Analysis of problemsolving groups with feedback intervention using a systematic multiple level observation of groups

Donna Buchanan Schantz

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ANALYSIS OF PROBLEM-SOLVING 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

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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

Dr. Marie Berger

Dr. Dean Frost

APPROVED:

Nohad A. Toulan, Dean, School of Urban and Public Affairs

Bernard Ross, Dean, Graduate Studies and Research
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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:

                      Jerry Laksdowne, Chair
                     __________________________
                      Dr. Jerry Laksdowne

                     __________________________
                      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 Organization 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 individuals 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 P. 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 videotaping 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 problem-solving 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 process 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 hereinafter 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**

<table>
<thead>
<tr>
<th>TERM I (Winter)</th>
<th>TERM II (Spring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kidney</td>
<td>Luna</td>
</tr>
<tr>
<td>Groups 1...6</td>
<td>Groups 1...4</td>
</tr>
<tr>
<td>(feedback)</td>
<td>(no-feedback)</td>
</tr>
<tr>
<td>Groups 7</td>
<td>Groups 5...6</td>
</tr>
<tr>
<td>(no-show)</td>
<td>(feedback)</td>
</tr>
<tr>
<td>Group 7</td>
<td>Group 7</td>
</tr>
<tr>
<td>(no-show)</td>
<td>(no-show)</td>
</tr>
<tr>
<td>01 x 02</td>
<td>02 x 01</td>
</tr>
<tr>
<td>02</td>
<td>02 x 01</td>
</tr>
<tr>
<td>01</td>
<td>01</td>
</tr>
</tbody>
</table>
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 entered 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
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 SYMLOG 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 determine 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.
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.
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

<table>
<thead>
<tr>
<th>SYMLOG Dimensions</th>
<th>Term I &quot;Kidney&quot; (n = 29)</th>
<th>Term II &quot;Luna&quot; (n = 26)</th>
<th>t</th>
<th>p (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U-D</td>
<td>2.31 (3.8)</td>
<td>2.00 (4.2)</td>
<td>.30</td>
<td>.76</td>
</tr>
<tr>
<td>P-N</td>
<td>13.93 (2.9)</td>
<td>12.91 (3.3)</td>
<td>1.23</td>
<td>.23</td>
</tr>
<tr>
<td>F-B</td>
<td>2.50 (2.2)</td>
<td>3.50 (3.5)</td>
<td>1.25</td>
<td>.22</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>SYMLOG Dimensions</th>
<th>Means Square Between groups (df = 11)</th>
<th>Means Square Within Groups (df = 43)</th>
<th>F Ratio</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>U-D</td>
<td>16.90</td>
<td>14.72</td>
<td>1.15</td>
<td>.35</td>
</tr>
<tr>
<td>P-N</td>
<td>18.41</td>
<td>7.14</td>
<td>2.58</td>
<td>.01</td>
</tr>
<tr>
<td>F-B</td>
<td>16.55</td>
<td>6.40</td>
<td>2.58</td>
<td>.01</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>SYMLOG Dimensions</th>
<th>Means Square Between groups</th>
<th>Means Square Within Groups</th>
<th>F Ratio</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FEEDBACK</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U-D</td>
<td>.91</td>
<td>1.55</td>
<td>.59</td>
<td>.76</td>
</tr>
<tr>
<td>P-N</td>
<td>4.46</td>
<td>2.40</td>
<td>1.86</td>
<td>.11</td>
</tr>
<tr>
<td>F-B</td>
<td>4.69</td>
<td>1.71</td>
<td>2.74</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NO-FEEDBACK</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U-D</td>
<td>.99</td>
<td>5.75</td>
<td>.91</td>
<td></td>
</tr>
<tr>
<td>P-N</td>
<td>.15</td>
<td>2.10</td>
<td>.07 n.s.</td>
<td></td>
</tr>
<tr>
<td>F-B</td>
<td>.90</td>
<td>2.30</td>
<td>.39</td>
<td></td>
</tr>
</tbody>
</table>

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

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 P-B dimensions. This finding relates to the first hypothesis regarding group movement occurring 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 problem-solving 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

<table>
<thead>
<tr>
<th>SYMLOG Dimensions</th>
<th>Feedback</th>
<th></th>
<th>No-Feedback</th>
<th></th>
<th>P (2-tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>X</td>
<td>n</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>U-D</td>
<td>39 (indiv.)</td>
<td>1.00</td>
<td>16 (indiv.)</td>
<td>1.92</td>
<td></td>
</tr>
<tr>
<td>P-N</td>
<td>8 (groups)</td>
<td>1.83</td>
<td>4 (groups)</td>
<td>1.25</td>
<td>n.s.</td>
</tr>
<tr>
<td>F-P</td>
<td>8 (groups)</td>
<td>1.87</td>
<td>4 (groups)</td>
<td>1.45</td>
<td></td>
</tr>
</tbody>
</table>

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 they 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:

\[
K_{rij} = \frac{10 \times .4151031}{1 + (K-1)rij} = \frac{4.151031}{4.735927} = 0.87
\]

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**

\( (N = 53) \)

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Group members understand the problems under discussion.</td>
<td>3.54</td>
</tr>
<tr>
<td>2. Group members stayed on the topic.</td>
<td>3.45</td>
</tr>
<tr>
<td>3. Group members avoided premature closure on discussion.</td>
<td>3.30</td>
</tr>
<tr>
<td>4. Group members contributed equally to the discussion.</td>
<td>2.79</td>
</tr>
<tr>
<td>5. Group members agreed with group consensus and/or decision.</td>
<td>3.56</td>
</tr>
<tr>
<td>6. Group members discussed their opinions openly without hiding personal feelings.</td>
<td>3.60</td>
</tr>
<tr>
<td>7. Group members were able to resolve conflict or discontent.</td>
<td>3.49</td>
</tr>
<tr>
<td>8. Group members displayed commitment to the group tasks.</td>
<td>3.39</td>
</tr>
<tr>
<td>9. Group members indicated satisfaction with the group process.</td>
<td>3.39</td>
</tr>
<tr>
<td>10. Group members indicated satisfaction with the group outcomes.</td>
<td>3.52</td>
</tr>
</tbody>
</table>

\( \bar{T} \bar{X} = 3.41 \)
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**

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback</td>
<td>30</td>
<td>3.58</td>
<td>.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No-feedback</td>
<td>15</td>
<td>3.26</td>
<td>.31</td>
<td>7.83</td>
<td>.001</td>
</tr>
<tr>
<td>No-show</td>
<td>8</td>
<td>3.02</td>
<td>.62</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Contrast Groups</th>
<th>t-value</th>
<th>t-probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback vs. No-show</td>
<td>3.56</td>
<td>.001</td>
</tr>
<tr>
<td>Feedback vs. No-feedback</td>
<td>2.60</td>
<td>.01</td>
</tr>
<tr>
<td>No-show vs. No-feedback</td>
<td>1.36</td>
<td>.17</td>
</tr>
</tbody>
</table>

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 expressed 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 with 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
Figure 5. Perceptions of rater #002 on self and others in the group.
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

<table>
<thead>
<tr>
<th>Test</th>
<th>Feedback Group (n = 40)</th>
<th>No-Feedback Group (n = 16)</th>
<th>No-Show Group (n = 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>p</td>
<td>r</td>
</tr>
<tr>
<td>Pretest</td>
<td>.61</td>
<td>.000</td>
<td>.68</td>
</tr>
<tr>
<td>Posttest</td>
<td>.63</td>
<td>.000</td>
<td>.74</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Test</th>
<th>Feedback Group (n = 40)</th>
<th>No-Feedback Group (n = 16)</th>
<th>No-Show Group (n = 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>P</td>
<td>r</td>
</tr>
<tr>
<td>Pretest</td>
<td>.53</td>
<td>.000</td>
<td>.66</td>
</tr>
<tr>
<td>Posttest</td>
<td>.43</td>
<td>.003</td>
<td>.43</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Feedback (n = 8)</td>
</tr>
<tr>
<td>U-D</td>
</tr>
<tr>
<td>P-N</td>
</tr>
<tr>
<td>F-B</td>
</tr>
</tbody>
</table>

Directional change scores (as opposed to the absolute change scores previously used in computations) were employed to determine whether the leaders moved in any specific 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

<table>
<thead>
<tr>
<th>Mean</th>
<th>Dimension</th>
<th>Feedback (n = 8)</th>
<th>No-Feedback (n = 4)</th>
<th>t-value</th>
<th>T-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>U-D</td>
<td>1.92</td>
<td>1.27</td>
<td>.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P-N</td>
<td>1.01</td>
<td>.32</td>
<td>.73</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>F-B</td>
<td>.58</td>
<td>.50</td>
<td>.11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.
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 overlay. 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.
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 (4002) 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 (4003) 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.
**Figure 12.** Individual field diagram of Bea (#002) at posttest.
Figure 13. Individual field diagram of Jo (#003) at pretest.
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 phenomenon
suggests that the legitimate 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
Figure 19. Average field diagram for Group #4, Term II (no-feedback) at pretest.
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
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
Eighty-nine

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.
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.
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 identified by Berger (1981), Hare (1985), and Folley (1983), among others. The use of SYMLOG as such a tool could provide data for employers and employees to evaluate behavior in the workplace 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"

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 satisfaction, 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
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.
BIBLIOGRAPHY


____________. (1973). The trouble with leadership is that it doesn't train leaders. Psychology Today, 92, pp. 23-29.


APPENDIX A

THE SYMLOG ADJECTIVE RATING SHEET
U. active, dominant, talks a lot...........not often...sometimes...often
JF. extroverted, outgoing, positive...........not often...sometimes...often
INF. a purposeful democratic task leader........not often...sometimes...often
NF. an assertive business-like manager........not often...sometimes...often
UN. authoritarian, controlling, disapproving...not often...sometimes...often
EN. domineering, tough-minded, powerful.......not often...sometimes...often
ENB. 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
FP. 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, negativeistic......................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
DFB. quietly happy just to be with others.......not often...sometimes...often
D. passive, introverted, says little..............not often...sometimes...often
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.


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 (12, 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 also 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 Cdr. 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 non-dangerous 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 profes-
sionals.

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 rel-
atively 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 con-
dition 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 re-
duced 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 popu-
lation. (2) Immunity maintenance: Nursing must plan also for de-
ivery 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:

<table>
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<tr>
<th>Position</th>
<th>Salary</th>
</tr>
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<tbody>
<tr>
<td>Chief Nurse (CN)</td>
<td>$45,000</td>
</tr>
<tr>
<td>Registered Nurse (RN)</td>
<td>$20,000</td>
</tr>
<tr>
<td>Licensed Practical Nurse (LPN)</td>
<td>$15,000</td>
</tr>
<tr>
<td>Nurse Aide (NA)</td>
<td>$10,000</td>
</tr>
</tbody>
</table>

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 awed 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 examining Cora described her as a professional face. 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 invented 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
THE OREGON HEALTH SCIENCES UNIVERSITY
SCHOOL OF NURSING

COMUNITY HEALTH CARE SYSTEM'S

COURSE TITLE: N452 Nursing Science 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.
La Monica, Elaine L. Nursing Leadership and Management. Monterey, Calif.: Wadsworth Health Sciences Division, 1983.


*Required reading on library reserve.


TEACHING METHODS:
Lecture, discussion, group activities, written assignment and examinations.

EXAMINATION 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
65 - = NP
<table>
<thead>
<tr>
<th>WEEK I</th>
<th>January 10</th>
</tr>
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<tbody>
<tr>
<td>1. Define course objectives and expectations</td>
<td>1. Course overview and expectations</td>
</tr>
<tr>
<td>2. Discuss the relationship of management and nursing</td>
<td>2. Management process</td>
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<table>
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<tr>
<th>WEEK II</th>
<th>January 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Define leadership and management</td>
<td>1. Concepts of leadership and management</td>
</tr>
<tr>
<td>2. Compare the nursing process with the management process</td>
<td>2. LaVonica, pp. 1-18 Ch.1 - &quot;The Management Solving Process and the Problem Solving Method&quot;</td>
</tr>
<tr>
<td>3. Compare and contrast the problem solving method with the intuitive mode of thought</td>
<td>3. Stone et al, pp. 62-70 &quot;Management and Modes of Thought&quot;</td>
</tr>
<tr>
<td>4. Identify roles and functions of the nurse manager</td>
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<tr>
<th>WEEK III</th>
<th>January 24</th>
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<tbody>
<tr>
<td>1. Explore the history of management science during three eras: traditional, human relations, contingency</td>
<td>1. Theory for leadership and management</td>
</tr>
<tr>
<td>2. Compare the three eras with nursing care delivery models</td>
<td>2. Marriner, pp. 30-40 &quot;Development of Management Thought&quot; (Library reserve)</td>
</tr>
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<td>3. In class: Group Formation Experiential Exercise Part I, Exercise in LeVonica</td>
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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

1. List the major components of leadership behavior
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
5. Discuss leadership responsibilities associated with nursing management positions
6. Identify elements of the decision-making process
7. Compare and contrast rational and normative decision making

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"

   "The Social Nature of Leadership"

3. LaMonica: Complete Exercise I: pp.102-108
   Turn in initiating and consideration scores for self and ideal leader at beginning of class.

4. LaMonica: Read the case studies in Exercise 2 and 3 for class discussion.
<table>
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<th>OBJECTIVES</th>
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<td>WEEK V</td>
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<tr>
<td>1. Define how communication affects management style and effectiveness</td>
<td>1. Communication Group Dynamics</td>
<td>1. LaMonica: pp. 127-159</td>
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<td>2. Determine how leaders communicate</td>
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<td>a. Communication process</td>
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<td>3. Diagnose group problems</td>
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<td>b. Purposes of communication</td>
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<td>4. Analyze own interactions within a small group</td>
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<td>c. Types of communication</td>
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<td>5. List the major research activities in communication and small group dynamics</td>
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<td>d. How leaders communicate</td>
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<td>2. Stone et al, pp.81-117</td>
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<td>a. &quot;Straight from the Shoulder: Leveling on the Job&quot;</td>
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<td>b. &quot;Model for Better Communication&quot;</td>
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<td>c. &quot;So You Don't Like Your Boss&quot;</td>
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<td>d. &quot;How to Diagnose Group Problems&quot;</td>
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<td>e. &quot;Cogs Ladder: A Model for Group Growth&quot;</td>
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<td>f. &quot;A Cognitive Transactional Approach to Communication&quot;</td>
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<td>3. LaMonica: Self-Study Assignment: Exercise 1, p. 237</td>
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<td>4. Freid Bales: SYNLOG In-class experiential exercise on group dynamics</td>
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<th>WEEK VI</th>
<th>February 14</th>
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<tr>
<td>1. Synthesize learned concepts of leadership and management into nursing practice</td>
<td>1. MIDTERM EXAM</td>
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<td>2. Discuss research findings of small group analysis</td>
<td>1. In-class, closed book exam on assigned readings and classroom activities up to February 14</td>
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<td>2. Feedback session of Bales' SYNLOG exercise</td>
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<tr>
<td>1. Identify learning needs and teaching priorities in a management situation</td>
<td>1. Teaching</td>
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<td>2. Determine learning principles and instructional modes for teaching strategies</td>
<td>2. Power</td>
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<td>3. State the types, sources and use of power in professional nursing</td>
<td>3. Assertiveness</td>
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<td>4. Define the components and appropriate use assertiveness in nursing practice</td>
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<td>6. Feedback on group assertiveness mean</td>
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<td>9. Conflict resolution</td>
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<td>10. Both of these exercises are self-study assignments. Bring Compassion Trap Score to class for recording and analysis Exercise 16, pp. 285.</td>
<td>11. Force Field Analysis</td>
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<td>12. Levels of change and the change process</td>
<td>12. Conflict resolution</td>
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<td>13. Strategies of change</td>
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<td>14. Conflict resolution</td>
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<td>1. Define the concept of planned change and conflict</td>
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<td>2. Identify the driving and according to Lewin's theory in a case example</td>
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<td>4. Use current management technology in communicating the change process</td>
<td>e. &quot;Measuring Productivity Through Patient Classification&quot;</td>
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<td>5. List the major types and causes of conflict and state at least three ways of resolving conflict</td>
<td>3. Learn use of a personal computer (PC) to prepare paper on &quot;Change: Concepts into Nursing Practice&quot; Due in two weeks at beginning of class (Wk. X)</td>
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<td>6. Identify and analyze change in an organizational setting and framework</td>
<td>4. Use a &quot;live&quot; 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.</td>
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**WEEK IX**
March 7

1. Define the current major economic factors affecting health care
   a. internal & external environment
   b. marketing

2. Compare and contrast the internal and external economic environment
   a. time
   b. money
   c. resources

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

4. Define the budgeting process

5. Differentiate between ZBB and incremental budgeting

6. List time management techniques useful to nurse managers

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

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

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"
COURSE OUTLINE:

- **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 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

1. Determine evaluation and accountability responsibilities of the nurse manager

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

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 **10:45 am** in Room UHS 14E-62.

- 5. Davis: The Federal Role in Changing Health Care Financing” (On reserve in library)
- 6. LUNA Assignment handout for final examination project (See directions below)
APPENDIX E

SATISFACTION QUESTIONNAIRE
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.

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

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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
   SPNL Self positive-negative score at time 1
   SFBL Self forward-backward score at time 1
5. AUD1 Average up-down score at time 1
   APNL Average positive-negative score at time 1
   AFBL Average forward-backward score at time 1
6. SUD2 Average up-down score at time 2
   SPNZ Average positive-negative score at time 2
   SFBL Average forward-backward score at time 2
7. AUD2 Average up-down score at time 2
   APN2 Average positive-negative score at time 2
   AFBL 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. SATL...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 Difference between time 1 and 2 self scores on the
    SFBL2 three dimensions. Absolute value.
Variable List contd.

15. SAUD1
    SAPN1
    SAFB1
    SAUD2
    SAPN2
    SAFB2

    Absolute value of the self score to the average score without the self in the average at time 1 and time 2

16. STOT12

    All three dimensions. Difference between total movement of the self between time 1 and time 2.

    SATOT1
    SATOT2

    Combined dimensions - self to average - all 3 dimensions of both. Movement of self cells to average cells of the group at time 1 and 2. Absolute value.

17. DSUD12
    DSPN12
    SFB12

    Directed, not absolute scores, values of + or - for self from time 2 to time 1 (time 2 minus time 1). (Computer won't 21). Separated for each dimension. Not combined.

18. DSAUD1
    DSPN1
    DSAFB1
    DSAUD2
    DSPN2
    DSAFB2

    Again, directed values not absolute scores with + or - scores. Self to adjusted average at time 1 and 2.

19. AAUD(12)
    AAPN(12)
    AAFB(12)

    Absolute scores. Average to average from time 1 to time 2 plain average.

20. DAAUD(12)
    DAPN(12)
    DAFB(12)

    Directed average, positive or negative values, from time 1 to time 2

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

    GAUD1
    GAPN1
    GAFB1
    GAUD2
    GAPN2
    GAFB2

    Group average at each dimension at time 1 and then time 2

    Plain average

    Feedback
APPENDIX I

SATISFACTION FREQUENCIES
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* * is printed if a coefficient cannot be computed
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SAT8 0.3741 0.4140 0.4395 0.8270 0.3344 0.6400
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<th>SAT9</th>
<th>SAT10</th>
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(Coefficient / (Cases) / 1-tailed Significance)

"." is printed if a coefficient cannot be computed.

For SAT9 and SAT10, the procedure was completed as of 16:14:40.

**SPSS/PC-DOS**:

- **DISPLAY 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, n=3, n=2

time 1 groups
Red (○) = time 1
Black (●) = time 2
Forward Positive Quad
Leader Position - FEEDBACK

Feedback
Groups 4...b

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 Group 1 5, 6

n = 4

n = 5

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

time 1 groups  time 2 groups  time 1, 2 leader
Forward-Positive Quad
Leader Position - No Feedback

No Feedback
Groups 1-4

\[ \begin{array}{ccc}
\text{time 1 groups} & \text{time 2 groups} & \text{time 1,2 leader} \\
\text{Red ( ) = time 1} & \text{Red ( ) = time 1} & \text{Red ( ) = time 1} \\
\text{Black ( ) = time 2} & \text{Black ( ) = time 2} & \text{Black ( ) = time 2} \\
\end{array} \]
Forward PositiveQuad
Control Groups F

Control 2 Groups @ Time 2

no.7
Tom I Control

no.9
Tom II Control