Discussion." Psychological Reports, 1962, 11, 427-435.

Oakes, W. F., Droge, A. E., and August, B. "Reinforcement Effects on Participation in Group Discussion." Psychological Reports, 1960, 7, 503-514.

Oakes, W. F., Droge, A. E., and August, B. "Reinforcement Effects of
Conclusions Reached in Group Discussion." Psychological Reports,
1961, 9, 27-34.

Pepitone, A., and Kleiner, R. "The Effects of Threat and Frustration
on Group Cohesiveness." Journal of Abnormal and Social Psychology,
1957, 59, 192-199.

Petersen, R. J., Komorita, S. S., and Quay, H. C. "Determinants of
Sociometric Choices." Journal of Social Psychology, 1964, 62,
65-75.

Piper, W. E. (U. Connecticut) Evaluation of the Effects of
Sensitivity Training and the Effects of Varying Group Composition
According to Interpersonal Trust." Dissertation Abstracts
International, 1972 (Dec.), Vol. 33 (6-B) 2819.

Pollack, H. B. "Change in Homogeneous and Heterogeneous Sensitivity
Training Groups." Journal of Consulting and Clinical Psychology,
1971, 37(1), 60-66.

Reddy, W. B. "On Affection, Group Composition and Self-Actualization
in Sensitivity Training." Journal of Consulting and Clinical
Psychology, 1971.

Ryan, L. The Clinical Interpretation of the FIRO-B. Palo Alto,
Consulting Psychologists Press, 1970.

Salzinger, K., and Pisoni, S. "Reinforcement of Verbal Affect Responses
of Normal Subjects During the Interview." Journal of Abnormal and
Social Psychology, 1969, 60, 127-130.

Salzinger, K., Portnoy, S., and Feldman, R. S. (New York State Dept.
Mental Health) "The Effect of Order of Approximation to the
Statistical Structure of English on the Emission of Verbal
Responses." Journal of Experimental Psychology, 1962, 64(1), 52-57.

Schutz, W. C. The Interpersonal Underworld. Palo Alto: Science &
Behavior Books, Inc., 1960.

Slavson, S. R. A Textbook in Analytic Group Psychotherapy. New York:
Universities Press, 1964.

Swensen, C. H. Introduction to Interpersonal Relations. Glenview,
Illinois: Scott, Foresman and Company, 1973.

Tedeschi, J. T. "Attributions, Liking and Power." In Ted Huston (Ed.),
Perspectives on Interpersonal Attraction. Submitted to Academic
Press, 1973.

Tedeschi, J. T., Schlenker, B. R., and Bonoma, T. V. Interpersonal
Conflict, Social Power, and Experimental Games. Chicago: Aldine-
Atherton, 1973.

Ullmann, L. P., Krasner, L., and Collins, B. J. "Modification of Behavior Through Verbal Conditioning: Effects in Group Therapy." Journal of Abnormal and Social Psychology, 1961, 62, 128-132.

Ullmann, L. P., Krasner, L., and Gelfand, D. M. "Changed Content Within a Reinforced Response Class." Psychological Reports, 1963, 12, 819-829.

Winch, R. F. Mate-Selection: A Study of Complementary Needs. New York: Harper, 1958.

Winer, B. J. Statistical Principles in Experimental Design. New York: McGraw-Hill Book Company, Inc., 1971, p. 80-85.

Wolf, A. "Group Psychotherapy with Adults: The Alternate Meeting." Paper read at APGA Conference, New York, January 27, 1961.

Yalom, I. D. The Theory and Practice of Group Psychotherapy. New York: Basic Books, 1970.

Zdep, S. M., and Oakes, W. F. "Reinforcement of Leadership Behavior in Group Discussion." Journal of Experimental Social Psychology, 1967, 3, 310-320.

APPENDIX A   APPENDIX A   APPENDIX A

COMPUTER PROGRAM FOR THE GENERATION AND

SCREENING OF EXPERIMENTAL GROUPS IN

TERMS OF COMPATIBILITY SCORES

```
      DIMENSION FIRO)75,6*,X)15,75,75*,XMN)15*,XMM)15*,XXSUM)9*,XXG)9*,  00000100
     1XXSQ)9*                                                             200
      INTEGER C,D                                                        300
C                                                                        400
C     *****************************************************************00000500
C                                                                        600
C             READ IN DATA IN A STRING OF SIX DIGITS FROM COLUMN    00000700
C             13 TO COLUMN 18.  ONE CARD PER PERSON.  DIGITS ARE    00000800
C             DEFINED AS FOLLOWS9                                        900
C                                                                       1000
C               I    C    A                                             1100
C             ***************                                           1200
C             *             *                                           1300
C           E * 1    2    3 *                                           1400
C             *             *                                           1500
C           W * 4    5    6 *                                           1600
C             *             *                                           1700
C             ***************                                           1800
C                                                                       1900
C     *****************************************************************00002000
C                                                                       2100
      NSTART=13                                                         2200
      READ)5,1* NN                                                      2300
    1 FORMAT)I3*                                                        2400
      READ)5,2* ))FIRO)I,J*,J=1,6*,I=1,NN*                          0   2500
    2 FORMAT) 12X,6F1.0*                                               2600
  111 WRITE)6,112* )I,)FIRO)I,J*,J=1,6*,I=1,NN*                     00002700
  112 FORMAT)' SUBJECT ',I4,5X,3F3.0,/,18X,3F3.0,/*                00002800
C                                                                       2900
C     *****************************************************************00003000
C                                                                       3100
C             CALCULATE 15 COMPATIBILITY INDICES FOR ALL DYADS      00003200
C                                                                       3300
C                   I    C    A                                         3400
C                 ***************                                  0    3500
C                 *             *                                  0    3600
C               R * 1    4    7 * 10                               0-   3700
C                 *             *                                  0 ,  3800
C               O * 2    5    8 * 11                               000  3900
C                 *             *                                  0    4000
C               I * 3    6    9 * 12                               000  4100
C                 *             *                                  0    4200
C                 ***************                                  0    4300
C                   13   14   15                                  0    4400
C                                                                       4500
C     *****************************************************************00004600
C                                                                       4700
      DO 99 I=1,15                                                     4800
   99 XMN)I*=0                                                         4900
      NX=NN-1                                                          5000
      KK=0                                                             5100
      DO 10 I=1,NX                                                     5200
      NA=I.1                                                           5300
      DO 10 J=NA,NN                                                    5400
      KK=KK.1                                                          5500
      DO 20 K=1,3                                                      5600
      NADD=0                                                           5700
      IF)K.EQ.2* NADD=2                                                5800
      IF)K.EQ.3* NADD=4                                                5900
      X)K,NADD,I,J*=ABS)FIRO)I,K*-FIRO)J,K,3**.ABS)FIRO)J,K*-FIRO)I,K,3*00006000
     1*                                                                6100
      X)K.1,NADD,I,J*=)FIRO)I,K*-FIRO)I,K,3**.)FIRO)J,K*-FIRO)J,K,3**   00006200
   20 X)K.2,NADD,I,J*=ABS))FIRO)I,K*.FIRO)I,K,3**-)FIRO)J,K*.FIRO)J,K,3*00006300
     1**                                                               6400
      X)10,I,J*=)X)1,I,J*.X)4,I,J*.X)7,I,J**/3                      000 6500
      X)11,I,J*=)ABS)X)2,I,J**.ABS)X)5,I,J**.ABS)X)8,I,J***/3      00006600
      X)12,I,J*=)X)3,I,J*.X)6,I,J*.X)9,I,J**/3                      00006700
      X)13,I,J*=)X)1,I,J*.ABS)X)2,I,J**.X)3,I,J**/3                00006800
      X)14,I,J*=)X)4,I,J*.ABS)X)5,I,J**.X)6,I,J**/3                00006900
      X)15,I,J*=)X)7,I,J*.ABS)X)8,I,J**.X)9,I,J**/3                00007000
      DO 10 L=1,15                                                    7100
   10 XMN)L*=XMN)L*.X)L,I,J*                                          7200
      DO 12 I=1,15                                                    7300
   12 XMM)I*=XMN)I*/KK                                                7400
C                                                                      7500
```

```
C      ***************************************************************00007600
C                                                                      ·7700
C              PRINT 15 COMPATIBILITY INDICES FOR ALL DYADS       00007800
C                                                                       7900
C      ***************************************************************00008000
C                                                                       8100
       WRITE)6,3*                                                       8200
     3 FORMAT)////////////,' INTERPERSONAL NEEDS9    1-INCLUSION, 2-CONTROL,00008300
      1 3-AFFECTION',//////,' NEED AREA',5X,'DYAD',5X,'RECIPROCAL COMPATIB00008400
      1ILITY',5X,'ORIGINATOR COMPATIBILITY',5X,'INTERCHANGE COMPATIBILITY00008500
      1'*                                                               8600
       DO 30 K=1,3                                                      8700
       DO 30 I=1,NX                                                     8800
       M=I.1                                                            8900
       DO 30 J=M,NN                                                     9000
       NADD=0                                                           9100
       IF)K.EQ.2* NADD=2                                                9200
       IF)K.EQ.3* NADD=4                                                9300
    30 WRITE)6,4* K,I,J,X)K.NADD,I,J*,X)K.1.NADD,I,J*,X)K.2.NADD,I,J*   00009400
     4 FORMAT)4X,I3,5X,I4,'-',I4, 9X,F6.2,23X,F6.2,24X,F6.2*            00009500
       WRITE)6,5*                                                       9600
     5 FORMAT)////////////,' THE FOLLOWING COMPA,IBILITIES ARE COLLAPSED AC00009700
      1ROSS9   )1* NEED AREAS   )2* COMPATIBILITY TYPE, RESPECTIVELY',////,00009800
      124X,' ACROSS NEED AREA',23X,'ACROSS COMPATIBILITY TYPE',/,3X,     00009900
      1' DYAD',5X,'RECIPROCAL',5X,'ORIGINATOR',5X,'INTERCHANGE',5X,     00010000
      1'INCLUSION',5X,'CONTROL',5X,'AFFECTION'*                         00010100
       DO 40 I=1,NX                                                     10200
       M=I.1                                                            10300
       DO 40 J=M,NN                                                     10400
    40 WRITE)6,6*I,J,X)10,I,J*,X)11,I,J*,X)12,I,J*,X)13,I,J*,X)14,I,J*, 00010500
      1X)15,I,J*                                                        10600
     6 FORMAT)1X,I4,'-',I4,3X,F6.2,10X,F6.2, 9X,F6.2, 9X,F6.2, 7X,F6.2, 00010700
      1 7X,F6.2*                                                        10800
       WRITE)6,7*                                                       10900
     7 FORMAT)////////////,2X,' FOR THE DYADIC COMPATIBILITIES',/,' COMPATI00011000
      1BILITY TYPF',10X,' MEAN'*                                        11100
       DO 400 I=1,15                                                    11200
   400 WRITE)6,8* I,XMM)I*                                              11300
     8 FORMAT)7X,I3,17X,F6.2*                                           11400
       NSTART=1                                                         11500
       WRITE)6,21*                                                      11600
    21 FORMAT)///////////,                                              11700
      1        ' COMPATIBILITY TYPES ARE AS FOLLOWS9 1-RECIPROCAL COMPATIB00011800
      1ILITY, INCLUSION'  ,/,37X,'2-ORIGINATOR COMPATIBILITY, INCLUSION',00011900
      1/,37X,'3-INTERCHANGE COMPATIBILITY, INCLUSION',/,37X,'4-RECIPROCAL00012000
      1 COMPATIBILITY, CONTROL',/,37X,'5-ORIGINATOR COMPATIBILITY, CONTRO00012100
      1L',/,37X,'6-INTERCHANGE COMPATIBILITY, CONTROL',/,37X,'7-RECIPROCA00012200
      1L COMPATIBILITY, AFFECTION',/,37X,'8-ORIGINATOR COMPATIBILITY, AFF00012300
      1ECTION',/,37X,'9-INTERCHANGE COMPATIBILITY,AFFECTION',/,36X,'10-RE00012400
      1CIPROCAL COMPATIBILITY, ACROSS NEED AREAS',/,36X,'11-ORIGINATOR CO00012500
      1MPATIBILITY, ACROSS NEED AREAS',/,36X,'12-INTERCHANGE COMPATIBILIT00012600
      1Y, ACROSS NEED AREAS',/,36X,'13-INCLUSION COMPATIBILITY, ACROSS C00012700
      1MPATIBILITY TYPES',/,36X,'14-CONTROL COMPATIBILITY, ACROSS COMPATI00012800
      1BILITY TYPES',/,36X,'15-AFFECTION COMPATIBILITY, ACROSS COMPATIBIL00012900
      1ITY TYPES',/////////*                                            13000
C                                                                      13100
```

```
C     ******************************************************************00013200
C                                                                       13300
C             CALCULATE STANDARD DEVIATION AND PRINT COMPATIBILITY     00013400
C             INDICES, ASSOCIATED MEDIANS, AND STD DEV FOR INDICES     00013500
C             13,14,15 FOR GROUPS OF 4                                  00013600
C                                                                       13700
C     ******************************************************************00013800
C                                                                       13900
      XLM=0                                                             14000
      I=13                                                             14100
      IA=14                                                            14200
      IB=15                                                            14300
      XMEAN=0                                                          14400
      XMEANA=0                                                         14500
      XMEANB=0                                                         14600
      NA=NN-3                                                          14700
      NC=NN-2                                                          14800
      NE=NN-1                                                          14900
      DO 700 II=1,NA                                                   15000
      NB=II.1                                                          15100
      DO 700 JI=NB,NC                                                  15200
      ND=JI.1                                                          15300
      DO 700 KI=ND,NE                                                  15400
      NF=KI.1                                                          15500
      DO 700 LI=NF,NN                                                  15600
      XLM=XLM.1                                                        15700
      XMEAN=XMEAN.)X)I,II,JI*.X)I,II,KI*.X)I,II,LI*.X)I,JI,KI*.X)I,JI,LI00015800
     1*.X)I,KI,LI**/6.                                                  15900
      XMEANA=XMEANA.)X)IA,II,JI*.X)IA,II,KI*.X)IA,II,LI*.X)IA,JI,KI*.   00016000
     1X)IA,JI,LI*.X)IA,KI,LI**/6.                                       16100
  700 XMEANB=XMEANB.)X)IB,II,JI*.X)IB,II,KI*.X)IB,II,LI*.X)IB,JI,KI*.   00016200
     1X)IB,JI,LI*.X)IB,KI,LI**/6.                                       16300
      XMEAN=XMEAN/XLM                                                  16400
      XMEANA=XMEANA/XLM                                                16500
      XMEANB=XMEANB/XLM                                                16600
  502 WRITE)6,11*                                                      16700
   11 FORMAT)'       GROUP       ','INCL COMP',5X,'INCL MEAN',5X,'INCL SD'00016800
     1,5X,'CONT COMP',5X,'CONT MEAN',5X,'CONT SD',5X,'AFFC COMP',5X,    00016900
     1'AFFC MEAN',5X,'AFFC SD',/////*                                   17000
      DO 600 II=1,NA                                                   17100
      NB=II.1                                                          17200
      DO 600 JI=NB,NC                                                  17300
      ND=JI.1                                                          17400
      DO 600 KI=ND,NE                                                  17500
      NF=KI.1                                                          17600
      DO 600 LI=NF,NN                                                  17700
      DO 590 M=1,9                                                     17800
      XXSUM)M*=X)M,II,JI*.X)M,II,KI*.X)M,II,LI*.X)M,JI,KI*.X)M,JI,LI*.  00017900
     1X)M,KI,LI*                                                        18000
      XXG)M*=XXSUM)M*/6.                                               18100
  590 XXSQ)M*=X)M,II,JI***2.X)M,II,KI***2.X)M,II,LI***2.X)M,JI,KI***2. 00018200
     1X)M,JI,LI***2.X)M,KI,LI***2                                       18300
      XSUM=XXSUM)1*.XXSUM)2*.XXSUM)3*                                  18400
      XSUMA=XXSUM)4*.XXSUM)5*.XXSUM)6*                               0 18500
      XSUMB=XXSUM)7*.XXSUM)8*.XXSUM)9*                               0 18600
      XSQ=XXSQ)1*.XXSQ)2*.XXSQ)3*                                      18700
      XSQA=XXSQ)4*.XXSQ)5*.XXSQ)6*                                     18800
      XSQB=XXSQ)7*.XXSQ)8*.XXSQ)9*                                     18900
      XSD=)1/18.**SQRT)18*XSQ-XSUM**2*                              0 19000
      XSDA=)1/18.**SQRT)18*XSQA-XSUMA**2*                              00019100
      XSDB=)1/18.**SQRT)18*XAQB-XSUMB**2*                              00019200
      XG=XSUM/18.                                                      19300
      XGA=XSUMA/18.                                                    19400
      XGB=XSUMB/18.                                                    19500
                                                                       19600
```

```
C     ****************************************************************00019700
C                                                                       19800
C           SCREEN COMPATIBILITY INDICES 13,14,15 FOR DESIRABLE    00019900
C           PATTERNS                                                    20000
C                                                                       20100
C     ****************************************************************00020200
C                                                                       20300
      IF)XG.LT.XMEAN-2.AND.XGA.LE.XMEANA.1.AND.XGA.GE.XMEANA-1.AND.XGB  00020400
     1.LE.XMEANB.1.AND.XGB.GE.XMEANB-1* WRITE)6,14*II,JI,KI,LI,XG,XMEAN,00020500
     1XSD,XGA,XMEANA,XSDA,XGB,XMEANB,XSDB,)M,X)M,II,JI*,X)M,II,KI*,X)M,I00020600
     1I,LI*,X)M,JI,KI*,X)M,JI,LI*,X)M,KI,LI*,M=1,9*                     00020700
      IF)XG.GT.XMEAN.2.AND.XGA.LE.XMEANA.1.AND.XGA.GE.XMEANA-1.AND.XGB  00020800
     1.LE.XMEANB.1.AND.XGB.GE.XMEANB-1* WRITE)6,17*II,JI,KI,LI,XG,XMEAN,00020900
     1XSD,XGA,XMEANA,XSDA,XGB,XMEANB,XSDB,)M,X)M,II,JI*,X)M,II,KI*,X)M,I00021000
     1I,LI*,X)M,JI,KI*,X)M,JI,LI*,X)M,KI,LI*,M=1,9*                     00021100
   14 FORMAT)//,' INCLUSION COMPATIBILITY',/,1X,I3,'-',I3,'-',I3,'-',I3,00021200
     12X,F6.2,8X,F6.2,7X,F6.2,7X,F6.2,8X,F6.2,7X,F6.2,7X,F6.2,8X,F6.2,  00021300
     17X,F6.2,/,)' COMPATIBILITY TYPE',I6,10X,'DYADS 9  ',6F10.1**      00021400
   17 FORMAT)//,' INCLUSION INCOMPATIBILITY',/,1X,I3,'-',I3,'-',I3,'-', 00021500
     1I3,2X,F6.2,8X,F6.2,7X,F6.2,7X,F6.2,8X,F6.2,7X,F6.2,7X,F6.2,8X,F6.200021600
     1,7X,F6.2,/,)' COMPATIBILITY TYPE',I6,10X,'DYADS 9  ',6F10.1**     00021700
      IF)XGA.LT.XMEANA-2.AND.XG.LE.XMEAN.1.AND.XG.GE.XMEAN-1.AND.XGB.LE.00021800
     1XMEANB.1.AND.XGB.GE.XMEANB-1* WRITE)6,15*II,JI,KI,LI,XG,XMEAN,XSD,00021900
     1XGA,XMEANA,XSDA,XGB,XMEANB,XSDB,)M,X)M,II,JI*,X)M,II,KI*,X)M,II,LI00022000
     1*,X)M,JI,KI*,X)M,JI,LI*,X)M,KI,LI*,M=1,9*                         00022100
      IF)XGA.GT.XMEANA.2.AND.XG.LE.XMEAN.1.AND.XG.GE.XMEAN-1.AND.XGB.LE.00022200
     1XMEANB.1.AND.XGB.GE.XMEANB-1* WRITE)6,18*II,JI,KI,LI,XG,XMEAN,XSD,00022300
     1XGA,XMEANA,XSDA,XGB,XMEANB,XSDB,)M,X)M,II,JI*,X)M,II,KI*,X)M,II,LI00022400
     1*,X)M,JI,KI*,X)M,JI,LI*,X)M,KI,LI*,M=1,9*                         00022500
   15 FORMAT)//,' CONTROL COMPATIBILITY',/,1X,I3,'-',I3,'-',I3,'-',I3,  00022600
     12X,F6.2,8X,F6.2,7X,F6.2,7X,F6.2,8X,F6.2,7X,F6.2,7X,F6.2,8X,F6.2,  00022700
     17X,F6.2,/,)' COMPATIBILITY TYPE',I6,10X,'DYADS 9  ',6F10.1**      00022800
   18 FORMAT)//,' CONTROL INCOMPATIBILITY',/,1X,I3,'-',I3,'-',I3,'-',I3,00022900
     12X,F6.2,8X,F6.2,7X,F6.2,7X,F6.2,8X,F6.2,7X,F6.2,7X,F6.2,8X,F6.2,  00023000
     17X,F6.2,/,)' COMPATIBILITY TYPE',I6,10X,'DYADS 9  ',6F10.1**      00023100
      IF)XGB.LT.XMEANB-2.AND.XG.LE.XMEAN.1.AND.XG.GE.XMEAN-1.AND.XGA.LE.00023200
     1XMEANA.1.AND.XGA.GE.XMEANA-1* WRITE)6,16*II,JI,KI,LI,XG,XMEAN,XSD,00023300
     1XGA,XMEANA,XSDA,XGB,XMEANB,XSDB,)M,X)M,II,JI*,X)M,II,KI*,X)M,II,LI00023400
     1*,X)M,JI,KI*,X)M,JI,LI*,X)M,KI,LI*,M=1,9*                         00023500
      IF)XGB.GT.XMEANB.2.AND.XG.LE.XMEAN.1.AND.XG.GE.XMEAN-1.AND.XGA.LE.00023600
     1XMEANA.1.AND.XGA.GE.XMEANA-1* WRITE)6,19*II,JI,KI,LI,XG,XMEAN,XSD,00023700
     1XGA,XMEANA,XSDA,XGB,XMEANB,XSDB,)M,X)M,II,JI*,X)M,II,KI*,X)M,II,LI00023800
     1*,X)M,JI,KI*,X)M,JI,LI*,X)M,KI,LI*,M=1,9*                         00023900
   16 FORMAT)//,' AFFECTION COMPATIBILITY',/,1X,I3,'-',I3,'-',I3,'-',I3,00024000
     12X,F6.2,8X,F6.2,7X,F6.2,7X,F6.2,8X,F6.2,7X,F6.2,7X,F6.2,8X,F6.2   00024100
     1,7X,F6.2,/,)' COMPATIBILITY TYPE',I6,10X,'DYADS 9  ',6F10.1**     00024200
   19 FORMAT)//,' AFFECTION INCOMPATIBILITY',/,1X,I3,'-',I3,'-',I3,'-', 00024300
     1I3,2X,F6.2,8X,F6.2,7X,F6.2,7X,F6.2,8X,F6.2,7X,F6.2,7X,F6.2,8X,F6.200024400
     1,7X,F6.2,/,)' COMPATIBILITY TYPE',I6,10X,'DYADS 9  ',6F10.1**     00024500
  600 CONTINUE                                                           24600
      STOP                                                               24700
      END                                                                24800
```

APPENDIX B

EXPERIMENTAL GROUP MEANS OF FIRO-B SCORES

AND EXPRESSED/WANTED DISCREPANCIES FOR

INCLUSION, CONTROL, AND AFFECTION

TABLE VI

EXPERIMENTAL GROUP MEANS OF FIRO-B SCORES
AND EXPRESSED/WANTED DISCREPANCIES FOR
INCLUSION, CONTROL, AND AFFECTION

Reinforced								
Compatible								
Inclusion (I)								
expressed (e)			wanted (w)			e-w		
I	C	A	I	C	A	I	C	A
7.00	3.75	5.50	6.75	4.25	7.25	0.25	2.00	1.75
Control (C)								
5.00	3.00	4.50	6.50	3.00	6.00	2.50	0.50	1.50
Affection (A)								
4.00	0.50	3.25	4.00	2.75	4.00	3.00	2.25	0.75

TABLE VI (CONTINUED)

Reinforced								
Incompatible								
Inclusion (I)								
expressed (e)			wanted (w)			e-w		
I	C	A	I	C	A	I	C	A
6.25	1.75	2.50	3.00	2.75	4.50	3.25	1.50	2.00
Control (C)								
2.25	1.00	2.75	3.00	5.25	5.00	1.25	4.25	2.25
Affection (A)								
3.25	3.25	2.00	4.50	3.25	5.25	2.25	1.50	3.75

TABLE VI (CONTINUED)

Non-Reinforced								
Compatible								
Inclusion (I)								
expressed (e)			wanted (w)			e-w		
I	C	A	I	C	A	I	C	A
6.00	3.50	5.00	6.25	3.25	6.25	1.25	2.75	1.75
Control (C)								
5.50	1.50	3.00	6.50	1.75	4.00	2.50	0.75	1.00
Affection (A)								
3.00	1.50	2.25	2.25	4.50	2.00	2.25	3.00	1.75

TABLE VI (CONTINUED)

Non-Reinforced								
Incompatible								
Inclusion (I)								
expressed (e)			wanted (w)			e-w		
I	C	A	I	C	A	I	C	A
3.75	2.50	2.75	7.75	2.50	5.00	4.00	3.00	2.25
Control (C)								
4.75	2.50	4.00	5.00	6.00	6.00	2.25	3.50	2.00
Affection (A)								
5.75	3.75	2.25	7.50	4.00	6.00	1.75	2.25	3.75

APPENDIX C

BASIC INSTRUCTION CARDS

BASIC INSTRUCTION CARDS

CATEGORY 1. Any verbal expression of <u>your</u> current feelings
resulting from interaction with the group.

CATEGORY 2. Seeking information from another group member
regarding <u>his</u> feelings.

CATEGORY 3. Seeking information regarding your <u>own</u> behavior.

CATEGORY 4. Statements to another group member regarding
<u>your</u> perception of <u>his</u> behavior.

CATEGORY 5. Any attempt to clarify the expressed feelings of
another person.

<u>HERE</u> & <u>NOW</u>

APPENDIX D

INSTRUCTIONAL WARM-UP PROCEDURE

INSTRUCTIONAL WARM-UP PROCEDURE

This experiment is designed to help you get to know each other on a personal basis. One way you can do this is by noting your feelings in the present situation, and then sharing these feelings with the other group members. If your feelings are about another person's actions, tell him. If your feelings are good, chances are he will continue his behavior. If your feelings are bad, he may be willing to change. On the other hand, if others are not told of the effects of their behavior, they are not likely to change. The better you are able to specify what you like or dislike about the other person's actions, the more easily understood you will be. It is also a good idea to keep your expressions of feelings relevant to the current situation--the "here and now." In no way will either of you be able to change the past. Finally, you may attempt to give the other person empathy and understanding. This is perhaps the most valuable thing one person can give another. When you genuinely understand how the other person feels, he will naturally feel closer to you.

Some ways of expressing ourselves impair communication since they are open to debate. For example, do not make value judgments like, "What you just did is good or bad" or speculate about motives, such as, "You just say that because you're angry."

One way to avoid involvement is to spend time gathering information about another person; for example, "What are you studying here at school?," "Where are you from?," or "How are you classified?" This is

socially programmed use of time that we all have learned but it can hinder getting to know each other on a personal basis.

These five categories (at this time the experimenter points to cards in front of each subject on which the basic categories are out-lined) are along the lines of what we've been talking about. They in-clude ways of interacting that have been shown to be effective in establishing and maintaining close personal relationships.

CATEGORY 1. Any verbal expression of your current feelings resulting from interaction with the group. This corresponds to statements such as: "I feel angry, happy, nervous, sad, or frustrated." These are emotions. Undesirable statements are those which are opinions or value judgments, such as: "I feel that war is unnecessary, exams are un-necessary, or that Nixon is a dingbat."

CATEGORY 2. Seeking information from another group member regarding his feelings. An example of this would be, "How did you feel when she ignored your question?" You are inquiring about someone's emotional state; you are asking if they feel angry, happy, nervous, sad, or frustrated. Again, opinions are not relevant to this category. Un-desirable questions would be similar to these: "How do you feel about the war, exams, or Nixon?"

CATEGORY 3. Seeking information regarding your own behavior. Questions such as, "Do my actions make you feel angry, sad, happy, nervous, or frustrated," or "What is your appraisal of me?" would be appropriate.

CATEGORY 4. Statements to another group member regarding your perception of his behavior. Statements like "Your behavior makes me feel angry, sad, happy, nervous, or frustrated," or "You are acting strangely, or as if you are angry" fit in this category.

CATEGORY 5. Any attempt to clarify the expressed feelings of another person. These are statements to another group member which communicate that you care to know what his subjective emotional state is. Very simply, this type of statement is summed up well by, "I care to know how you feel."

As I stated before, this experiment is designed to help you get to know each other personally. It is not a means of knowing that person by what he does at school or away from school, his views on dating, exams or politics. You will not know about the person in terms of actions outside this group. You will get to know about a person by the way he reacts to you and the others in the group, while you are participating in this experiment. Utilizing these categorized statements will help you to really know other group members, and make the group experience more rewarding.

Using these statements will be easier if a clear distinction is made between feelings, which are desirable, and opinions, which are not desirable. Opinions are from the head; they are ideas. Feelings are more from the body; they are sensations. If you've ever been chased by a big dog when you were a child, at that time you felt afraid. You experienced a feeling. Another example would be the anxiety which you experience just before a big exam. It is feelings that we want to examine in this group. These feelings are a result of the group inter-actions; they would not be existent except for this group experience. Many times we tend to ignore or avoid our feelings, which is what we want to overcome in this group. Letting others know our perceptions of them, and asking for their perceptions of us is another aspect of inter-action that is often absent or lacking in our behavior with others. It

would be beneficial if we were able to increase this type of behavior, too.

Let's try a short experiment before we get started. I'd like the two of you on each end of the table to turn and stare into each others eyes, and hold hands until I ask you to stop. (The experimenter then asks one member at random to answer each one of three questions while this posture is held.) How do you feel? (The reply to this is evaluated in terms of the categories, as they are for the following two questions.) What is your impression of him? How did it make you feel when he gave his impression of you? Are there any questions concerning the response categories? (The experimenter fields any questions and then proceeds.)

I am asking you to interact with each other for a period of 50 minutes, using these categories. I will monitor this group discussion by way of the microphone and one-way mirror. Your conversation will be tape recorded and kept confidential. It will be used only in the analysis of the experiment and then erased. I'm going behind the mirror now, and I will come back in 50 minutes.

FOR REINFORCED GROUPS ONLY

Whenever someone makes a statement that fits one of the categories, I will activate the counter which is in front of that person. The counter makes a loud click and this will give you the information that you are interacting according to the categories. The counter keeps a record of your total and if anyone falls too far behind, the red light on his counter will be turned on. This will indicate that either he is falling behind and may need assistance, or that someone may be dominating the conversation. If no click is heard for a period of three

minutes, all lights will flash on. This will be a signal that the group as a whole is not using the categories.

APPENDIX E

QUESTIONNAIRE

QUESTIONNAIRE

NAME _____ AGE _____ SEX _____

CLASS _____ RACE (NATIONALITY) _____

	Definitely No	Moderately No	Neutral	Moderately Yes	Definitely Yes
1. Did you enjoy this experiment?	____	____	____	____	____
2. Was it easy for you to interact in this group?	____	____	____	____	____
3. Did you feel that this experience was worthwhile to you personally?	____	____	____	____	____
4. Were you able to follow the instructions?	____	____	____	____	____
5. Do you think this experience will help you in other situations?	____	____	____	____	____
6. Generally, I like to excel at whatever I do.	____	____	____	____	____
7. Generally, I like to compete with others.	____	____	____	____	____

8. Were you the 1st, 2nd, 3rd, ... born in your family?   _____

9. Number of brothers?   _____

10. Number of sisters?   _____

11. Are you now a member of a fraternity or sorority?   _____

12. Are you married?   _____

13. How many children would you like to have (all answer)?   _____

14. Are your parents separated due to divorce _____, or death _____?

	High School	College
15. Number of organizations a member of?	_____	_____
16. Number of offices held?	_____	_____

17. Are you good friends with any of the group?

18. Which group member do you think you could work with best?   _____

19. Which group member do you like best? _____

20. Which group member influenced you the most? _____

21. Which group member did you feel you competed with, if any?   _____

VITA

Stephen Radley Close

Candidate for the Degree of

Master of Science

Thesis: GROUP COMPOSITION AND INSTRUMENTED FEEDBACK EFFECTS ON GROUP
        VERBALIZATION

Major Field: Psychology

Biographical:

    Personal Data: Born in Carterville, Missouri, April 25, 1948, the
        son of Mr. and Mrs. M. Close.

    Education: Graduated from Carterville High School, Carterville,
        Missouri, May, 1966; received Bachelor of Science degree in
        Chemical Engineering from the University of Missouri at Rolla
        in 1970; enrolled in Masters program at Oklahoma State Uni-
        versity, 1970-1974; completed requirements for the Master of
        Science degree at Oklahoma State University in July, 1974.

    Professional Experience: Research Assistant, Department of
        Psychology, 1970-1972; Teaching Assistant, Department of
        Psychology, 1972-1973; Psychological Associate, Psychological
        Guidance Center, Stillwater, Oklahoma, 1971-1972; Psycho-
        logical Associate, Payne County Guidance Center, Stillwater,
        Oklahoma, 1972-1973; Psychologist, Southeast Guidance Center,
        Del City, Oklahoma.