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ANALYSIS OF PROBLEMSOLVING GROUPS WITH FEEDBACK INTERVENTION

USING A SYSTEMATIC MULTIPLE LEVEL OBSERVATION OF GROUPS

by

DONNA BUCHANAN SCHANTZ

A dissertation submitted in partial fulfillment of the
requirements for the degree of

DOCTOR OF PHILOSOPHY
in
URBAN STUDIES
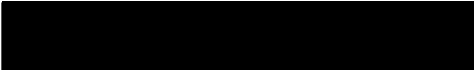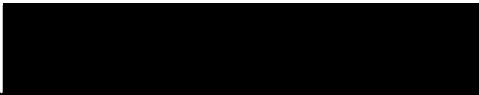
Portland State University

TO THE OFFICE OF GRADUATE STUDIES AND RESEARCH:

The members of the Committee approve the dissertation
of Donna Buchanan Schantz presented December 12, 1986.

Dr. Jerry Lansdowne, Chair

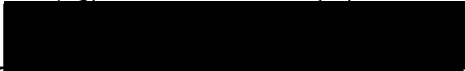Dr. Daniel O'Toole

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AN ABSTRACT OF THE DISSERTATION OF Donna Buchanan Schantz

for the Doctor of Philosophy in Urban Studies presented

December 12, 1986.

Title: Analysis of Problemsolving Groups with Feedback

Intervention Using a Systematic Multiple Level

Observation of Groups.

APPROVED BY MEMBERS OF THE DISSERTATION COMMITTEE:

Dr. Jerry Lansdowne, Chair

Dr. Daniel O'Toole

Dr. Marie Berger

Dr. Dean Frost

     Considerable research has been devoted to
problemsolving groups. Attention has also been paid to
feedback as a way to increase effective communication and
hence performance. The purpose of this study was to

determine the effects of a feedback cycle on problemsolving groups.

A formal method, A Systematic Multiple Level Observation of Groups (SYMLOG) was employed for the analysis of behavior in such groups. The system, which codes on multiple levels of communication, served both as a theoretical and an explanatory approach. Problemsolving groups which included a feedback session on group process were compared with problemsolving groups which were not given feedback. The study used primary data from SYMLOG field diagrams to determine whether group movement, leader movement, self-perceptions, and group satisfaction would be affected by feedback intervention.

The study sample consisted of sixty-seven students in a professional school placed into fourteen small groups. These groups were divided into eight subgroups, four of which received feedback and four of which did not. Two additional control groups labeled "no-shows" also participated in the study.

The study was a field experiment using a quasi-experimental design. Members were randomly placed into small groups which were subsequently designated either feedback or no-feedback groups. A pretest, following a problemsolving small group exercise, was administered to all students in attendance. Those students not attending class

became the no-show group. Feedback was then given in the experimental groups, followed by a second small group exercise and a posttest for all groups. Those data from the pretest and the posttest, obtained by use of SYMLOG general adjectives rating sheets, were employed to address the working hypotheses. Posttest data from the two additional no-show groups were only utilized in the research question pertaining to group satisfaction and subsequently for descriptive purposes.

Quantitative techniques were employed to answer the research questions. Case study techniques involving the SYMLOG field diagrams were used to discuss the results in a descriptive manner. The groups were analyzed on multiple levels of group space using the bipolar three-dimensional model of SYMLOG: task-orientation vs. emotionally expressive, dominant vs. passive, and positive vs. negative.

The findings indicated that the feedback cycle played a central role in both group satisfaction and leadership behavior but had little effect upon group movement over time and did not appear to change self-perceptions in any substantial manner.

The major findings were those surrounding the concepts of leadership and group satisfaction, both of which were found to be influenced by the intervention of feedback. The designated leaders from the groups receiving feedback made

more movement in the group space than those leaders from groups not receiving feedback. In addition, members in the feedback groups were more satisfied with the group work than were leaders from the no-feedback groups.

The remaining two hypotheses were not supported in this research. First, the movement of groups as a function of feedback was only marginal. Secondly, self-perceptions did not correlate more highly with others' perceptions as a result of feedback intervention in this study.

These research findings have implications for the fields of Oregnization Behavior and Leadership Development. Use of feedback with SYMLOG field diagrams will aid in the continuing effort to develop leadership skills and increase satisfaction in group work.

CHAPTER I

INTRODUCTION

Whether or not use of groups rather than individuals is the most effective way to reach a goal is a continuing debate, but the fact remains that small groups are being used by people in powerful positions to make significant decisions. In fact, one of the themes of Kurt Lewin's applied study in group work, social action through group action, is becoming a reality in current organizations (Schellenberg, 1978, p. 81). Small groups are being used by managers, therapists, educators and policymakers to accomplish goals through collective reasoning; the combined energy of individuals may supply a variety of inputs or strategies for any given problem (Swap, 1984).

The way in which individuals communicate when they are interacting in a group can have an effect on how the group's goals are accomplished. The more effective the communication, the more likely goals are to be met (Davis, 1981). Likewise, the more indivduals become aware of their behavior in a group setting, the more effective is their communication (Wang and Hawkins, 1980).

For scientists whose research is directed toward the analysis of small group work, feedback on individual

behavior or on group progress is a consistent theme (Berlo, 1960; Davis, 1981; Hersey and Blanchard, 1977; Johnson, 1981; Miller, 1966). As far back as 1946, Lewin assisted in setting up training camps (which would later become "T-groups") by introducing feedback as a helpful way for the staff to analyze self-behavior (Marrow, 1969). Although researchers generally agree that behavior feedback is essential in the communication process, they continue to search for definitive measures by which behavior may be reflected in a way which will aid self-analysis and, if desired, initiate behavior changes.

Building on Lewin's field theory, Robert F. Bales and his colleagues proposed a "new" field theory and a method for measuring group behavior. Bales applied to a group a similar kind of field theory analysis which Lewin applied to individuals. Application of field theory analysis to a group was Lewin's life-long dream; it was never realized because of the complexity of combining his individual life spaces to chart a total social field. In 1979, Bales and his colleagues proposed a theoretical framework and a measurement tool called SYMLOG: A System for the Multiple Level Observation of Groups which could record empirical data for the analysis of both individuals and groups (Bales, Cohen and Williamson, 1979). Analysis could be accomplished through retrospective rating of group behavior by the

group members themselves. The theory was constructed over
several decades by observers watching, recording and video-
taping groups of Harvard undergraduates in a laboratory
setting. Using empirical data and inductive reasoning, a
set of laws was constructed about membership behavior
which, Bales maintained, could be generalized to all small
groups. In addition, the method provided a feedback cycle
which occurred when the members rated one another on a
SYMLOG rating sheet and the results were given back to the
members for discussion. The feedback process guided the
interpretation of interpersonal behavior occurring in groups
at one point in time and modified certain aspects of
behavior during a subsequent point in time.

The question of whether behavior can be modified has
been raised in relation both to leader behavior and to group
behavior. French & Raven (1980) state that through
knowledge and information leaders gain power. In that case,
would feedback increase information and power to the extent
that leaders and groups would make more behavioral changes
over time than those groups not receiving feedback? The
current study investigates that question.

In addition, results of studies have shown that
generally most people see themselves as others see them
(Bales, Cowen, Koenigs, 1986). This study also investigates
whether self-perceptions change as a result of feedback

given in problem-solving work groups.

Finally, group satisfaction has long been inversely associated with job turnover, burnout, absenteeism and low productivity. This study determines whether the introduction of feedback into work groups increases the satisfaction level perceived by members of these groups.

In summary, then, this study seeks to determine what effect feedback intervention has over time on both individual leader and group behavior, self-perceptions, and levels of satisfaction as applied both to groups and to individual group leaders. The data are analyzed using Bales' System for the Multiple Level Observation of Groups (SYMLOG), which provides a three-dimensional model of heuristic group space. Bales acknowledged that the three dimensions would need to be demonstrated through experimental trials to provide useful evidence for his "new field theory" and system for quantification and analysis. The current study hopes, in part, to accomplish such a demonstration. To ground the study in a relevant area of practice, concepts from the field of leadership and management are also employed to assist in guiding the research process.

Since much of human activity is conducted in small groups, the study of group phenomena seems appropriate. It is hoped that results of the current study will provide

managers, educators, and policy analysts with information
that will be useful to them in their work with small groups.

CHAPTER II

REVIEW OF THE LITERATURE

HISTORICAL PERSPECTIVE

Much of what is known about small groups stems from
Lewin's theoretical constructs developed in 1939. His
notions of "life space" and "group dynamics" provided a
framework for small group research that continues to this
day. In addition, Lewin legitimized the study of "groups"
by being one of the first social psychologists to place the
emphasis of study on the group as a phenomenon (Deutsch,
1954).

In contrast to Lewin, Jacob Moreno approached the
theory and application of social interaction from the
individual perspective, introducing the school of
"sociometry" (Moreno, 1953). His work stimulated research
directed toward the individual and in particular toward the
use of psychodrama as a therapeutic tool.

A third approach to the study of social interaction was
that of Robert Bales, who began his work in 1950 with the
reporting of a network of categories to describe the group
process as a social system (1950). Although Bales coined
the term "small group" to describe a unit of analysis, he

and his colleagues have since shifted to also include in that unit of analysis the individual (or, more specifically, individual personalities). This shift resulted in the current use of three dimensions for the analysis of interpersonal behavior, labeled multiple level field theory (Bales, Cohen & Williamson, 1979).

These three schools--group dynamics, sociometry, and small groups--dominated the social interaction field of study which was prevalent until the 1970's. Differences among the schools were more differences of emphasis than of concept (Hare, 1982). The research emanating from these three schools was prolific during the 1950's and 1960's. Strodtbeck's (1954) classic paper describing the proliferation of research activity in the field was indicative of the times as he advertised the new scientific "best seller" to be Cartwright and Zander's (1953) collection of papers from all three schools of small group research.

Although research in small groups diminished in both sociology and psychology during the 1970's (Crandall, 1975; Steiner, 1974), primarily because it was felt that the field was saturated using the data analysis techniques available at that time, research has begun again in the 1980's. Research based on the broad concepts of Lewin's theory continues, while Moreno's sociometry has more or less

been designated a "classical" theory. The most recent
introduction of Bales' "new field theory" has stimulated
international research in its application and development
(Hare, 1985).

RESEARCH IN THE THREE SCHOOLS

Recorded studies over the years in all three schools of
group behavior have tested hypotheses or observed behavior
occurring at the moment in a face-to-face group setting such
as a classroom, a meeting, and a therapy session (Tubbs,
1978). The findings have suggested ways in which groups are
formed (Bradford, 1982), illustrated how groups mature (Gibb
& Gibb, 1967), shown how the introduction of new members
affects the group (Fine, 1976), demonstrated leader-member
relations (Fiedler, 1967; Stogdill, 1974), discussed optimal
small group size (Bales, 1954), and presented normative group
behavior (Allport, 1924; Sherif, 1936; Festinger & Aronson,
1968). The problemsolving small group has been given by far
the greatest attention in textbooks of group discussion
(Barnlund & Haiman, 1959; Collins & Guetzkow, 1964; Harnack
& Fest, 1964; Gulley, 1968; Sattler & Miller, 1968; Bormann,
1969; Patton & Griffin, 1973; Appelbaum,et al., 1974; Brilhart,
1974; Gouran, 1974; Goldberg & Larson, 1975; Hersey &
Blanchard, 1982, and Lippitt, 1981). In addition, small
group research has given insight into group conformity

(Leavitt, 1964), encounter groups (Lieberman, 1973), effective work groups (Likert, 1961), and many others. The research is exhaustive and provides a generous pool of knowledge about how groups are formed, the process of group work and a variety of outcome measures. Depending upon the therapeutic or problemsolving purpose of the group, a great deal of information is available to the practitioner, be it educator, therapist, or manager, for the applied use of small group research.

IDENTIFIED AREA FOR STUDY

One area which has received less attention in small group research is the quantification of the effects of feedback (Middleman and Goldberg, 1983). Although feedback is generally accepted as being helpful and useful in small group work, there is little recorded information on the precise measurement of feedback intervention effects.

In addition to measurement, an identified framework of the communication process which includes concepts in communication theory is relevant to the present study. This framework is useful in both developing the use of feedback as it relates to communication theory and providing a sense of guidance into the more pragmatic world of leadership and management as a way of application. This guidance,

emanating from communication theory, is embedded in the communication process.

Communication involves both a sender and a receiver. According to Johnson (1981) it is a means for one person to relay a message to another, expecting a response. The communication prcess involves five basic steps: (1) identifying the reason for communication, (2) encoding the information (putting the ideas into words), (3) transmitting the message, (4) decoding the message, and (5) providing feedback to the sender (Davis, 1981).

The goal of any communication is congruence between the sender's intended message and the receiver's perceived message. Validation of this process is important because people perceive messages in relation to their own values, educational level, and experiences (Berlo, 1960).

Validation of messages during the communication process occurs by use of feedback. Wang and Hawkins (1980) suggest that effective communication requires feedback to increase understanding about behavior. Feedback is also the "process of adjusting future actions based upon information about past performance" (Haynes, Massie, and Wallace, 1975, p. 243).

There are many methods for receiving and giving feedback. For example, the study of Quaker decisionmaking by Hare (1973) demonstrates an instance in which, with

feedback as part of the process, informal interactions facilitated group decisionmaking. Simple statements about performance of even a nod also constitute feedback in an informal way. At the other end of the scale, formal feedback performance appraisals at six-month intervals are commonplace in management practice.

Several tools have been developed to assist practitioners in conducting feedback sessions. Partially because of Napier and Gershenfeld's research (1973) and that of others which reported that feedback is a high-risk activity for followers, the National Training Laboratory (NTL) suggested guidelines for useful feedback:

1. It is descriptive rather than evaluative;

2. It is specific rather than general;

3. It takes into account the needs of both the receiver and giver of the feedback;

4. It is directed toward behavior which the receiver can do something about;

5. It is solicited, rather than imposed;

6. It is well-timed;

7. It is checked to ensure clear communication.

                                        (Mill, 1971)

The notion of introducing feedback into the group process (also called "intervention") has intrigued researchers over the years (Gibb, 1967; McCaskey, 1976).

Berger (1981) introduced into a series of small working groups a survey feedback model for the purpose of increasing trust behavior. Feedback to small groups about their behavior was also utilized by Bales in his early work to enhance the growth and development of groups (Bales, 1956). In his recent work, SYMLOG, Bales has devised a method for giving feedback to leaders and groups that is more explicit than his early work and is consistent with NTL guidelines for effective feedback.

What Bales offers in his new system for group observation is an opportunity to view behavior from a three-dimensional model which more clearly differentiates and captures the movement of individuals and groups in a unit of real time. Through this system, a more detailed view into the life of small groups may be possible. It is this method that the present study uses to determine the effect of feedback on group behavior.

THEORETICAL FRAMEWORK

McGrath (1984), after reviewing small group research from several fields and discussing general contribution, concluded that future research was needed, but with the "guiding hand of theory." In 1979, Bales and colleagues proposed a "new field theory" that was designed to provide a framework for behavior in small groups, an

instrument that could measure this behavior, and a set of
meanings that explained the behavior of both individuals
and groups (Bales, Cohen & Williamson, 1979). By
incorporating Lewin's field analysis of group space using
vectors and valences and the symbolic interaction concepts
from Parsons, a new method for group observation, analysis
and feedback was constructed. The uniqueness of this
method was its ability to record behavior in a three-
dimensional conceptual space. Earlier methods contained
long lists of categories; in Bales' method, the observer
need only classify twenty-six.

SYMLOG; A System for the Multiple Level Observation
of Groups (Bales, Cohen & Williamson, 1979) is a multi-
level and multi-method system. That it is multi-level is
its revolutionary aspect (Polley, 1984). Along with verbal
behavior, values and images, nonverbal behavior can be
coded within three dimensions. In addition, these data
may be obtained by act-to-act observations or scoring, or
by retrospective ratings on an adjective check list.
(Appendix A contains a sample of SYMLOG's general adjective
rating sheet.)

Bales utilized natural meanings in his representation
of the three physical dimensions, for example the Upward-
Downward (U-D) dimension he assigned to the behavioral
meaning of "Dominant-Submissive," corresponding to most

people's perception of dominant as upward and submissive as downward. Likewise, the Positive dimension (P) implies "Friendliness," while the negative dimension (N) implies "Unfriendliness." Similarly, the Forward direction (F) implies "Task-oriented" or "Instrumentally controlled," while the Backward direction (B) is associated with "Emotionally-expressive" behavior (Bales, Cohen and Williamson, 1979).

Although meanings associated with each space are attached for quantification, Bales makes it explicit that there are no values attached to the location of any individual or to any particular space. In other words, productivity is not necessarily attached to the Forward direction. Polley (1983), in his work which extends Bales' theory, states that the Backward direction is "essential to almost every task."

The SYMLOG space seen in the field diagrams operates within vectors similar to those described by Lewin (1951). Bales set out to provide a concrete conceptual framework for the attraction and repulsion of vectors in space, something Bales did not do. Likewise, Moreno's sociograms plot the interrelationships of people in space, but they are not positioned with any meaning other than relative positions in the interrelationships. SYMLOG provides a model for examining both the interrelationship network and the

explicit conceptual space. Since the SYMLOG theory and
method are used for hypotheses testing in this study, more
explicit information about the method is presented in the
"Instrument" section of Chapter III.

Research in testing Bales' multiple field theory is now
appearing in the literature. Hare (1985) assesses two
different ways in which SYMLOG can be used in the study of
group dynamics. Jesuino (1985) used SYMLOG in a study of
early detection of emerging leaders in a Portuguese military
academy. In addition, applications-focused studies are now
being reported. Fine (1976), for example, reported on the
addition of a new group member and its affect on group
process in the first experimental study using SYMLOG.
Hattink (1985) translated the adjective rating questionnaire
for use in a Dutch elementary school to provide teachers
with an instrument for perceptions of problematic classroom
interaction. Lansdowne introduced a creative application of
SYMLOG in his observation of a theatrical group (1986). The
recorded research is slowly emerging in national and
international journals demonstrating the use of SYMLOG
across cultures and in different circumstances.

Although research using SYMLOG is now well underway,
there is a recognized need to continue what Kohler (1986)
describes as the need for "concrete experiments" and what
Hare (1982) suggests as empirical evidence of SYMLOG's

efficacy and usefulness in practice.

The present study applies the formulations of Bales' working hypotheses and uses feedback as the independent variable.

STATEMENT OF HYPOTHESES

This study seeks to determine whether a feedback session for small groups contributes to the group's being more positive, more task-oriented, and better unified than when feedback is not employed. It also tests whether groups which have experienced feedback describing individual and group perceptions of behavior may be more satisfied with their group work than those who have not been exposed to the feedback cycle.

Two specific hypotheses were formulated:

- Intervention of a feedback cycle on a group following a specific problemsolving assignment will lead to a significant change in the positioning of the group space on the field diagram of SYMLOG.

Positioning, in the above definition, refers to the point of reference in a three-dimensional space which gives a visual picture of an individual's location within a group. Feedback cycle occurs when the members rate one another on the SYMLOG rating sheet and the data are summarized, returned to the members, and results are discussed (Bales, Cohen and Williamson, 1979, p. 303). The problemsolving task is a problem given to all of the groups to accomplish

within a designated time frame and independent from the
classroom teacher.

- Group satisfaction with problemsolving assignments
  will be significantly higher following the
  intervention of a feedback cycle than when there
  is no feedback.

Self-perception is likely to be closer to the
perception of the others in the group for the same behavior
if the group has had the opportunity to practice together
and to receive feedback. In addition, those groups which
have experienced the feedback cycle will most likely see a
change in leadership behavior within the group. Two
additional hypotheses were proposed to test this notion:

- Self-perception of behavior within a group will
  be more highly correlated with the perception by
  others in the group when the group has experienced
  a feedback cycle than when it has received no
  feedback.

- Leadership behavior within a group exhibits greater
  positional change on the field diagram following a
  feedback cycle than if the group receives no
  feedback.

CHAPTER III

METHODOLOGY

SETTING

The setting was a regularly-scheduled required
leadership-management class of senior students in a
baccalaureate school of nursing located on a Health Sciences
University campus. The class was conducted for three
hours, once a week, for twelve weeks.

SAMPLE

The sample for this study included 67 senior nursing
students who were enrolled in the required leadership-
management class over a period of two academic terms; 60 of
the students were females, and 7 were males. Thirty-seven
students were enrolled in Term I, and 30 students were
enrolled in Term II. The classes were held in the winter
and spring terms consecutively.

DESIGN

The study was quasi-experimental and contained three
conditions: feedback (the experimental condition), no
feedback and "no-shows" (the two control conditions).

At the beginning of each term, students were randomly placed into small groups (6-7 persons). The original sample included six groups per term; however, because of the no-shows at the first group exercise, the final size of the small groups used for the study ranged from 3-7 persons, and the number of groups increased to seven per term to include an additional group containing these no-shows.

During Term I, six groups received feedback, and the one group of no-shows experienced neither practice time in groups nor any feedback. During Term II, two groups received feedback, four groups received no feedback, and one group of no-shows experienced neither practice time in groups nor feedback.

During Term II, the assignment to feedback or no-feedback conditions was not random, but rather was related to the student's choice of class activities. Students were given the opportunity to attend a micro-computer session during regular class time, since one of the course objectives relating to the term paper stated that all students were expected to use the word processor. Sixteen individuals expressed a desire to attend that class. Those sixteen persons were randomly placed into four small groups; those four groups became the no-feedback groups in the study.

The total sample for the two terms (six months)

consisted of eight feedback groups, four no-feedback groups and two no-show groups. The sample of 67 students was used throughout the study. One student was not present at the first group session and was asked to join the no-show group. She elected not to do so, but instead came to the feedback session and continued on with her originally-assigned group. The only inclusion of data pertaining to her is in posttest scores.

One of the class requirements of the leadership-management class was working together in small groups to complete problemsolving tasks. During each of the terms of study, groups were given two problemsolving tasks to complete: one practice problemsolving task at midterm which was used to obtain pretest measures and another graded problemsolving task at the end of the term which was used to obtain posttest measures. To control for task order effects, the tasks were reversed in sequence during the second term of study. Except for the reversal of task sequence, all other variables were held constant over the two terms. The group of no-shows did not have experience in the small groups until the end of the term when posttest measures were obtained for these subjects.

Immediately following the small group practice task at midterm, data were gathered by asking students in the groups to rate their own behavior and that of others in the group

using Bales' SYMLOG Adjective Rating Sheet. These pretest
data were displayed on field diagrams for each student, and a
feedback session to interpret the diagrams took place in the
next class session for the students in the feedback groups.
An equivalent data-gathering procedure occurred at the end
of the term following the second problemsolving group work
to obtain the posttest measures.

Two problemsolving tasks were presented, one of which
will be hereinforth referred to as the "Kidney Task" and
the other as the "Luna Task." (See Appendix B for specifics
of the relative task assignments.) The two tasks depicted
situations wherein students were asked to make judgments in
their small groups and present their recommendations to the
total group. Table I shows the order of tasks in this study.

TABLE I

STUDY MODEL BY GROUP AND TASK

	TERM I (Winter)				TERM IT (Spring)		
	Kidney		Luna			Luna	Kidney
Groups 1...6 (feedback)	01	x	02	Groups 1...4 (no-feedback)		02 x	01
Group 7 (no-show)			02	Groups 5...6 (feedback)		02 x	01
				Group 7 (no-show)			01

PROCEDURE

1. In the third week of the academic term students were randomly placed into small groups of no more than seven students per group.

2. In the fifth week of the term, the groups were given the first problemsolving task, "Who Gets the Kidney," and given one hour to complete the task. In addition, each group was asked to designate a leader to represent the group in communicating the results of the task.

3. Pretest data were collected immediately following completion of the task. No grade was awarded for this exercise since it was designated as a practice session. Students were asked to complete the SYMLOG adjective rating sheet, rating both themselves and the others in their group. This task was accomplished before the group presentation and selection of "Who Gets the Kidney," based upon verbal reports from each group. For purposes of computer identification, students were asked to place their own first name on the right side of the adjective rating sheet and the name of person they were rating on the left side.

4. Data from the general adjective rating sheets were coded and enterd into an IBM-PC using Polley's software computer package to quantify the SYMLOG data (Polley, 1984). These data provided the pretest scores for this study.

5. For the eight feedback groups, each student

received a folder containing all of the field diagrams for their group (Appendix C). In addition, to maintain confidentiality, each student was given an identification number and asked to pencil the number on the front page of the packet. Students were told that they would only be able to identify themselves by their code number (Term I, group #3, person 003, for example).

A two-hour feedback session took place in which the SYMLOG diagrams were discussed. Feedback was given which interpreted the diagrams for the students in both Term I and Term II. The four no-feedback control groups (all in Term II) were not present and did not receive the field diagrams or any form of feedback. These no-feedback groups were attending the optional class on the use of micro-computers.

6. Following the pretest and the subsequent feedback session, classroom activities continued throughout the term with lecture-discussion of leadership and management concepts.

7. The final group problemsolving task was assigned on week ten of the term. The no-show group was included in this assignment. Each group was also asked at that time to designate a group leader who would be responsible for presenting the final oral report on the project. It was the designated leaders from this assignment who became the twelve subjects in the leadership hypothesis.

Students were asked to work on the assignment of "A Satellite Health Program for Luna" during out-of-class time using their small groups. In addition, they were asked to submit a one-page summary of their project and be prepared to present an oral argument defending their recommended solution to the problem for their final examination. This summary was given to an outside reviewer to grade using guidelines specified to students in the course syllabus (Appendix D). The groups understood that they would be competing with each other in their presentations and would be represented by their designated leader.

8. Posttest data were collected after students completed the "Luna" task but before they presented it at the final class session. Students were again asked to complete the SYMLOG general adjective rating sheet for themselves and for others in the group. In addition, a questionnaire was administered to determine the students' satisfaction level in terms of their group work (Appendix E).

9. The group reports of the project were presented by the designated group leader to two expert reviewers who judged the projects. The winning group was announced and awarded an "A" grade.

10. The data from the adjective check sheets were coded and run on the IBM-PC, producing the field diagrams of

SYMLOG.

11. The procedure for Term II was similar to that for Term I, with the exception of the change in the sequence of small group assignments. (For example, the "Kidney" assignment was the pretest in the first term, but was changed to the posttest the second term.) These assignments were switched to control for task order effects.

INSTRUMENTS

The four dependent variables for this study were satisfaction vs. dissatisfaction, dominance vs. submissiveness, friendliness vs. unfriendliness, and instrumentally controlling vs. emotionally expressive. Satisfaction with the group process was measured using a tool developed by the researcher (see Appendix F). The other three variables were measured using the SYMLOG method developed by Bales, Cohen & Williamson (1979). Movement or change from the pretest to the posttest on the last three variables was measured using both directional difference scores and absolute difference scores. The SYMLOG and satisfaction instruments are described below.

SYMLOG

SYMLOG, A System for the Multiple Level Observation of Groups was developed by Bales and Cohen (1979). The system was designed after thirty years of study and ten years of

experimentation with self-analytical groups in the Harvard
University laboratories (Bales, 1950, 1970; Bales, Cohen,
and Williamson, 1979). This system is useful in the study
of groups in that it dissects overt interpersonal
interactions, then combines them into discrete parts which
can be graphed in three dimensions to create a profile of
the actions occurring within a group. Although the system
was first tested with self-analytical groups of students to
guide their insights into their own behavior and the
behavior of others, the system is now being tested and
utilized as a consultant tool in organizations (Polley,
1984) and in therapy groups, classroom groups, and with
families (Bales and Isenberg, 1982).

The SYMLOG three-dimensional space contains vectors or
lines representing both magnitude and direction in the
theoretical force field. The space may be conceptualized as
an analytic space comprised of three orthogonal, bipolar
factors. The model used to depict the vectors in the three
dimensions of space is a cube, as shown in Figure 1. This
cube allows a visual rotation of vectors in Euclidean space
showing the classes of directions or location, defined by
combinations of the six named reference directions. The
reference directions are represented by three lines passing
through the cube and intersecting in the center. Polarity
changes when location on the line moves away from the point
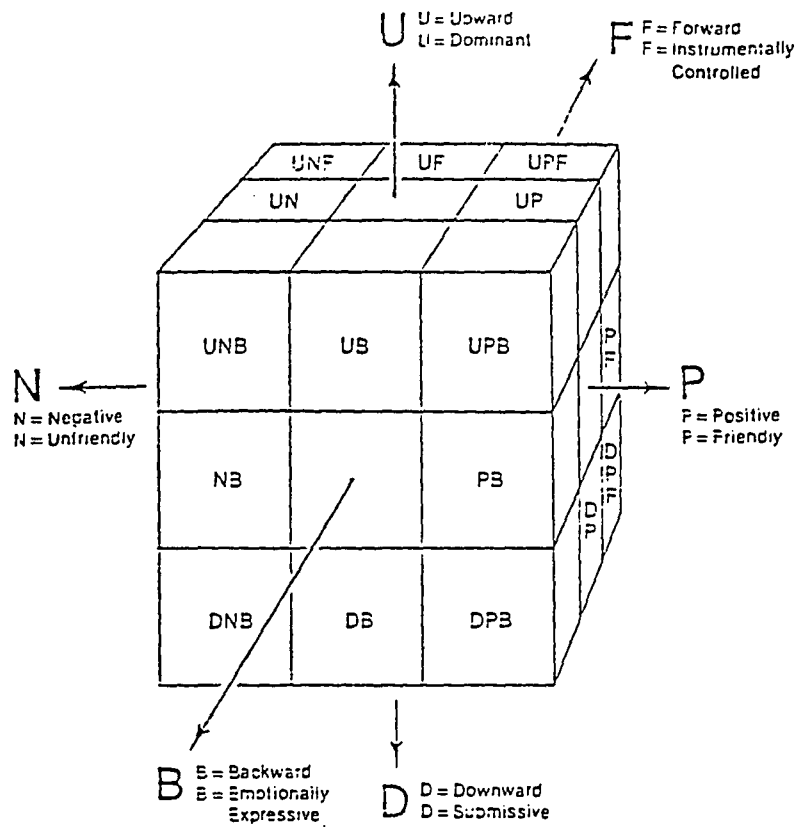
Figure 1. The positive-negative (P-N), Forward-Backward (F-B), and Up-Down (U-D) combinations in the SYMLOG space.

of intersection in any direction. The pairs of opposing vectors are named to suggest direction in three-dimensional space. The horizontal direction from left to right is designated Negative-Positive (N-P), and the vertical direction is labeled Forward-Backward (F-B). The dimension labeled Up-Down (U-D) comprises the third dimension.

In each of the three dimensions, U-D, F-B, P-N, vectors are divided into three cubes which give a relatively precise location on the line of reference. All in all there are 27 equal parts of the vectors within the cube (3 x 3 x 3 = 27). Each of the vectors is named to represent its location within the cube. If the location is half way between the vectors N and B, the vector is named NB and is at zero point of U-D. The zero point is neither U or D and is located in three equal parts or dimensions comprising the one vector in the center. Therefore, for mathematical purposes in plotting, there are 26 vectors.

Construct validity and reliability have been satisfactorily demonstrated to determine that the factors represent 85% of the variance in measuring behaviors in individuals and groups and that the factors consistently emerge in test-retest studies. Factor analysis, which, according to J. Myers (1972), is a powerful method for establishing construct validity, has been employed in this study. By reducing hundreds of measures of behavior into a

smaller number of measures called factors, Bales (1970)
was able to determine which ones cluster. The six
identified factors isolated for SYMLOG have been pretested,
tested, and retested for agreement and disagreement with
value statements, determined through act-by-act
classification of values and behaviors by groups and tested
through post-meeting ratings of behavior by observers and
members of the group to test for reliability.

Bales, Cohen, and Williamson (1979) developed an
instrument to capture and measure variables that entered
into the three identified factors. This was done by
collapsing act-to-act observations into 26 items which
measured the 26 vectors as precisely as possible. The items
were factor analyzed and refined using current data from
groups, resulting in a reliability coefficient for the P-N
dimension of .95, for the F-B dimension of .80, and for the
U-D dimension of .77 (Bales, 1979). The instrument, called
the Adjective Rating Form, is illustrated in Appendix A.
Although Bales and colleagues developed subsequent rating
forms which reflect values as well as desired behavior, the
present study was confined to determining behaviors within a
group at one point in time.

Asking each member of a group to complete the adjective
rating form at the conclusion of problemsolving Tasks 1 and
2 in the present study allowed for retrospective rating of

behavior for the rater and for members of the group. The
responses gave numerical indicators for the items which were
added, subtracted, and multiplied to produce a score for
each of the three dimensions. These three scores were then
located on the vectors of the three dimensional space for
each individual to form a field diagram of the group. A
sample field diagram is shown in Figure 2.

As can be seen in Figure 2, each circle represents an
individual within a small group and the location or vector
where the individual has been placed in the two dimensions
of task orientation: emotionally expressive (F-B) or
negative-positive (N-P). The size of the circle surrounding
the individual represents the third dimension of dominant-
submissive (U-D) behavior. The larger the size of the
circle, the more dominant the person. These three
dimensions represent on the field diagrams individuals'
behavior occurring during one group meeting.

Bales superimposes in the SYMLOG space polarization-
unification as it applies to small groups. Earlier research
in polarization was focused on defining group decisionmaking
as opposed to individual decisionmaking. Moscovici and
Zavalloni (1969) coined the term "group polarization" to
describe this phenomenon. Bales departed from this single
explanation of group thinking by dividing the group entity
into two widely separated locations in the conceptual space.
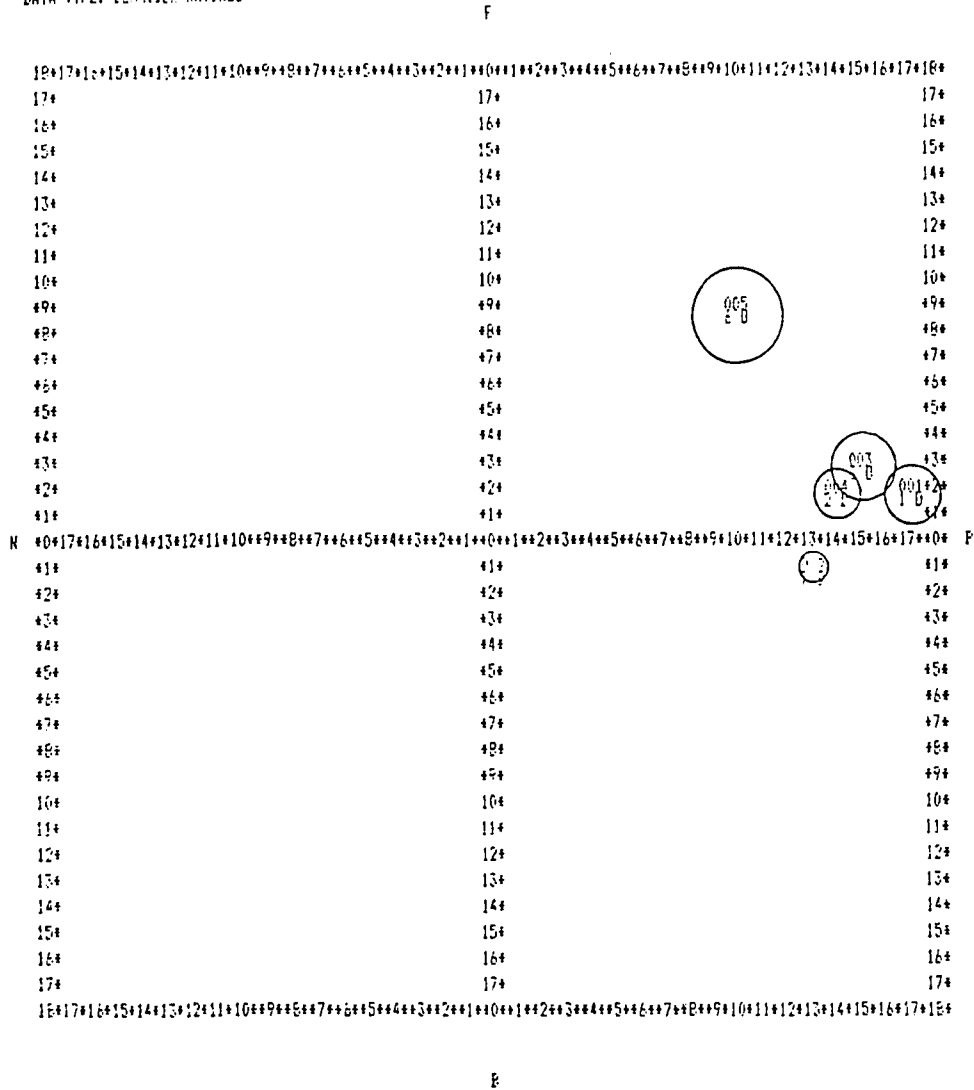
Figure 2. Sample field diagram of <u>SYMLOG</u> depicting individuals located in the three dimensions of Positive-Negative (P-N), Forward-Backward (F-B), and Up-Down (U-D).

Figure 3 is an illustration of the polarization-unification of a sample small group. By using the overlay to conceptualize the opposing poles on the field diagram, a determination can be made about the group's relative unification or polarization. The circle which appears to contain the most influential members is the referent circle. In the example, the field is unified, and all of the members are in the referent circle.

Satisfaction Scale

The satisfaction tool was developed to measure perceived satisfaction by any group members of the group work. Eleven questions were directed toward both the process and the content of the group work. Students were asked to complete the questionnaire at the end of the term using scaled responses ranging from 1 (not satisfied) to 4 (very satisfied) to register their degree of satisfaction with the group work. Cronback's alpha statistic was used to detrmine the satisfaction tool's reliability. This was accomplished by taking the average correlations of any pair of the eleven satisfaction items. The tool can be seen in Appendix E.

EXPANDED AVERAGE DIAGRAM
EXP. MULTIPLIER= 1.091081
FIELD DIAGRAM
DATA TYPE: BEHAVIOR RATINGS
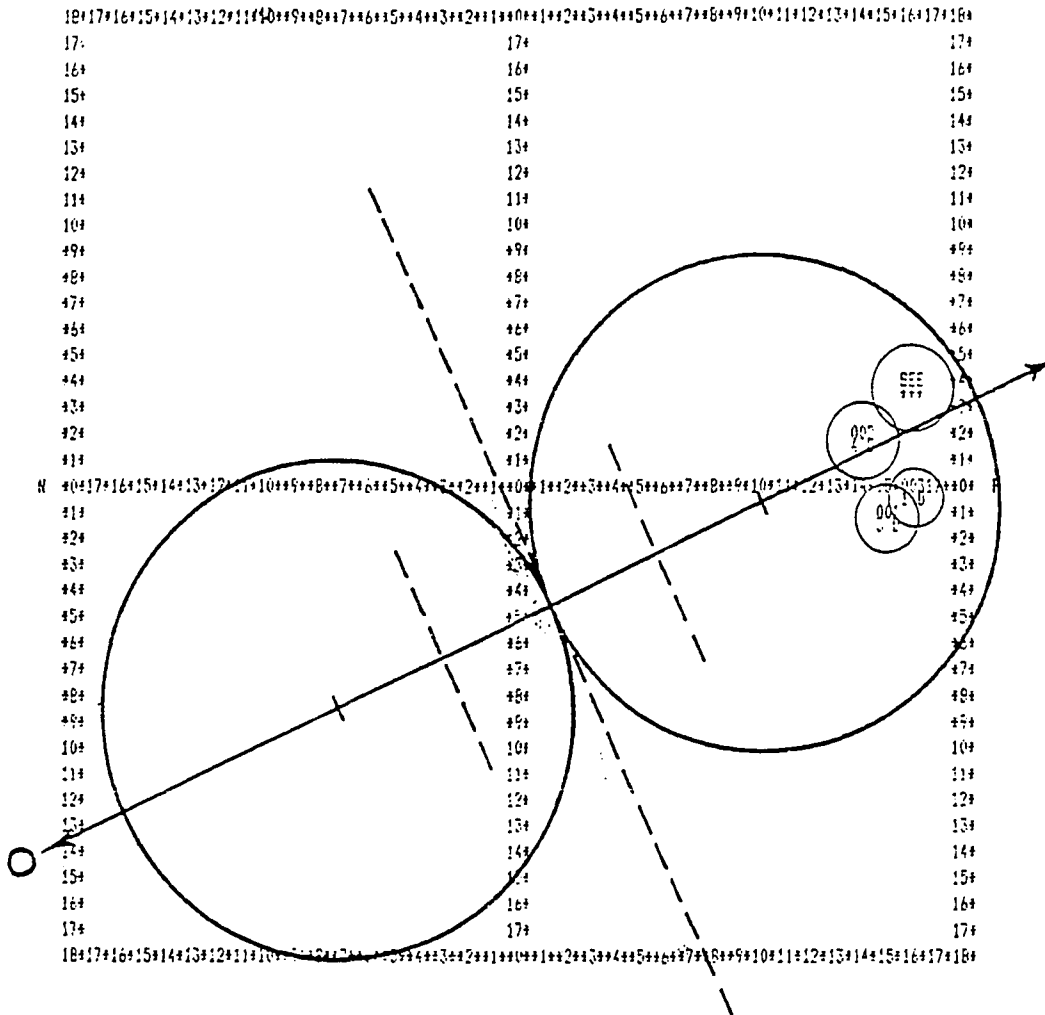
Figure 3. Sample field diagram with polarization-unification overlay.

ANALYSIS PROCEDURES

Software

A computer software package developed by Rick Polley (1983) was used to assist in quantifying data and displaying the field diagrams. Raw data were entered into an IBM-PC, and scores from each individual (N = 67) were used to plot the location on each dimension in the field diagram. A sample of rating scores from one group (N = 5) is shown in Appendix F to illustrate how raw scores were transformed into the field diagrams. The average diagrams were used in comparing all fourteen groups to one another and in analyzing leader behavior. The individual diagrams were used to test the research hypothesis pertaining to self-perceptions.

Data from these initial ratings were transcribed to an IBM Personal File System (PFS) as a preliminary step in preparation for using the IBM-XT, SPSS package. (See Appendix G for the PFS used for this study.) A variable list was created to assist in the comparison of groups using SPSS. The complete variable list can be found in Appendix H.

Hypothesis Testing

The unit of analysis for the first hypothesis was the group. To test the change in the positioning of the twelve

groups from pretest to posttest, an ANOVA was applied to the absolute change scores of the average field diagrams and was calculated on all three dimensions (U-D, P-N, F-B) by both the feedback and the no-feedback groups.

The second hypothesis addressed satisfaction with the group process, which was measured at the end of the term. This hypothesis stated that satisfaction would be higher for the feedback group than for the no-feedback groups. A one-way analysis of variance (ANOVA) was used to compare students in the eight feedback, four no-feedback and two no-show groups on relative levels of satisfaction.

The third hypothesis was concerned with the effect of feedback on the correlation between the self-rating and group rating of individuals on the three dimensions (U-D, P-N, and F-B). The group rating of an individual was computed by averaging the ratings of each person by all other persons in that group. This group rating was correlated with the score of the self-rating on each of the three dimensions. For example, the variable name given to the group rating of an individual on the U-D dimension was CAUD, and the variable name for the self-score was SUD. These two scores on all of the dimensions were correlated across subjects separately for the feedback groups, for the no-feedback groups, and for the no-show groups. The correlations were then transformed using Fisher's Z and

compared across groups using a t-test.

The fourth hypothesis addressed the leadership question, using a t-test which compared the average change scores of leaders who received feedback with those who did not. This comparison was performed on all of the three dimensions.

Field diagrams were displayed throughout the study to depict the movement of both groups and individuals. The polarization-unification overlay was used to identify how individuals and groups in this study were unified as opposed to polarized.

Finally, a graph was constructed to assist the reader in the results section of this study. The graph is a visual guide to the three dimensions of SYMLOG and can be seen in Figure 4.

F   (Forward)

instrumentally

controlling

U (Up)

dominant and

(larger circle)

(Negative) N

P (Positive)

D (Down)

submissive

(smaller

circle)

B   (Backward)

emotionally expressive
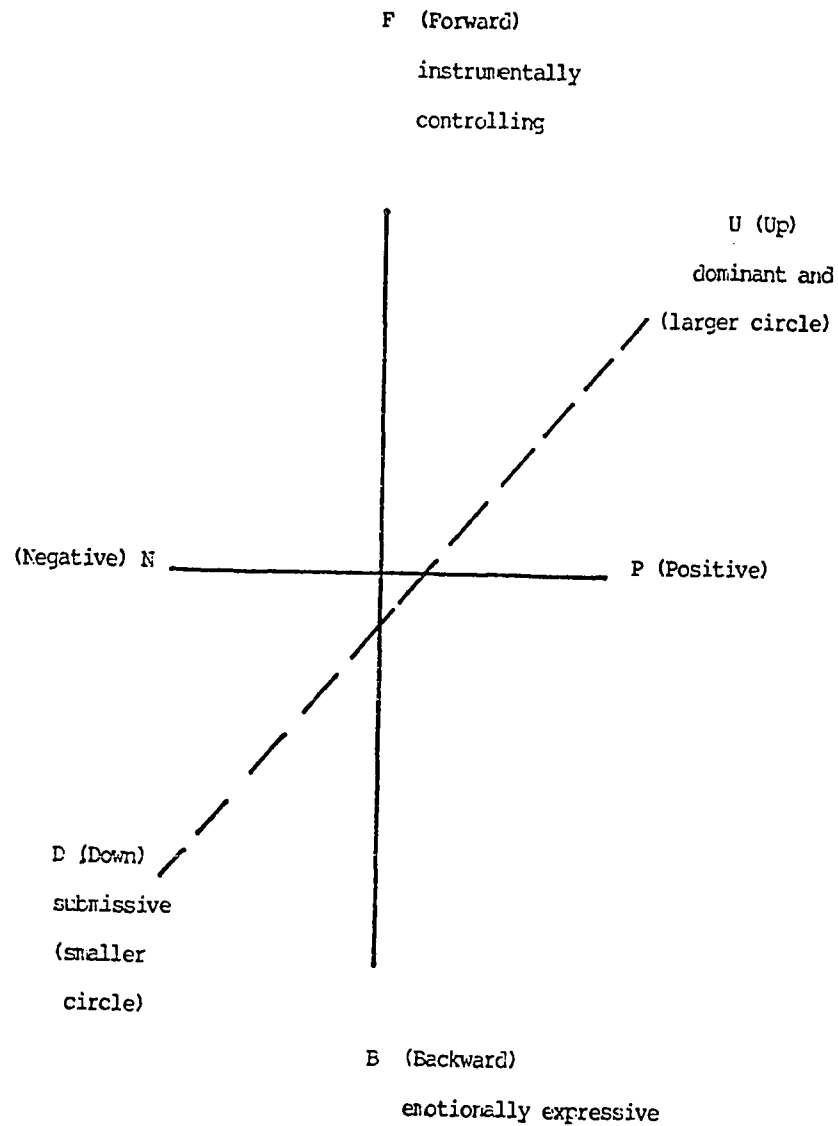
Figure 4. Graphic representation of the three bipolar dimensions of SYMLOG.

CHAPTER IV

RESULTS

The data from this study were analyzed and will be
presented by relating the findings to each specific research
hypothesis stated in the previous chapter. A discussion of
the findings will be integrated throughout the results
section since the interrelationships of the three-
dimensional model in the group space is a central theme and
requires comment for the sake of clarity.

Prior to the data analysis, two checks were made on
measures of internal validity, one to determine whether the
tasks were equivalent and the other to determine whether the
unit of analysis should be the group or the individual.
These results will be presented first, followed by findings
related to the central hypotheses.

INTERNAL VALIDITY CHECKS

Equivalence of Tasks

Since the study was conducted over two academic terms
(six months) and involved two different problemsolving tasks
each term, the order of the tasks was reversed during the
second term of data collection to reduce the task ordering
effect. Since the "Kidney Task" was administered at time 1

and the "Luna Task" at time 2 in the first term, these tasks
were reversed in the second academic term. The nature of
the design used in this study required that scores obtained
from the "Luna" and "Kidney" tasks be interchangeable or
equivalent. Therefore, a t-test was performed, using the
mean pretest scores of each individual on each of the three
bi-polar dimensions (U-D, P-N, F-B), to test for differences
in the mean pretest scores at Term I ("Kidney") and Term II
("Luna"). Because it was desirable to support the
equivalence of means, a large significance level (p = .20)
was chosen. The two no-show groups were not included in
this test since these two groups did not accurately
represent the central study groups.

Results indicated significant differences between the
"Kidney" and "Luna" tasks on mean pretest scores for the
three SYMLOG dimensions. Mean pretest scores on each
dimension for Term I and Term II can be found in Table II.
Because there was no significant difference in scores at
p = < .20, the two tasks were considered to be roughly
equivalent.

Group vs. Individual

The second question concerned whether the scores of
individuals could be considered independent observations and
thus used in statistical analyses or whether they must
necessarily be related to the particular group to which they

TABLE II

RESULTS OF A t-TEST COMPARING THE MEAN PRETEST SCORES
ON THE UP-DOWN (U-D), POSITIVE-NEGATIVE (P-N), AND
FORWARD-BACKWARD (F-B) DIMENSIONS FOR THE
"KIDNEY" AND "LUNA" TASKS

SYMLOG Dimensions	Term I "Kidney" (n = 29)	Term II "Luna" (n = 26)	t	p (2-tailed)
U-D	2.31 (3.8)	2.00 (4.2)	.30	.76
P-N	13.93 (2.9)	12.91 (3.3)	1.23	.23
F-B	2.50 (2.2)	3.50 (3.5)	1.25	.22

Note: Standard deviations are included in parentheses below their respective means.

belonged. To answer this question, two sets of analyses of variance were computed. The first set of three ANOVA's compared the mean pretest scores of the twelve groups (eight feedback and four no-feedback) on each of the SYMLOG dimensions. Because the movement of groups from pretest to posttest is an important dependent variable, the second set of six ANOVA's employed the absolute difference score from pretest to posttest as the measure of movement. Of the six ANOVA's, three compared the mean movement scores of the

eight feedback groups on each of the three SYMLOG

dimensions, and the remaining three ANOVA's compared the

mean movement scores of the four no-feedback groups on each

of the three SYMLOG dimensions. Again, a .20 level of

significance was employed because it was desirable to show

that the groups were not significantly different, even with

a large alpha level.

As shown in Table III, significant differences among

the twelve groups on the pretest occurred on the positive-

negative and forward-backward dimensions (p < .01), but not

on the up-down dimension (p = .35).

TABLE III

DIFFERENCES AMONG THE TWELVE GROUPS ON THE AVERAGE
UP-DOWN (U-D), POSITIVE-NEGATIVE (P-N), AND
FORWARD-BACKWARD (F-B) DIMENSIONS AT PRETEST

SYMLOG Dimensions	Means Square Between groups (df = 11)	Means Square Within Groups (df = 43)	F Ratio	p
U-D	16.90	14.72	1.15	.35
P-N	18.41	7.14	2.58	.01
F-B	16.55	6.40	2.58	.01

As Table IV demonstrates, of the six ANOVA's computed for

absolute difference scores, significant group differences

TABLE IV

ONE-WAY ANALYSIS OF VARIANCE, USING ABSOLUTE DIFFERENCE
SCORES FOR FEEDBACK AND NO-FEEDBACK GROUPS, ON THE
UP-DOWN (U-D), POSITIVE-NEGATIVE (P-N), AND
FORWARD-BACKWARD (F-B) DIMENSIONS

SYMLOG Dimensions	Means Square Between groups	Means Square Within Groups	F Ratio	p
	FEEDBACK			
U-D	.91	1.55	.59	.76
P-N	4.46	2.40	1.86	.11
F-B	4.69	1.71	2.74	.02

df for means square between groups = 7
df for means square within groups = 31

	NO-FEEDBACK			
U-D	.99	5.75	.91	
P-N	.15	2.10	.07	n.s.
F-B	.90	2.30	.39	

df for means square between groups = 3
df for means square within groups = 12

were found on the forward-backward dimension (p = .02) and

on the positive-negative dimension (p = .11). By showing a

difference between the groups on the pretest (prior to any

feedback), the group becomes the unit of analysis for the P-N and F-B dimensions. This finding relates to the first hypothesis regarding group movement occuring as a result of the feedback intervention. Instead of n = 55, which would reflect the total membership in these groups, n = 8 for feedback groups, and n = 4 for no-feedback groups became the units of analysis.

FINDINGS RELATED TO THE GROUP CHANGE HYPOTHESIS

> The intervention of a feedback cycle on a group
> following a specific problemsolving assignment
> will lead to a significant change in the
> positioning of the group space on the field
> diagram of SYMLOG.

The sample was separated into the feedback and no-feedback groups to address the hypothesis regarding group movement following a feedback intervention. An analysis of variance using the absolute difference scores from the pretest to the posttest on each of the three dimensions was conducted to determine whether any of the groups showed a change as a result of feedback.

As can be seen in Table V, the results showed no significant differences between the feedback and no-feedback groups on any of the three dimensions. The results of this study thus do not support the group change hypothesis. On all three of the dimensions, feedback did not appear to have a substantial effect on the movement of these groups.

TABLE V

RESULTS OF A t-TEST COMPARING FEEDBACK AND NO-FEEDBACK
USING ABSOLUTE DIFFERENCE SCORES ON THE UP-DOWN (U-D),
POSITIVE-NEGATIVE (P-N), AND FORWARD-BACKWARD (F-B)
DIMENSIONS

SYMLOG Dimensions	Feedback		No-Feedback		p (2-tail)
	n	X	n	X	
U-D	39 (indiv.)	1.00	16 (indiv.)	1.92	
P-N	8 (groups)	1.83	4 (groups)	1.25	n.s.
F-P	8 (groups)	1.87	4 (groups)	1.45	

FINDINGS RELATED TO THE GROUP SATISFACTION HYPOTHESIS

Group satisfaction with problemsolving assignments
will be significantly higher following the
intervention of a feedback cycle than when there
is no feedback.

At the close of the two academic terms and prior to the

announcement of the winning group, the standard course

evaluation and the small group satisfaction questionnaire

were administered. Because the small group satisfaction

questionnaire was added, it was determined that a test for

item reliability would be given before any further analysis.

As a result, item #11 was discarded because the responses

did not relate to the intent of the question. For example,

several persons responded "yes" to item #11 which asked

whether whey had been given a field diagram for review when in fact they had not.

Cronbach's alpha statistic was applied to the correlation coefficients of the ten remaining items, and the result was a reliability coefficient of r .87. The formula used to determine the reliability coefficient was the standardized alpha and is shown below:

$$\frac{K \quad rij}{1 + (K-1)rij} = \frac{10 \text{ X } .4151031}{1 + 9 \text{ X } .4151031} = \frac{4.151031}{4.735927} = 0.87$$

This degree of reliability provided confidence in proceeding with measurements first to determine the level of expressed satisfaction and then to discriminate levels of expressed satisfaction among the feedback, no-feedback and control groups.

In general, students expressed satisfaction with the group experience. Fifty-three of the 67 participants in the study (79%) responded to the questionnaire. A representative sample was selected from each of the fourteen groups. On a Likert scale ranging from 1 (dissatisfaction) to 4 (satisfaction), the mean score was 3.40, and the standard deviation was .626. Item #4, which asked whether group members contributed equally to the discussion, received the lowest score ($\bar{x}$ = 2.79). The highest rated item was #6 ($\bar{x}$ = 3.60), which asked whether group members discussed their opinions openly without hiding personal

feelings. (See Appendix I for detailed item frequencies and measures of central tendency.) As can be seen in Table VI, the mean scores range from 2.79 to 4.0, indicating a high level of satisfaction with the group experience.

TABLE VI

GROUP SATISFACTION QUESTIONNAIRE MEAN SCORES
(N = 53)

Item	Mean Score
1. Group members understand the problems under discussion.	3.54
2. Group members stayed on the topic.	3.45
3. Group members avoided premature closure on discussion.	3.30
4. Group members contributed equally to the discussion.	2.79
5. Group members agreed with group consensus and/or decision.	3.56
6. Group members discussed their opinions openly without hiding personal feelings.	3.60
7. Group members were able to resolve conflict or discontent.	3.49
8. Group members displayed commitment to the group tasks.	3.39
9. Group members indicated satisfaction with the group process.	3.39
10. Group members indicated satisfaction with the group outcomes.	3.52
$T \tilde{X} =$	3.41

A review of mean scores showed that the feedback groups
expressed more satisfaction with the group experience than
either the no-feedback or the no-show groups. When a one-
way analysis of variance was conducted to compare the
groups, a significant difference was found at the $p < .001$
level. The mean scores for each of the three groups
presented in Table VII indicates that the feedback group was
the most satisfied, while the no-show group was the least
satisfied.

TABLE VII

ONE-WAY ANALYSIS OF VARIANCE WITH FEEDBACK, NO-FEEDBACK
AND NO-SHOW GROUPS

Group	n	Mean	Standard Deviation	F Ratio	p
Feedback	30	3.58	.35		
No-feedback	15	3.26	.31	7.83	.001
No-show	8	3.02	.62		

Results of a t-test performed on the means of these
groups also revealed a significant difference between the
feedback groups and the no-show groups ($p < .001$), but no
significant difference between the no-show groups and the
no-feedback groups ($p = .17$). Table VIII contrasts the
three groups in terms of matrix, t-values and probabilities.

TABLE VIII

RESULTS OF t-TESTS COMPARING FEEDBACK, NO-FEEDBACK AND
NO-SHOW GROUPS

Contrast Groups	t-value	t-probability
Feedback vs. No-show	3.56	.001
Feedback vs. No-feedback	2.60	.01
No-show vs. No-feedback	1.36	.17

The levels of satisfaction expressed by the feedback groups may reflect the increased attention paid to them compared with that given the participants who practiced group work but received no feedback on their behavior. The control group, which expressed the least satisfaction, experienced neither practice in group work nor feedback on their behavior. Although group movement did not appear to be affected by the intervention of feedback in the previous hypothesis testing, the mere fact that the feedback groups spent more time and received more attention in their group experiences appeared to make a difference in their levels of exprsssed satisfaction. This finding is consistent with the work of Luft (1970), who maintains that feedback increases the likelihood of group effectiveness.

The implications for organizational goals, based on levels of satisfaction, may also be a factor. March and

Simon's (1958) motivation research maintained that the more satisfied a group, the more innovations will occur in the organization.

The no-show groups did accomplish effective group work, but their levels of satisfaction were lower than those of either of the other groups who had experience and had received feedback on their behavior. Bales says that groups under tension can hold a peak level of performance for a specific period of time and then need a resting period or time to express their feelings (Bales, Cohen and Williamson, 1979).

All of the groups expressed satisfaction wtih their small group experience. However, the groups receiving feedback expressed significantly more satisfaction than either the no-feedback or the no-show groups. Based on the results of this study, the group satisfaction hypothesis was accepted.

FINDINGS RELATED TO THE SELF-PERCEPTION HYPOTHESIS

Self-perception of behavior within a group will be more highly correlated with the perceptions by others in the group when the group has experienced a feedback cycle than when it has received no feedback.

The third hypothesis was directed toward self-perceptions of group members to determine whether a feedback cycle had an effect on those perceptions.

Each group member was asked to use the SYMLOG rating

sheets to rate self-behavior in the group work. That score

was compared with the average score for that same person as

rated by all other members of the group. The self-score

became SUD, or Self, on the Up-Down dimension, and CAUD

became the representation of the average score for the

person as perceived by others. Figures 5 and 6 are the

field diagrams for Group 3, Term II and illustrate how the

self-perceptions compare with the perceptions recorded by

others for the same behavior. For example, Figure 5 is the

individual field diagram of one person, #001, and shows the

perception of self in the group work. This person perceives

self as very positive in the group session. Figure 6, by

contrast, is the average field diagram of the same group and

shows that other members of the group do not perceive #002

in quite the same way. These two illustrations present a

visual description of what the hypothesis is testing.

The first step taken in analyzing this hypothesis was

to display the correlations on each of the dimensions as an

overview of self-perceptions compared with group

perceptions. Individuals' self-ratings and those by others

in the group were correlated for each dimension to determine

whether a positive relationship existed between the two.

Using Pearson's Product-Moment Correlation, the feedback and

no-feedback groups both exhibited a high positive

correlation between perceptions of self and perceptions of

EXPANDED DIAGRAM, CODER= 002
EXP. MULTIPLIER= 1.416667
FIELD DIAGRAM
DATA TYPE: BEHAVIOR RATINGS
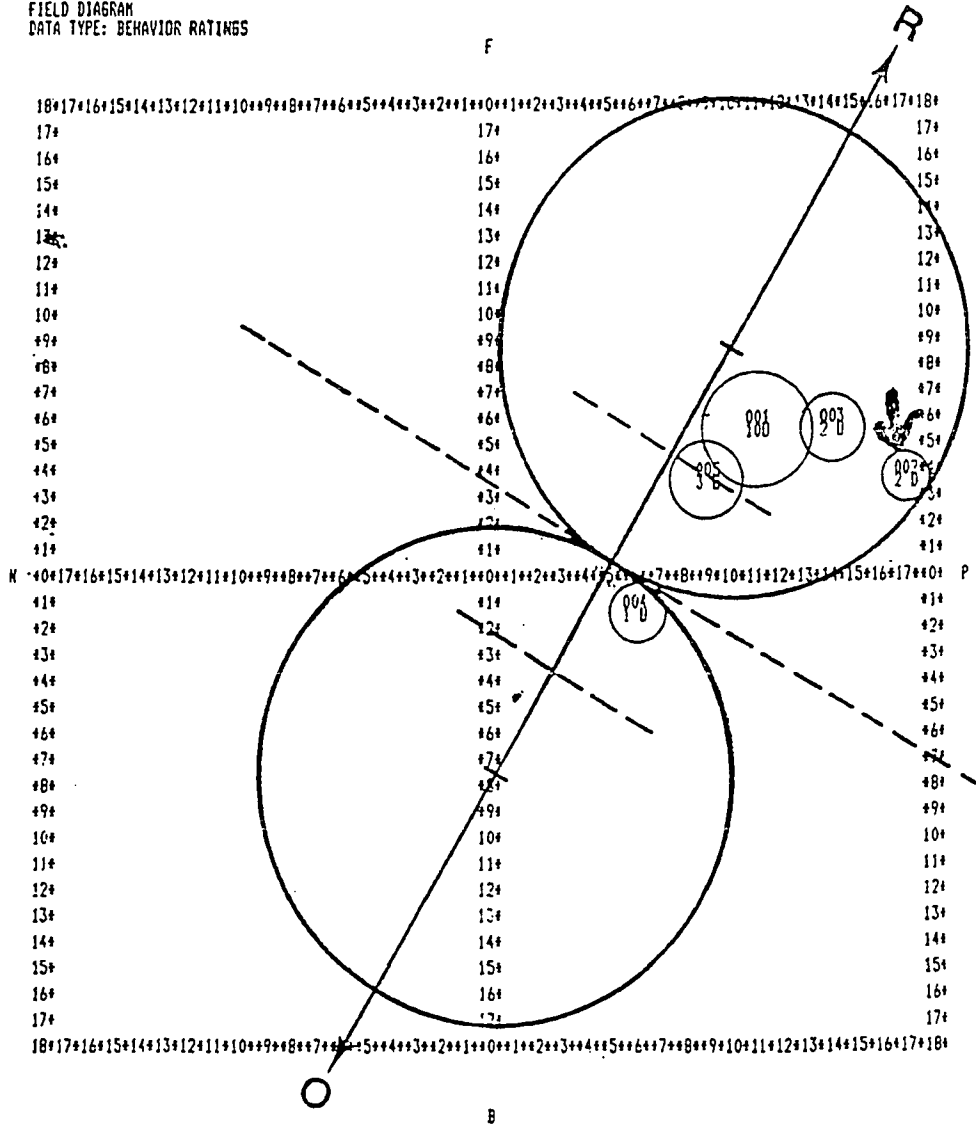
Figure 5. Perceptions of rater #002 on self and others in the group.

EXPANDED AVERAGE DIAGRAM
EXP. MULTIPLIER= 1.19403
FIELD DIAGRAM
DATA TYPE: BEHAVIOR RATINGS

F

B
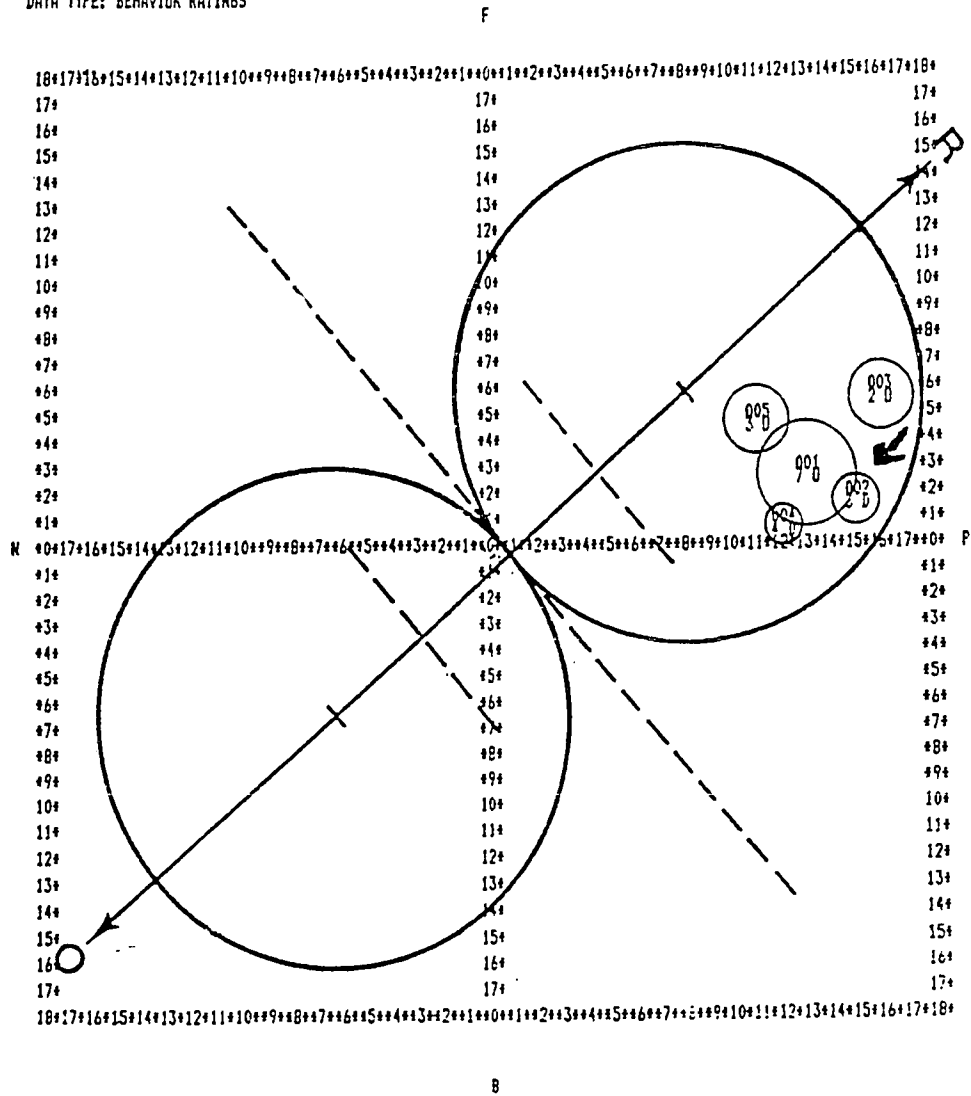
Figure 6. Average group perceptions of #002's behavior.

others at both pretest and posttest. The no-show group
reported a positive level of association, but one which was
not statistically significant. As can be seen in Table IX,
the correlations on the U-D dimension were high and
positively correlated for both the feedback and no-feedback
groups, while the control groups did not show a significant
relationship in the perception of self to others.

TABLE IX

CORRELATIONS OF SELF WITH GROUP AVERAGE FOR THE FEEDBACK,
NO-FEEDBACK AND NO-SHOW GROUPS ON THE UP-DOWN DIMENSION

Test	Feedback Group (n = 40)		No-Feedback Group (n = 16)		No-Show Group (n = 11)	
	r	p	r	p	r	p
Pretest	.61	.000	.68	.002	--	--
Posttest	.63	.000	.74	.001	.35	.15

As can be seen in Table X, for the P-N dimension the
association between self-perception and that of others was
low and nonsignificant for all groups in the study; for the
no-show group the direction was negative.

On the F-B dimension, there was a strong correlation
between the perceptions of self and perceptions of others at
both pretest and posttest; and similar to the previous
dimensions, the control group showed no systematic
relationship between self and others (r .02, p < .48). The

TABLE X

CORRELATIONS OF SELF WITH GROUP AVERAGE FOR THE FEEDBACK,
NO-FEEDBACK AND NO-SHOW GROUPS ON THE POSITIVE-NEGATIVE
DIMENSION

Test	Feedback Group (n = 40)		No-Feedback Group (n = 16)		No-Show Group (n = 11)	
	r	p	r	p	r	p
Pretest	.14	.19	.26	.17	--	--
Posttest	.05	.38	.26	.17	-.44	.09

intervention of feedback did not seem to have an effect on the strength of the associations. In fact, the correlations for both the feedback and no-feedback groups lessened over time. As can be seen in Table XI, the correlations between self and others are high for both the feedback and no-feedback groups, while the no-show groups evidenced no systematic relationship.

Displaying the correlations on all three dimensions was a portion of the results which led to the actual hypothesis-testing; i.e., determining whether there was a difference among the correlations of the three groups. A Z-transformation for independent correlations was used to compare the correlations for each pair of groups: feedback to no-feedback to no-shows. In addition, a t-test was performed on the independent correlations of the three

TABLE XI

CORRELATIONS OF SELF WITH GROUP AVERAGE FOR THE FEEDBACK,
NO-FEEDBACK AND NO-SHOW GROUPS ON THE FORWARD-BACKWARD
DIMENSION

Test	Feedback Group (n = 40)		No-Feedback Group (n = 16)		No-Show Group (n = 11)	
	r	p	r	p	r	p
Pretest	.53	.000	.66	.003	--	--
Posttest	.43	.003	.43	.05	.02	.48

groups to test the differences among the feedback, no-feedback and no-show groups. No significant differences were found among any of the three dimensions.

All three dimensions showed consistent themes. The specific intervention of a feedback cycle to selected members did not cause change in the associations of self-perception to others' perceptions. The correlations between self-perception and others' perceptions were approximately the same for the feedback and no-feedback groups on each dimension, but were proportionately lower in the no-show group on every dimension. Finally, the no-show groups appeared to display the greatest discrepancy between self-perceptions and others' perceptions. The findings thus did not support acceptance of the self-perception hypothesis.

FINDINGS RELATED TO THE LEADERSHIP HYPOTHESIS

The leadership behavior within a group will exhibit
more change following a feedback cycle than if the
group receives no feedback.

The identified leaders' absolute change scores were
used from pretest to posttest to answer the research
question. A t-test to determine whether there was a
difference between the mean absolute change scores of the
feedback leaders and the no-feedback leaders revealed
significance on two of the three dimensions. On the U-D
dimension, there was no significant difference in groups
either receiving or not receiving feedback. All of the
group leaders became more dominant over time. This finding
is consistent with the work of Hollander (1978), who
maintains that leaders gain what he terms "idiosyncratic
credit" against a time when the expenditure of this credit
in the form of dominant behavior may be necessary.

On the other hand, the P-N and F-B dimensions showed a
significant difference among the feedback and no-feedback
leaders. Statistical significance on the P-N dimension
showed a t-value of 2.92 (p = .01), and on the F-B dimension
it showed a t-value of 3.27 (p = .008). The mean change
scores of leaders in the feedback and no-feedback groups on
each dimension, displayed in Table XII, demonstrate that the
feedback leaders' scores are higher on all dimensions

following feedback.

TABLE XII

RESULTS OF A t-TEST ON THE AVERAGE CHANGE SCORES USED AS
LEADER MEANS, BY FEEDBACK AND NO-FEEDBACK GROUPS ON THE
UP-DOWN (U-D), POSITIVE-NEGATIVE (P-N) AND
FORWARD-BACKWARD (F-B) DIMENSIONS

| Dimension | Mean | | t-value | p (2-tail) |
	Feedback (n = 8)	No-Feedback (n = 4)		
U-D	1.97	1.27	0.89	.39
P-N	2.13	.37	2.92	.01
F-B	1.83	.50	3.27	.008

Directional change scores (as opposed to the absolute change scores previously used in computations) were employed to determine whether the leaders moved in any spcific direction in the feedback and no-feedback groups. Results showed that the direction of movement was not predictable since leaders appeared to move in their group space depending upon the situation and their individual diagnoses of group configuration. This finding is consistent with Fiedler's (1973) work on situational leadership and assists in explaining why these leaders are not directionally consistent. Fiedler maintains that leaders perform

differently, depending upon the situation of the moment.
Table XIII displays the directional means for all three
dimensions, indicating no significant differences in
directional movement by the leaders whether they received
feedback or not.

TABLE XIII

DIRECTIONAL CHANGE SCORES AS MEANS FOR LEADERS EXPERIENCING
EITHER FEEDBACK OR NO-FEEDBACK ON THE UP-DOWN (U-D),
POSITIVE-NEGATIVE (P-N) AND FORWARD-BACKWARD (F-B)
DIMENSIONS

| Dimension | Mean | | t-value | T-prob. |
	Feedback (n = 8)	No-Feedback (n = 4)		
U-D	1.92	1.27	.81	
P-N	1.01	.32	.73	n.s.
F-B	.58	.50	.11	

Results of the present study clearly show that the
intervention of a feedback cycle using SYMLOG makes a
difference in the amount of leader movement in the group
space. Leaders who have experienced feedback demonstrate
more movement than group leaders who have not, given the
same amount of exposure to classroom teaching and to group
practice time. The evidence in this study thus supports

acceptance of the leadership hypothesis.

CHAPTER V

DISCUSSION

The purpose of this research was to determine what
effect feedback had on small groups using Bales' Multiple
Level Observation of Groups (SYMLOG). The criterion
variables used to test this model were group movement,
increased satisfaction, change in self-perception and
leadership movement in the group space.

Three types of small groups were studied: eight
feedback groups, four no-feedback group and two no-show
groups. The independent variable, a feedback cycle
introduced into one of these types of groups, was the focal
research issue. The findings indicate that the feedback
cycle played a central role in both group satisfaction and
leadership behavior but had little effect on group movement
over time and did not appear to change self-perceptions in
any substantial manner. In an attempt to interpret these
findings in a meaningful way, the dynamics occurring within
these groups were closely examined by utilizing SYMLOG
analysis, which clearly illustrated the transactional
process within the group.

The discussion will begin with comments directed
toward the group movement hypothesis. This hypothesis was

not supported in the study but warrants a more detailed
discussion since there was significant group movement on one
of the dimensions in the feedback group.

Following this discussion, illustrative case studies
from the feedback, no-feedback and no-show groups will be
presented. These case studies will describe, through the
use of SYMLOG field diagrams, the interactive phenomena
analyzed in hypotheses testing. The average and individual
diagrams will be presented for the feedback group, and only
the average diagrams will be shown for the no-feedback and
no-show groups. In addition, the average field diagrams of
one of the two "winning" groups will be presented (i.e., the
Term II group which received an "A" for its final project
grade). The groups presented are singled out not only
because of their performance in relation to the hypotheses
tested, but because they can be used in illustrating the
need for further research.

INDIVIDUAL MOVEMENT VERSUS GROUP MOVEMENT

Feedback did not appear to be a statistically
significant variable in group movement on any of the three
dimensions. The only significant movement which occurred in
either the feedback or the no-feedback groups was in the
feedback groups on the F-B or task-oriented dimension. This
movement was further analyzed to determine whether a factor

other than feedback could have influenced the findings.

A display of frequencies for the feedback groups demonstrated that one group reported a mean score which was atypically high on the F-B dimension at pretest and low at posttest. On further examination it was noted that two male students had been randomly placed into this particular feedback group, and both scored high F-B at time 1 and low F-B at time 2. Every other group was either exclusively female or contained only one male. In calculating feedback group differences excluding the two-male group, no significant difference was found on the F-B dimension. The possibility that gender may have influenced these findings is a consideration for further study.

All of the problemsolving groups clustered toward the lower quadrant of the F-P vectors. This may be a reflection of the demographic data or of the specific characteristics of these groups. Eighty-nine percent of the population in this study was female, and all were nursing students. These students were skilled in problemsolving in clinical settings under highly stressful circumstances. Thus, the groups might be expected to form quickly and to accomplish the task in an expeditious manner; this, in fact, is what happened. All of the groups formed and performed their group work in a manner which was successful in terms of grading by the instructor. The groups did not aggregate in the high, or

even in the middle, of the Forward and Positive vectors;
rather they clustered in the low vector on task orientation
and on the cusp of the Positive and Backward vectors,
indicating submissive and emotionally expressive behavior
characteristics.

FEEDBACK GROUPS

The eight feedback groups had two group work sessions
and an intervening feedback cycle to mirror back images of
self-perception and group positioning on the SYMLOG field
diagram. Both terms, it was the feedback group which earned
the "A" grade for the "winning" group project. While net
movement of these groups was not significant over time,
individual movement in the group space became more positive
and more dominant. In addition, self-perception was
positively correlated with the perception of others on all
of the dimensions, with the least positive association at
the P-N dimension. Finally, the designated leaders in these
groups reported more movement than the no-feedback groups,
and the feedback groups were more satisfied with group work
than either the no-feedback or no-show groups.

Group #5 was chosen to illustrate the three-dimensional
movement which occurred over time. This group is
representative of the feedback groups in terms of general
positioning, self-perception, and leader movement, but each

group had a life and drama of its own. Further, each group configured differently due to differences in actors and their perceptions of the environment. The notion of the differences among groups is conceptually compatible with Lewin's group equation: Behavior equals the function of the person interacting with the environment, or $B = f(P + E)$.

Figures 7 and 8 illustrate Group #5 on the average field diagrams at pretest and then at posttest. Fictitious names are given to group members in these diagrams. The designated leader was Mary (#005), who, at time 1, was closely aligned with Bea (#002). At posttest (following feedback), the leader Mary had moved to a more dominant, positive and task-oriented Up-Positive and Forward (UPF) position, joining with the other members of the group and leaving Bea behind. Though most groups in the study became more unified at posttest, this group became more polarized within their established group space over time. Bea, even though perceived as the most dominant member of the group, remained more or less alone in the space while the other members of the group were unified into a more UPF subgroup. This observation is compatible with Janis' (1982) work which suggests that moderate cohesiveness in a group may be more optimal for good decisionmaking than a high level of cohesiveness.
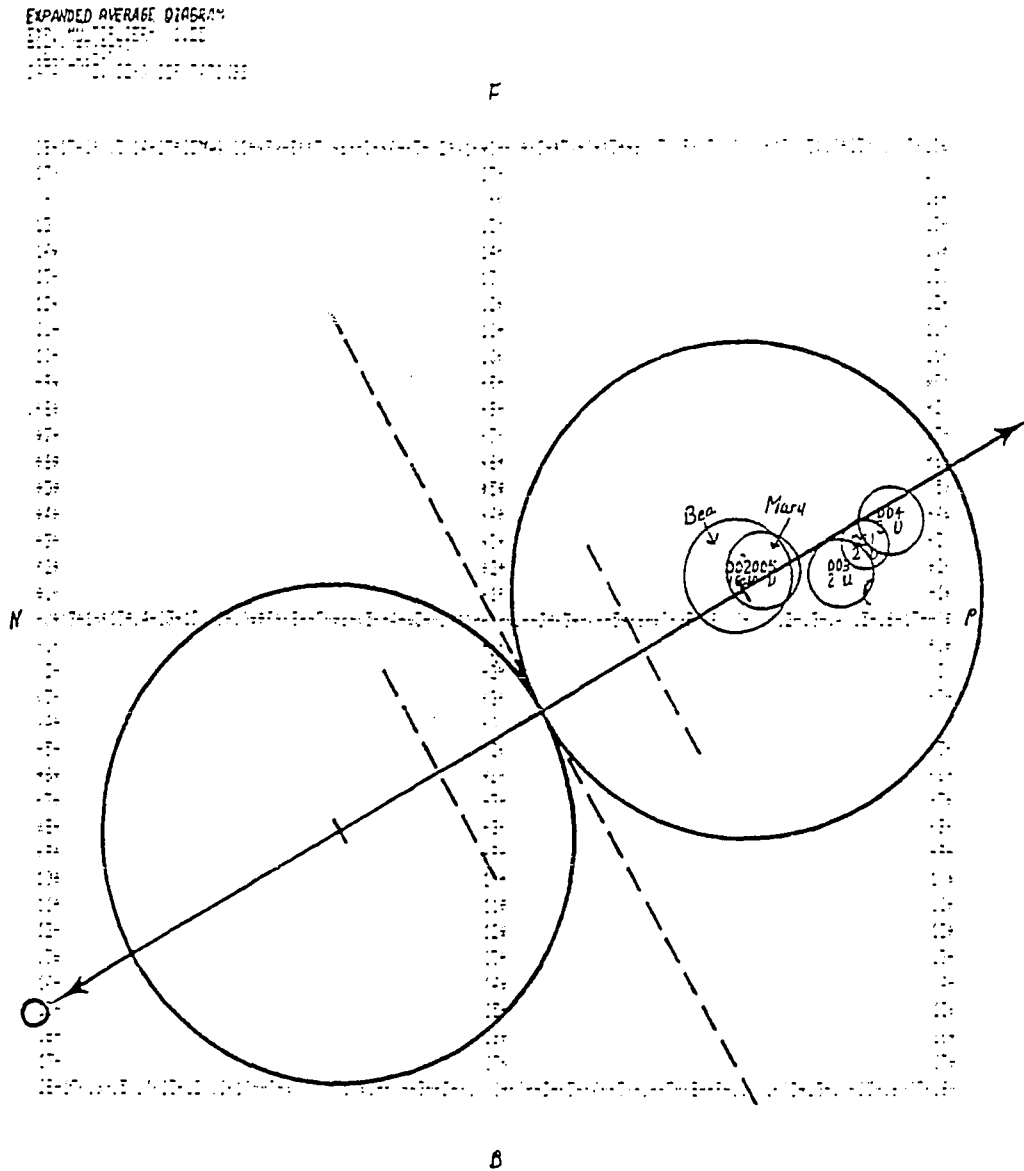
Figure 7. Average field diagram of Group #5, Term I
(feedback) at pretest.

EXPANDED AVERAGE DIAGRAM
EXP. MULTIPLIER= 1.230769
FIELD DIAGRAM
DATA TYPE: BEHAVIOR RATINGS
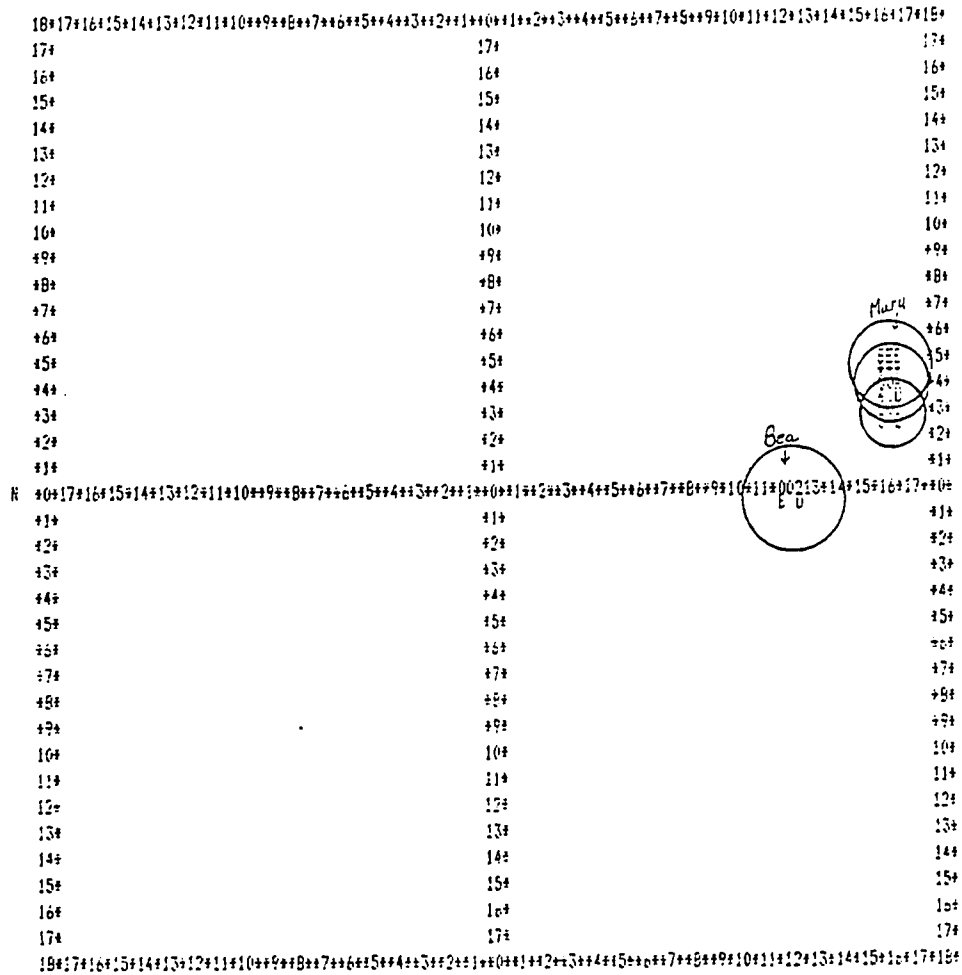
Figure 8. Average field diagram of Group #5, Term 1 (feedback) at posttest.

Although the group as a whole does not show net movement away from the originally-established group space in the lower F-P quadrant, the individual movement, particularly by leader Mary, is significant. At the practice session or pretest, Bea and Mary could be described as competing for the leadership role. Both individuals were dominant members of the group and polarized away from the other members. The designated leader became Mary, who moved to a more UPF position, joining the remainder of the group. On the other hand, Bea chose to remain in almost the same position throughout the study, dominant, but away from the majority of the group. Movement by Mary was substantial in the feedback groups, and this leader movement was consistent in all feedback groups in the study.

Leader movement from pretest to posttest can be seen in the abbreviated field diagrams contained in Appendix J. These diagrams were helpful in demonstrating leader movement using only the low forward and positive vectors of the field diagrams. This movement is supported by research in leader behavior. Hollander (1969) maintains that the process of leadership requires social exchange between the leader and followers. This transactional process allows a leader to emerge within the context of a specific situation and to negotiate with group members for the leadership position. For example, Mary appeared to look to the followers for

support; to achieve dominance she apparently needed to move away from Bea to a more influential space (Hollander, 1978). In this process, she became more dominant, more task-oriented and more positive.

Movement in the sense of exchanging places on the field diagram does not imply that the group is polarized in terms of Bales' concept of polarization-unification. All of the groups in this study are unified in that they are located close together in essentially one quadrant of the field diagram. According to Bales, for polarization to occur, the groups must be doing their work, but at opposing poles or vectors in opposing circles of the polarization-unification ovrlay. As can be seen in Figures 7 and 8, the individuals at both pretest and posttest remain within the unification parameters, as do all the groups in the study. The subgroups which form do so within a relatively small parameter and within one quadrant of the field diagram. For this reason, the polarization-unification overlay is not utilized in the remaining diagrams.

The individual field diagrams yield an example of leadership dynamics in the feedback groups described by Bradford, Stock, and Horowitz (1952) as intra-group conflict, or the process necessary to precede solidarity in a group. Figures 9 and 10 represent group member Ann's (#001) diagrams at times 1 and 2. These diagrams illustrate

Figure 9. Individual field diagram of Ann (#001) at pretest.

EXPANDED DIAGRAM, CODER= 001
EXP. MULTIPLIER= 1.066667
FIELD DIAGRAM
DATA TYPE: BEHAVIOR RATINGS

F

18#17#16#15#14#13#12#11#10##9##8##7##6##5##4##3##2##1##0##1##2##3##4##5##6##7##8##9#10#11#12#13#14#15#16#17#18#
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16#   16#   16#
15#   15#   15#
14#   14#   14#
13#   13#   13#
12#   12#   12#
11#   11#   11#
10#   10#   10#
#9#   #9#   #9#
#8#   #8#   #8#
#7#   #7#   #7#
#6#   #6#   #6#
#5#   #5#   Ann Mary #5#
#4#   #4#   #4#
#3#   #3#   00A 001   #3#
#2#   #2#   #2#
#1#   #1# Bea   #1#
N #0#17#16#15#14#13#12#11#10##9##8##7##6##5##4##3##2##1##0##1##2##3##4##5##6##7##8##9#10#11#12#13#14#15#16#17##0# P
#1#   #1# 002   #1#
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#3#   #3#   #3#
#4#   #4#   #4#
#5#   #5#   #5#
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12#   12#   12#
13#   13#   13#
14#   14#   14#
15#   15#   15#
16#   16#   16#
17#   17#   17#
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B

THE FOLLOWING PERSONS (OR OBJECTS)
HAVE DUPLICATE LOCATIONS:

NAME	U-F	F-N	F-B
003	5	16	3
005	6	16	3

Figure 10. Individual field diagram of Ann (#001) at posttest.

the first occurrence of intra-group conflict. Ann placed leader Mary far to the negative, passive and emotionally expressive vectors at pretest. At posttest, Ann changed her perception considerably, placing Mary with other group members on almost opposite poles of the field diagram in UPF position. Ann noticeably rejected Mary at the initial practice session, but at the final group session perceived herself in the middle of the working group and Mary considerably more positive and dominant. Ann did not perceive Bea as moving in the group space over time, but rather placed her in almost the identical position at both pretest and posttest.

The individual perceptions of Bea (#002) are seen in Figures 11 and 12. Bales suggests that dominant persons will clash initially in their group work (Bales and Cohen, 1979). This clash or conflict with Mary was visible at pretest and occurred in the UPF vectors. It appears that Bea perceived this activity as positive, task-oriented and dominant. On the other hand, at time 2, Bea appears to have capitulated as a result of the direct competition with Mary and was attempting to form a subgroup coalition with two additional group members, Jo and Mo.

Figures 13 and 14, the individual field diagrams of Jo (#003) at pre- and posttest, yield yet another interpretation of what occurred in the intragroup conflict
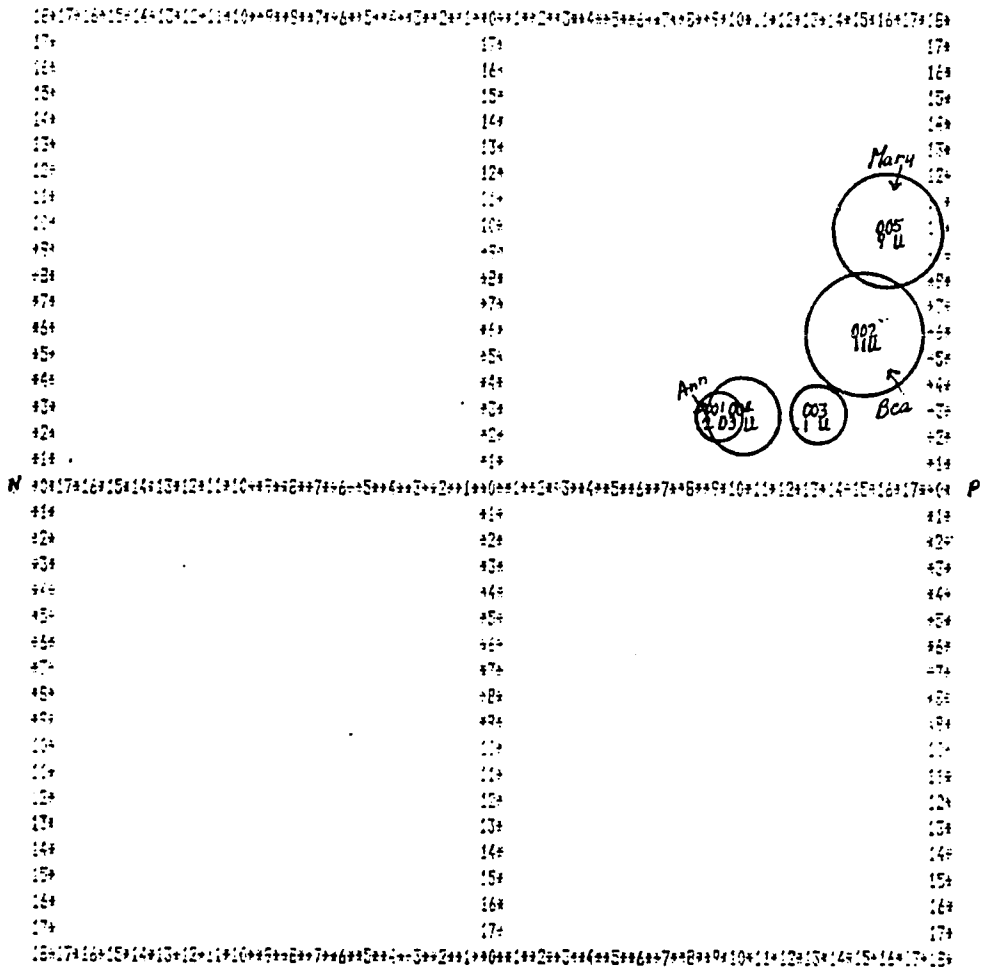
Figure 11. Individual field diagram of Bea (#002) at pretest.

EXPANDED DIAGRAM, CODER= 002
EXP. MULTIPLIER= 1.333333
FIELD DIAGRAM
DATA TYPE: BEHAVIOR RATINGS

F

```
18*17*16*15*14*13*12*11*10**9**8**7**6**5**4**3**2**1**0**1**2**3**4**5**6**7**8**9*10*11*12*13*14*15*16*17*18*
  17*                                    17*                                                      17*
  16*                                    16*                                                      16*
  15*                                    15*                                                      15*
  14*                                    14*                                                      14*
  13*                                    13*                                                      13*
  12*                                    12*                                                      12*
  11*                                    11*                                           Mary       11*
  10*                                    10*                                                      10*
  *9*                                    *9*                                            805        *9*
  *8*                                    *8*                                                       *8*
  *7*                                    *7*                                  Ann                  *7*
  *6*                                    *6*                                                       *6*
  *5*                                    *5*                                   801                  *5*
  *4*                                    *4*                                                        *4*
  *3*                                    *3*                                            804          *3*
  *2*                                    *2*                                                         *2*
  *1*                                    *1*                                          Bea           *1*
N 10*17*16*15*14*13*12*11*10**9**8**7**6**5**4**3**2**1**0**1**2**3**4**5**6**7**8**9*10*11*12 803  15   0*  P
  *1*                                    *1*                                            802          *1*
  *2*                                    *2*                                                         *2*
  *3*                                    *3*                                                         *3*
  *4*                                    *4*                                                         *4*
  *5*                                    *5*                                                         *5*
  *6*                                    *6*                                                         *6*
  *7*                                    *7*                                                         *7*
  *8*                                    *8*                                                         *8*
  *9*                                    *9*                                                         *9*
  10*                                    10*                                                        10*
  11*                                    11*                                                        11*
  12*                                    12*                                                        12*
  13*                                    13*                                                        13*
  14*                                    14*                                                        14*
  15*                                    15*                                                        15*
  16*                                    16*                                                        16*
  17*                                    17*                                                        17*
18*17*16*15*14*13*12*11*10**9**8**7**6**5**4**3**2**1**0**1**2**3**4**5**6**7**8**9*10*11*12*13*14*15*16*17*18*
```

B

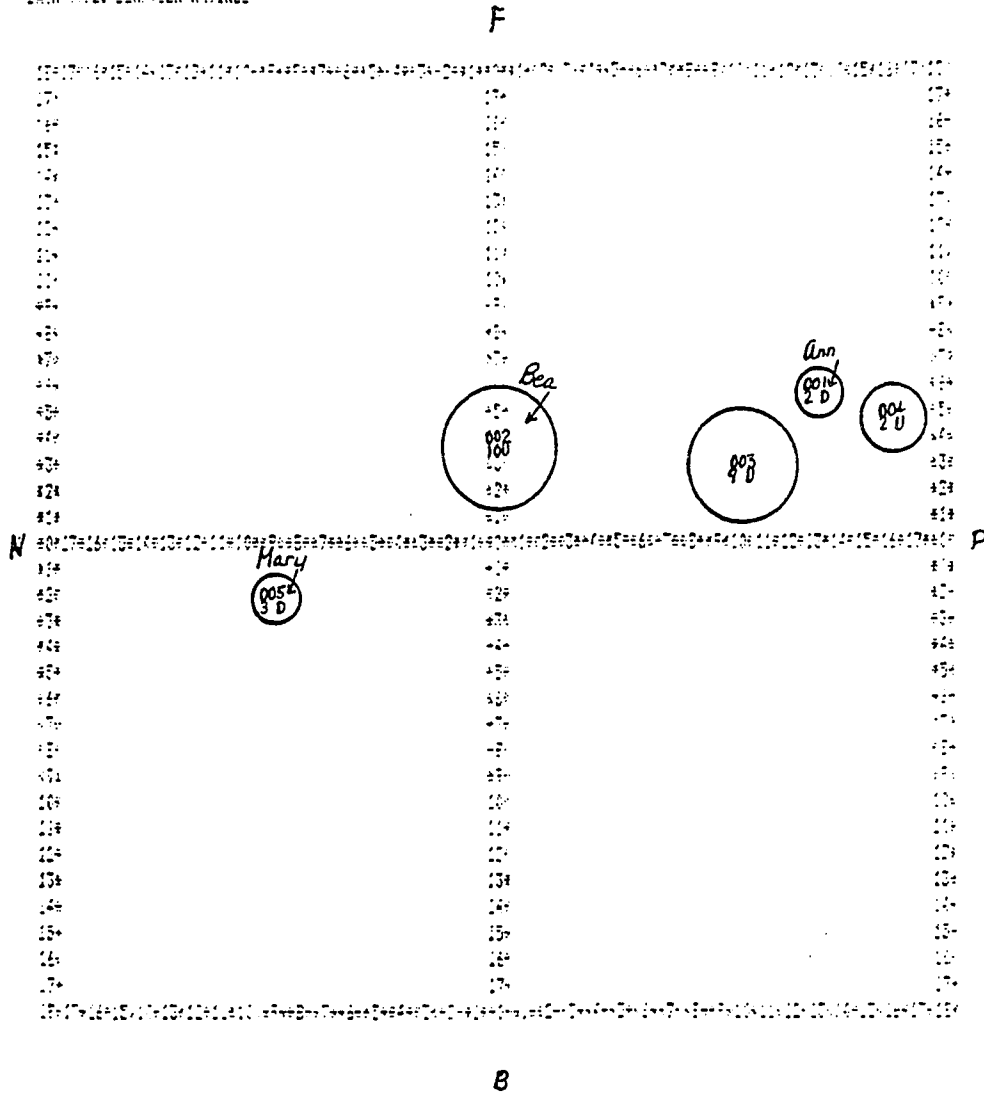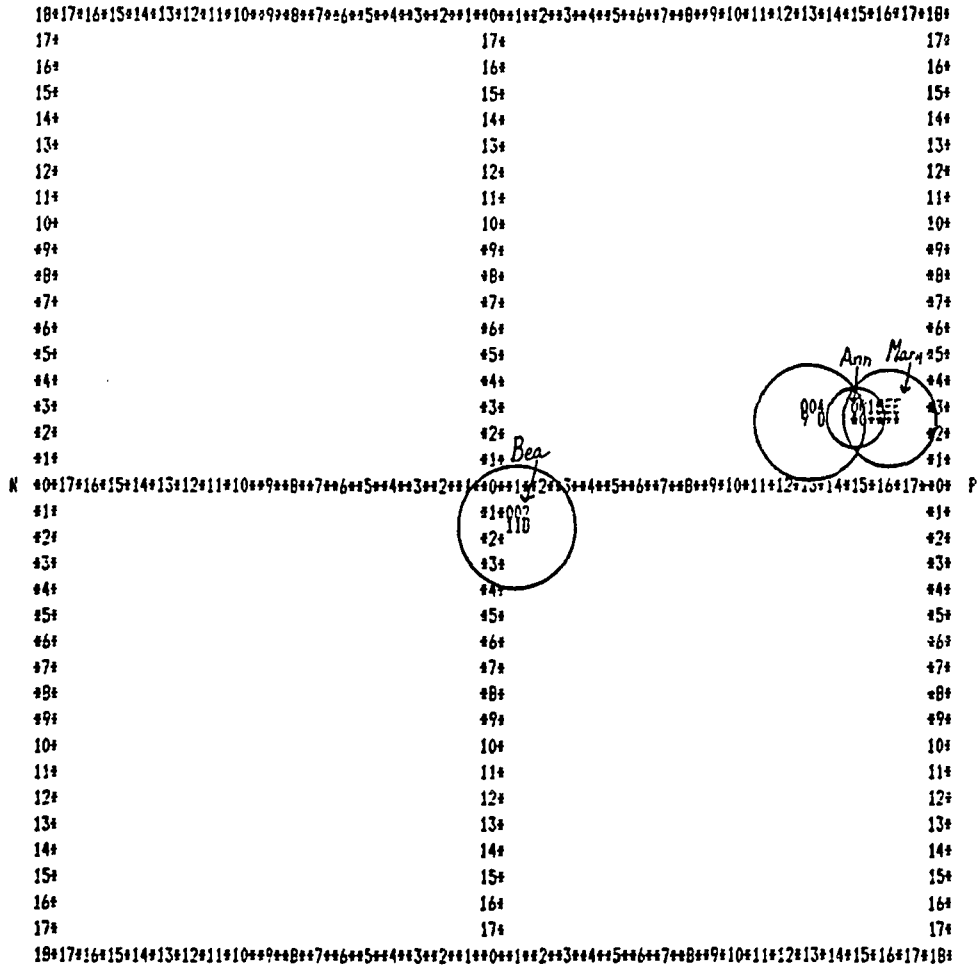Figure 12. Individual field diagram of Bea (#002) at posttest.

Figure 13. Individual field diagram of Jo (#003) at pretest.

EXPANDED DIAGRAM, CODER= 003
EXP. MULTIPLIER= .8888889
FIELD DIAGRAM
DATA TYPE: BEHAVIOR RATINGS

F

```
18#17#16#15#14#13#12#11#10##9##8##7##6##5##4##3##2##1##0##1##2##3##4##5##6##7##8##9#10#11#12#13#14#15#16#17#18#
17#                                    17#                                              ·17#
16#                                    16#                                               16#
15#                                    15#                                               15#
14#                                    14#                                               14#
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12#                                    12#                                               12#
11#                                    11#                                               11#
10#                                    10#                                               10#
#9#                                    #9#                                               #9#
#8#                                    #8#                                               #8#
#7#                                    #7#                                               #7#
#6#                                    #6#                                         Ann #6#
#5#                                    #5#                                               #5#
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#1#                                    #1#                                               #1#
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#3#                                    #3#                                              Bea #3#
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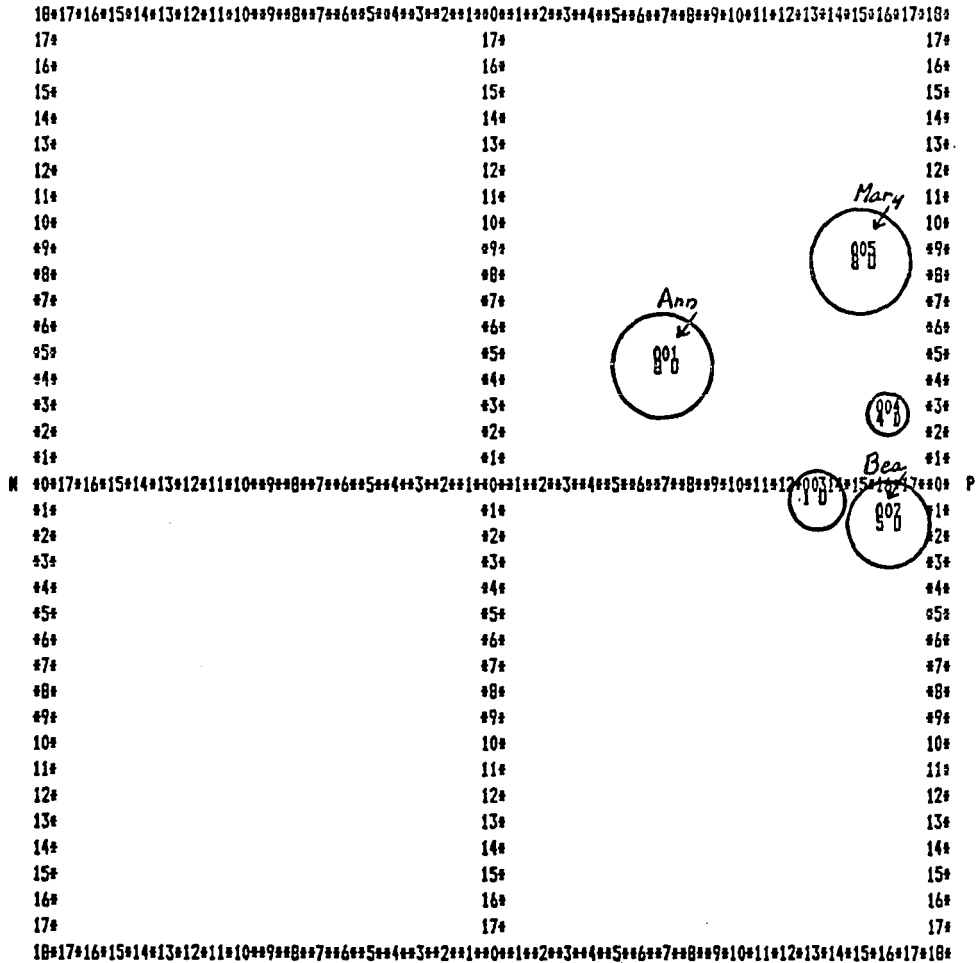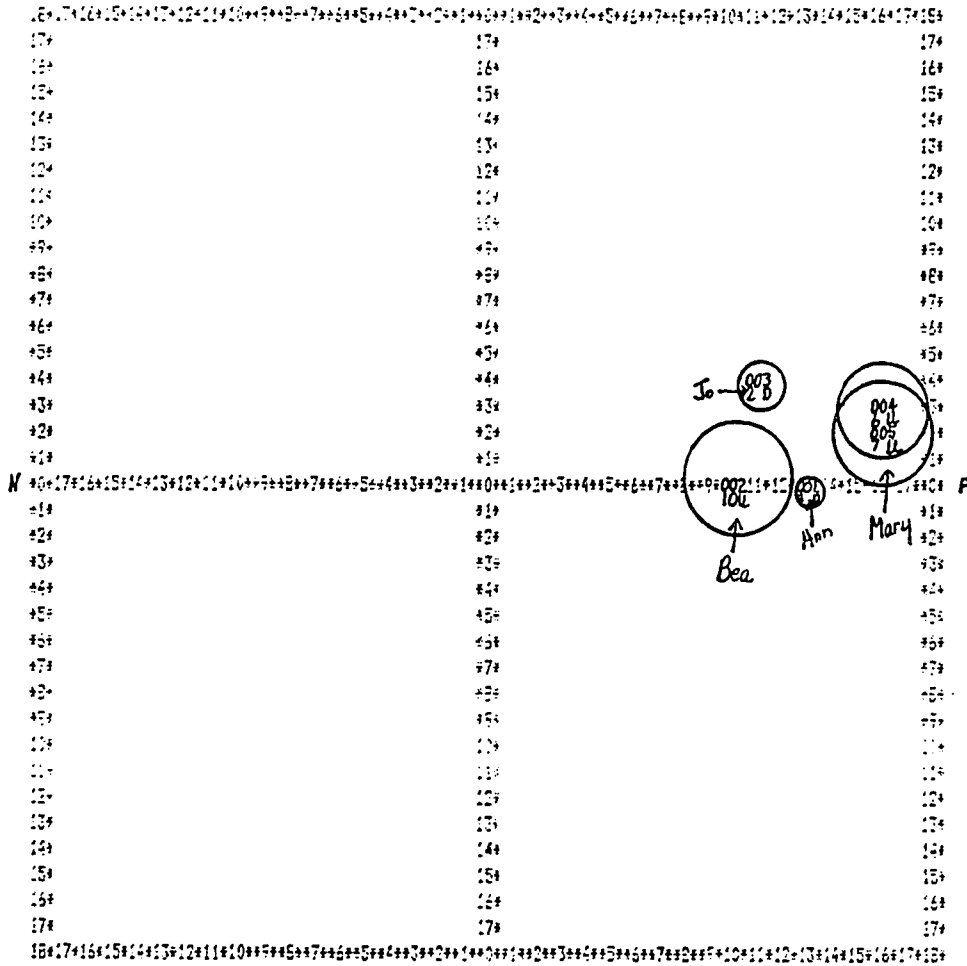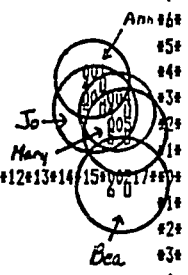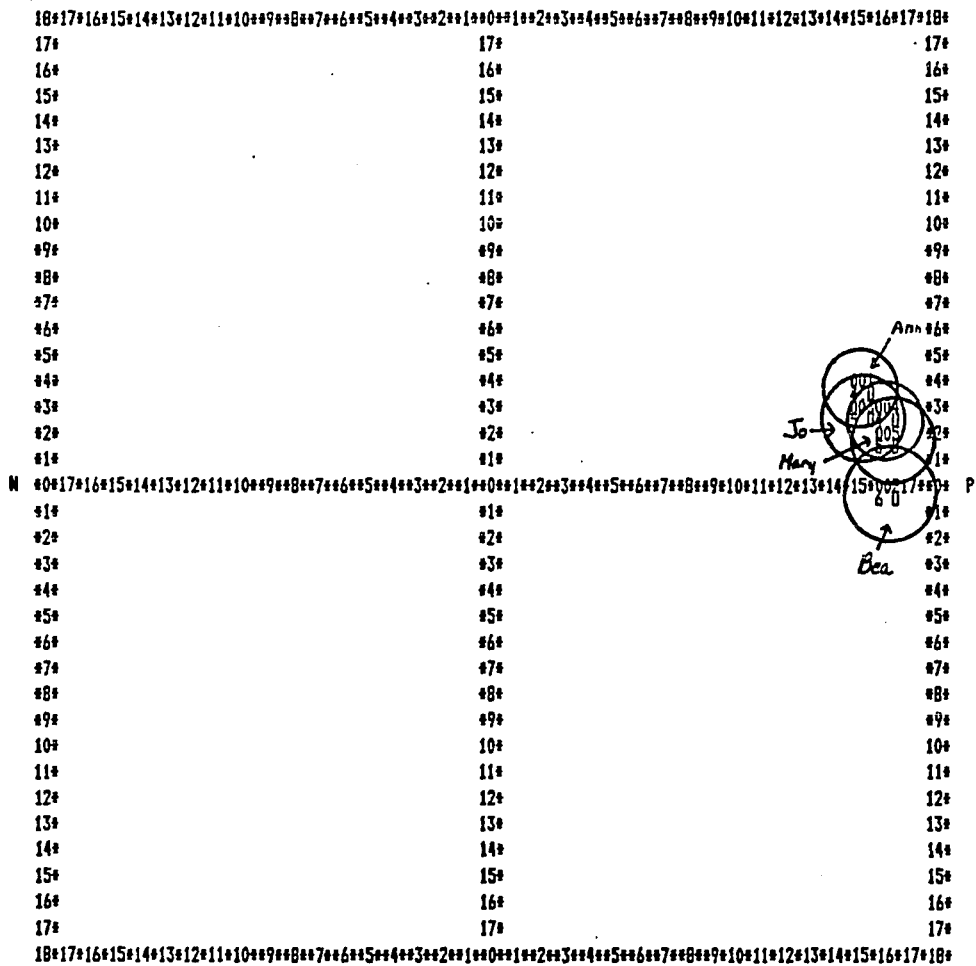
B

__Figure 14.__ Individual field diagram of Jo (#003) at posttest.

and process of negotiation. Although members were somewhat distanced at the pretest, Jo perceived a solid, unified group at posttest.

Still another variation of individual perception on the same moments in time is illustrated in Figures 15 and 16 by Mo (#004), who at pretest was aligned with Bea, but at posttest moved into a more U-F position near leader Mary. Mary remained in approximately the same position both times, but became more dominant at the posttest. This phonomenon suggests that the ligitimate power described by French and Raven (1980) was bestowed upon Mary, which provided her with a basis for exercising the influence necessary to get the work accomplished.

The last member of the group to be diagrammatically depicted is Mary (#005), as shown in Figures 17 and 18. At the pretest, the emerging leader displayed tentative perceptions about herself as a leader; she described herself as moderately dominant, in a UFP position. At posttest, she perceived herself as taking more risks and coincidentally moved on the field diagram to the least positive, but the most task-oriented position in the group. This observation corresponds with Frost's (1983) study of effective military combat leaders and fire combat leaders in which he found that in both groups, the more effective leaders took more risks.
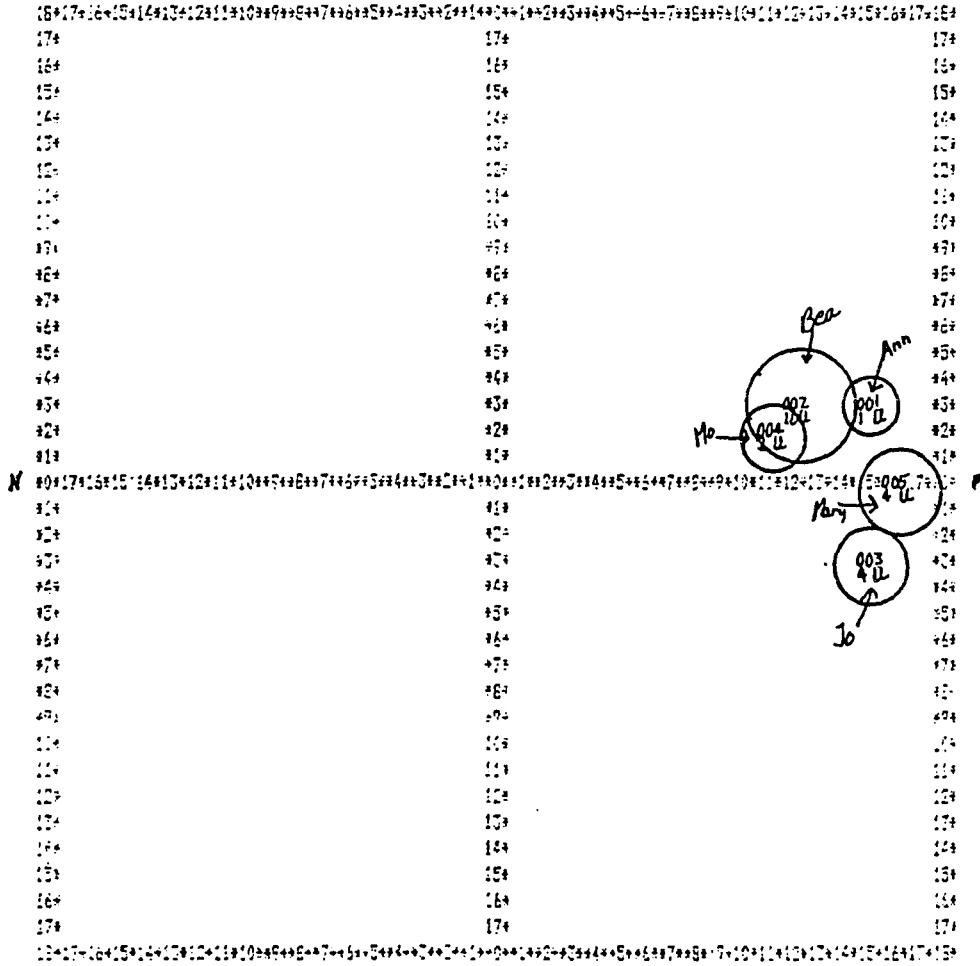
Figure 15. Individual field diagram of Mo (#004) at pretest.
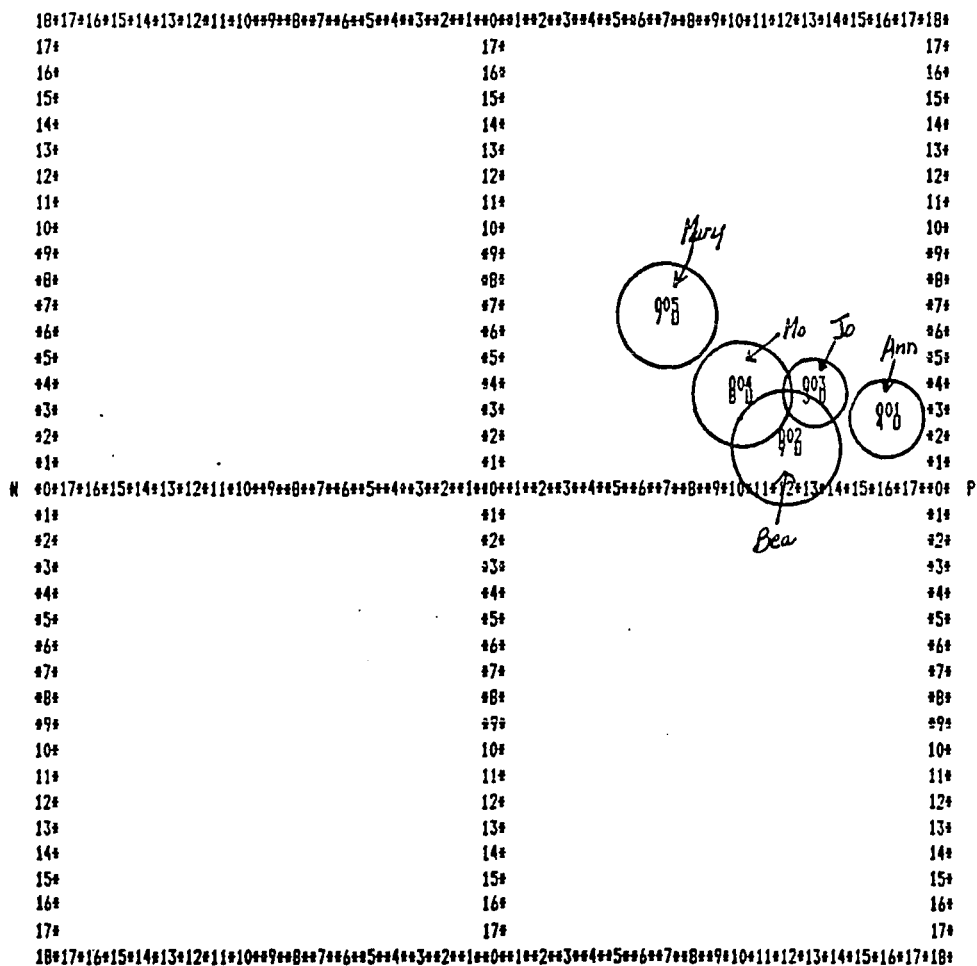
Figure 16. Individual field diagram of Mo (#004) at posttest.
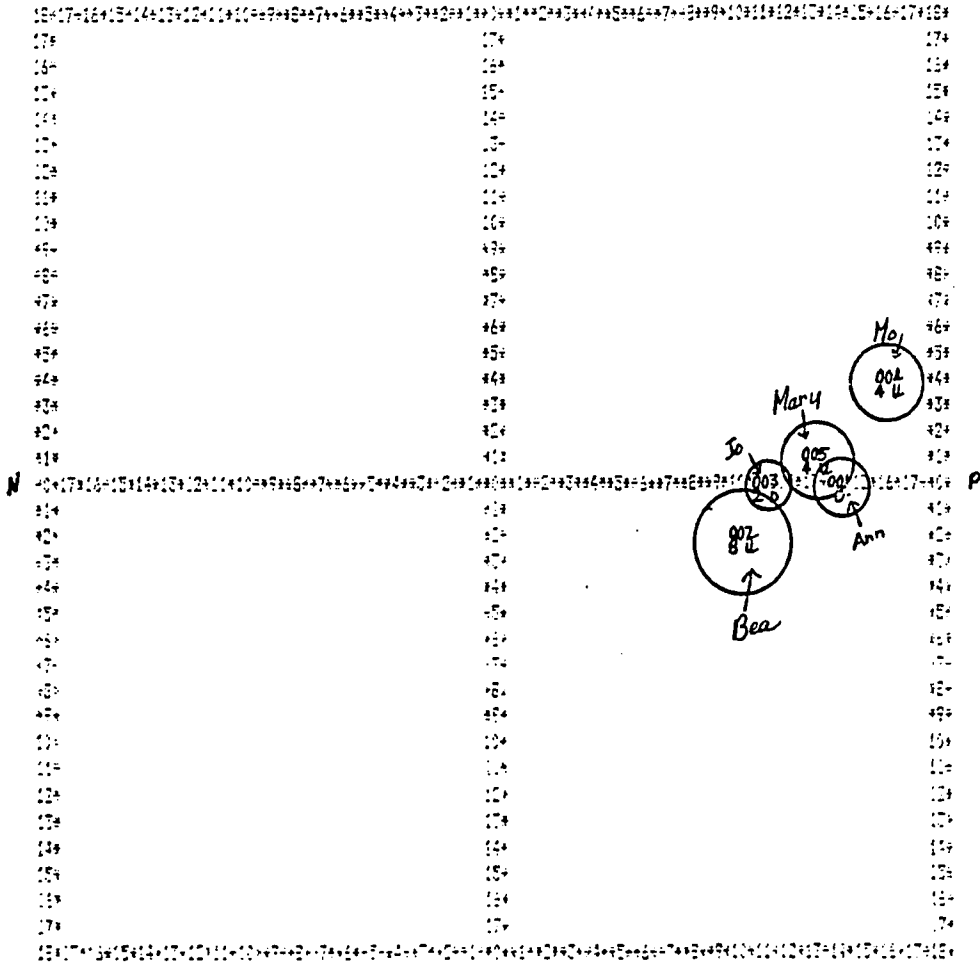
Figure 17. Individual field diagram of Mary (#005) at pretest.
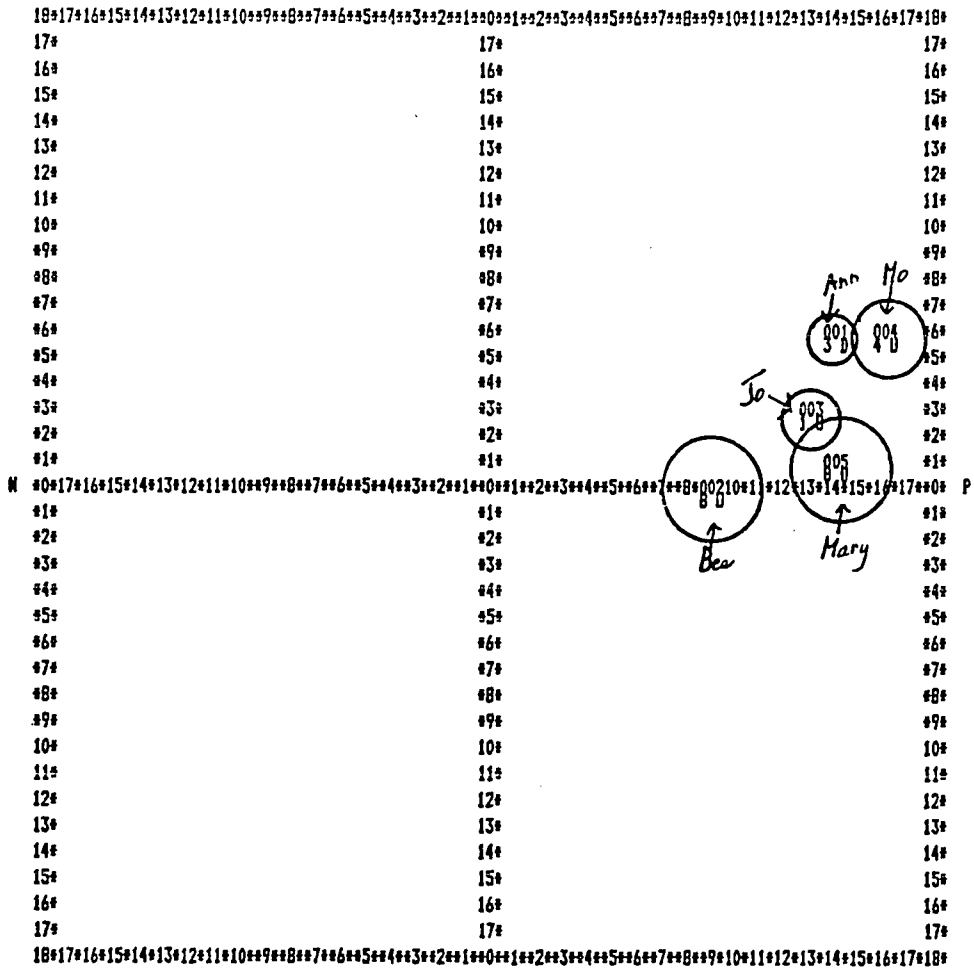
Figure 18. Individual field diagram of Mary (#005) at posttest.

This group of five which progressed through the intra-group conflict and on to purposeful group work was one of the most successful groups in the study. It was given the "A" grade for the winning project in Term I and expressed high satisfaction with the group's work. In this group it appeared that the members Ann, Jo, and Mo were able to exert their power by diffusing the dominance of Bea and choosing Mary as their leader, which corresponds to the check and balance notion of Gibb (1954) in the democratic choice of leaders.

In addition, it appears that Mary accepted the leadership role and over time became more U-F in behavior, which was her style of leadership selected for this specific situation. This approach is consistent with Fiedler and Mahler's (1979) leadership training program, which uses situational control as a way to prepare potential leaders.

While the average field diagrams for this group are helpful in looking at aggregates, they do not provide the rich data that the individual diagrams display. In addition, the diverse perceptions of each individual on the leader's behavior give insight into the amount of variance tolerated by group members.

The increased satisfaction reported by this group may be related to the increased time they spent in group work, the feedback cycle which gave the group more information

about their progress in group work, and the attention given to them (Swap, 1984). Furthermore, these groups exerted considerable control over their internal group environment, which also correlates positively with levels of satisfaction (Cartwright and Zander, 1953).

All of the feedback groups followed the same pattern as that described for Group #5: intra-group conflict at the initial task and a resolution at the final task which resulted in a more unified, solid group. The designated leaders appeared to use pretest as a period for transactional exchange, many times vying with another group member for the leadership position. The feedback process appears to have provided a high degree of satisfaction with group work and group effectiveness for these feedback groups.

NO-FEEDBACK GROUPS

The no-feedback groups differed from the feedback groups, both in terms of levels of satisfaction and in leader movement. The difference in the treatment of these groups was that no attention or information was given to the no-feedback groups which specifically related to the group work. This had an adverse effect upon the levels of satisfaction perceived by the no-feedback groups. Leaders of these groups also displayed less mobility.

An illustrative case study of a no-feedback group
provides a clearer sense of what occurred in these groups.
In Group #4, Term II, the identified leader was Bev (#003),
who, at pretest, was positioned on the average field diagram
UPF within a cluster which also included two other group
members. Two additional members of the group were outside
the cluster, with Nan (#005) well outside. Figure 19
illustrates the group constellation and individuality at
pretest; Figure 20 shows the same group at posttest. By
posttest, the group had become more unified in its work; and
Nan, who had initially been well outside the group cluster,
had moved into the group space. After pretest, the leader
Bev chose to remain in the same position as before, but
increased her dominant behavior. This increase in the U-D
dimension is consistent with that of all other leaders in
the study; it is not a unique feature of the no-feedback
groups (Hollander, 1978).

NO-SHOW GROUPS

The no-show groups were at a distinct disadvantage when
it came to satisfaction with the group process. Without any
opportunity for practice, these two groups entered the final
session (posttest) under pressure to perform and were
required to choose a leader with little information about
individual behavior in their group. Yet, although neither

EXPANDED AVERAGE DIAGRAM
EXP. MULTIPLIER= 1.164384
FIELD DIAGRAM
DATA TYPE: BEHAVIOR RATINGS

F

```
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16#                                    16#                                    16#
15#                                    15#                                    15#
14#                                    14#                                    14#
13#                                    13#                                    13#
12#                                    12#                                    12#
11#                                    11#                    Nan             11#
10#                                    10#                                    10#
#9#                                    #9#                   005              #9#
#8#                                    #8#                                    #8#
#7#                                    #7#                                    #7#
#6#                                    #6#                                    #6#
#5#                                    #5#                                    #5#
#4#                                    #4#                   Bev              #4#
#3#                                    #3#                     003            #3#
#2#                                    #2#                  004    001#2       #2#
#1#                                    #1#                                     #1#
N #0#17#16#15#14#13#12#11#10##9##8##7##6##5##4##3##2##1##0##1##2##3##4##5##6##7##8##9#10#11#12#13#14#15#16#17##0# P
#1#                                    #1#                   002              #1#
#2#                                    #2#                                    #2#
#3#                                    #3#                                    #3#
#4#                                    #4#                                    #4#
#5#                                    #5#                                    #5#
#6#                                    #6#                                    #6#
#7#                                    #7#                                    #7#
#8#                                    #8#                                    #8#
#9#                                    #9#                                    #9#
10#                                    10#                                    10#
11#                                    11#                                    11#
12#                                    12#                                    12#
13#                                    13#                                    13#
14#                                    14#                                    14#
15#                                    15#                                    15#
16#                                    16#                                    16#
17#                                    17#                                    17#
18#17#16#15#14#13#12#11#10##9##8##7##6##5##4##3##2##1##0##1##2##3##4##5##6##7##8##9#10#11#12#13#14#15#16#17#18#
```
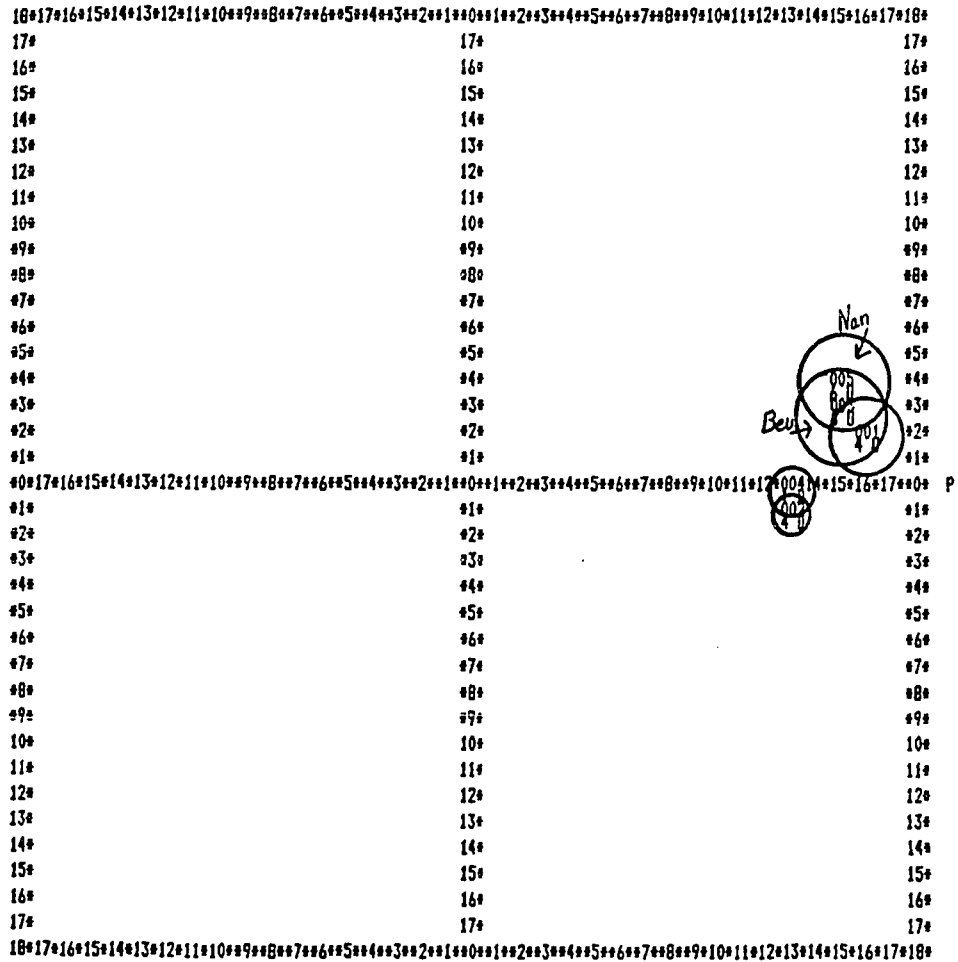
B

Figure 19. Average field diagram for Group #4, Term II (no-feedback) at pretest.

EXPANDED AVERAGE DIAGRAM
EXP. MULTIPLIER= 1
FIELD DIAGRAM
DATA TYPE: BEHAVIOR RATINGS

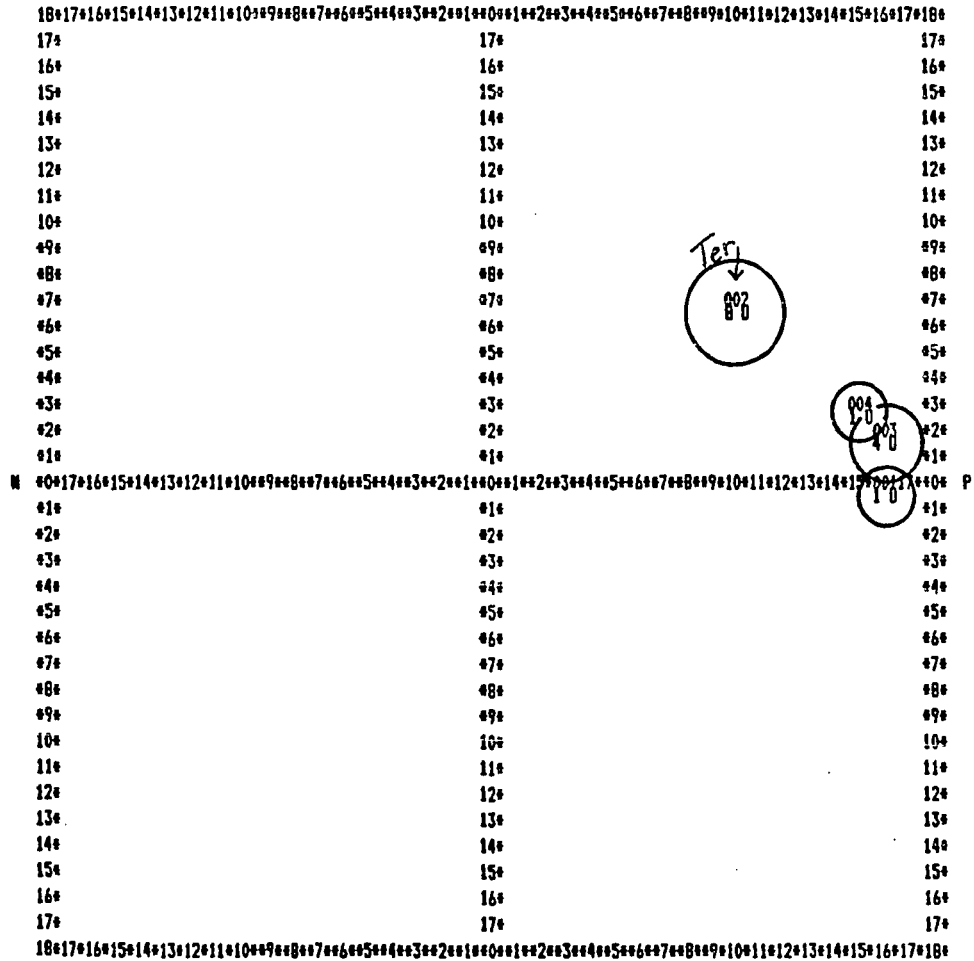Figure 20. Average field diagram for Group #4, Term II (no-feedback) at posttest.

of the two control groups won the "A" grade for the final
project, they were rated high on performance, ranking third
in the first term and fourth in the second term out of a
total of fourteen. The satisfaction data indicate that
these two groups were the least satisfied in the study, and
the enormous expenditure of energy under pressure which
resulted from lack of feedback was surely a factor (Bales
and Cohen, 1979).

In Group #7, Term II, Ter (#002) was the designated
leader. Figure 21, the average field diagram for this
group, illustrates how Ter was perceived as controlling,
task-oriented, dominant and less positive than any other
member of the group. It appears that her leadership style
was relatively autocratic, while the remainder of the group
was positive, unified and passive. The field diagram for
this group shows that these members were less satisfied with
the group projects than either the feedback or the no-
feedback groups.

Research from Argyris (1971), Hersey and Blanchard
(1977), Stogdill and Coons (1957), Maslow (1970), and others
delineates the leadership styles that may be employed
without a compromise in outcomes. What does seem to be
compromised, though, is satisfaction with the process when
the leader exhibits authoritarian behavior in the group.
Organizations may find this information particularly useful

EXPANDED AVERAGE DIAGRAM
EXP. MULTIPLIER= 1.142857
FIELD DIAGRAM
DATA TYPE: BEHAVIOR RATINGS

F

Figure 21. Average field diagram for Group #7, Term II (no-show) at final examination.

when making decisions about the division of labor in their particular work place.

Finally, the two no-show groups did not report positive correlations in their perceptions of self to the perceptions of others. The two no-show groups correlations' were not significantly different from each other; both were substantially less positive than the perceptions of the groups which worked together over the entire term. This finding does not refute the statements of Bales, Cowen and Koenigs (1986) that most persons generally see themselves as others see them, but it does raise some further questions about problemsolving groups, which are different from groups which interact without a specific task to complete. Could these problemsolving groups differ in relation to self-perceptions depending upon the various pressures of time, familiarity with the task, and familiarity with each other?

THE WINNING GROUP

The "winning group" was that group chosen each term as having given the best presentation of a group project. The feedback group discussed earlier in this chapter was the winning group during Term I. Group #6, discussed below, was the winning group during Term II.

Two of the four male students in Term II were randomly placed in Group #6. This group of two male (#003, Don, and

#004, Mel) and three female students won the Term II prize
for the best presentation and an "A" grade for content of
the group project. As shown in Figure 22, at pretest both
Don and Mel scored high in task orientation and were more
positive and more dominant than the female members of the
group. This position is illustrative of what the literature
calls task-oriented behavior and of what was expected, but
not found, in this study as the mode for group behavior.
For example, Tindall et al. (1978) state that males emerge
as leaders of small groups more than females because males
are task-oriented, dominant and aggressive, whereas females
are submissive, relational-oriented and supportive. Sue
(#005), however, who ultimately emerged as the leader of
Group #6, began in a position opposite to that of the
typical leader reported by Tindall et al. Her position at
pretest was less dominant, less positive and less task-
oriented than that of either Don or Mel. She appears to
have been mediating between the two dominant men and the two
women during the pretest stage, which was a good position
from which to assume ultimate leadership.

This first stage scenario "predicts" the second stage
very well: the two men asserted rational, businesslike
behavior in the first meeting; the women assumed submissive,
supportive, friendly positions; the emerging leader mediated
between the two by modeling friendly behavior for the women

EXPANDED AVERAGE DIAGRAM
EXP. MULTIPLIER= 1.634615
FIELD DIAGRAM
DATA TYPE: BEHAVIOR RATINGS

F

Mgl

Don

Sue

N   P
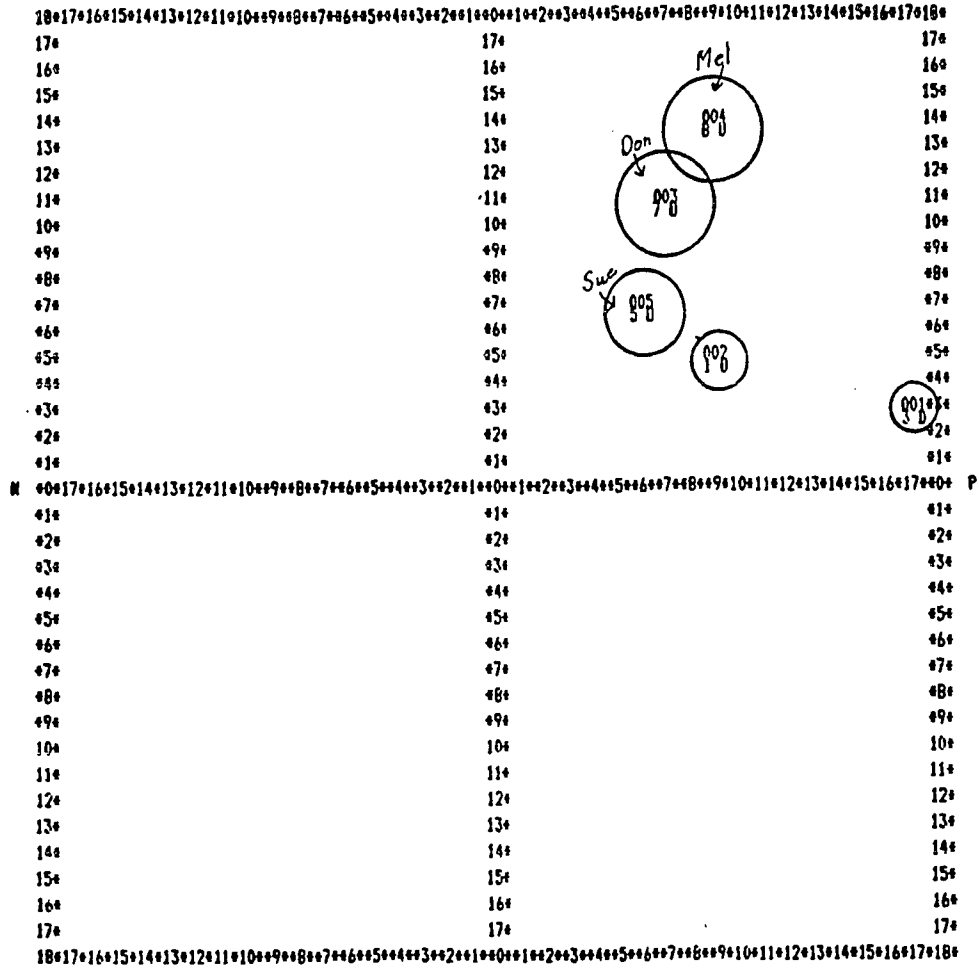
B

Figure 22. Average field diagram, Group #6, Term II,
(winning group) at pretest.

members and emotionally expressive behaviors for the men.

As can be seen in Figure 23, which is the average field diagram for Group #6 at posttest, both Don and Mel changed their positions in the space. As the analysis of the pretest suggests, they both relinquished their dominant, task-oriented postures and moved into a closer, friendlier relationship with the female members. Mel, in fact, became the most positive member of the group. Sue established her leadership position in this group by asserting dominance, low task-orientation, and by being perceived on the field diagrams as the most negative member. As stated earlier, this dynamic group combination was the "winning group." This winning combination is supported in Hoffman's (1965) review of problemsolving groups which suggests that all-female groups do less well than all-male groups, but mixed gender groups are superior in task resolution to all-male groups in situations where competition for the role of leader interferes with coordination.

These case studies demonstrate, through the use of SYMLOG, the versatility and utility of the field diagrams for depicting data found in this study. The illustrative case studies represented time in group work for members receiving feedback and for those receiving no feedback. In addition, depicting how one of the two no-show groups interacted in group work with its participants having never
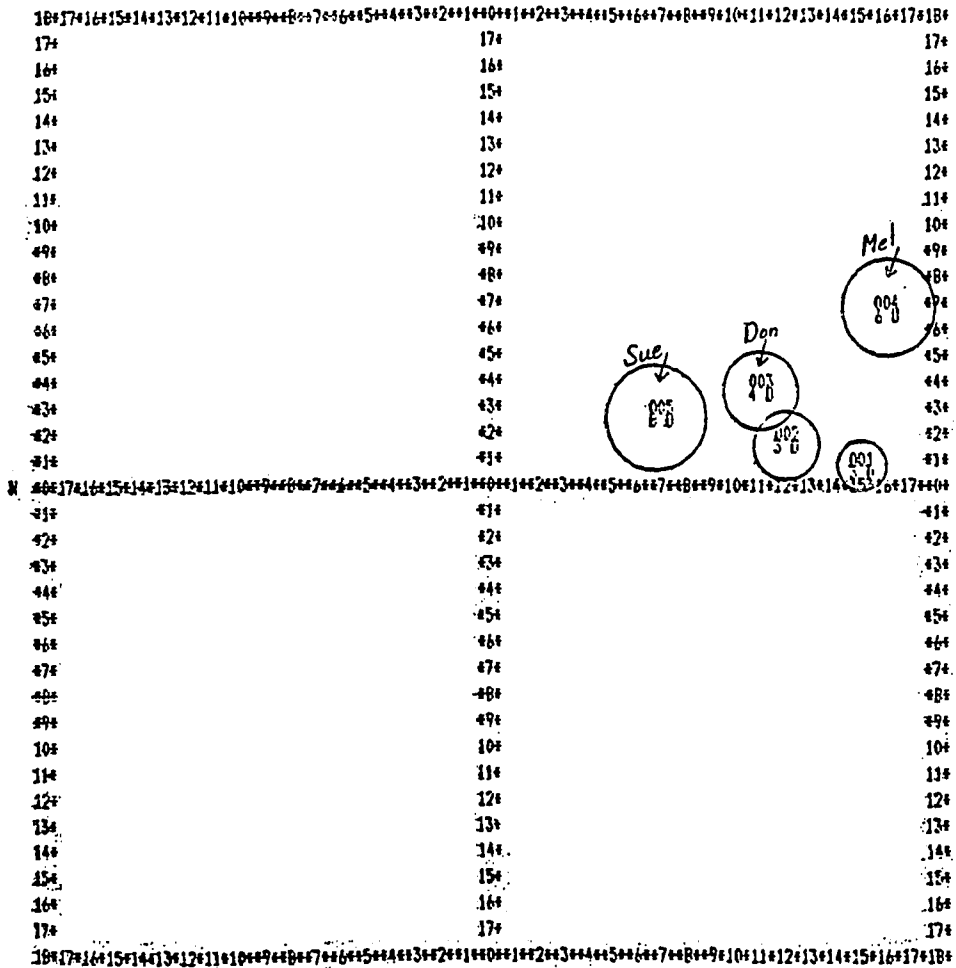
Figure 23. Average field diagram, Group #6, Term II, (winning group) at posttest.

worked together before assisted in understanding this
group's relative lack of satisfaction and self-perception.

Finally, looking at the "winning group" through SYMLOG
field diagrams was informational and assisted in pinpointing
directions for further study.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

This study was designed to determine whether a feedback session employing SYMLOG field diagrams would make a difference in group movement, leader behavior, self-perception and satisfaction. The study found that feedback intervention into a course of study on leadership and management did make a difference in two of the four stated hypotheses: leadership and group satisfaction.

Designated leaders of the groups receiving feedback responded more than other group leaders to the information from the field diagrams by displaying more movement in their respective group spaces. Additionally, members of the groups receiving feedback were better able to graphically analyze their own behavior than were other group leaders, and consequently the group's work was more satisfying to them. Feedback appeared to promote the participants' perceptions of group effectiveness.

These two findings add to the literature in both the field of Organization Behavior and that of Leadership Development. In the field of Organization Behavior, the

need for more precise intervention tools has been identifed by Berger (1981), Hare (1985), and Polley (1983), among others. The use of SYMLOG as such a tool could provide data for employers and employees to evaluate behavior in the work place and to identify problem areas in interpersonal relations which may lead to a positive change. In the field of Leadership Development, training modules using SYMLOG may assist in development of skills helpful to either a potential or an established leader. The fact that potential leaders can view their own behavior in relation to that of others in a group is, in and of itself, a powerful tool for diagnosing interactions. This knowledge or informational power (French & Raven, 1980) can lead to directional movement by the leader based on the specific constellation of group members.

In addition to Organization Behavior and Leadership Development, these findings add to the growing literature surrounding the use of SYMLOG in that they present data directed toward what Bales and Isenberg (1982) state as a critical need for further research using the feedback cycle as an intervention. In addition, this study has described how the field diagrams can be useful in interpreting data in a descriptive manner to augment quantitative data on small group interactions. Finally, this study adds to the literature using SYMLOG in the "concrete experiment"

encouraged by Kohler (1986).

The remaining two hypotheses were not supported in this research. First, the movement of groups as a function of feedback was not significant. What movement did occur was in one dimension and by a group which was identified as an "inherent outlier" (Barnett and Lewis, 1984) in its proportion of males to females. Secondly, correlations of self-perceptions with perceptions by others were apparently not influenced by the intervention of feedback in this study. Self-perceptions were highly correlated with others' perceptions in task-orientation and in dominant-passive behaviors, but were never significantly positively correlated in perceptions in the negative-positive dimension.

This congruity in two of the dimensions and lack of congruity in the third dimension remained stable over time and was not influenced by feedback intervention. It appeared that simply being together in the groups over a period of time was a positive factor in self-perceptions since the two control groups did not experience this familiarity and were the only groups in the study which demonstrated negative correlations in self-perception related to that of others in their group.

Since this study was conducted during a course on leadership and management, those groups receiving feedback

had the full range of opportunities available to students which included the feedback session with the field diagram. This increased time to develop and sustain behaviors is supported by Berger's (1981) research which suggests that time actually spent on organizational behavior interventions may be a factor in sustaining behaviors. These groups received two hours of feedback using the field diagrams, in contrast with the other groups, which received none. The diagrams were the conduit for direct feedback to each individual on self-behavior which distinguishes this type of feedback from other, more general types.

Although positive findings are reported in two of the hypotheses tested, application of these results should be tempered by the fact that these data which support the findings were from one health care institution of learning. The sample was predominantly female, and the students were from one professional school of nursing. In addition, this study did not have an equal number of feedback to no-feedback groups, which may have influenced the results. Nevertheless, the study has shown the importance of SYMLOG as a significant intervention for use in leadership training and for influencing group satisfaction.

The findings in this study indicate that the small problemsolving groups receiving feedback in the form of SYMLOG field diagrams are more satisfied with their work

than those groups not receiving feedback. In addition to
satifaction, feedback on group interactions clearly
increases movement patterns in designated leaders of the
small groups.

The groups in this study appear to have established
space in a conceptual field which held fairly constant over
time and which did not appear to be influenced by the
introduction of feedback intervention.

RECOMMENDATIONS FOR FUTURE RESEARCH

1. A follow-up study of small groups should be
designed to determine what effect gender has on task-
oriented behavior in groups.

2. A follow-up study should be designed using other
professional groups or a more stratified sample of
problemsolving groups to explore the positioning of group
space in relation to identified role.

3. Further exploration into the use of feedback should
be made using an equal sample size of feedback and no-
feedback groups.

4. The impact of designated leaders on performance
should be explored through the use of feedback as an
intervening variable.

5. Self-perceptions related to perceptions of others
in problemsolving groups under varying stress conditions

should be explored.

CONCLUSIONS

The findings in this study indicate that groups receiving feedback in the form of SYMLOG field diagrams are more satisfied with their work than those groups not receiving feedback. This increased satisfaction can contribute to a healthier work place. In addition to satisfaction, feedback on group interactions appears to assist the leader in determining movement patterns.

Groups seem to establish a space in a conceptual field which is held fairly constant over time. In this study, groups surprisingly located far down on the task-oriented vectors. Even though the groups held fairly constant in the group space, the dynamics within a group were varied and diverse. Further study into the intra-conflict that occurs when a group is formulating would be another suggested topic for further study.

When groups have the opportunity of working together over time, self-perceptions are close to those of others in the group. Even though groups seem able to perform a short-term task successfully, the toll is costly in terms of group satisfaction. another identified area for further study is the effect of this "one shot" group work on sustained performance.

The SYMLOG system used as a conceptual tool and a method for analysis is a powerful system for the study of groups. It provides data which can be used for qualitative and quantitative research designs in a way that can be communicated to the scientific community, as well as the lay population in a pragmatic manner.

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APPENDIX A

THE SYMLOG ADJECTIVE RATING SHEET

```
U.....active, dominant, talks a lot..............not often...sometimes...often

UP....extroverted, outgoing, positive............not often...sometimes...often

UPF...a purposeful democratic task leader........not often...sometimes...often

UF....an assertive business-like manager.........not often...sometimes...often

UNF...authoritarian, controlling, disapproving....not often...sometimes...often

UN....domineering,tough-minded, powerful......... not often...sometimes...often

UNB...provocative, egocentric, shows off.........not often...sometimes...often

UB....jokes around, expressive, dramatic.........not often...sometimes...often

UPB...entertaining, sociable, smiling, warm.......not often...sometimes...often

P.....friendly, equalitarian.....................not often...sometimes...often

PF....works cooperatively with others............not often...sometimes...often

F.....analytical, task-oriented, problem solving..not often...sometimes...often

NF....legalistic, has to be right................not often...sometimes...often

N.....unfriendly, negativistic...................not often...sometimes...often

NB....irritable, cynical, won't cooperate.........not often...sometimes...often

B.....shows feelings and emotions................not often...sometimes...often

PB....affectionate, likeable, fun to be with......not often...sometimes...often

DP....looks up to others, appreciative, trustful..not often...sometimes...often

DPF...gentle, willing to accept responsibility....not often...sometimes...often

DF....obedient, works submissively...............not often...sometimes...often

DNF...self punishing, works too hard.............not often...sometimes...often

DN....depressed, sad, resentful, rejecting........not often...sometimes...often

DNB...alienated, quits, withdraws................not often...sometimes...often

DB....afraid to try, doubts own ability..........not often...sometimes...often

DPB...quietly happy just to be with others.......not often...sometimes...often

D.....passive, introverted, says little..........not often...sometimes...often
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APPENDIX B

"WHO GETS THE KIDNEY"

AND

"LUNA"

TASKS

KIDNEY MACHINE DESCRIPTION SHEET

Located at Swedish Hospital in Seattle, Washington, is the famous kidney machine. A marvel of technological ingenuity, it is the only hope of life for people with a rare kidney disease.

In actuality, the machine functions as a kidney for people who have lost the use of their own. By connecting themselves to the machine for twenty-four hours each week, people with renal failure can remain alive indefinitely—or until they are killed by some other ailment not connected with their kidneys.

There are several problems associated with using this machine, for there are many more people who need it than there is time available on the machine. In fact, only about five people can be placed on it at any one time. Doctors examine all potential patients and determine those who could profit most from connection to the machine. They screen out those with other diseases, for whom the machine would be only a temporary expedient, and they turn their list of recommended patients over to the hospital administration. At present, the doctors have submitted the names of five persons for one place on the machine.

The committee assembled to make the decision has been given a brief biography of each person appearing on the list. It is assumed that each person has an equal chance of remaining alive if allowed to use the machine. Thus, the committee is asked to decide which one of these may have access to the machine.

You are asked to act as if you were a member of this committee. Remember, there is only one vacancy, and you must fill it with one of these five people. You must agree, unanimously, on the single person who is to be permitted to remain alive, and you must decide your own criteria for making this choice.

The only medical information you have is that people over forty seem to do poorer on the machine than those under forty (although they do not necessarily find it useless). It is up to you.

KIDNEY MACHINE BIOGRAPHICAL SHEET

Alfred: White, male, American, age 42. Married for 21 years. Two children (boy 18, girl 15), both high school students. Research physicist at University medical school, working on cancer immunization project. Current publications indicate that he is on the verge of a significant medical discovery.

On the health service staff of local university, member of county medical society, member of Rotary International, and Boy Scout Leader for 10 years.

Bill: Black, male, American, age 27. Married for five years. One child (girl, 3), wife six months pregnant. Currently employed as an auto mechanic in local car dealership.

Attending night school and taking courses in automatic-transmission rebuilding. No community service activities listed. Plans to open auto-transmission repair shop upon completion of trade school course.

Cora: White; female, American, age 30. Married for eleven years. Five children (boy 10, boy 8, girl 7, girl 5, girl 4 months). Husband self-employed (owns and operates tavern and short-order restaurant). High school graduate. Never employed.

Couple has just purchased home in local suburbs, and Cora is planning the interior to determine whether she has the talent to return to school for courses in interior decoration. Member of several religious organizations.

David: White, male, American, age 19. Single, but recently announced engagement and plans to marry this summer. Presently a sophomore at large eastern university, majoring in philosophy and literature. Eventually hopes to earn Ph.D. and become a college professor.

Member of several campus political organizations, an outspoken critic of the college "administration," was once suspended briefly for "agitation." Has had poetry published in various literary magazines around the New York area. Father is self-employed (owns men's haberdashery store), mother is deceased. Has two younger sisters (15, 11).

Edna: White, female, American, age 34. Single, presently employed as an executive secretary in large manufacturing company, where she has worked since graduation from business college. Member of local choral society; was alto soloist in Christmas production of Handel's *Messiah*. Has been very active in several church and charitable groups.

INSERTED FOR PAGINATION

PURPOSES ONLY

NURSING 452 - Spring, 1986

Group Project

YOUR ASSIGNMENT:

All proposals for nursing and health care on Luna will be evaluated by Cmdr.
Schantz, commanding officer of the Luna Satellite. The least costly plan which
guarantees effective and efficient nursing care and a healthy population will be
accepted. Extra consideration will be given to innovative approaches to health
care delivery. The applicant from the group whose proposal is accepted will be
hired as Chief Nurse (CN).

Proposals should include:

1) Objectives for health care delivery and the nursing program;
2) Specific actions to accomplish the objectives, including general job
   descriptions for nursing personnel (you may include health control
   policies for the Luna population);
3) Designate and justify numbers of nursing personnel to be used in each
   category, and describe job tasks for each job description; and
4) Determine a one-year budget for salaries.

Your proposal will be presented verbally to your commanding officer—you need
not write a formal document. A spokesperson for each group should be designated.
You will have 10 minutes to succinctly present your proposal.

LUNA Budget Proposal

Competing group presentations to reviewers. Limited to 15 minutes per group.

Presentations critiqued, winning group announced and awarded prize on that day.

A grade will ultimately be assigned to each group depending upon performance.
Criteria will be:

1. Clarity of written proposal
2. Accuracy of written proposal (credibility)
3. Group representative's oral presentation
   and defense of budget
4. Creativity
5. Sensitivity to client care, personnel
   management and cost containment.

THE PROBLEM

As a member of a group of nurse managers, you are helping a colleague plan the nursing care on Luna, an interplanetary satellite. Luna is an experimental pathogen-free space station on which the Air Force is conducting certain classified but nondangerous studies. The 400 persons who work and live on Luna are all adults. Females on Luna must agree to an obligatory birth control program, for the atmosphere has been found to impair fetal development. Of the total population, 50 percent are female. Tours of duty on Luna are for three years. Except for people involved in support services such as food and sanitation, most of the personnel on Luna are professionals.

Because the satellite is kept pathogen-free and all adults are healthy on arrival, there is little if any disease on Luna. Moreover, as a result of reduced gravity and strict regulations, there is a relatively low injury rate. Typically, not more than four or five injuries require hospitalization at any given time. Most injuries require minor attention only by the nurse on outpatient duty.

Only three health problems trouble the people working on Luna:

Luna lichen: This is the popular name given to the skin fungus that seems to thrive in the pathogen-free atmosphere. The condition is not a serious threat to health, but it spreads quickly once contracted. Victims are isolated at once in the hospital-clinic, and lesions are treated by scaling, scraping, medicating, and dressing four times a day. This is done with aseptic technique to protect the nurse, for Luna lichen is transmitted by direct skin contact. Patients are not ill with this condition, though bandages on hands and feet (common sites for the fungus) decrease their ability to manage their own care. There are usually three or four cases under treatment at any one time. Most cases clear up in two weeks. Severe cases are sent back to Earth on the shuttle, which arrives every three months. Luna lichen dies immediately in Earth's atmosphere.

Space fever: Every now and then, perhaps three or four times a year, someone experiences a psychological breakdown, usually related to her or his placement on the satellite. Such patients are tranquilized as needed and returned to Earth on the next shuttle.

Health maintenance: (1) Muscle wasting: To counteract the reduced gravitational force, each person on Luna is given a required daily exercise program based on weight and age. The problem is that people get bored with their exercises and tend to cheat, even though exercise time is included in the six-hour work day. As a result, muscle wasting is a potential problem for the population. (2) Immunity maintenance: Nursing must plan also for delivery of a monthly injection to every member of the community. The serum given maintains the antibodies needed upon return to Earth.

THE TASK

The Air Force has agreed to accept as chief nurse the manager who provides at lowest cost the most satisfactory plan of nursing for Luna. The following conditions apply to all proposals.

There is one physician on Luna. His work is primarily research. He will see patients in an emergency or to establish a plan of

care. He will see a patient only on the recommendation of a registered nurse.

All nonnursing tasks of the hospital-clinic are provided by other personnel. Nursing, however, cannot save on its budget by assigning health-related tasks to other persons.

All personnel on Luna work seven days per week in six-hour shifts. There are no "days off" or "holidays" during the three-year tour of duty.

You may use RNs, LPNs, or NAs in whatever numbers you choose. The tasks assigned must be appropriate to the level of education. Staff members come from typical education programs. RNs are eligible regardless of their basic education program in nursing.

Salaries for Luna duty (per year) are

Chief Nurse (CN)	$45,000
Registered Nurse (RN)	$20,000
Licensed Practical Nurse (LPN)	$15,000
Nurse Aide (NA)	$10,000

In addition, it costs the Air Force an extra $3,000 per year for each employee for fringe benefits. On call duty is granted for RNs only, and need not be used at all. On call bonus is $10 for a six-hour shift, whether called or not. Luna works on a regular 24-hour day.

KIDNEY MACHINE PSYCHOLOGICAL REPORTS SHEET

Re: Patients for Kidney Machine
From: Hospital Psychological Staff

In routine preadmission interviews the following patients were examined and evaluated as per the following data:

Re: Alfred—He is presently distraught about his physical condition and reports that it interferes with his work. Seems very committed to his work and appears to be legitimately on the verge of an important cancer discovery. It was hard for the staff to get him to talk about his work in terms that they could understand.

Family relations seem strained and have been for some time because of his commitment to his work. The staff feels that he is a first-rate scientist and scholar who has contributed much and could contribute more to medical research. But they also believe him to be a mentally disturbed individual who, in time, will probably need psychiatric help.

Re: Bill—He is a well-oriented Negro, who does not appear to be swayed by the blandishments of black extremist groups. He is strongly devoted to his family and appears to be an excellent husband and father.

Bill's capacity for growth in his chosen occupation, however, seems limited. His high school record was poor, although he had no record of delinquency and was always regarded by his teachers as a student who tried hard. Therefore, he will probably not succeed with his business plans and will remain employed at a fixed rate permanently.

His wife is trained as a legal secretary. Her prognosis for employment is good, although Bill has discouraged her from seeking work because of mutual agreement to have her be a full-time mother. Bill seems unaware of the serious implications of his illness.

Re: Cora—One of the staff members evaluating Cora described her as a *professional Jew*. She is president of the local Hadassah organization and seems able to talk about nothing but her religion and her children. Although her recently found interest in interior decorating may be a sign of change, it was not clear to the staff whether this interest was real or only generated artificially when she heard of the interview requirement.

She seems resigned to her illness and likely death. Her husband works long hours, is in good health, and enjoys the respect and love of his children. Cora's mother, who also lives with the family, handles most of the child care.

Re: David—Typical of young student activists, David is a bright—almost straight "A"—student who enjoys the respect of most of his teachers and friends. But he appears confused about his future and demonstrates a penchant for jeopardizing it by involving himself in various student "causes." Indeed, his college's dean of student affairs regards him as an individual who will "demonstrate for anything."

He is bitter, almost paranoid, about his illness. His father has invested a good deal of money, time, and emotion in him and has always hoped that David would become a lawyer. His relations with his father are presently strained, however, and he seems only mildly concerned about his two sisters, although they still think highly of him. His future father-in-law, who is a highly successful businessman, expects him to enter the family enterprise upon college graduation.

Re: Edna—She is a self-contained, inner-directed woman and a model of the "career girl." It was clear to the staff that her natural aggressiveness and combative tendencies militated against any sort of marital attachment, and it is not impossible that she has lesbian tendencies.

Her employers regard her as indispensable. Her work record is superb, and her activities in church and charitable groups have been very effective. She is well regarded by all who know her, although she seems to have few, if any, close friends. She appears resigned to her death. In fact, she indicated that she would prefer to have someone other than herself go on the machine. Her offer did not seem in the least insincere.
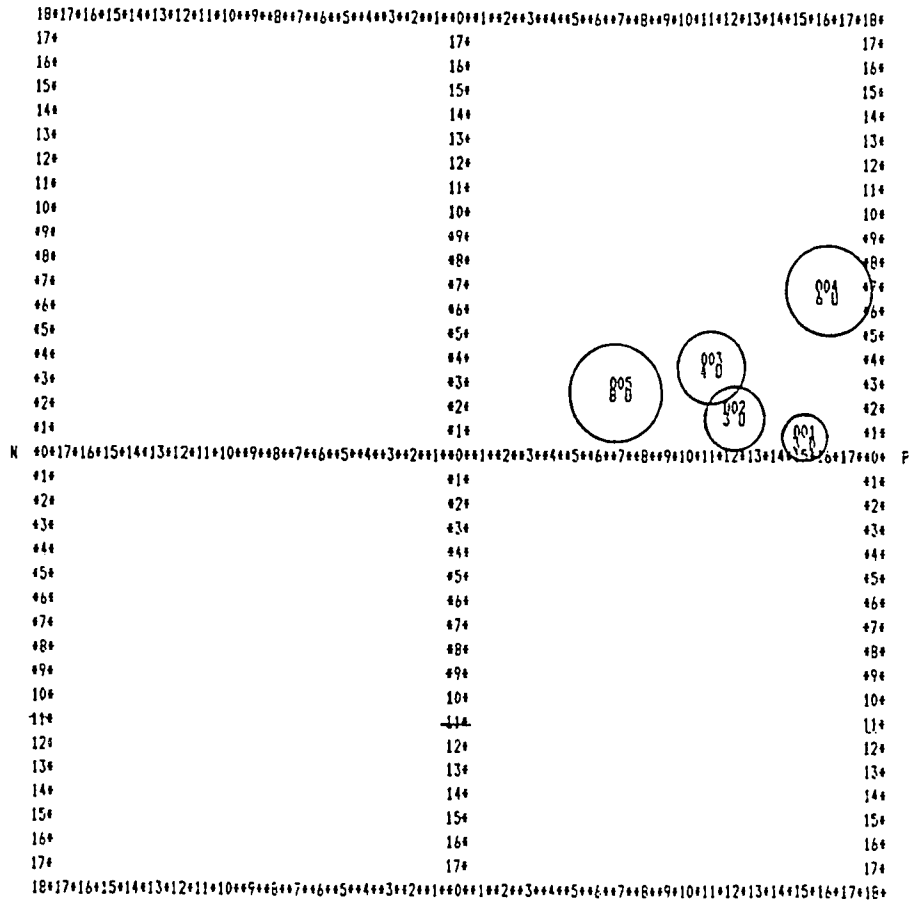
APPENDIX C

SAMPLE PACKET FIELD DIAGRAMS

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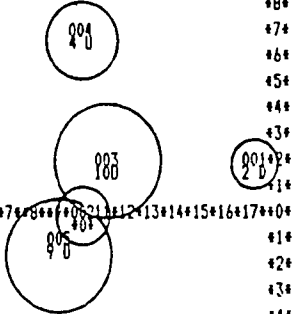FIELD DIAGRAM
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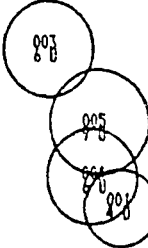EXP. MULTIPLIER= 1.214286
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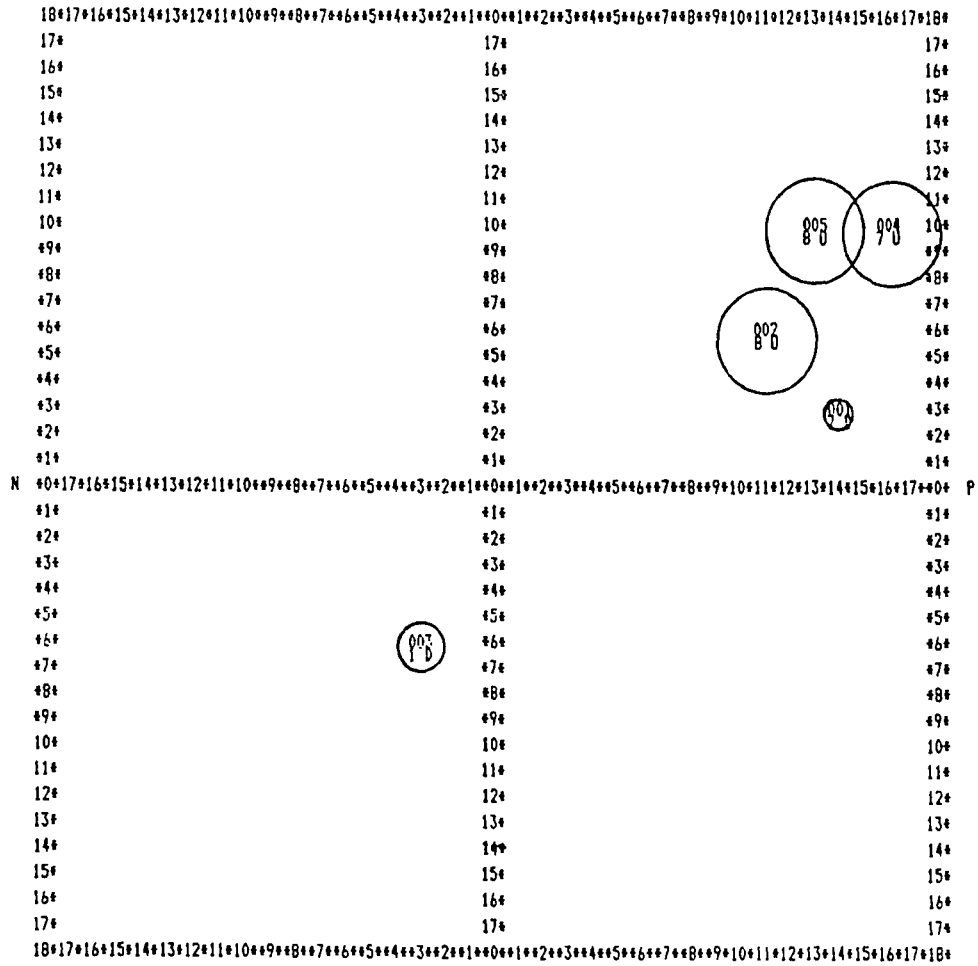
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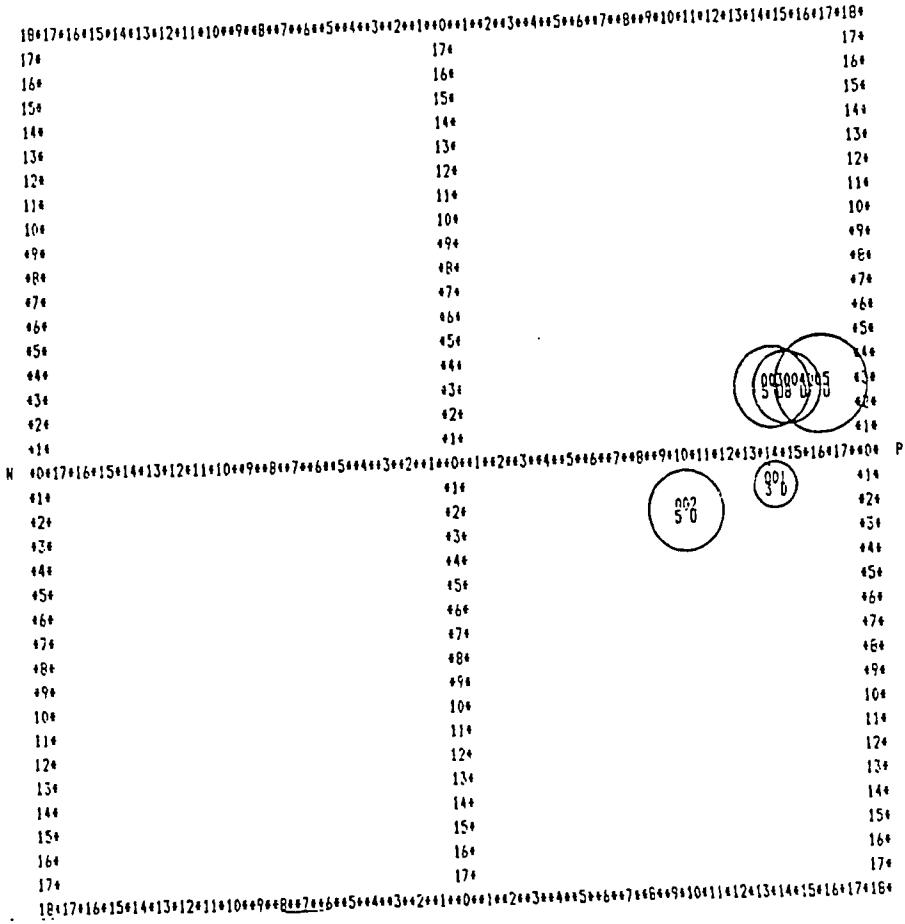
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APPENDIX D

COURSE SYLLABUS

.

THE OREGON HEALTH SCIENCES UNIVERSITY
SCHOOL OF NURSING

COMMUNITY HEALTH CARE SYSTEMS

COURSE TITLE:	N452 Nursing Sceince VIII: MANAGEMENT IN NURSING
OFFERED:	Winter, 1986 Friday, 9:00 am – 12:00 noon
CREDIT:	Three (3) quarter hours
PREREQUISITE:	Senior standing
FACULTY:	Donna Schantz, R.N., M.S. Associate Professor Community Health Care Systems MacKenzie Hall, Room 3191 Phone: 225-7709 Office hours: Tuesday, 1:30 pm – 4:00 pm
COURSE DESCRIPTION:	An exploration of basic management and leadership theories and concepts as a foundation for skill development. These concepts can assist the nurse in efforts toward the achievement of individual and organizational goals. The use of research and the problem-solving process is emphasized as a means of determining situationally appropriate actions.

COURSE OBJECTIVES:

By the end of the course, students will be able to

1. trace the advancement of management science and its influence on nursing practice;

2. analyze elements of the internal and external environment for their impact on patient care;

3. collect database to support the assessment and diagnosis of a problem in the organizational context;

4. analyze the problem-solving process used to effect a group change;

5. conduct a group study to propose and evaluate a nursing program as an example of professional accountability.

REQUIRED TEXTS: La Monica, Elaine L. *Nursing Leadership and Management.*
Monterey, Calif.: Wadsworth Health Sciences Division, 1983.

Stone, Sandra et al. *Management for Nurses: A Multidisci-
plinary Approach.* St Louis, MO: C.V. Mosby Co., Inc., 1984.

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98 - 105.

Fine, Ruth. "Application of Leadership Theory: Integrating
Thought and Action." *Nursing Clinics of North America,* 1978.
Vol. 13: No. 1: March, pp. 139-153.

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St. Louis: C.V. Mosby Co., 1982, pp. 96 - 109.

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Haw, Mary Ann et al. "Improving Nursing Morale in a Climate
of Cost Containment." *Journal of Nursing Administration,*
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Managing Uncertainty." *Journal of Nursing Administration,*
Sept., 1982, pp. 23 - 28.

Lewin, Kurt. "Kurt Lewin's Force Field Analysis." *Annual
Handbook for Group Facilitators.* La Jolla, CA: University
Associates, 1973.

Lindeman, Carol. "Measuring Quality of Nursing Care, Part I".
Journal of Nursing Administration. June, 1976.

Lindeman, Carol. "Measuring Quality of Nursing Care, Part II".
Journal of Nursing Administration. Sept., 1976.

*Marriner, Ann. "Development of Management Thought." *Journal
of Nursing Administration,* Sept., 1979, pp. 30 - 40.

Marriner, Ann. "Managing Conflict: Comparing Strategies and
Their Use." *Nursing Management.* June, 1982, pp. 29 - 31.

*Schmidt, Anna. "Quality Assurance," in Marriner, Ann.
Contemporary Nursing Management. St. Louis, MO: C.V. Mosby
Co., Inc., pp. 348 - 361.

*Required reading on library reserve.

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Spradley, B. "Managing Change Creatively." *The American Journal of Nursing Administration.* May, 1980, pp. 32 - 37.

Veninga, Robert L. "Competency: Understanding the Causes of Disruptive Conflict." *The Human Side of Health Administration.* Englewood Cliffs, NJ: Prentice Hall, pp. 196 - 219.

Veninga, Robert L. "Competency: Understanding the Culture of an Organization." *The Human Side of Health Administration.* Englewood Cliffs, NJ: Prentice Hall, pp. 18 - 45.

TEACHING
METHODS:

Lecture, discussion, group activities, written assignment and examinations.

EVALUATION
METHODS:

Progress in this course will be evaluated by written assignments and examinations which incorporate concepts and theories learned from assigned readings, lectures, discussions and class activities.

25%	1.	Midterm	Week VI
25%	2.	Written Paper	Week X
25%	3.	Final	Week XII
25%	4.	Class participation and group activities throughout the term.	

Final grades are based on cumulative scores and will be determined on a group curve roughly equivalent to:

90 - 100%	=	A
80 - 89%	=	B
70 - 79%	=	C
69 -	=	NP

OBJECTIVES	CONTENT	LEARNING ACTIVITIES

WEEK I
January 10

1. Define course objectives and expectations	1. Course overview and expectations	1. Videotape: "In Search of Excellence"
2. Discuss the relationship of management and nursing	2. Management process	

WEEK II
January 17

1. Define leadership and management.	1. Concepts of leadership and management.	1. The One Minute Manager
2. Compare the nursing process with the management process.		2. LaMonica, PP. 1-18 Ch.I - "The Management Solving Process and the Problem Solving Method"
3. Compare and contrast the problem solving method with the intuitive mode of thought.		3. Stone et al, pp. 62-70 "Management and Modes of Thought"
4. Identify roles and functions of the nurse manager.		

WEEK III
January 24

1. Explore the history of management science during three eras: traditional, human relations, contingency.	1. Theory for leadership and management	1. LaMonica, pp. 21-34 Chap II, "Theory for Nursing Leadership and Management"
		2. Marriner, pp. 30-40 "Development of Management Thought" (Library reserve)
2. Compare the three eras with nursing care delivery models		3. In class: Group Formation Experiential Exercise Part I, Exercise in LaMonica.

3. Discuss general
   systems theory as
   a model for nursing
   practice

4. Discuss the group
   dynamics laboratory
   and its relationship
   to leadership
   training

5. Determine how
   motivation theory
   is a conceptual
   framework for
   leadership and
   management

WEEK IV
January 31

OBJECTIVES	CONTENT	LEARNING ACTIVITIES
1. List the major components of leadership behavior	1. Leader responsibilities	1. LaMonica, pp. 41-99 a. "Diagnosing Self" b. "Diagnosing the System" c. "Leader Behavior Theory" d. "Diagnosing the Task" e. "Applying Management Process and Problem-Solving Methods"
2. Assess personal leadership style		
3. Discuss trends in leadership theory		
4. Compare and contrast Hersey and Blanchard's Situational Model with Fiedler's Contingency Model		2. Stone, et al, pp. 55-61 "The Social Nature of Leadership"
5. Discuss leadership responsibilities associated with nursing management positions.		3. LaMonica: Complete Exercise I: pp.102-108 Turn in Initiating and Consideration scores for self and ideal leader at beginning of class.
6. Identify elements of the decision-making process		
7. Compare and contrast rational and normative decision making.		4. LaMonica: Read the case studies in Exercise 2 and 3 for class discussion.

OBJECTIVES	CONTENT	LEARNING ACTIVITIES

WEEK V
February 7

1. Define how communication affects management style and effectiveness

2. Determine how leaders communicate

3. Diagnose group problems

4. Analyze own interactions within a small

5. List the major research activities in communication and small group dynamics

1. Communication Group Dynamics

1. LaMonica: pp. 127-159
   a. Communication process
   b. Purposes of communication
   c. Types of communication
   d. How leaders communicate

2. Stone et al, pp.81-117
   a. "Straight from the Shoulder: Leveling on the Job"
   b. "Model for Better Communication"
   c. "So You Don't Like Your Boss"
   c. "How to Diagnose Group Problems"
   e. "Cogs Ladder: A Model for Group Growth"
   f. "A Cognitive Transactional Approach to Communication"

3. LaMonica: Self-Study Assignment: Exercise 1, p. 237

4. Freid Bales: SYMLOG In-class experiential exercise on group dynamics

WEEK VI
February 14

1. Synthesize learned concepts of leadership and management into nursing practice

2. Discuss research findings of small group analysis

1. MIDTERM EXAM

2. SYMLOG Feedback

1. In-class, closed book exam on assigned readings and classroom activities up to February 14

2. Feedback session of Bales' SYMLOG exercise

WEEK VII
February 21

1. Identify learning   1. Teaching   1. LaMonica: pp. 160-194
   needs and teaching 2. Power   a. Learning needs
   priorities in a   3. Assertiveness   and teaching
   management   strategies
   situation   b. Types and use of
                                                power
2. Determine learning   c. Assertive behavior
   principles and   in nursing
   instructional modes
   for teaching   2. Stone et al, pp. 9-23
   strategies   and pp. 74-80
                                            a. "Nurse Power for
3. State the types,   the 80's
   sources and use of   b. "The Powerful
   power in profes-   Woman"
   sional nursing   c. "Power Principles"
                                            d. "Assertiveness
4. Define the components   Issues for Nursing
   and appropriate use   Administrators and
   assertiveness in   Managers"
   nursing practice
                                         3. LaMonica: Exercise 14,
5. Analyze self   4. Management   pp. 217-4
   behavior in rela-   Experiential   Bring Compassion Trap
   tionship to power   Exercise: in-class, Score to class for
   and assertiveness   small groups   recording and analysis
   situations   Exercise 16, pp. 28.-
                      5. Feedback on   285. Both of these
                         group assertivenss exercises are self-
                         mean   study assignments.
                                            Bring Compassion Trap
                                            Score to class for
                                            recording and analysis

WEEK VIII
February 28

1. Define the con-   1. Change   1. LaMonica: pp. 196-222
   cept of planned   2. Conflict   a. Force Field Analysis
   change as an   resolution   b. Levels of change
   essential strategy   and the change process
                                           c. Strategies of change
2. Identify the   d. Conflict resolution
   driving and
   according to Lewin's   2. Stone et al, pp 139-176
   theory in a case   and 243-252
   example   a. "Types and Sources

OBJECTIVES	CONTENT	LEARNING ACTIVITIES

4. Use current manage-
ment technology in
communicating the
change process

    e. "Measuring Productivity
Through Patient
Classification"

5. List the major types
and causes of conflict
and state at least
three ways of
resolving conflict

    3. Learn use of a personal
computer (PC) to prepare
paper on "CHange: Concepts
into Nursing Practice"
Due in two weeks at
beginning of class (Wk.X)

6. Identify and analyze
change in an organiza-
tional setting and
framework

    4. Use a "live" management
problem in your clinical
area (at school or at
work) which is being,
or has been solved.
Refer to Obj. 6 for
purpose of paper.

WEEK IX
March 7

1. Define the
current major
economic factors
affecting health
care

    1. Economic Factors
    a. internal &
external
environment
    b. marketing

    1. "Change" paper turned
in beginning of class.
Written on PC stationery
double-spaced, using
APA format. No more
than ten pages in text.
Use of figures and
tables encouraged.

2. Compare and
contrast the
internal and
external economic
environment

    2. Budgeting
    a. time
    b. money
    c. resources

    2. LaMonica: pp 223-235
    a. Philosophy of time
    b. Time management
process and techniques

3. List at least 5
marketing strategies
used in the health
industry

    3. Froebe: "The Marketing
Process" (On reserve
in library)

4. Define the
budgeting process

    4. Stone et al, pp 219-239
    a. "What is the
Executive's Role
in Budgeting for
    b. "Some thoughts on
the Human Side of
Budgeting"
    c. "Living with Cost
Containment"
    d. "Zero Base Budgeting
for Nursing Services"

5. Differentiate
between ZBB and
incremental
budgeting

6. List time
management
techniques useful
to nurse managers

OBJECTIVES	CONTENT	LEARNING ACTIVITIES

COURSE
OUTLINE:

5. Davis: The Federal Role
in Changing Health Care
Financing" (On reserve
in library)

6. LINA
Assignment handout for
final examination
project
(See directions below)

Final Examination Project

Form your original group and follow the directions on the handout. At the final
examination, one representative from each group will hand in two (2) copies to me
of your proposal and then give an oral presentation and defense not to exceed 15
minutes. Your group will be competing for scarce resources, an A grade and also
a surprise prize for the winning group.

WEEK X
March 14

OBJECTIVES	CONTENT	LEARNING ACTIVITIES
1. Determine evaluation and accountability responsibilities of the nurse manager	Evaluation of Patient Care: Organization Department Individual	1. Stone et al, pp. 193-216 a. "An Integrated Approach To Performance Evaluation in the Health Care Field" b. "Improving Clinical Evaluation" c. "Is the Position Description Obsolete d. "A Model for Systematic Selection Interviewing
2. Define the three basic evaluation criteria used in assessing the performance of health care		
3. Identify the elements of clinical evaluation in behavioral objectives		2. Schmidt: "Quality Assurance" (On reserve in the library)
4. Discuss the major components of a personnel selection process and how it relates to the individual evaluation process.		

WEEK XI

Final Examination: March 17 from 1-4 pm in Room UHS 148-62.

APPENDIX E

SATISFACTION QUESTIONNAIRE

THE OREGON HEALTH SCIENCES UNIVERSITY
SCHOOL OF NURSING
COMMUNITY HEALTH CARE SYSTEMS

Nursing 452

Rate the small group experience on each statement below, with 4
representing your greatest agreement and 1 representing your least
agreement with the statement. Circle the number that best approximates
your rating of the behavior exhibited by the group.

		Disagree		Agree	
		1	2	3	4
1.	Group members understand the problem under discussion.	1	2	3	4
2.	Group members stayed on the topic.	1	2	3	4
3.	Group members avoided premature closure on discussion.	1	2	3	4
4.	Group members contributed equally to the discussion.	1	2	3	4
5.	Group members agreed with group consensus and/or decision.	1	2	3	4
6.	Group members discussed their opinions openly without hiding personal feelings.	1	2	3	4
7.	Group members were able to resolve conflict or discontent.	1	2	3	4
8.	Group members displayed commitment to the group tasks.	1	2	3	4
9.	Group members indicated satisfaction with the group process.	1	2	3	4
10.	Group members indicated satisfaction with the group outcomes.	1	2	3	4
11.	The feedback field diagrams were helpful to me in understanding my behavior in groups.	1	2	3	4

APPENDIX F

RAW SCORES

```
001 001 222201122211100121111000000
001 002 121100022221000122221000010
001 003 222101012222000122222000000
001 004 111000011110000122221001111
001 005 221110011121000111111100000
002 001 212212112222102221111000001
002 002 121101002222102212221101021
002 003 221101012222100112211011000
002 004 000010102222001111011001000
002 005 111012102222100112110101000
003 001 222100012221000222221100010
003 002 010000012221000122222100011
003 003 122100012222000122221000010
003 004 020000012222000122220000021
003 005 021100012221000122221000010
004 001 222222022222000022221000021
004 002 000001022222000022211200122
004 003 221211012222100122222000022
004 004 010011011222100221221200122
004 005 221112122222200121221210021
005 001 221000121221000110100000000
005 002 001000002221000112100000011
005 003 122100012221000121200000010
005 004 000000012212100011212000111
005 005 112100011222200011110000010
```

PLOTTING LOCATIONS FROM RATINGS
FILE NAME: B:6TK3.DAT

UNEXPANDED SCORES. RATER= 001

	001	002	003	004	005
U-D	10	1	3	-5	5
F-N	9	15	13	11	8
F-B	2	2	7	0	5

EXPANDED SCORES. RATER= 001
EXP. MULTIPLIER= 1.133333

	001	002	003	004	005
U-D	10	1	3	-5	5
F-N	10.2	17	14.7	12.4	9
F-B	2.2	2.2	7.9	0	5.6

UNEXPANDED SCORES, RATER= 002

	001	002	003	004	005
U-D	10	-2	2	1	3
F-N	8	12	10	4	6
F-B	4	3	4	-1	3

EXPANDED SCORES, RATER= 002
XP. MULTIPLIER= 1.416667

	001	002	003	004	005
U-D	10	-2	2	1	3
F-N	11.3	17	14.1	5.6	8.5
F-B	5.6	4.2	5.6	-1.5	4.2

EXPANDED SCORES, RATER= 003

	001	002	003	004	005
U-D	3	-5	1	-4	-1
F-N	16	13	16	16	15
F-B	2	1	5	0	3

UNEXPANDED SCORES, RATER= 004

	001	002	003	004	005
U-D	6	-6	0	-7	3
F-N	13	10	12	9	7
F-B	7	-1	7	2	5

EXPANDED SCORES, RATER= 004
EXP. MULTIPLIER= 1.230769

	001	002	003	004	005
U-D	6	-6	0	-7	3
F-N	16	12.3	14.7	11	8.600001
F-B	8.600001				
		-1.3	8.600001		
				2.4	6.1

UNEXPANDED SCORES, RATER= 005

	001	002	003	004	005
U-D	8	-3	5	-7	4
F-N	9	12	16	10	12
F-B	-1	3	1	2	3

EXPANDED SCORES, RATER= 005
EXP. MULTIPLIER= 1

	001	002	003	004	005
U-D	8	-3	5	-7	4
F-N	9	12	16	10	12
F-B	-1	3	1	2	3

UNEXPANDED AVERAGE SCORES

	001	002	003	004	005
U-D	7.4	-3	2.2	-4.4	2.8
F-N	11	12.4	13.4	10	9.600001
F-B	2.8	1.6	4.8	.6	3.8

EXPANDED AVERAGE SCORES
EXP. MULTIPLIER= 1.19403

	001	002	003	004	005
U-D	7.4	-3	2.2	-4.4	2.8
F-N	13.1	14.8	16	11.9	11.4
F-B	3.3	1.9	5.7	.7	4.5

FIELD DIAGRAMS. FILE NAME: B:6TK3.DAT
DATA TYPE: BEHAVIOR RATINGS

UNEXPANDED DIAGRAM, CODER= 001
FIELD DIAGRAM
DATA TYPE: BEHAVIOR RATINGS

APPENDIX G

PFS FILE

```
ID  : 11    TERM: 1    GROUP: 2    SUD1 : 1?   SPN1 : ?.4  SFB1: ?.4  AUD1: 5
APN1: 1?.4  AFB1: 7.?   SUD2 : 10   SPN2 : 1?.? SFB2: ?.?  AUD2: 7.4
APN2: 1?.1  AFB2: ?.?   GEN  : 2    MIN  : ?    FEED : 1
SAT1: 4     SAT2: 4     SAT3 : 4    SAT4 : 4    SAT5 : 4   SAT6: 4
SAT7: 4     SAT8: 4     SAT9 : 4    SAT10: 4    SAT11: 4


ID  : 10    TERM: 1    GROUP: 2    SUD1 : 3    SPN1 : 1?.? SFB1: 4.7  AUD1: 1.?
APN1: 16    AFB1: 2.?   SUD2 : 5    SPN2 : 1?   SFB2: ?    AUD2: 1.?
APN2: 1?.?  AFB2: .?    GEN  : 2    MIN  : ?    FEED : 1
SAT1: 4     SAT2: 4     SAT3 : 4    SAT4 : ?    SAT5 : 4   SAT6: 4
SAT7: 4     SAT8: ?     SAT9 : ?    SAT10: 4    SAT11: 4


ID  : 09    TERM: 1    GROUP: 2    SUD1 : 4    SPN1 : 1?.? SFB1: 0    AUD1: ?.?
APN1: 15.?  AFB1: -?.9  SUD2 : ?    SPN2 : 16   SFB2: 1    AUD2: 4.6
APN2: 14.7  AFB2: 0     GEN  : 2    MIN  : ?    FEED : 1
SAT1: 4     SAT2: ?     SAT3 : ?    SAT4 : ?    SAT5 : ?   SAT6: 4
SAT7: ?     SAT8: ?     SAT9 : ?    SAT10: ?    SAT11: ?
```

ν

```
ID  : 08    TERM: 1    GROUP: 2    SUD1 : 0    SPN1 : 14.7 SFB1: -1.? AUD1: 2.8
APN1: 1?    AFB1: ?.8   SUD2 : ?    SPN2 : 14.8 SFB2: 4.5  AUD2: 5.2
APN2: 15.?  AFB2: 1.4   GEN  : 1    MIN  : ?    FEED : 1
SAT1: 4     SAT2: 4     SAT3 : 4    SAT4 : ?    SAT5 : ?   SAT6: 4
SAT7: ?     SAT8: 4     SAT9 : 4    SAT10: 4    SAT11: ?


ID  : 07    TERM: 1    GROUP: 2    SUD1 : -1   SPN1 : 1?   SFB1: 6    AUD1: 0
APN1: 1?.4  AFB1: ?.9   SUD2 : -?   SPN2 : 11.? SFB2: 4.4  AUD2: 1.?
APN2: 15.1  AFB2: 2.5   GEN  : 2    MIN  : ?    FEED : 1
SAT1: 4     SAT2: 4     SAT3 : 4    SAT4 : ?    SAT5 : 4   SAT6: 4
SAT7: 4     SAT8: 4     SAT9 : 4    SAT10: 4    SAT11: 4


ID  : 06    TERM: 1    GROUP: 2    SUD1 : 0    SPN1 : 15   SFB1: -1   AUD1: -.?
APN1: 1?.9  AFB1: .9    SUD2 : 0    SPN2 : 14.9 SFB2: 0    AUD2: 2.4
APN2: 15.1  AFB2: 1.?   GEN  : 2    MIN  : ?    FEED : 1
SAT1: 4     SAT2: 4     SAT3 : 4    SAT4 : ?    SAT5 : 4   SAT6: 4
SAT7: 4     SAT8: 4     SAT9 : 4    SAT10: 4    SAT11: 4


ID  : 05    TERM: 1    GROUP: 1    SUD1 : ?    SPN1 : 15   SFB1: 2.? AUD1: 4
APN1: 15.7  AFB1: 2.?   SUD2 : 5    SPN2 : 16   SFB2: 2.?  AUD2: 5.?
APN2: 15.7  AFB2: ?.?   GEN  : 2    MIN  : ?    FEED : 1
SAT1: ?     SAT2: ?     SAT3 : ?    SAT4 : ?    SAT5 : 4   SAT6: 4
SAT7: 4     SAT8: 4     SAT9 : 4    SAT10: 4    SAT11: 4


ID  : 04    TERM: 1    GROUP: 1    SUD1 : 0    SPN1 : 14.1 SFB1: -1   AUD1: 1
APN1: 14    AFB1: 1     SUD2 : ?    SPN2 : 16   SFB2: ?.4  AUD2: ?
APN2: 15    AFB2: ?.?   GEN  : 2    MIN  : ?    FEED : 1
SAT1: 4     SAT2: 4     SAT3 : ?    SAT4 : 4    SAT5 : ?   SAT6: 4
SAT7: 4     SAT8: 4     SAT9 : 4    SAT10: 4    SAT11: 4
```

INSERTED FOR PAGINATION

PURPOSES ONLY

```
....  : ....  ....: ...   ....: : .   SF.. : ...  ...: : ...  AUD.: ...
APN2: 12.9  AFB2: 4.4  GEN  : 2   MIN  : 2   FEED : 1
SAT1: 3    SAT2: 3    SAT3 : 2   SAT4 : 3   SAT5 : 3   SAT6: 2
SAT7: 3    SAT8: 3    SAT9 : 2   SAT10: 3   SAT11: 1


ID  : 29   TERM: 1    GROUP: 6   SUD1 : 5   SFN1 : 14.6 SFB1: 4    AUD1: .4
APN1: 13.2 AFB1: 3    SUD2 : 1   SFN2 : 15  SFB2 : -2   AUD2: 1.6
APN2: 12.4 AFB2: .2   GEN  : 2   MIN  : 2   FEED : 1
SAT1: 4    SAT2: 3    SAT3 : 4   SAT4 : 3   SAT5 : 4   SAT6: 4
SAT7: 4    SAT8: 4    SAT9 : 3   SAT10: 4   SAT11: 4
         b

ID  : 28   TERM: 2    GROUP: 6   SUD1 : 1   SFN1 : 13  SFB1: 1.5  AUD1: 5.4
APN1: 7.7  AFB1: 4.1  SUD2 : 10  SFN2 : 11.2 SFB2 : 5   AUD2: 4.6
APN2: 12.9 AFB2: 5.1  GEN  : 2   MIN  : 2   FEED : 1
SAT1: 4    SAT2: 3    SAT3 : 4   SAT4 : 3   SAT5 : 4   SAT6: 3
SAT7: 4    SAT8: 3    SAT9 : 3   SAT10: 3   SAT11: 3


ID  : 27   TERM: 1    GROUP: 6   SUD1 : 7   SFN1 : 6.1  SFB1: 7.3  AUD1: 9.6
APN1: 3.3  AFB1: 5.5  SUD2 : 10  SFN2 : 5.3  SFB2 : 5.3 AUD2: 8.4
APN2: 8.4  AFB2: 7    GEN  : 2   MIN  : 2   FEED : 1
SAT1: 4    SAT2: 2    SAT3 : 3   SAT4 : 3   SAT5 : 4   SAT6: 4
SAT7: 3    SAT8: 4    SAT9 : 4   SAT10: 3   SAT11: 4


ID  : 26   TERM: 1    GROUP: 5   SUD1 : 4   SFN1 : 12.8 SFB1: 1    AUD1: 4.2
APN1: 11.2 AFB1: 2    SUD2 : 8   SFN2 : 13.7 SFB2 : 1.1 AUD2: 6.8
APN2: 15.5 AFB2: 4.9  GEN  : 2   MIN  : 2   FEED : 1
SAT1: 9    SAT2: 9    SAT3 : 9   SAT4 : 9   SAT5 : 9   SAT6: 9
SAT7: 9    SAT8: 9    SAT9 : 9   SAT10: 9   SAT11: 9


ID  : 25   TERM: 1    GROUP: 5   SUD1 : 2   SFN1 : 10.6 SFB1: 2.1  AUD1: 3.4
APN1: 15   AFB1: 4    SUD2 : 8   SFN2 : 9.6  SFB2 : 4.2 AUD2: 4.2
APN2: 16   AFB2: 4.1  GEN  : 2   MIN  : 2   FEED : 1
SAT1: 4    SAT2: 4    SAT3 : 4   SAT4 : 4   SAT5 : 4   SAT6: 4
SAT7: 4    SAT8: 4    SAT9 : 4   SAT10: 4   SAT11: 4
        5

ID  : 24   TERM: 1    GROUP: 5   SUD1 : -2  SFN1 : 11  SFB1: 4    AUD1: 2
APN1: 13.5 AFB1: 1.5  SUD2 : 5   SFN2 : 15.1 SFB2 : 2.6 AUD2: 3
APN2: 16   AFB2: 3.1  GEN  : 2   MIN  : 2   FEED : 1
SAT1: 4    SAT2: 3    SAT3 : 3   SAT4 : 3   SAT5 : 4   SAT6: 4
SAT7: 4    SAT8: 3    SAT9 : 3   SAT10: 3   SAT11: 9


ID  : 23   TERM: 1    GROUP: 5   SUD1 : 11  SFN1 : 14.5 SFB1: 5.8  AUD1: 9.8
APN1: 10   AFB1: 2.2  SUD2 : 5   SFN2 : 16  SFB2 : -1.4 AUD2: 7.8
APN2: 12.3 AFB2: 0    GEN  : 1   MIN  : 2   FEED : 1
SAT1: 4    SAT2: 4    SAT3 : 4   SAT4 : 4   SAT5 : 4   SAT6: 4
SAT7: 4    SAT8: 4    SAT9 : 4   SAT10: 4   SAT11: 3


ID  : 22   TERM: 1    GROUP: 5   SUD1 : -2  SFN1 : 13  SFB1: 6    AUD1: -2.2
APN1: 14.7 AFB1: 2.7  SUD2 : 0   SFN2 : 14.9 SFB2 : 3.2 AUD2: 2.6
APN2: 15.9 AFB2: 4.2  GEN  : 2   MIN  : 2   FEED : 1
SAT1: 3    SAT2: 3    SAT3 : 4   SAT4 : 3   SAT5 : 4   SAT6: 4
SAT7: 4    SAT8: 3    SAT9 : 3   SAT10: 3   SAT11: 4


...  : 21   TERM: .    GROUP: 3   SUD1 : ..  SFN1 : (...)  SFB1: ..   AUD1: ..
```

```
ID  : 39   TERM: 2    GROUP: 1    SUD1 : -5   SPN1 : 14.7  SFB1: 1.1  AUD1: -3
APN1: 14.5  AFB1: .6    SUD2 : 3    SPN2 : 14.1  SFB2: 4.7  AUD2: 2.6
APN2: 11.2  AFB2: 1.4   GEN  : 2    MIN  : 2    FEED : 2
SAT1: 3    SAT2: 4    SAT3 : 4    SAT4 : 3    SAT5 : 3    SAT6: 4
SAT7: 2    SAT8: 3    SAT9 : 4    SAT10: 3    SAT11: 9

ID  : 38   TERM: 1    GROUP: 7    SUD1 : 99   SPN1 : 99   SFB1: 99   AUD1: 99
APN1: 99   AFB1: 99   SUD2 : 0    SPN2 : 13.3  SFB2 : 0   AUD2: .7
APN2: 12.9  AFB2: 0    GEN  : 2    MIN  : 2    FEED : 2
SAT1: 9    SAT2: 9    SAT3 : 9    SAT4 : 9    SAT5 : 9    SAT6: 9
SAT7: 9    SAT8: 9    SAT9 : 9    SAT10: 9    SAT11: 9

ID  : 37   TERM: 1    GROUP: 7    SUD1 : 99   SPN1 : 99   SFB1: 99   AUD1: 99
APN1: 99   AFB1: 99   SUD2 : 2    SPN2 : 12.8  SFB2 : 5.3  AUD2: 3.1
APN2: 14   AFB2: 3.2   GEN  : 2    MIN  : 2    FEED : 2
SAT1: 9    SAT2: 9    SAT3 : 9    SAT4 : 9    SAT5 : 9    SAT6: 9
SAT7: 9    SAT8: 9    SAT9 : 9    SAT10: 9    SAT11: 9

ID  : 36   TERM: 1    GROUP: 7    SUD1 : 99   SPN1 : 99   SFB1: 99   AUD1: 99
APN1: 99   AFB1: 99   SUD2 : 3    SPN2 : 13.8  SFB2 : 5.3  AUD2: 3.8
APN2: 11   AFB2: 1.9   GEN  : 2    MIN  : 2    FEED : 2
SAT1: 3    SAT2: 3    SAT3 : 3    SAT4 : 1    SAT5 : 3    SAT6: 2
SAT7: 2    SAT8: 1    SAT9 : 2    SAT10: 3    SAT11: 9

ID  : 35   TERM: 1    GROUP: 7    SUD1 : 99   SPN1 : 99   SFB1: 99   AUD1: 99
APN1: 99   AFB1: 99   SUD2 : 4    SPN2 : 13   SFB2 : 0   AUD2: 3.8
APN2: 11.4  AFB2: 2.6   GEN  : 2    MIN  : 2    FEED : 2
SAT1: 4    SAT2: 4    SAT3 : 3    SAT4 : 3    SAT5 : 4    SAT6: 4
SAT7: 4    SAT8: 4    SAT9 : 4    SAT10: 3    SAT11: 3

ID  : 34   TERM: 1    GROUP: 7    SUD1 : 99   SPN1 : 99   SFB1: 99   AUD1: 99
APN1: 99   AFB1: 99   SUD2 : 3    SPN2 : 13   SFB2 : 3   AUD2: .1
APN2: 11.7  AFB2: -.4   GEN  : 2    MIN  : 2    FEED : 2
SAT1: 3    SAT2: 4    SAT3 : 4    SAT4 : 1    SAT5 : 4    SAT6: 4
SAT7: 4    SAT8: 3    SAT9 : 3    SAT10: 4    SAT11: 9

ID  : 33   TERM: 1    GROUP: 7    SUD1 : 99   SPN1 : 99   SFB1: 99   AUD1: 99
APN1: 99   AFB1: 99   SUD2 : 7    SPN2 : 5.7  SFB2 : -3.6  AUD2: 6
APN2: 15   AFB2: 4.2   GEN  : 2    MIN  : 2    FEED : 2
SAT1: 3    SAT2: 3    SAT3 : 3    SAT4 : 1    SAT5 : 3    SAT6: 2
SAT7: 3    SAT8: 1    SAT9 : 2    SAT10: 3    SAT11: 9

ID  : 32   TERM: 1    GROUP: 7    SUD1 : 99   SPN1 : 99   SFB1: 99   AUD1: 99
APN1: 99   AFB1: 99   SUD2 : 2    SPN2 : 14   SFB2 : 0   AUD2: 5.2
APN2: 11.1  AFB2: 3.6   GEN  : 2    MIN  : 2    FEED : 2
SAT1: 3    SAT2: 3    SAT3 : 1    SAT4 : 1    SAT5 : 3    SAT6: 3
SAT7: 3    SAT8: 2    SAT9 : 2    SAT10: 3    SAT11: 9

ID  : 31   TERM: 1    GROUP: 6    SUD1 : 7    SPN1 : 16   SFB1: 3.3  AUD1: 7.4
PN1: 13   AFB1: 6.6   SUD2 : 5    SPN2 : 16   SFB2 : 3   AUD2: 6
PN2: 14   AFB2: 4    GEN  : 2    MIN  : 1    FEED : 1
SAT1: 4    SAT2: 4    SAT3 : 4    SAT4 : 2    SAT5 : 4    SAT6: 3
SAT7: 3    SAT8: 4    SAT9 : 2    SAT10: 4    SAT11: 3
```

```
ID  : 67    TERM: 2    GROUP: 7    SUD1 : 99    SPN1 : 9?    SFB1: 99    AUD1: 99
APN1: 99    AFB1: 99    SUD2 : 4    SPN2 : 14.7  SFB2 : 7.7   AUD2: 1
APN2: 15.4  AFB2: 2.0   GEN  : 2    MIN  : 2     FEED : 2
SAT1: 9     SAT2: 9     SAT3 : 9    SAT4 : 9     SAT5 : 9     SAT6: 9
SAT7: 9     SAT8: 9     SAT9 : 9    SAT10: 9     SAT11: 9


ID  : 66    TERM: 2    GROUP: 7    SUD1 : 99    SPN1 : 99    SFB1: 99    AUD1: 99
APN1: 99    AFB1: 99    SUD2 : 4    SPN2 : 15.8  SFB2 : 1.1   AUD2: 4
APN2: 14    AFB2: 1.9   GEN  : 1    MIN  : 2     FEED : 2
SAT1: 4     SAT2: 3     SAT3 : 2    SAT4 : 3     SAT5 : 4     SAT6: 4
SAT7: 3     SAT8: 3     SAT9 : 3    SAT10: 4     SAT11: 9


ID  : 65    TERM: 2    GROUP: 7    SUD1 : 99    SPN1 : 59    SFB1: 75    AUD1: 99
APN1: 99    AFB1: 99    SUD2 : 5    SPN2 : 15.7  SFB2 : 5     AUD2: 7.7
APN2: 9.9   AFB2: 7.8   GEN  : 2    MIN  : 2     FEED : 2
SAT1: 3     SAT2: 3     SAT3 : 3    SAT4 : 3     SAT5 : 3     SAT6: 3
SAT7: 3     SAT8: 3     SAT9 : 3    SAT10: 3     SAT11: 9


ID  : 64    TERM: 2    GROUP: 7    SUD1 : 99    SPN1 : 99    SFB1: 99    AUD1: 99
APN1: 99    AFB1: 99    SUD2 : 0    SPN2 : 12.2  SFB2 : 1.9   AUD2: .7
APN2: 15.6  AFB2: .2    GEN  : 2    MIN  : 2     FEED : 2
SAT1: 4     SAT2: 3     SAT3 : 4    SAT4 : 4     SAT5 : 4     SAT6: 4
SAT7: 4     SAT8: 4     SAT9 : 4    SAT10: 3     SAT11: 9


ID  : 63    TERM: 2    GROUP: 6    SUD1 : 5     SPN1 : 16    SFB1: 9.3   AUD1: 4.8
APN1: 6.2   AFB1: 6.5   SUD2 : 7    SPN2 : 16    SFB2 : 3.4   AUD2: 7.6
APN2: 7.4   AFB2: 3.3   GEN  : 2    MIN  : 2     FEED : 1
SAT1: 4     SAT2: 4     SAT3 : 3    SAT4 : 2     SAT5 : 3     SAT6: 4
SAT7: 4     SAT8: 4     SAT9 : 4    SAT10: 4     SAT11: 3


ID  : 62    TERM: 2    GROUP: 6    SUD1 : 7     SPN1 : 5.8   SFB1: 16    AUD1: 8.4
APN1: 9.4   AFB1: 13.7  SUD2 : 7    SPN2 : 16    SFB2 : 9.6   AUD2: 6.2
APN2: 16    AFB2: 7.1   GEN  : 1    MIN  : 2     FEED : 1
SAT1: 3     SAT2: 3     SAT3 : 3    SAT4 : 1     SAT5 : 4     SAT6: 3
SAT7: 3     SAT8: 2     SAT9 : 3    SAT10: 4     SAT11: 4


ID  : 61    TERM: 2    GROUP: 6    SUD1 : 4     SPN1 : 2.1   SFB1: 5.3   AUD1: 7.2
APN1: 6.8   AFB1: 11.2  SUD2 : 5    SPN2 : 12.3  SFB2 : 8.5   AUD2: 4.4
APN2: 11.3  AFB2: 4.1   GEN  : 2    MIN  : 2     FEED : 1
SAT1: 3     SAT2: 3     SAT3 : 4    SAT4 : 2     SAT5 : 3     SAT6: 4
SAT7: 3     SAT8: 4     SAT9 : 4    SAT10: 4     SAT11: 4


ID  : 60    TERM: 2    GROUP: 6    SUD1 : -1    SPN1 : 17    SFB1: 4.8   AUD1: .3
APN1: 9.1   AFB1: 4.9   SUD2 : 3    SPN2 : 15    SFB2 : 8     AUD2: 3.2
APN2: 11.5  AFB2: 2.2   GEN  : 1    MIN  : 2     FEED : 1
SAT1: 3     SAT2: 3     SAT3 : 3    SAT4 : 2     SAT5 : 2     SAT6: 3
SAT7: 4     SAT8: 4     SAT9 : 3    SAT10: 4     SAT11: 4


ID  : 59    TERM: 2    GROUP: 6    SUD1 : -1    SPN1 : 12.8  SFB1: -2.2  AUD1: -2.2
APN1: 17    AFB1: 2.6   SUD2 : -2   SPN2 : 17    SFB2 : 2.4   AUD2: -3.2
APN2: 14.8  AFB2: 1.2   GEN  : 2    MIN  : 2     FEED : 1
```

APPENDIX H

VARIABLE LIST

Variable List

1. ID   1 - 67

2. Term   1 or 2

3. Group   1 - 7

4. SUD1   Self up-down score at time 1
    SPN1   Self positive-negative score at time 1
    SFB1   Self forward-backward score at time 1

5. AUD1   Average up-down score at time 1
    APN1   Aveage positive-negative score at time 1
    AFB1   Average forward-backward score at time 1

6. SUD2   Average up-down score at time 2
    SPN2   Aveage positive-negative score at time 2
    SFB2   Average forward-backward score at time 2

7. AUD2   Average up-down score at time 2
    APN2   Aveage positive-negative score at time 2
    AFB2   Average forward-backward score at time 2

8. Gender   Male (2) or Female (1)

9. Minority   Ethnic (1) Caucasion (2)

10. Feed   Feedback (1) No-feedback (2)   Group 7 = 3

11. N group   Group 7 term 1 and 2 "no show" groups

12. SAT1...11   All eleven satisfaction items rated from 1 - 4
                #1 - 7 for each term

13. Group 1 - 3 Group 1 = feedback Group 2 = no-feedback Group 3 =
                Control

14. SUD12
    SPN12   Difference between time 1 and 2 self scores on the
    SFB12   three dimensions. Absolute value.

Variable List contd.

15. SAUD1
     SAPN1
     SAFB1   Absolute value of the self score to the average
     SAUD2   score without the self in the average at time 1 and
     SAPN2   time 2
     SAFB2

16. STOT12   All three dimensions. Difference between total
              movement of the self between time 1 and time 2.
     SATOT1   Combined dimensions – self to aveage – all 3
     SATOT2   dimensions of both. Movement of self cells to
              average cells of the group at time 1 and 2.
              Absolute value.

17. DSUD12   Directed, not absolute scores, vlaues of + or –
     DSPN12   for self from time 2 to time 1 (time 2 minus time
     SFB12   1). (Computer won't 21). Separated for each
              dimension. Not combined.

18. DSAUD1
     DSAPN1
     DSAFB1   Again, directed values not absolute scores with +
     DSAUD2   or – scores. Self to adjusted average at time 1
     DSAPN2   and 2.
     DSAFB2

          to
19. AAUD(12)   Absolute scores. Average to average from time 1 to
     AAPN(12)   time 2 plain average.
     AAFB(12)

          to
20. DAAUD(12)   Directed average, positive or negative values, from
     DAAPN(12)   time 1 to time 2
     DAAFB(12)   Plain average.

     GRPTRM   Group identification
     FGPSAT9   Group satisfaction on items 9 and 10
     GRPSAT10

     GAUD1
     GAPN1
     GAFB1   Group average at each dimension at time 1 and then
     GAUD2   time 2
     GAPN2   Plain average
     GAFB2

     GFEED   Feedback

APPENDIX I

SATISFACTION FREQUENCIES

```
.....        v.      .. ..        .. ..
SAT3      53      3.3019  X       .7228           SAT.
SAT4      53      2.7925  X       .8171
SAT5      53      3.5660            .5374            ①
SAT6      53      3.0038  X       .5993
SAT7      53      3.4906            .5759
SAT8      53      3.3962            .7681         2.106983
SAT9      53      3.2962            .6604
SAT10     53      3.5283            .5040
```

Variables		Cases	Cross-Prod Dev	Variance-Covar
SAT1	SAT2	53	3.8679	.0744
SAT1	SAT3	53	7.2453	.1393
SAT1	SAT4	53	9.0189	.1734
SAT1	SAT5	53	5.5849	.1074
SAT1	SAT6	53	5.4906	.1056
SAT1	SAT7	53	5.7736	.1110
SAT1	SAT8	53	7.5094	.1444
SAT1	SAT9	53	7.5094	.1444
SAT1	SAT10	53	2.6792	.0515
SAT2	SAT3	53	9.7547	.1876
SAT2	SAT4	53	4.9811	.0958
SAT2	SAT5	53	4.4151	.0849
SAT2	SAT6	53	5.5094	.1060
SAT2	SAT7	53	7.2264	.1390
SAT2	SAT8	53	9.4906	.1825
SAT2	SAT9	53	10.4906	.2017
SAT2	SAT10	53	8.3208	.1600
SAT3	SAT4	53	12.3208	.2369
SAT3	SAT5	53	6.9434	.1335
SAT3	SAT6	53	9.3396	.1796
SAT3	SAT7	53	8.1509	.1567
SAT3	SAT8	53	12.6604	.2435
SAT3	SAT9	53	14.6604	.2819
SAT3	SAT10	53	7.5472	.1451
SAT4	SAT5	53	7.2264	.1390
SAT4	SAT6	53	12.6415	.2431
SAT4	SAT7	53	8.3962	.1615
SAT4	SAT8	53	20.3585	.3915
SAT4	SAT9	53	14.3585	.2761
SAT4	SAT10	53	2.8113	.0541
SAT5	SAT6	53	6.8869	.1324
SAT5	SAT7	53	8.2930	.1593
SAT5	SAT8	53	7.1132	.1368
SAT5	SAT9	53	8.1132	.1560
SAT5	SAT10	53	4.1509	.0798
SAT6	SAT7	53	8.3019	.1597
SAT6	SAT8	53	15.3208	.2946
SAT6	SAT9	53	14.3208	.2754
SAT6	SAT10	53	7.0943	.1364
SAT7	SAT8	53	13.6981	.2634
SAT7	SAT9	53	9.6981	.1865
SAT7	SAT10	53	7.2642	.1257
SAT8	SAT9	53	15.6792	....
SAT8	SAT10	53	9.9057	.1905
SAT9	SAT10	53	10.9057	.2097

Correlations:	SAT1	SAT2	SAT3	SAT4	SAT5	SAT6
SAT1	1.0000	.2579	.3835	.4234	.3977	.3506
	(53)	(53)	(53)	(53)	(53)	(53)
	P= .	P= .031	P= .002	P= .001	P= .002	P= .005
SAT2	.2579	1.0000	.4521	.2043	.2752	.3080
	(53)	(53)	(53)	(53)	(53)	(53)

②

	SAT1	SAT2	SAT3	SAT4	SAT5	SAT6
SAT3	.3836	.4521	1.0000	.4012	.3437	.4146
	(53)	(53)	(53)	(53)	(53)	(53)
	P= .002	P= .000	P= .	P= .001	P= .006	P= .001
SAT4	.4124	.2042	.4012	1.0000	.3165	.4964
	(53)	(53)	(53)	(53)	(53)	(53)
	P= .001	P= .071	P= .001	P= .	P= .010	P= .000

(Coefficient / (Cases) / 1-tailed Significance)

" . " is printed if a coefficient cannot be computed

Correlations:	SAT1	SAT2	SAT3	SAT4	SAT5	SAT6
SAT5	.3977	.2752	.3437	.3165	1.0000	.4112
	(53)	(53)	(53)	(53)	(53)	(53)
	P= .002	P= .023	P= .006	P= .010	P= .	P= .001
SAT6	.3506	.3080	.4146	.4964	.4112	1.0000
	(53)	(53)	(53)	(53)	(53)	(53)
	P= .005	P= .012	P= .001	P= .000	P= .001	P= .
SAT7	.3837	.4204	.3766	.3431	.5147	.4626
	(53)	(53)	(53)	(53)	(53)	(53)
	P= .002	P= .001	P= .003	P= .006	P= .000	P= .000
SAT8	.3741	.4140	.4385	.6238	.3314	.6400
	(53)	(53)	(53)	(53)	(53)	(53)
	P= .003	P= .001	P= .001	P= .000	P= .008	P= .000

(Coefficient / (Cases) / 1-tailed Significance)

" . " is printed if a coefficient cannot be computed

Correlations:	SAT1	SAT2	SAT3	SAT4	SAT5	SAT6
SAT9	.4351	.5322	.5906	.5117	.4396	.6958
	(53)	(53)	(53)	(53)	(53)	(53)
	P= .001	P= .000	P= .000	P= .000	P= .000	P= .000
SAT10	.2034	.5532	.3984	.1213	.2947	.4517
	(53)	(53)	(53)	(53)	(53)	(53)
	P= .072	P= .000	P= .002	P= .174	P= .016	P= .000

→ proc

→ outc

(Coefficient / (Cases) / 1-tailed Significance)

" . " is printed if a coefficient cannot be computed

Correlations:	SAT7	SAT8	SAT9	SAT10
SAT1	.3837	.3741	.4351	.2034
	(53)	(53)	(53)	(53)
	P= .002	P= .003	P= .001	P= .072
SAT2	.4204	.4140	.5322	.5532
	(53)	(53)	(53)	(53)
	P= .001	P= .001	P= .000	P= .000
SAT3	.3766	.4385	.5906	.3984
	(53)	(53)	(53)	(53)
	P= .003	P= .001	P= .000	P= .002

③

SAT4	.3431	.6238	.5117	.1313
	(53)	(53)	(53)	(53)
	P= .006	P= .000	P= .000	P= .174

(Coefficient / (Cases) / 1-tailed Significance)

" . " is printed if a coefficient cannot be computed

Correlations: SAT7   SAT8   SAT9   SAT10

SAT5	.5147	.3314	.4396	.2947
	(53)	(53)	(53)	(53)
	P= .000	P= .008	P= .000	P= .016
SAT6	.4626	.6400	.6958	.4517
	(53)	(53)	(53)	(53)
	P= .000	P= .000	P= .000	P= .000
SAT7	1.0000	.5955	.4904	.4813
	(53)	(53)	(53)	(53)
	P= .	P= .000	P= .000	P= .000
SAT8	.5955	1.0000	.7461	.4921
	(53)	(53)	(53)	(53)
	P= .000	P= .	P= .000	P= .000

(Coefficient / (Cases) / 1-tailed Significance)

" . " is printed if a coefficient cannot be computed

Correlations: SAT7   SAT8   SAT9   SAT10

SAT9	.4904	.7461	1.0000	.6301	→ process
	(53)	(53)	(53)	(53)	
	P= .000	P= .000	P= .	P= .000	
SAT10	.4813	.4921	.6301	1.0000	→ outcome
	(53)	(53)	(53)	(53)	
	P= .000	P= .000	P= .000	P= .	

(Coefficient / (Cases) / 1-tailed Significance)

" . " is printed if a coefficient cannot be computed

This procedure was completed at 16:14:40
SPSS/PC:ONEWAY VARIABLES=SAT9 SAT10 BY FEED(1,3)
   MODULE SWAP

APPENDIX J

LEADER MOVEMENT

Forward Positive Quad
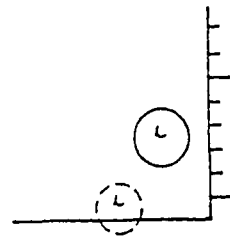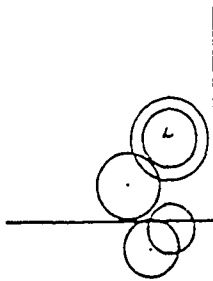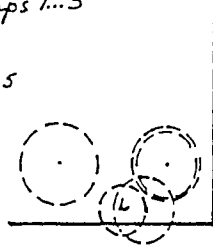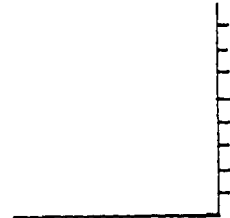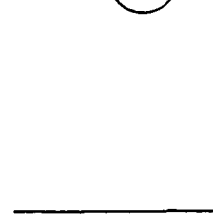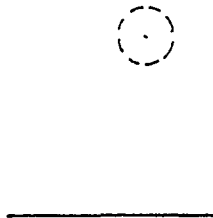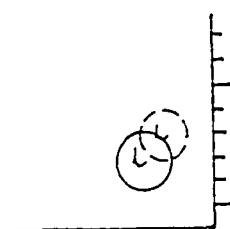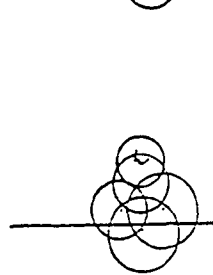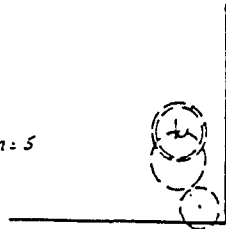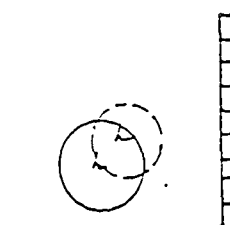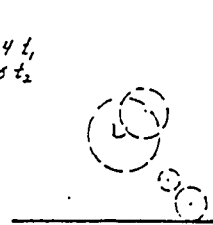
Leader Position - FEEDBACK

Feedback
Groups 1...3

n=5

n=5

n=4 t₁
n=5 t₂

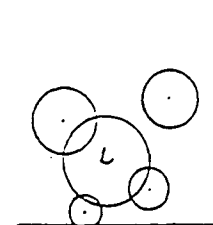time 2 Groups

time 2 groups

time 1,2 leader

Red ( ) = time 1

Black ( ) = time 2

Forward Positive Quad

Leader Position - FEEDBACK

Feedback
Groups 4...6

$n = 6$

$n = 5$

$n = 5$

time 1 groups

time 2 groups

time 1,2 leader

Red ( ) = time 1
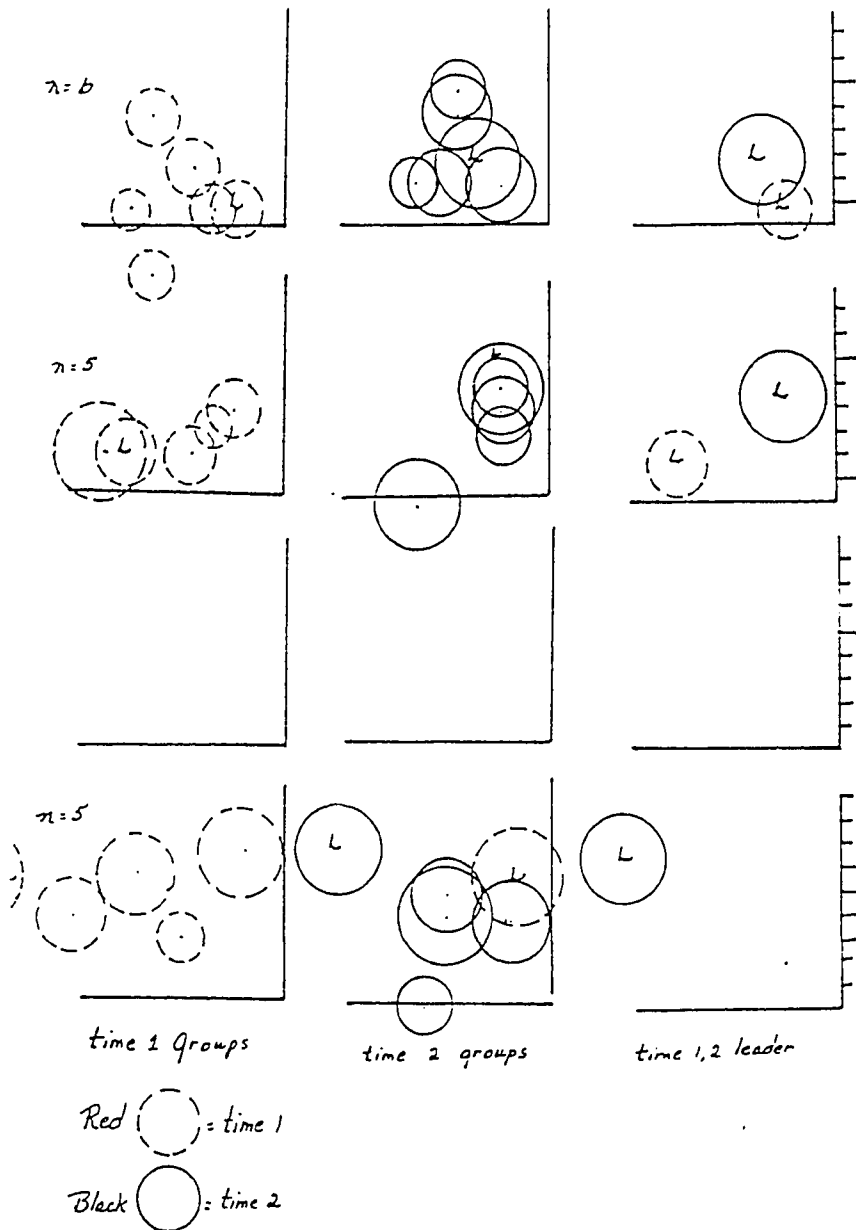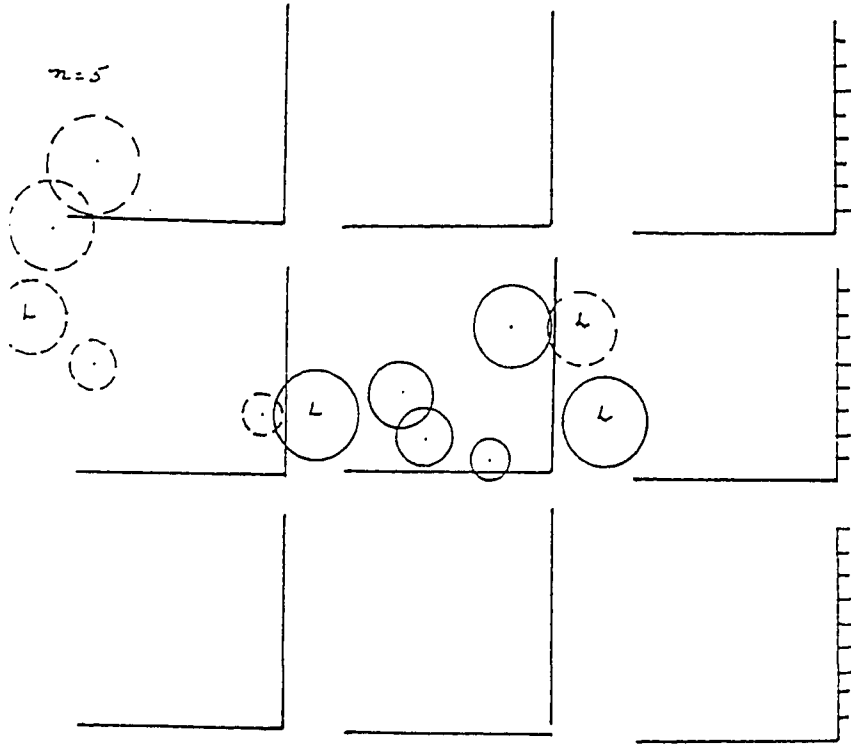
Black ( ) = time 2

Forward Positive Quad
Leader Position - FEEDBACK

Feedback
Groups 5,6

$n = 4$

$n = 5$
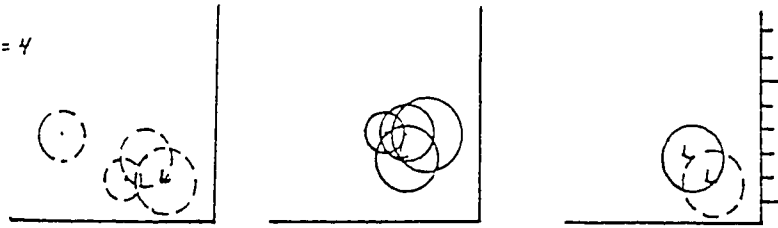
time 1 groups   time 2 groups   time 1,2 leader
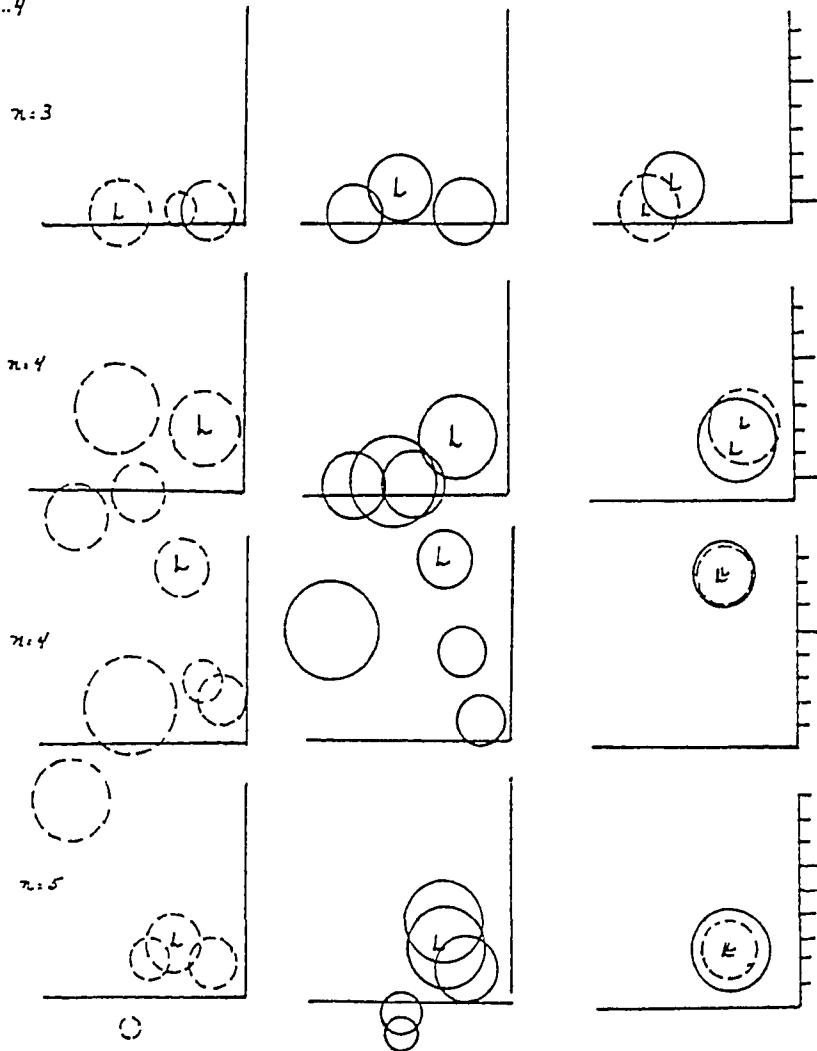
Red ( ) = time 1

Black ( ) = time 2

Forward-Positive Quad
Leader Position- No Feedback

No Feedback
Groups
1...4

n:3

n:4

n:4

n:5

time 1 Groups

time 2 Groups

time 1, 2 leader

Red ( ) = time 1

Block ( ) = time 2

Forward ~~Positive~~ Quad Control Groups