INFORMATION TO USERS

This dissertation was produced from a microfilm copy of the original document. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the original submitted.

The following explanation of techniques is provided to help you understand markings or patterns which may appear on this reproduction.

1. The sign or “target” for pages apparently lacking from the document photographed is “Missing Page(s)”. If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting thru an image and duplicating adjacent pages to insure you complete continuity.

2. When an image on the film is obliterated with a large round black mark, it is an indication that the photographer suspected that the copy may have moved during exposure and thus cause a blurred image. You will find a good image of the page in the adjacent frame.

3. When a map, drawing or chart, etc., was part of the material being photographed the photographer followed a definite method in “sectioning” the material. It is customary to begin photoing at the upper left hand corner of a large sheet and to continue photoing from left to right in equal sections with a small overlap. If necessary, sectioning is continued again – beginning below the first row and continuing on until complete.

4. The majority of users indicate that the textual content is of greatest value, however, a somewhat higher quality reproduction could be made from “photographs” if essential to the understanding of the dissertation. Silver prints of “photographs” may be ordered at additional charge by writing the Order Department, giving the catalog number, title, author and specific pages you wish reproduced.

University Microfilms
300 North Zeeb Road
Ann Arbor, Michigan 48106
A Xerox Education Company
TOMPKINS, Donald Stanley, 1947-
GROUP EFFECTIVENESS AS A FUNCTION OF LEADERSHIP
STYLE MEDITATED BY STAGE OF GROUP DEVELOPMENT.
The Ohio State University, Ph.D., 1972
Psychology, industrial

University Microfilms, A XEROX Company, Ann Arbor, Michigan
GROUP EFFECTIVENESS AS A FUNCTION OF LEADERSHIP STYLE MODERATED BY STAGE OF GROUP DEVELOPMENT

DISSERTATION

Presented in Partial Fulfillment of the Degree of Doctor of Philosophy in the Graduate School of The Ohio State University

By

Donald Stanley Tompkins, B.A., M.A.

The Ohio State University
1972

Approved by:

Milton D. Hahl
Adviser
Department of Psychology
PLEASE NOTE:

Some pages may have
indistinct print.
Filmed as received.

University Microfilms, A Xerox Education Company
I would like to express my sincere appreciation to Dr. Milton D. Hakel for his aid and encouragement throughout my graduate education, as well as for his assistance in the design and completion of the present study.

I also wish to thank Dr. Robert J. Wherry and Dr. Michael T. Wood for their valuable suggestions at several stages of the research; and my wife, Patricia, for her support and understanding during the course of this study.
VITA

April 14, 1947..... Born, New York City

1968........... B.A., Brooklyn College, Brooklyn, New York

1968-1969........ First Year Fellow, The Ohio State University, Columbus, Ohio

1969-1970......... Teaching Associate, The Ohio State University, Columbus, Ohio

1970............. M.A., The Ohio State University, Columbus, Ohio

1970-1971......... Research Associate, The Ohio State University, Columbus, Ohio

1971-1972......... Dissertation Year Fellow, The Ohio State University, Columbus, Ohio

FIELDS OF STUDY

Major Field: Psychology

Area of Specialization: Industrial Psychology

Studies in Industrial Psychology. Professors Milton D. Hakel and Michael Wood

Studies in Quantitative Psychology. Professor Robert J. Wherry
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Acknowledgements</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>VITA</td>
<td>iii</td>
</tr>
<tr>
<td>List of Tables</td>
<td>vi</td>
</tr>
<tr>
<td>List of Figures</td>
<td>viii</td>
</tr>
</tbody>
</table>

## Chapter

1. Introduction ........................................... 1
   - Leader Style and Group Effectiveness
   - "Free" and "Developmental" Discussion Groups
   - Stage of Group Development
   - Integration of Theory
   - Hypotheses
   - Definitions

2. Overview and Pilot Study .................. 17

3. Method ............................................... 22
   - Subjects
   - Manipulations and Design
   - Procedure

4. Results ............................................... 29
   - Consideration
   - Decision Quality
   - Satisfaction
   - Agreement
   - Information Sharing During Decision Making
   - Scale Characteristics: Norms and Correlations
   - Canonical Correlations

5. Summary and Discussion ..................... 54

## Appendix

A. Case of Cheryl Barnes ....................... 61
**TABLE OF CONTENTS**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. General Leader Instructions</td>
<td>64</td>
</tr>
<tr>
<td>C. Consideration Instructions</td>
<td>65</td>
</tr>
<tr>
<td>D. Structure Instructions (Preliminary Problems for Each Case)</td>
<td>66</td>
</tr>
<tr>
<td>E. General Subordinate Instructions</td>
<td>68</td>
</tr>
<tr>
<td>F. Case of Mary Everett</td>
<td>69</td>
</tr>
<tr>
<td>G. Post-Experimental Questionnaire</td>
<td>71</td>
</tr>
<tr>
<td>H. Variables Included in Correlations and Canonical Correlations</td>
<td>72</td>
</tr>
<tr>
<td>I. Criterion Weights for Significant Canonical Correlations</td>
<td>74</td>
</tr>
<tr>
<td>J. Cell Means of 8-Item LBDQ (Consideration Check) Totals, as a Function of Orientation and Leader Style</td>
<td>75</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>76</td>
</tr>
</tbody>
</table>
LIST OF TABLES

Table  Page

1. Acts Over Time for the Three Groups ........ 20

2. Design of the Study, With Number of Groups and Subordinates Per Cell ........ 25

3. Analysis of Variance of 8-Item LBDQ Totals as a Function of Orientation and Leader Style .......... 31

4. Analysis of Variance of Group Decision Quality Scores as a Function of Orientation and Leader Style, for the Cases of Mary Everett and Cheryl Barnes ........ 31

5. Analysis of Variance of Decision Quality Totals as a Function of Orientation and Leader Style ........ 32


7. Analysis of Variance of Decision Quality Totals as a Function of Orientation and Appropriateness of the Leader's Style for the Stage of Group Development ........ 34


9. Analysis of Variance of Decision Quality Totals as a Function of Orientation and Leader Style, With Consideration Determined by the LBDQ Items ........ 35

10. Cell Means of Decision Quality Totals as a Function of Orientation and Leader Style (Consideration from the LBDQ), With Q Values from the Newman-Keuls Procedure .......... 36

11. Analysis of Variance of Decision Quality Totals as a Function of Orientation and Appropriateness of the Leader's Style for Stage of Group Development (Consideration from the LBDQ) .......... 36
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.</td>
<td>Cell Means of Decision Quality Totals as a Function of Orientation and Appropriate Style for Stage of Group Development (Consideration from the LBDQ), With Q Values from the Newman-Keuls Method</td>
<td>37</td>
</tr>
<tr>
<td>13.</td>
<td>Analysis of Variance of Graphic and JDI Measures of Leader Satisfaction as a Function of Orientation and Leader Style, With Consideration Levels Determined by the Experimental Manipulation</td>
<td>38</td>
</tr>
<tr>
<td>14.</td>
<td>Analysis of Variance of Graphic and JDI Measures of Leader Satisfaction as a Function of Orientation and Leader Style, With Consideration Levels Determined by the LBDQ</td>
<td>39</td>
</tr>
<tr>
<td>15.</td>
<td>Cell Means of Graphic and JDI Ratings of Leader Satisfaction as a Function of Orientation and Leader Style, With Consideration from the LBDQ</td>
<td>39</td>
</tr>
<tr>
<td>16.</td>
<td>Analyses of Variance of Graphic and JDI Measures of Coworker Satisfaction as a Function of Orientation and Leader Style, With Consideration Determined by the Manipulation and by the LBDQ</td>
<td>40</td>
</tr>
<tr>
<td>17.</td>
<td>Cell Means of Graphic and JDI Measures of Coworker Satisfaction as a Function of Orientation and Leader Style, With Consideration Determined by both the Manipulation and the LBDQ</td>
<td>41</td>
</tr>
<tr>
<td>18.</td>
<td>Analysis of Variance of Agreement Scores as a Function of Orientation and Leader Style, With Consideration Determined by the Manipulation and by the LBDQ</td>
<td>43</td>
</tr>
<tr>
<td>19.</td>
<td>Cell Means of Agreement Scores as a Function of Orientation and Leader Style, With Consideration Determined by the LBDQ</td>
<td>43</td>
</tr>
<tr>
<td>20.</td>
<td>Analyses of Variance of Information Shared On Each Case During Decision Making as a Function of Orientation and Leader Style, With Consideration from the Manipulation and from the LBDQ</td>
<td>45</td>
</tr>
<tr>
<td>21.</td>
<td>Cell Means of Information Sharing in Both Cases, as a Function of Orientation and Leader Style, With Consideration from the Manipulation and</td>
<td></td>
</tr>
<tr>
<td>Table</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>the LBDQ.</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>22. Correlation Matrix of Selected Variables.</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>23. &quot;Factor&quot; Lables, Canonical Correlations and Predictor Weights</td>
<td>51</td>
<td></td>
</tr>
</tbody>
</table>
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The Hypothesized Relationships Between Four Leadership Styles and Group Decision Quality, as Moderated by Orientation</td>
<td>15</td>
</tr>
</tbody>
</table>
Chapter 1
INTRODUCTION

Leader Style and Group Effectiveness

Since the Ohio State leadership studies of the 1950's, there has been great interest in the relationship of leader consideration and initiation of structure to group effectiveness. There is no universally accepted theory, however, relating these variables. Instead, four different, though not entirely contradicting, theories have been developed, and each has generated both positive and negative evidence.

The first theory (Theory C) stresses a positive relationship between leader consideration and group effectiveness. According to this theory "supportive" (Likert, 1961) or "employee centered" (Davis, 1962) supervisors attain higher group productivity than do less considerate supervisors. Vroom (1964), in reviewing eleven studies relating consideration to productivity, found eight with positive results and three with negative results or no relationship. The correlational methods used in these studies, though, left the causal link between consideration and productivity in question, because productive groups might have elicited considerate supervision rather than the reverse.

The second theory (Theory S) stresses a positive rela-
tionship between the leader's initiation of structure and the group's effectiveness. This does not necessarily contradict the first theory, since the consideration and structure dimensions are at least partially independent (Fleishman, 1953; Halpin and Winer, 1957). Evidence supporting this view comes from Fleishman, Harris and Burtt (1955), who found a .47 correlation between proficiency ratings of production foremen and LBDQ scores in initiating structure. House and Filley (1968), in reviewing the literature, found ample support for a structure-effectiveness relationship when the former term included advance planning, specific work assignments, etc., but excluded such authoritarian behaviors as ruling with an iron hand and refusing to explain actions.

Again, however, the evidence is not entirely one-sided. In non-production divisions, Fleishman, Harris and Burtt found a slightly negative (-.19) relationship between proficiency ratings and initiating structure. Also, definitional problems with "initiating structure" make it possible to interpret the considerable evidence supporting a positive relationship between participation and productivity (e.g., Lewin, Lippitt and White, 1939; Coch and French, 1948; Katz, Maccoby and Morse, 1950) as indicating a negative relationship between productivity and initiation of structure.

A third theory (Theory SC) suggests that high super-
visory consideration and structure in combination will result in high group effectiveness, while neither variable will have such an effect when used alone. Fleishman and Simmons (1970) found that proficiency ratings of Israeli foremen by their managers were highest when scores on both scales of the Leader Behavior Description Questionnaire (LBDQ) were high, lower when one scale was low, and lowest when both scales were low. The same authors cite other literature (Anderson, 1966; Fleishman, 1969; Fleishman and Harris, 1962; Fleishman and Ko, 1962; Halpin, 1955; Hemphill, 1955; Misumi and Tosaki, 1965; Sergiovanni, Metz cus and Burden, 1969) interpreted as supporting this view. More recently, Cummins (1971), in a study of 133 foremen in a manufacturing plant, found higher correlations between foreman structure and group work quality ratings when consideration (from superiors' ratings and the Leader Opinion Questionnaire) was also high.

Even Theory SC, however, lacks total empirical support. An interesting study of Greenwood and McNamara (1969) measured the relationship between the LOQ and various measures of managerial potential (derived from ability, personality and interest tests, plus situational exercises). An analysis of variance of the manager's potential as a function of LOQ consideration and structure failed to detect either significant main effects or interactions. Thus, the findings were negative for all three theories discussed so
There are other reasons why many theorists are not satisfied with any view of leadership which demands one style or combination of styles at all times. By viewing the organization as a complex, dynamic system, they conclude that an effective leader is one who can adapt his style to the particular situation (referred to here as Theory M, for "moderator"). Stogdill (1948) and Gibb (1954) had early emphasized the necessity of a situational approach.

Tannenbaum, Wechsler and Massarik (1961) argued that three situational factors should be considered in choosing a leadership pattern: forces in the manager (e.g., value system), forces in the subordinates (e.g., need for independence), and forces in the situation (e.g., type of organization). Mahoney, Jerdee and Carroll (1965) suggested functional area as a possible moderator, while Hemphill (1959) added that level of management might also be important. Korman (1966), after reviewing research correlating LOQ and LBDQ scales with organizational criteria and finding few significant relationships, also decided that moderators might better clarify the style-effectiveness relationship.

The best known situational theory is Fiedler's contingency model (1967). Briefly, this model states that task oriented leaders perform best when the situation is either very favorable or very unfavorable, while relation-
ship oriented leaders do better in intermediate cases. Leader style is determined by measures (assumed similarity between opposites and least preferred coworker) which, unfortunately, do not allow leaders to score high in both dimensions. Thus, comparisons between Fiedler's dimensions and the Ohio State scales are difficult. Situational favorableness is determined by measures of leader-member relations, task structure and position power.

Although based upon considerable prior research, a recent review of empirical tests of the contingency model by Graen, Alvares and Orris (1970) concluded that "the evidential probability for this model approaches zero." Other situational theories have not met with much greater success. For example, the data from the Greenwood and McNamara (1969) study suggested that structure and consideration as measured by the LOQ were not only uncorrelated with behavioral measures of supervisory performance, but were also not significantly different for the two moderators suggested by Hemphill (1959), viz., managerial level and functional position.

In general, then, though Theory M seems the most promising to many theorists, moderator variables which will interact with leadership style to enhance group effectiveness have not been demonstrated. However, a well researched variable in small group studies, stage of group development,
has hardly been considered as such a moderator, and deserves closer examination. This will be done in a later section, but first another line of research which is tangentially related to the Ohio State and group development studies will be discussed, because of its impact on the methodology of the present study.

"Free" and "Developmental" Discussion Groups

The work of Maier and his associates (Maier and Maier, 1957; Maier and Hoffman, 1960) on developmental discussion groups constitutes an attempt to manipulate leadership in a laboratory setting. Maier and Maier (1957), in a study involving 374 undergraduates in a course on the psychology of management, randomly formed 45 "developmental" and 41 "free" discussion groups of 4 or 5 persons, and randomly selected leaders for each group. Each S was given a copy of the "Case of Viola Burns," Viola being a young office worker who is offered a promotion to private secretary. The case consists of (1) a general description of Viola's personality and job performance, (2) an interview between Viola's boss and the personnel manager, (3) an interview between Viola and the personnel manager, and (4) a second interview between Viola's boss and the personnel manager, describing her reaction to the job offer. Based on discussion of this information, each group was to decide whether Viola should be encouraged to take the new job or discouraged from taking it, both from the company's and her
own points of view. Because Viola is neither extroverted nor well trained enough for the new job, and because she is happy in her present job and disturbed by the new offer, the best decision is to discourage her from both viewpoints. However, because she is a good worker who apparently "deserves" promotion, the decisions which are considered correct are far from obvious.

Both free and developmental leaders were instructed to encourage interaction of ideas, be permissive, try to obtain agreement and get a final vote on the recommendations. Developmental leaders, however, were also instructed to obtain unanimous group decisions on five preliminary problems related to the case. The significance of this research for the present study lies in these manipulations. With slight modification, the instructions for free discussion leaders to be permissive, encourage ideas, etc., might elicit what is generally referred to as "considerate" leadership. Also, providing leaders with preliminary problems seems close to "structured" leadership minus some of the arbitrary, authoritarian behaviors sometimes associated with this style. As will be seen, a modification of the instructions used by Maier and his associates was indeed used to experimentally induce considerate and/or structured leadership in the present research.

The results of the Maier and Maier study were that, from both the company's and Viola's viewpoints, 39.7% of
the developmental groups decided correctly, that Viola should be discouraged from taking the job. The percentages correct in free discussion groups were 18.9% from the company's viewpoint and 20.6% from Viola's. Thus, while the majority of decisions under all conditions were incorrect, the decision quality was significantly higher in developmental groups.

In a later study (Maier and Hoffman, 1960) the decision quality of developmental groups was improved further by giving the leaders more extensive training in the developmental discussion method. While under these conditions the majority of decisions on both questions were correct, the results are difficult to compare with the previous study because the Ss were from a higher level management course.

Stage of Group Development

As mentioned earlier, developmental stage has received little attention as a moderator of the leader style-group effectiveness relationship. This is yet more surprising when it is seen that there is a fair degree of consensus on phase sequence among group development theories.

Tuckman (1965), in reviewing 50 articles concerning stages of group development, notes four general phases: forming (orientation, testing and dependence); storming (conflict and polarization around interpersonal issues); norming (development of ingroup feeling and cohesiveness); and performing (structural issues having been resolved, the
structure becomes supportive of task performance). Task related activity in natural and laboratory groups, though, seems to lack the "storming" stage, presumably because of the non-threatening nature of the task in such groups.

The most empirically based natural and laboratory group research reviewed by Tuckman was performed by Bales (1953) and Bales and Strodtbeck (1953), using interaction process analysis techniques. These investigators found three sequential phases in problem solving labeled orientation, evaluation and control, and characterized by the following interaction process categories:

Orientation: gives orientation, information, repeats, clarifies, confirms; asks for orientation, information, repetition, clarification.
Evaluation: gives opinion, evaluation, analysis, feeling, wish; asks for opinion, evaluation, analysis, expression of feeling.
Control: gives suggestion, direction, implying autonomy for other; asks for suggestion, direction, possible ways of action.

Bales and Strodtbeck also mention that phase movement will occur if:

(1) group members are mentally and emotionally normal,
(2) they are adult or near-adult members of our own culture,
(3) there is some minimum pressure to maintain group solidarity,
(4) the period of analysis includes a single "topical cycle of operations," periods of discussion being analyzed separately, and
(5) the functional problems of orientation, evaluation and control are each to a major degree unsolved at the beginning of observation and solved in some degree during the period of observation (regarding orientation,
This means that members of the group must have some ignorance and uncertainty about the relevant facts, but individuals possess facts relevant to the decision.

The last two points had particularly important implications for the design of the present research. The fourth point suggested that two cases could be considered sequentially by the groups, provided the data were classified by problem rather than by total time. In other words, the proper conceptualization of a group's development through two sequential problems is

problem 1  problem 2
early.....late.....early.....late

and not

problem 1  problem 2
early..............late

The fifth point suggested that, for the groups to develop through the orientation phase, each member should have a different portion of the information on the problem to be solved. While there were additional restrictions for a group to develop through later phases, these were not important for the present study, since only (without vs. with) orientation comparisons were made.

Wood (1971) also conceptualized three phases in group decision making - generation, evaluation and choice - which closely resembled Bales' categories. By prohibiting member participation in various phases, he was able to compare
the effects of full and several forms of partial member participation on perceived influence.

Less empirical than the research of Bales or Wood, but more relevant to the present study, is the "life cycle theory" of Hersey and Blanchard (1969), the only direct attempt to relate leadership effectiveness to stage of development (though it is unclear whether this development is at a group or individual level). Leadership style, the theory states, should vary according to the maturity of the group members, maturity being defined as "the relative independence, ability to take responsibility and achievement motivation of an individual or group." By analogy with the parent-child relationship, they decide that leader behavior should move from (1) high task-low relationships to (2) high task-high relationships to (3) low task-high relationships to (4) low task-low relationships. They claim "validation" of the theory in college teaching, where freshmen and sophomores need high structure, upper division undergraduates and Master's students need more relations-oriented behavior, and Ph.D. students need very little guidance or socio-emotional support. While there are obvious limitations to such armchair theorizing and validation, the point that leader style must adapt to the group's development is well taken and worthy of research. To empirically test such a view is the purpose of the present study.
Integration of Theory

The following points summarize the previous research and make some further inferences.

(1) Supervision which is high in consideration may contribute to group effectiveness, but does not always do so. There are apparently certain situations in which consideration is important.

(2) The same is true of supervision which is high in initiation of structure.

(3) Supervision which combines consideration and initiation of structure seems more generally successful. Greenwood and McNamara's (1969) study, however, suggests that even this combination is no panacea.

(4) While situational theories seem most logical, and reflect the current view of the organization as a complex, dynamic system, potential moderators of the leadership style - group effectiveness relationship have not withstood empirical tests.

(5) Viewing the organization as a dynamic system, however, an obvious moderator of the style - effectiveness relationship is group development over time.

(6) There seems to be a fair consensus about phase sequence among group development theories, which is exemplified by the results of interaction process analysis research of Bales (1953) and Bales and Strodtbeck (1953). One of
their findings is that a newly formed group (or a group working on a new problem) is concerned with problems of orientation, or the transmission of information (reflected by the terms orientation, information, repetition, clarification and confirmation). After this information sharing is completed, however, concern switches to problems of evaluation or the transmission of opinion and emotion (reflected by the terms opinion, evaluation, analysis, feeling and wish).

(7) It follows that the leader of a group which has just begun to solve a problem should initiate structure, in order to ensure systematic coverage of the relevant information. Once the group has shared the information, however, the leader should be high in consideration, in order to ensure constructive expression of opinions and emotions. Hersey and Blanchard (1969) arrived at a similar conclusion by a different line of thought. Also, Maier and Maier (1957) indirectly suggested the same conclusion at the end of their study demonstrating the superiority of "developmental" over "free" discussion.

It is the opinion of the writers that the above findings apply only to problems in which emotional involvement is not an important aspect of the problem. It is believed that with other types of problems the "free" type of discussion may be more effective than the "developmental." The superiority of the "developmental" discussion seems to depend upon two things: it assures systematic coverage of the topic and it synchronizes the discussion so that all members tend to talk about the same thing at the same time.
The only thing that the writers fail to note is that, within a single problem, systematic coverage of the topic and synchronized discussion may be important at an early point in development, while emotional involvement may be important at a later point.

Hypotheses

The two principal hypotheses are as follows.

1. Groups with leaders instructed to initiate structure will make better decisions than groups with leaders not instructed to initiate structure, when the group has not yet shared information on the problem (i.e., has not passed through the orientation phase).

2. Groups with leaders instructed to be considerate will make better decisions than groups with leaders not instructed to be considerate, when the group has already shared information on the problem (i.e., has passed through the orientation phase).

Figure 1 shows the hypothesized relationship for the four possible combinations of structure and consideration. A style which is high in structure or in both structure and consideration elicits the best decision quality in groups which have not had an orientation. A style which is high in consideration or in both structure and consideration elicits the best decision quality in groups which have had an orientation. A style low in both
structure and consideration does relatively poorly under both conditions. The general rise in decision quality

Figure 1 — The Hypothesized Relationships Between Four Leadership Styles and Group Decision Quality, As Moderated by Orientation

<table>
<thead>
<tr>
<th>Group</th>
<th>Decision Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>SC</td>
</tr>
<tr>
<td></td>
<td>C</td>
</tr>
<tr>
<td>Low</td>
<td>N</td>
</tr>
</tbody>
</table>

No | Yes
---|---
Orientation

for groups with orientation is due to an expected improvement for groups having more time to share information.

There are also the following hypotheses, concerning variables other than decision quality.

(3) Satisfaction with the leader will be highest in groups with considerate supervision, regardless of orientation. This is because satisfaction seems to bear a simple linear relationship to leader consideration (Vroom, 1964).

(4) Satisfaction with co-workers will be highest in groups
which have passed through an orientation phase, because interaction among group members tends to increase liking (Homans, 1950).

**Definitions**

While consideration and initiating structure will be operationally defined later in terms of the leader's instructions, more general definitions will be provided at this point, in order to avoid the confusion often associated with these terms.

Consideration will mean both "friendly and participative leader behavior." This definition derives from the consideration scale of the LBDQ, in which items reflect either friendliness (e.g., friendly and can be easily approached) or participation (e.g., puts suggestions that are made by foremen under him into operation).

Structure, however, will mean "providing the group members with a logical series of steps to assist in solution of a problem." While this definition does reflect such LBDQ items as "decides in detail what should be done and how it shall be done," it does not reflect such authoritarian behaviors as "criticizes poor work" or "rules with an iron hand." This is in line with current thinking (e.g., Fleishman and Simmons, 1970), in which some of the more negative aspects of the original term are eliminated.
Chapter 2
Overview and Pilot Study

In Chapter 3 an experiment designed to test the four hypotheses will be described. In that experiment, 4 person groups (1 leader and 3 subordinates) make decisions regarding two case studies, the first a modification of Maier's "Case of Viola Burns" and the second an adaptation of his (1953) "Case of Mary Everett." Each case involves an employee being considered for job promotion or transfer, and two decisions are made concerning each person.

By varying the time at which the leader begins to work with the group, and the instructions which he receives, a 2 x 4 factorial design emerges, with developmental stage being either early or late and leadership being either considerate, structured, neither or both. After deciding on both cases, a questionnaire tapping satisfaction and other variables is given to the subordinates.

In Chapter 4, decision quality (determined by logical application of psychological principles), leader satisfaction, coworker satisfaction, agreement and other variables are analyzed as a function of developmental stage and leader style. These and other results are summarized and discussed in Chapter 5.
Before beginning the experiment, however, it was necessary to observe groups making similar decisions in a pilot study. This would help in determining two things: (1) whether the groups would pass through Bales' phases of development, and (2) if so, at approximately what time decision making would move from orientation to evaluation, as this would be when "late development" leaders in the following experiment would be introduced. In general, the pilot study should be interpreted as a point of departure for the later experiment. Because the experimenter observed the groups, distortion from experimenter effects or recording bias was possible, making stronger interpretations of the pilot study data unwarranted.

Nine introductory psychology students served as Ss in the pilot study. Three groups of 3 members each were observed at different times. Each member of a group was given one portion of the "Case of Cheryl Barnes," a modification of the "Case of Viola Burns," with a more modern sounding name (see the "Free" and "Developmental" Discussion Groups section of the last chapter).

The revised case differed from the original in the following respects: (1) slight editing and omission in favor of simplicity and directness, and (2) division of information into three segments, so that each member would have some unique information, although there was considerable overlap. The latter change was made to
satisfy Bales and Strodtbeck's fifth requirement for phase development (with regards to orientation) that members of the group have some ignorance and uncertainty about the relevant facts, but individuals possess facts relevant to the decision. A third modification of the task was made after the pilot study. Because of the difficulty the groups had in making the correct decisions (all three groups answered both questions incorrectly) a few changes were made in favor of further simplicity. The final revision of the case, used in the later experiment, is shown in Appendix A. The form used in the pilot study was only slightly different.

The Ss were told they had two minutes to examine the case, and after this interval the information was removed. They then decided on the two questions employed by Maier: (1) from the point of view of the company, Cheryl should be (discouraged from, encouraged to take) the new job; (2) from the point of view of Cheryl's welfare, she should be (discouraged from, encouraged to take) the new job.

The experimenter, while observing the group, categorized the statements by type of act (orientation, evaluation and control) and by time (divided into minutes). The sheet used in recording the behaviors was similar to that used in interaction process analysis (Bales, 1950), except several of the original categories were collapsed or omitted and
a time dimension was added.

The results are shown in Table 1. The most obvious finding is that it does not take very long for the groups to make the decisions - only five or six minutes.

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Evaluation</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Group 2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Group 3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>8</td>
</tr>
</tbody>
</table>

Results on group development are about as expected. While there is considerable overlap, orienting acts seem predominant in the first through third minute, while evaluating acts seem predominant in the third through fifth minute. The data on controlling behaviors are not as clear, though they too seem to peak in late development.

It should be noted, however, that there are sizable group differences in conformity to phase development. While Group 1 conforms particularly well, phase movement is much less clear in the other two groups. This difference
seemed to result from variation in approach to decision making. While the first group reasoned consecutively from premises to conclusions, members of the other groups tried to control the outcome throughout the time period, adding evidence and opinion at several points. While this variation is interesting in itself (as suggested by Wood, 1971), pointing to consideration of phase distinguishability as an independent variable in group decision making, it could make the data of the following experiment less clear. It is for this reason that late development groups in that experiment will be asked to "share information" for 3 minutes before continuing the decision process. Allowing members to simply interact for that time, without instructions which are intended to elicit orienting behaviors, could contribute to random variance and decrease experimental sensitivity. Since 93% of the orienting acts did occur during the first three minutes, this additional structure should not distort the natural process of decision making.
Chapter 3

METHOD

Subjects

The Ss in the present study were 320 male introductory psychology students of the Ohio State University, who participated in partial fulfillment of the experimental requirement for the course. Twelve or 16 Ss were present at a given time, forming three or four groups of four persons each.

Manipulations and Design

Orientation was varied by a time schedule written on the front-blackboard of the classroom. For groups which did not pass through an orientation stage prior to introduction of the leader, the blackboard schedule was as follows:

<table>
<thead>
<tr>
<th>Time Schedule (Minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examine Case 1-</td>
</tr>
<tr>
<td>Mary Under</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

A brief verbal explanation stressed that all phases would be timed, that information would not be available after the time allotted for examining the cases, and that leaders
did not have portions of either case but had separate instructions for carrying out their task.

For groups which did pass through an orientation stage prior to introduction of the leader, the schedule was the same except for the addition of the following categories:

(between examination of case 1 and making decisions under the leader)

Share Information
-Case 1

3

(between examination of case 2 and making decisions under the leader)

Share Information
-Case 2

3

A brief verbal explanation stressed that all phases would be timed, that information would not be available after the time allotted for examining the cases, and that leaders did not have portions of either case but would follow their own instructions and listen but not participate while information was being shared.

Leadership style was varied by written instructions given to the leader. All leaders received general instructions explaining the procedure (Appendix B). These were the only instructions given to leaders in the low structure-low consideration ("N") condition.
High consideration ("C") leaders were given the additional instructions shown in Appendix C. The second through fifth points were adapted from Maier and Maier's (1957) leader instructions, and in general reflect the participative aspect of considerate supervision. The first point was added to elicit friendliness, the other aspect of considerate supervision.

High structure ("S") leaders were given two extra sheets, one for each case. They were to use these sheets in recording unanimous group decisions on several preliminary problems related to the case. For the case of Cheryl Barnes, these preliminary problems were virtually identical to those in Maier and Maier (1957). For the case of Mary Everett, the problems were developed for the present study by creating questions which were logically related to the final decisions on the case. The case itself was an adaptation of a case study in Maier (1952), and is shown in Appendix F. The preliminary problems for both cases are shown in Appendix D.

Leaders high in both structure and consideration ("SC") were given all of the above materials, in the following order: general instructions, consideration manipulation, structured problems for Mary Everett, and structured problems for Cheryl Barnes.

A simple 2 x 4 design was employed, involving two
levels of group development (no orientation, orientation) and four types of leadership style (N, S, C, SC). Dependent measures were obtained for 10 groups, or 30 subordinates, per cell. As will be seen, however, a consideration manipulation check did not sense an effect for this variable. Thus, the groups were also classified with consideration derived from the manipulation check (Table 2), unequal cell sizes resulting from this procedure. Whenever possible, the data was analyzed both ways: consideration determined by the manipulation and by the manipulation check.

**Procedure**

All Ss participating during a particular time period were randomly assigned to a single condition of the exper-
ment. After all Ss had arrived, they were asked to form groups of 4 persons each. Groups were seated at opposite corners of a large classroom, where the Ss could see the other groups but not distinguish their conversation. Leaders were asked to volunteer from each group, to encourage Ss with some inclination toward leadership to be supervisors.

The leaders were then given the instructions determined by the experimental condition (N, S, C or SC). Subordinates received a booklet containing general instructions on the task (page 1), one portion of the case of Mary Everett (page 2), and one portion of the case of Cheryl Barnes (page 3). These are shown in Appendices E, F and A. Specifically, the Ss received portions as follows: (1) the work record of Mary, and the work record of Cheryl; (2) part 1 of an interview between Mary and the personnel counselor, and a discussion between Cheryl's boss (the paymaster) and the assistant personnel manager; (3) part 2 of an interview between Mary and the personnel counselor, and a discussion between Cheryl and the assistant personnel manager.

Subordinates were told not to turn past the first page until signalled to do so. Leaders were asked to come to the front of the room, so that questions could be answered. Then the blackboard schedule was explained, and the Ss were timed in the various portions of the experiment. During the decision making stage, Ss were told when five
and seven minutes had elapsed. After seven minutes S and SC groups were asked to make final decisions even if the preliminary problems were not completed.

After decision making on the second problem leaders were permitted to leave. Then subordinates filled in the questionnaire shown in Appendix G. The questionnaire contains: (1) an item asking for personal decisions on the two cases; (2) the Job Description Index (Smith, Kendall and Hulin, 1969) Supervision Scale, to measure satisfaction with the leader (with one item, "Lazy," inadvertently omitted); (3) embedded within this scale, 8 items adapted from the Leader Behavior Description Questionnaire (Fleishman, Harris and Burtt, 1955), the four with the highest positive loadings and the four with the highest negative loadings, to measure consideration; (4) a 7-point graphic rating scale of satisfaction with the leader; (5) the JDI Co-worker Scale, to measure satisfaction with co-workers; (6) a 7-point graphic rating scale of satisfaction with co-workers; (8) an item tapping the amount of information sharing (or orientation) during the decision making phase, to test a possible interpretation of the first two hypotheses, to be discussed in the "Results" chapter.

At the end of the experiment, Ss were told the general purpose of the study; but were asked not to tell others about it. Leaders had been given similar instructions
before leaving. Nobody was told, however, what the "best"\(^1\) decisions were, as this might have contaminated later results despite the above precautions.

\(^1\)As mentioned previously, the "best" or "correct" decisions were determined by logical application of psychological principles. For Cheryl Barnes, promotion from any viewpoint would be unwise, as she is happy and effective in her present job but fearful of and untrained in the new one (Maier and Maier, 1957). Mary Everett is receiving the maximum wage for her job classification, and her complaints are a product of psychological problems associated with age and the death of her father. A good counselor, however, would not actively interfere with her expression of these problems and offer his own solutions.
Chapter 4
RESULTS

A number of data analyses were employed to check on manipulations, test hypotheses and gather additional information. In the following outline, roman numerals indicate section headings and asterisks indicate specific analyses.

I. Consideration: *A of V of LBDQ as a function of orientation and leader style

II. Decision Quality
   A. Consideration from the manipulation
      1. *A of V of scores in each case as a function of orientation and leader style
         a. *Case of Mary Everett
         b. *Case of Cheryl Barnes
      2. *A of V of totals as a function of orientation and leader style
      3. *Newman-Keuls procedure applied to "2"
      4. *A of V of totals as a function of orientation and appropriateness of style for stage of group development
      5. *t-tests for "4"
   B. Consideration from the LBDQ
      1. *A of V of totals as a function of orientation and leader style
      2. *Newman-Keuls procedure applied to "1"
      3. *A of V of totals as a function of orientation and appropriateness of style for stage of group development
      4. *Newman-Keuls procedure applied to "3"

III. Satisfaction
   A. Leader
      1. Consideration from the manipulation
         a. *A of V of graphic scale as a function of orientation and leader style
b. *A of V of JDI scale as a function of orientation and leader style

2. Consideration from the LBDQ
   a. *A of V of graphic scale as a function of orientation and leader style
   b. *A of V of JDI scale as a function of orientation and leader style

IV. Agreement
   A. *A of V of agreement scores as a function of orientation and leader style, with consideration from the manipulation
   B. *A of V of agreement scores as a function of orientation and leader style, with consideration from the LBDQ

V. Information Sharing During Decision Making
   A. Consideration from the manipulation
      1. *A of V of information shared in case of Mary Everett as a function of orientation and leader style
      2. *A of V of information shared in case of Cheryl Barnes as a function of orientation and leader style
   B. Consideration from the LBDQ
      1. *A of V of information shared in case of Mary Everett as a function of orientation and leader style
      2. *A of V of information shared in case of Cheryl Barnes as a function of orientation and leader style

VI. Scale Characteristics: Norms and Correlations
   A. *Comparisons of JDI totals to norms
   B. *Correlations

VII. *Canonical Correlations, with measures of orientation, structure and consideration in the first (predictor) set and measures of decision quality and satisfaction in the second (criterion) set

Consideration

To check on the consideration manipulation, an analysis of variance was performed on the LBDQ 8-item totals as a function of orientation (no, yes) and leader style (N, S, C, SC). An effective manipulation would
imply higher scores for C and SC leaders than for others. Table 3 indicates that this did not occur (means are shown in Appendix J), so in future analyses consideration levels will be determined by a median split of LBDQ totals of the 3 subordinates, as well as by the original manipulation.

Table 3 -- Analysis of Variance of 8-Item LBDQ Totals as a Function of Orientation and Leader Style

<table>
<thead>
<tr>
<th>Source</th>
<th>MS</th>
<th>df</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>61.00</td>
<td>1</td>
<td>2.92</td>
</tr>
<tr>
<td>Leader Style</td>
<td>19.10</td>
<td>3</td>
<td>.92</td>
</tr>
<tr>
<td>Orientation x Style</td>
<td>12.93</td>
<td>3</td>
<td>.62</td>
</tr>
<tr>
<td>Within</td>
<td>20.86</td>
<td>232</td>
<td></td>
</tr>
</tbody>
</table>

Decision Quality

For each of the two case studies, analyses of variance were performed on group decision quality scores as a function of orientation and leader style. The first two hypotheses predict an interaction between orientation and leader style,

Table 4 -- Analyses of Variance of Group Decision Quality Scores as a Function of Orientation and Leader Style, for the Cases of Mary Everett and Cheryl Barnes

<table>
<thead>
<tr>
<th>Source</th>
<th>Mary Everett</th>
<th></th>
<th>Cheryl Barnes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MS</td>
<td>df</td>
<td>F</td>
<td>MS</td>
</tr>
<tr>
<td>Orientation</td>
<td>.45</td>
<td>1</td>
<td>2.05</td>
<td>.31</td>
</tr>
<tr>
<td>Leader Style</td>
<td>.02</td>
<td>3</td>
<td>.08</td>
<td>.31</td>
</tr>
<tr>
<td>Orientation x Style</td>
<td>.15</td>
<td>3</td>
<td>.68</td>
<td>.21</td>
</tr>
<tr>
<td>Within</td>
<td>.22</td>
<td>72</td>
<td></td>
<td>.17</td>
</tr>
</tbody>
</table>
S and SC leaders being most effective for groups without prior orientation, C and SC leaders being most effective for groups with prior orientation. As seen in Table 4, the predicted relationship was not observed.

When scores from the two cases were totaled there was still no significant interaction. There was, however,

Table 5 — Analysis of Variance of Decision Quality Totals as a Function of Orientation and Leader Style

<table>
<thead>
<tr>
<th>Source</th>
<th>MS</th>
<th>df</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>1.51</td>
<td>1</td>
<td>4.08*</td>
</tr>
<tr>
<td>Leader style</td>
<td>.41</td>
<td>3</td>
<td>1.11</td>
</tr>
<tr>
<td>Orientation x style</td>
<td>.58</td>
<td>3</td>
<td>1.56</td>
</tr>
<tr>
<td>Within</td>
<td>.37</td>
<td>72</td>
<td></td>
</tr>
</tbody>
</table>

(*significant at .05 level)

an unexpected finding that groups without a prior orientation did better than those with one (Tables 5 and 6).

To help explain this finding, the Newman-Keuls procedure

Table 6 — Cell Means of Decision Quality Totals as a Function of Orientation and Leader Style, With Q Values from the Newman-Keuls Procedure

<table>
<thead>
<tr>
<th>Leader Style</th>
<th>N</th>
<th>S</th>
<th>C</th>
<th>SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>No</td>
<td>1.20</td>
<td>1.60</td>
<td>1.30</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>1.40</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Difference</td>
<td>.20</td>
<td>.60</td>
<td>.30</td>
<td>.40</td>
</tr>
</tbody>
</table>

q (r=2; df=72)=1.05 3.16* 1.58 2.11

(*significant at .05 level)
for comparing differences between cell means, given a significant over-all F (Winer, 1962), was applied to the data in Table 6. Comparisons were made between means of groups without and with orientation, for each of the four leader styles. The only significant decrease in decision quality resulting from orientation was for S leaders. This is in agreement with the first hypothesis, which suggests (see Figure 1) that the decision making superiority of oriented over non-oriented groups will be least for groups with S leaders.

A final analysis of variance of decision quality scores with consideration determined by the experimental manipulation was designed to increase the sensitivity in detecting the hypothesized interaction. In the previous analyses, an interaction between orientation and S or C styles was expected. However, such an interaction was not anticipated for either N or SC styles, which should remain low and high, respectively, regardless of orientation. Thus, a new analysis classified the data according to "appropriateness for the stage of group development," S and SC styles being appropriate for early development (groups without prior orientation) and C and SC styles being appropriate for later development (groups with a prior orientation). This classification derives directly from the first two hypotheses, and provides a simple means for
testing them separately, by comparing groups whose leaders are hypothesized as acting appropriately with groups whose leaders are hypothesized as not acting appropriately, for the given stage of development.

The results appear in Tables 7 and 8. As before, the significant F is for orientation, groups without doing better than groups with. However, the first hypothesis, when analyzed alone, did receive support, S and SC groups doing better than N and C groups in early stages of development.

Table 7 -- Analysis of Variance of Decision Quality Totals as a Function of Orientation and Appropriateness of the Leader's Style for the Stage of Group Development

<table>
<thead>
<tr>
<th>Source</th>
<th>MS</th>
<th>df</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>1.51</td>
<td>1</td>
<td>4.10*</td>
</tr>
<tr>
<td>Appropriateness</td>
<td>.61</td>
<td>1</td>
<td>1.66</td>
</tr>
<tr>
<td>Orientation x Appropriateness</td>
<td>1.01</td>
<td>1</td>
<td>2.74</td>
</tr>
<tr>
<td>Within</td>
<td>.37</td>
<td>76</td>
<td></td>
</tr>
</tbody>
</table>

(*significant at .05 level)

Table 8 -- Cell Means of Decision Quality Totals as a Function of Orientation and Appropriateness, With t-Tests for the First Two Hypotheses

<table>
<thead>
<tr>
<th>Appropriate</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>(N,C) 1.25</td>
<td>(S,SC) 1.65 ...t=1.82*</td>
</tr>
<tr>
<td></td>
<td>Yes (N,S) 1.20</td>
<td>(C,SC) 1.15 ...t= .31</td>
</tr>
</tbody>
</table>

(*significant at .05 level, one-tailed)
development (t = 1.82, significant at .05 level, one-tailed).

Because the manipulation check failed to detect greater consideration among leaders given "consideration" instructions, two other analyses of the decision quality totals classified consideration according to the LBDQ. Interpretations of these analyses, as well as later ones using this classification, require greater caution because: (1) cell N's are unequal, which could accentuate error caused by violation of analysis of variance assumptions (especially equality of variance), and (2) consideration is not experimentally manipulated, so that direction of causality might be questioned.

In the first of these analyses of variance, decision quality is a function of orientation and leader style (Tables 9 and 10). As with the similar analyses in which consideration levels were determined by the manipulation, the only significant effect is attributable to orientation.

<table>
<thead>
<tr>
<th>Source</th>
<th>MS</th>
<th>df</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>1.88</td>
<td>1</td>
<td>4.97*</td>
</tr>
<tr>
<td>Leader Style</td>
<td>.41</td>
<td>3</td>
<td>1.09</td>
</tr>
<tr>
<td>Orientation x Style</td>
<td>.38</td>
<td>3</td>
<td>.99</td>
</tr>
<tr>
<td>Within</td>
<td>.38</td>
<td>72</td>
<td></td>
</tr>
</tbody>
</table>

(*significant at the .05 level)
Also as in the previous analysis, use of the Newman-Keuls procedure (with harmonic means, as suggested by Winer, 1962) suggests that this can be explained by the first hypothesis.

Table 10 -- Cell Means of Decision Quality Totals as a Function of Orientation and Leader Style (Consideration From the LBDQ), With Q Values From the Newman-Keuls Method

<table>
<thead>
<tr>
<th>Leader Style</th>
<th>N</th>
<th>S</th>
<th>C</th>
<th>SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>1.20</td>
<td>1.62</td>
<td>1.30</td>
<td>1.71</td>
</tr>
<tr>
<td>Yes</td>
<td>1.00</td>
<td>1.00</td>
<td>1.29</td>
<td>1.27</td>
</tr>
<tr>
<td>Difference</td>
<td>.20</td>
<td>.62</td>
<td>.01</td>
<td>.44</td>
</tr>
<tr>
<td>q(r=2;df72=)</td>
<td>.89</td>
<td>3.26*</td>
<td>.06</td>
<td>2.10</td>
</tr>
</tbody>
</table>

(*significant at .05 level)

The second analysis deriving consideration levels from the LBDQ, and the final one dealing with decision quality, analyzes decision totals as a function of orientation and appropriateness of the leader's style for the given stage of development. As seen in Table 11,

Table 11 -- Analysis of Variance of Decision Quality Totals as a Function of Orientation and Appropriateness of the Leader's Style for Stage of Group Development (Consideration From the LBDQ)

<table>
<thead>
<tr>
<th>Source</th>
<th>MS</th>
<th>df</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>1.86</td>
<td>1</td>
<td>5.17*</td>
</tr>
<tr>
<td>Appropriateness</td>
<td>2.24</td>
<td>1</td>
<td>6.22**</td>
</tr>
<tr>
<td>Orientation x Appropriateness</td>
<td>.07</td>
<td>1</td>
<td>.19</td>
</tr>
<tr>
<td>Within</td>
<td>.36</td>
<td>76</td>
<td></td>
</tr>
</tbody>
</table>

(*sign. at .05 level) (**sign. at .01 level)
there is a significant effect of orientation. However, there is also a significant effect of appropriateness, leaders using styles which were hypothesized as appropriate for the stage of group development doing significantly better than leaders using styles which were hypothesized as inappropriate. Computation of omega-squared for each effect indicates that the proportion of variance in decision quality accounted for by orientation is .047, while the proportion accounted for by appropriateness is .059.

Since both over-all F's were significant, the Newman-Keuls procedure was used to test all specific main effects (Table 12). Significant differences were found in favor of structured over unstructured leadership in early development (supporting hypothesis #1) and in favor of non-oriented over oriented groups when style is hypothesized as appropriate.

Table 12 -- Cell Means of Decision Quality Totals as a Function of Orientation and Appropriateness of the Leader's Style for Stage of Group Development (Consideration From the LBDQ), With Q Values From the Newman-Keuls Method

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Appropriate</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
<td>Diff.</td>
<td>q(df=2,76)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>1.25</td>
<td>1.65</td>
<td>.40</td>
<td>2.99*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1.00</td>
<td>1.28</td>
<td>.28</td>
<td>2.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td>.25</td>
<td>.37</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q(r=2,df76)</td>
<td>1.72</td>
<td></td>
<td>2.94*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(*significant at .05 level)
Satisfaction

Leader and co-worker satisfaction were measured in the post-experimental questionnaire to test the third and fourth hypotheses. A 7-point graphic rating scale and the appropriate JDI scale were completed for each type of satisfaction, and all measures were analyzed as a function of orientation and leader style, deriving consideration levels from both the manipulation and the manipulation check.

Examining leader satisfaction first, Table 13 shows no significant relationship for either graphic or JDI scale when consideration is determined by the manipulation.

Table 13 -- Analyses of Variance of Graphic and JDI Measures of Leader Satisfaction as a Function of Orientation and Leader Style, With Consideration Levels Determined from the Experimental Manipulation

<table>
<thead>
<tr>
<th>Source</th>
<th>Graphic Rating</th>
<th></th>
<th></th>
<th>JDI Leader Scale</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MS</td>
<td>df</td>
<td>F</td>
<td>MS</td>
<td>df</td>
<td>F</td>
</tr>
<tr>
<td>Orientation</td>
<td>.02</td>
<td>1</td>
<td>.02</td>
<td>45.07</td>
<td>1</td>
<td>1.09</td>
</tr>
<tr>
<td>Leader Style</td>
<td>.29</td>
<td>3</td>
<td>.30</td>
<td>38.03</td>
<td>3</td>
<td>.92</td>
</tr>
<tr>
<td>Orientation x Style</td>
<td>2.21</td>
<td>3</td>
<td>2.22</td>
<td>64.28</td>
<td>3</td>
<td>1.56</td>
</tr>
<tr>
<td>Within</td>
<td>.99</td>
<td>232</td>
<td></td>
<td>41.23</td>
<td>232</td>
<td></td>
</tr>
</tbody>
</table>

When consideration is determined by the LBDQ, however, there is a significant effect of style using either measure (Table 14). Also, the relationship appears to be in the hypothesized direction (Table 15), with C and SC leaders eliciting higher satisfaction than N and S leaders. Particular caution should be observed in interpreting these
Table 14 — Analysis of Variance of Graphic and JDI Measures of Leader Satisfaction as a Function of Orientation and Leader Style, With Consideration Levels Determined by the LBDQ

<table>
<thead>
<tr>
<th>Source</th>
<th>Graphic Rating</th>
<th>JDI Leader Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MS  df F</td>
<td>MS  df F</td>
</tr>
<tr>
<td>Orientation</td>
<td>.10  1 .10</td>
<td>2.90  1 .08</td>
</tr>
<tr>
<td>Leader Style</td>
<td>2.75  3 2.82*</td>
<td>290.34  3 7.52**</td>
</tr>
<tr>
<td>Orientation x Style</td>
<td>.96  3 .98</td>
<td>18.86  3 .49</td>
</tr>
<tr>
<td>Within</td>
<td>.98  232</td>
<td>38.63  232</td>
</tr>
</tbody>
</table>

(*sign. at .05 level, **sign. at .01 level)

results, though, because the LBDQ items were embedded within the JDI Supervisor Scale, creating the possibility of "halo" from that scale.

Table 15 — Cell Means of Graphic and JDI Ratings of Leader Satisfaction as a Function of Orientation and Leader Style, With Consideration From the LBDQ

<table>
<thead>
<tr>
<th>Leader Style</th>
<th>Graphic Rating</th>
<th>JDI Leader Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N  S  C  SC</td>
<td>N  S  C  SC</td>
</tr>
<tr>
<td>No</td>
<td>5.13 5.13 5.43 5.29 35.57 35.44 38.33 40.67</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>5.00 4.88 5.29 5.64 37.50 34.81 38.69 39.91</td>
<td></td>
</tr>
</tbody>
</table>

^One item ("Lazy") was accidentally omitted from the JDI Supervisor Scale, so that these values are slightly smaller than would be expected if the full scale were used.

Co-worker satisfaction underwent a similar set of analyses, as seen in Tables 16 and 17. The hypothesis (#4) that co-workers with orientation would be more satis-
fied with one another than co-workers without orientation
was supported in all but one analysis (the exception being

Table 16 -- Analyses of Variance of Graphic and JDI Measures
of Co-Worker Satisfaction as a Function of Orientation and
Leader Style, With Consideration Determined by the Manipula-
tion and by the LBDQ

Consideration from the Manipulation

<table>
<thead>
<tr>
<th>Source</th>
<th>Graphic Rating</th>
<th>JDI Co-W Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MS</td>
<td>df</td>
</tr>
<tr>
<td>Orientation</td>
<td>3.04</td>
<td>1</td>
</tr>
<tr>
<td>Leader Style</td>
<td>.22</td>
<td>3</td>
</tr>
<tr>
<td>Orientation x Style</td>
<td>3.35</td>
<td>3</td>
</tr>
<tr>
<td>Within</td>
<td>.85</td>
<td>232</td>
</tr>
</tbody>
</table>

Consideration from the LBDQ

<table>
<thead>
<tr>
<th>Source</th>
<th>Graphic Rating</th>
<th>JDI Co-W Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MS</td>
<td>df</td>
</tr>
<tr>
<td>Orientation</td>
<td>2.10</td>
<td>1</td>
</tr>
<tr>
<td>Leader Style</td>
<td>2.17</td>
<td>3</td>
</tr>
<tr>
<td>Orientation x Style</td>
<td>2.28</td>
<td>3</td>
</tr>
<tr>
<td>Within</td>
<td>.84</td>
<td>232</td>
</tr>
</tbody>
</table>

(*sign. at .05 level, **sign. at .01 level)

the graphic scale, with consideration from the LBDQ).

Two unexpected effects were also found. First,
when the JDI scale was analyzed with consideration from
the LBDQ, there was a significant effect of style similar
to the one found for leader satisfaction; i.e., co-workers
with C and SC leaders received higher satisfaction scores
than co-workers under N and S leaders. This may be explained
by either improved group relations under considerate super-

vision (in agreement with Likert, 1970) or simply "halo" from the previous scales.

Another unexpected finding, harder to explain, was an orientation x leader style interaction in both graphic rating classifications. The gain in satisfaction with

<table>
<thead>
<tr>
<th>Source of Consid.</th>
<th>Measure</th>
<th>Orient.</th>
<th>Leader Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manip.</td>
<td>Graphic</td>
<td>No</td>
<td>N: 5.10, S: 5.50, C: 5.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>N: 5.77, S: 5.30, C: 5.60</td>
</tr>
<tr>
<td>Manip.</td>
<td>JDI</td>
<td>No</td>
<td>N: 39.37, S: 42.47, C: 41.83</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>N: 47.33, S: 45.27, C: 45.53</td>
</tr>
<tr>
<td>LBDQ</td>
<td>Graphic</td>
<td>No</td>
<td>N: 5.10, S: 5.41, C: 4.59</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>N: 5.17, S: 5.19, C: 5.70</td>
</tr>
<tr>
<td>LBDQ</td>
<td>JDI</td>
<td>No</td>
<td>N: 38.80, S: 41.85, C: 42.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>N: 45.44, S: 42.07, C: 48.12</td>
</tr>
</tbody>
</table>

orientation was generally greater in the SC condition than in the other conditions. Gain was also fairly high under N leadership, and was lowest (indeed, loss occurred) under S leadership. While this might be partially due to low group morale under structured leadership in later development, such an interpretation would suggest a similar finding for leader satisfaction, which did not occur. Perhaps a more plausible interpretation requires
examination of the data on group consensus, to be discussed in the next section. It will be seen there that co-workers tended to agree least with the group decisions in the SC condition, and most in the S and C conditions. Therefore, groups without orientation may respond negatively to disagreement, taking it as a sign of stupidity and unpleas­antness on the part of the co-workers. When orientation has occurred, however, the co-workers have had more chances to share their information, and they may have become more friendly in the process. Disagreement in this case may be interpreted by associates as demonstrating ambition, activity and intelligence.

Agreement

By comparing group decisions with the individual decisions in the questionnaire, an index of agreement or consensus was obtained. Specifically, absolute differences between the group’s decision on a particular item and the individual’s decision on the same item were computed for each of the four questions. By summing these differences, an agreement score was obtained, with possible values ranging from 0 (maximum agreement) to 4 (minimum agreement). These scores were analyzed as a function of orientation and leader style (with consideration determined both ways), as shown in Table 18. There is no significant relationship when consideration is determined by the experimental
manipulation. However, when consideration is determined by the LBDQ there is a significant effect of leader style.

Table 18 — Analysis of Variance of Agreement Scores as a Function of Orientation and Leader Style, With Consideration Determined by the Manipulation and by the LBDQ

<table>
<thead>
<tr>
<th>Source</th>
<th>Manipulation</th>
<th></th>
<th></th>
<th></th>
<th>LBDQ</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MS</td>
<td>df</td>
<td>F</td>
<td></td>
<td>MS</td>
<td>df</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>Orientation</td>
<td>.34</td>
<td>1</td>
<td>.80</td>
<td>.61</td>
<td>1</td>
<td>1.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leader Style</td>
<td>.19</td>
<td>3</td>
<td>.46</td>
<td>1.32</td>
<td>3</td>
<td>3.00*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orientation x Style</td>
<td>.76</td>
<td>3</td>
<td>1.81</td>
<td>.26</td>
<td>3</td>
<td>.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>.42</td>
<td>232</td>
<td>.44</td>
<td>232</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(*significant at .05 level)

Surprisingly (Table 19), agreement is least in the SC condition. It is also fairly poor in the N condition, and best in the S and C conditions. The reason for this might be the negative relationship between agreement and decision quality (see the later section on correlations). Because task difficulty made incorrect decisions more common than correct ones, greater agreement was found when decision quality was fairly low. Since decision quality was generally
best for SC leaders, agreement was poorest. The fairly low agreement under N leadership, on the other hand, might have resulted directly from the leader's style, since group consensus under such leadership was not encouraged by either structuring the task or by eliciting participation. Further research would be required, though, to test this assumption.

**Information Sharing During Decision Making**

The final item on the questionnaire concerned the amount of information shared during the final phase, when the groups made decisions under leadership. This question was not a check on the orientation manipulation, which took place before decision making, but was instead a test of one possible interpretation of evidence in support of either of the first two hypotheses. This interpretation is that information sharing (or orienting behaviors) during decision making contributes to decision quality when such behaviors have not yet been enacted, but that it is superfluous, or even confusing, when prior orientation has occurred. Because initiation of structure forces the group to share information during decision making, regardless of prior orientation, such a leadership style is relatively effective in early, but not later, development. Because consideration, on the other hand, encourages participation but not necessarily information sharing, it is relatively effective in later, but not early, development.
This interpretation was tested in the same manner as previous analyses, with information shared during decision making analyzed as a function of prior orientation and leader style (Tables 20 and 21). To receive support,

**Table 20** — Analyses of Variance of Information Shared on Each Case During Decision Making as a Function of Orientation and Leader Style, With Consideration From the Manipulation and From the LBDQ

**Consideration from the Manipulation**

<table>
<thead>
<tr>
<th>Source</th>
<th>Mary Everett</th>
<th>Cheryl Barnes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MS df F</td>
<td>MS df F</td>
</tr>
<tr>
<td>Orientation</td>
<td>12.15 1 .02 155.20 1 .37</td>
<td></td>
</tr>
<tr>
<td>Leader Style</td>
<td>293.24 3 .60 52.33 3 .12</td>
<td></td>
</tr>
<tr>
<td>Orientation x Style</td>
<td>1666.32 3 3.39* 1279.24 3 3.04*</td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>491.26 232 420.60 232</td>
<td></td>
</tr>
</tbody>
</table>

**Consideration from the LBDQ**

<table>
<thead>
<tr>
<th>Source</th>
<th>Mary Everett</th>
<th>Cheryl Barnes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MS df F</td>
<td>MS df F</td>
</tr>
<tr>
<td>Orientation</td>
<td>2.02 1 .004 174.77 1 .42</td>
<td></td>
</tr>
<tr>
<td>Leader Style</td>
<td>119.72 3 .24 139.93 3 .33</td>
<td></td>
</tr>
<tr>
<td>Orientation x Style</td>
<td>233.21 3 .46 397.98 3 .94</td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>504.91 232 419.39 232</td>
<td></td>
</tr>
</tbody>
</table>

(*significant at .05 level)

groups under S and SC leaders should share more information than groups under N and C leaders, regardless of prior orientation. This effect was not present in any analysis. Instead, there was an interaction between orientation and style in the two analyses deriving consideration from the manipulation, with disproportionately low information being
shared among members of C groups having prior orientation. This might be explained by a tendency for C leaders to ask for votes immediately after information had been shared, in an attempt to be "democratic." In any case, this result was not found in either analysis deriving consideration from the LBDQ.

Table 21 — Cell Means of Information Sharing in Both Cases, as a Function of Orientation and Leader Style, With Consideration from the Manipulation and the LBDQ

<table>
<thead>
<tr>
<th>Source of Consid.</th>
<th>Case</th>
<th>Orient.</th>
<th>Leader Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manip. Mary</td>
<td>No</td>
<td>69.20</td>
<td>73.17</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>79.67</td>
<td>75.37</td>
</tr>
<tr>
<td>Manip. Cheryl</td>
<td>No</td>
<td>72.00</td>
<td>71.37</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>77.63</td>
<td>78.10</td>
</tr>
<tr>
<td>LBDQ Mary</td>
<td>No</td>
<td>69.77</td>
<td>72.59</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>71.28</td>
<td>73.44</td>
</tr>
<tr>
<td>LBDQ Cheryl</td>
<td>No</td>
<td>74.23</td>
<td>69.46</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>75.17</td>
<td>76.78</td>
</tr>
</tbody>
</table>

**Scale Characteristics: Norms and Correlations**

To help determine how representative the sample was of actual work groups, median scores on the JDI scales were compared to median scores of workers in industry, found by Smith, Kendall and Hulin (1969). Two characteristics of the sample which were known were education and sex, the Ss being male freshmen and sophomores in college. Smith, Kendall and Hulin's normative JDI scores for males
with 13-14 years of education, at the 50th percentile, were 44 for leaders and 46 for coworkers. The median scores for the present study were 39 (before adjustment for the omitted item) and 46, respectively. When the supervision scale is adjusted for the omitted item the score becomes about 41, still slightly below the previous norm. This might be because of lower leader status in the present study, since the leader was relatively uninformed and his selection was on a volunteer (rather than merit) basis. Nonetheless, scores on both scales were surprisingly similar to those found previously, considering the wide differences between laboratory and industrial situations.

To examine scale characteristics further, as well as to test the strength of association between various measures, the variables listed in Appendix H were intercorrelated. The correlation matrix of selected variables is shown in Table 22. For the N of 240 a correlation of .13 is needed for significance at the .05 level, and correlations exceeding this value will be discussed briefly.

As found earlier, orientation is negatively correlated with group decision quality (−.21). It also bears a negative relationship to individual decision quality (−.14), although this might be due to contamination of the individual decisions by the group decisions, which had preceded them. As hypothesized, orientation is positively correlated with coworker
satisfaction (.23 when measured by the JDI).

Structure seems slightly related to group decision quality (.15). Presumably, this is because of its superiority in early development. While consideration, when determined by the manipulation, seems unrelated to all other variables, the LBDQ measure of consideration is positively correlated with the four measures of satisfaction. This is especially true of the JDI scales (leader: .38, coworker: .33), with graphic scales somewhat lower (leader: .21, coworker: .18).

<table>
<thead>
<tr>
<th></th>
<th>Or</th>
<th>Str</th>
<th>Con</th>
<th>LBDQ</th>
<th>Gr.</th>
<th>Ind.</th>
<th>Dis-</th>
<th>L LDI</th>
<th>CoW</th>
<th>CoW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Or</td>
<td>1.00</td>
<td>.00</td>
<td>.00</td>
<td>.10</td>
<td>-.21</td>
<td>-.14</td>
<td>-.06</td>
<td>-.00</td>
<td>.07</td>
<td>.12</td>
</tr>
<tr>
<td>Str</td>
<td>.00</td>
<td>1.00</td>
<td>.00</td>
<td>-.03</td>
<td>.15</td>
<td>.07</td>
<td>.07</td>
<td>.01</td>
<td>-.02</td>
<td>-.03</td>
</tr>
<tr>
<td>Con</td>
<td>.00</td>
<td>.00</td>
<td>1.00</td>
<td>.01</td>
<td>.01</td>
<td>-.06</td>
<td>-.03</td>
<td>-.05</td>
<td>-.10</td>
<td>-.04</td>
</tr>
<tr>
<td>LBDQ</td>
<td>.10</td>
<td>-.03</td>
<td>.01</td>
<td>1.00</td>
<td>.04</td>
<td>.04</td>
<td>-.06</td>
<td>.21</td>
<td>.38</td>
<td>.18</td>
</tr>
<tr>
<td>Gr.</td>
<td>-.21</td>
<td>.15</td>
<td>.01</td>
<td>.04</td>
<td>1.00</td>
<td>.50</td>
<td>.04</td>
<td>.00</td>
<td>.05</td>
<td>.01</td>
</tr>
<tr>
<td>D.Q.</td>
<td>-.14</td>
<td>.07</td>
<td>-.06</td>
<td>.04</td>
<td>.50</td>
<td>1.00</td>
<td>.35</td>
<td>.00</td>
<td>.07</td>
<td>.02</td>
</tr>
<tr>
<td>Ind.</td>
<td>-.14</td>
<td>.07</td>
<td>-.06</td>
<td>.04</td>
<td>.35</td>
<td>1.00</td>
<td>-.04</td>
<td>.03</td>
<td>-.12</td>
<td>-.10</td>
</tr>
<tr>
<td>L Sat</td>
<td>-.00</td>
<td>.01</td>
<td>-.05</td>
<td>.21</td>
<td>.00</td>
<td>.00</td>
<td>-.04</td>
<td>1.00</td>
<td>.44</td>
<td>.43</td>
</tr>
<tr>
<td>L LDI</td>
<td>.07</td>
<td>-.02</td>
<td>-.10</td>
<td>.38</td>
<td>.05</td>
<td>.07</td>
<td>.03</td>
<td>.44</td>
<td>1.00</td>
<td>.23</td>
</tr>
<tr>
<td>CoW</td>
<td>.12</td>
<td>-.03</td>
<td>-.04</td>
<td>.18</td>
<td>.01</td>
<td>.02</td>
<td>-.12</td>
<td>.43</td>
<td>.23</td>
<td>1.00</td>
</tr>
<tr>
<td>Sat</td>
<td>.23</td>
<td>-.05</td>
<td>.05</td>
<td>.33</td>
<td>-.06</td>
<td>.02</td>
<td>-.10</td>
<td>.21</td>
<td>.41</td>
<td>.53</td>
</tr>
<tr>
<td>JDI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 22 -- Correlation Matrix of Selected Variables
Group and individual decision quality scores are rather highly correlated (.50), although again it should be mentioned that contamination between these measures was likely since group decisions were made first. Individual decision quality is also correlated with disagreement (.35), probably because the generally low group decision quality meant that Ss agreeing with the group were making poor decisions.

Correlations among the four satisfaction measures form the lower right corner of the matrix in Table 22. Examining this sub-matrix can provide information on the convergent and divergent validities of the satisfaction scales. Specifically, scales measuring the same form of satisfaction should correlate higher than scales measuring different forms of satisfaction, when the type of scale is held constant. In general, this does occur: the .44 correlation between leader scales and the .53 correlation between coworker scales are significantly higher than the .23 correlation between JDI leader and graphic coworker scales or the .21 correlation between the JDI coworker and graphic leader scales. However, correlations between similar instruments measuring different forms of satisfaction are also high (.41 between JDI scales and .43 between graphic scales), suggesting an effect due to measuring instrument. Since even dissimilar scales measuring different forms of satisfaction are correlated in the low .20's, there also seems to be some relationship between leader and coworker satisfaction (as suggested by
Smith, Kendall and Hulin, 1969), although the possibility of consistent response bias, despite difference in scales, must be kept in mind.

Canonical Correlations

In order to determine the relationships among the predictors and criteria in a single analysis, canonical correlations were computed. Working with two sets of variables, canonical analysis finds the linear combinations of variables in each set which have maximum correlation. Then the linear combinations of variables which have maximum correlation uncorrelated with the first linear combinations are found, and so on. Basically, then, if the first set of variables contains "predictors" and the second set contains "criteria," several "factors" are found which are related to combinations of these predictors and criteria. The weights of items in a particular set can be viewed as "loadings" on these factors. Thus, the items with high weights are to some degree related to other items with high weights, either in the same or the other set. The strength of the relationship is reflected by the canonical correlation.

Predictors in the current analysis are the manipulations (orientation, structure and consideration) and the LBDQ consideration items. Criteria are group and individual decision quality, the graphic satisfaction scales and the JDI satisfaction items. Specific items form Appendix H.
Four canonical correlations were significant at the .01 level (smallest chi squared = 274.68, df = 336). Predictor weights for the four significant cases, with "factor" labels and canonical correlations, are shown in Table 23. Criteria weights are in Appendix I.

<table>
<thead>
<tr>
<th>Factor:</th>
<th>Consideration</th>
<th>Orientation (negative)</th>
<th>Structure- Unfriendly</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canon. Correl.</td>
<td>.69</td>
<td>.63</td>
<td>.58</td>
<td>.52</td>
</tr>
<tr>
<td>Predictors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orientation</td>
<td>.23</td>
<td>-.76</td>
<td>-.15</td>
<td>-.00</td>
</tr>
<tr>
<td>Structure</td>
<td>-.03</td>
<td>.26</td>
<td>.51</td>
<td>.05</td>
</tr>
<tr>
<td>Consideration</td>
<td>-.02</td>
<td>-.16</td>
<td>-.05</td>
<td>.37</td>
</tr>
<tr>
<td>LBDQ (1)</td>
<td>.25</td>
<td>-.27</td>
<td>.53</td>
<td>.31</td>
</tr>
<tr>
<td>(2)</td>
<td>.25</td>
<td>-.13</td>
<td>.07</td>
<td>-.25</td>
</tr>
<tr>
<td>(3)</td>
<td>.28</td>
<td>.17</td>
<td>.06</td>
<td>-.01</td>
</tr>
<tr>
<td>(4)</td>
<td>.57</td>
<td>.16</td>
<td>-.23</td>
<td>.56</td>
</tr>
<tr>
<td>(5)</td>
<td>.40</td>
<td>.01</td>
<td>-.19</td>
<td>.55</td>
</tr>
<tr>
<td>(6)</td>
<td>.32</td>
<td>.33</td>
<td>-.31</td>
<td>-.00</td>
</tr>
<tr>
<td>(7)</td>
<td>.30</td>
<td>.22</td>
<td>.33</td>
<td>-.13</td>
</tr>
<tr>
<td>(8)</td>
<td>.25</td>
<td>-.16</td>
<td>.37</td>
<td>-.25</td>
</tr>
</tbody>
</table>

The first predictor set seems to reflect mostly consideration, with all LBDQ items receiving rather high weights. Corresponding criteria are leader and coworker satisfaction, graphic scale weights being .17 and .16, respectively, and JDI medians being .13 and .14, respectively (with all but one weight positive). On the other hand, all decision quality scores (four for the group and four for the individual, corresponding to the total questions asked) were near zero, with a range from -.06 to .06.
By far the most potent variable in the second predictor set is orientation (negative), with no other variable approaching the -0.76 weight of this item. Corresponding criteria are (1) high group and individual decision quality, with all positive weights and a median of 0.19, (2) low JDI coworker satisfaction, with 13 out of 18 weights negative and a median of -0.13, (3) less clearly, high leader satisfaction, with 0.17 on the graphic scale and 13 out of 17 JDI weights positive with a median of 0.04.

The third predictor set seems to reflect high structure (0.50) plus the participative aspect of consideration (doesn't refuse to explain his actions: 0.53; doesn't act without consulting group members first: 0.33; willing to make changes: 0.37). However, there is apparently a negative contribution of the friendly aspect of consideration (makes those under him feel at ease when talking to him: -0.23; friendly and can be easily approached: -0.31). Such a leader produces adequate decision quality (7 out of 8 positive, with a median of 0.04), but is not rated consistently in JDI satisfaction items. While 12 out of 17 items in the scale are negative, a high positive weight is found for being not "quick tempered" (0.40). Probably such a leader is perceived as cold and methodical, high in task orientation but low in emotion. The fact that such a leader would emerge is perhaps more informative than the relationship of the style to the various criteria (since
no clear pattern is found in the criterion set). Perhaps the independence of structure and consideration (Fleishman, 1953) is deceptive, with certain "considerate" behaviors (those reflecting participation) tending to accompany structure and others (those reflecting friendliness) being negatively correlated.

The last significant canonical correlation is the most difficult to interpret, because neither the predictor nor the criterion variables hold together in clear patterns. The predictor set reflects leadership which somehow makes subordinates feel at ease (.56) without following some basic rules of good leader behavior (e.g., not changing job duties without discussion first). Perhaps these are misplaced leaders, who try to avoid the experimental task and also encourage their subordinates not to worry about it. A median decision quality weight of -.09 lends some support to this interpretation. It seems, however, that while this and the previous canonical analysis might reflect leader "types," they do not demonstrate very good prediction of the various decision quality and satisfaction criteria.
Chapter 5
SUMMARY AND DISCUSSION

The results of the study which pertain to the original hypotheses may be summarized as follows:

(1) Hypothesis 1 was supported by the data on decision quality. When there had been no prior orientation, S and SC groups made significantly better decisions than did N and C groups.

(2) Hypothesis 2 was not supported by the data on decision quality. When there had been prior orientation, C and SC groups did not make significantly better decisions than did N and S groups.

(3) Hypothesis 3 was supported by the data on leader satisfaction only when consideration level was determined by the LBDQ manipulation check. In this case, satisfaction with C and SC leaders was higher than satisfaction with N and S leaders. However, since both LBDQ and satisfaction items were part of the same questionnaire, the possibility of "halo" requires cautious interpretation of this finding.

(4) Hypothesis 4 was supported by the data on coworker satisfaction in 3 out of 4 analyses. Members of groups with prior orientation were generally more satisfied with their coworkers than were members of groups without prior
orientation.

Other trends emerging from the data were as follows:

(5) The consideration manipulation appeared to be neither successful (as tapped by the manipulation check) nor predictive (as seen in the correlational analysis).

(6) Prior orientation had a negative effect on decision quality. This seemed to be because structured leadership in early development was superior to any other combination of style and stage. This effect outweighed the slight and nonsignificant superiority of considerate leaders in later development seen in Table 12.

(7) Probably as a result of problem difficulty, group consensus was negatively related to decision quality. This might have caused the poor agreement in SC groups, which generally made the best decisions. Since it would not account for the relatively poor agreement among members of N groups, perhaps their leaders actually could not induce agreement, though future research would be needed to test this.

(8) Coworker (as well as leader) satisfaction was higher under considerate leadership, either because of genuine improvement in member relations or consistent response bias.

(9) Highly weighted items in the two most potent predictor sets were LBDQ items (in the first canonical correlation) and orientation (negative, in the second canonical correlation). In general, the first canonical correlation supported hypothesis (3) and finding (8) above; the second one
supported hypothesis (4) and finding (6) above.

**Interpretation of Support for Hypothesis 1**

Research on the first two hypotheses was virtually nonexistent before the present study, so that support for the first of these hypotheses is especially interesting. The original interpretation of support for the first hypothesis, that had been tested in the questionnaire, was that more information would be shared under structured leadership, which would benefit groups lacking a previous chance to share information. This interpretation, it was seen, did not receive evidential support, although post-experimental checks such as the one employed, are often not sensitive enough to detect true differences.

Assuming that the post-experimental check did not fail to pick up a real difference in information shared, the most plausible alternative explanation seems to be that quality -- not quantity -- was the important factor. S and SC leaders of groups in early development were the only ones who could ensure that information would be shared in a systematic manner. N and C leaders were not trained to do so, and S and SC leaders of groups in later development were too late to do so, as information had already been shared. In fact, attempts by S leaders to systematize information sharing in late development groups might have created the resentment of subordinates which is reflected by fairly low satisfaction
scores (Table 15).

**Possible Paths of Future Research**

The support for the first hypothesis suggests that further research on the interaction between leader style and stage of group development might be worthwhile. The aims of this research might be to: (1) strengthen the consideration manipulation, (2) extend the group's development and (3) test the generality of the results to new situations.

The failure of the consideration manipulation, and the resulting use of the LBDQ manipulation check, created the problems in specification of causality which are inherent in correlational research. It is impossible to know, for example, if groups with considerate leaders were more satisfied, or more satisfied groups rated the leader as more considerate, or a third variable (perhaps just "halo" or "response bias") influenced both consideration and satisfaction scores. The obvious solution is to strengthen the original consideration manipulation, so that correlational analysis would not be necessary. A training program (T-group, perhaps?) emphasizing participative, friendly leader behavior might be used to induce consideration. Training programs matched in time, but different in content, could be used to induce S and SC leadership, in order to control for a "Hawthorne effect."
Another goal of future research might be to extend group development. Hersey and Blanchard (1969) suggest that a final stage of group maturity is reached in which the effective supervisor is low in both consideration and structure. Tuckman (1965) also posits a final stage in which emphasis is on the task itself ("performing"), which seems to imply at least partial withdrawal of the leader from the situation. To see whether developmental stage moderates the leadership style-group effectiveness relationship in these very late stages, future studies might compare groups without vs. with prior orientation plus evaluation (rather than just orientation, as in the present study). Perhaps, under these conditions, N leaders would prove to be the most effective.

The positive results for the first hypothesis would be expected to hold for (1) decision quality in (2) problem solving groups with (3) divergent sources of information and (4) limited time to make decisions. The typical industrial or governmental committee, composed of experts meeting together to solve a problem under time pressure, meets these requirements. Therefore, the research results would suggest careful specification of the structure of the problem before the meeting develops, in order to ensure systematic orientation.

What about other kinds of groups, though? The present
results will not necessarily generalize to groups not meeting the above requirements.

If, for example, the criterion of effectiveness is productivity rather than decision quality, the roles of considerate and structured leadership might be very different. Lawler and his associates (Lawler, Koplin, Young and Fadem, 1968) cite research indicating a negative relationship between quality and production, which indicates the danger of generalizing from one to the other.

If the groups are not problem-solving groups, their development would probably not follow the cyclical path described by Bales and Strodbeck (1953). While they might develop through similar stages determined by total work development, rather than by specific problem development (as would be implied by Hersey and Blanchard's life cycle theory, 1969), this would need to be tested on persons at various levels of work maturity.

Two things might result if group members have the same information: (1) they might bypass the orientation stage, or (2) orientation might be less important in determining group processes, which in turn would decrease the importance of structure in early development.

Finally, if groups are given unlimited time to make decisions they might be less affected by the points at which structured or considerate leadership styles are introduced.
If in such a situation structured leadership began after orientation, group members might not resent reorganization of the information and postponement of evaluative and controlling activities until a later point. Effectiveness of S'leadership might then be independent of developmental stage.

In conclusion, research in a wide variety of groups would be needed in order to generalize the results on the interaction of structure and stage of group development beyond the typical problem solving committee. Yet more research would be necessary to test the interaction of consideration and developmental stage, or to learn what the most effective style would be in very late development. However, if psychologists and managers are genuinely interested in the adaptation of leadership to group dynamics, such research would seem most worthwhile.
Appendix A
Case of Cheryl Barnes

Work Record of Cheryl Barnes

In June, 1970, Cheryl Barnes was hired directly upon her graduation from high school and placed in the payroll office as a typist. She was intelligent, quick, cheerful and energetic but looked unprepossessing at first sight and somewhat lacking in confidence. The paymaster (I.R. Birdsell) had asked for a girl who was good at figures and could type with reasonable speed and accuracy. Cheryl more than met these qualifications.

There were twenty girls in the paymaster's office, and Cheryl readily made friends with all of them. She not only adapted herself quickly to the job, but enjoyed the work. She was usually the first to arrive in the morning and the last to leave at night. Thus, when I.R. Rendell, the Assistant Personnel Manager, received a requisition for a secretary from one of the sales executives (I.R. Fagner), Cheryl Barnes came to mind.

Rendell spoke to the paymaster, who reluctantly agreed to let Cheryl go, while complaining of losing a girl who was practically indispensable to him. Rendell then saw Cheryl, who seemed uncertain about taking a job with such different duties, and asked for time to think it over.
Appendix A (continued)

Transcript of Discussion Between
Mr. Randall (Assistant Personnel Manager) and Mr. Birdsall (Paymaster)

Randall: I have a requisition from Jim 'agner's office for a bright girl to replace Jane Brown, who is leaving. I think Cheryl Barnes is just the girl for the job.

Birdsall: Hell, Randall, that girl is practically indispensable to me. She's one of the best girls I ever had. You don't think I'm going to let her go, do you?

Randall: How much are you paying her, Ray?

Birdsall: Ninety dollars.

Randall: But you're not going to stand in her way if she has a chance for a better job with more money, are you?

Birdsall: Hell, maybe I could pry her more money myself.

Randall: Maybe you could, but you're limited to the top rate for her present job classification. You can't pay her what she eventually might receive as a private secretary.

Birdsall: No, of course not. Damn it all, the good girls always go. I sometimes wonder if I'd be better off to take girls that aren't quite so good, so I could keep 'em around here after I've spent time and money training them. Still, I guess I have to give her the break. I only hope she'll be as helpful to 'agner as she has been to me.
Transcript of Discussion between
Mr. Randall (Assistant Personnel
Manager) and Miss Barnes

Randall: Good morning, Miss Barnes. Have a chair. Do you
know Miss Brown in Mr. Wagner's office?

Barnes: Not very well, but I know who she is.

Randall: Well, she's leaving us very soon. I have suggested
that you be considered to take her place. But I want to tell
you something about this job before you make up your mind.
You would be Mr. Wagner's private stenographer, the only girl
in his office. This is quite a change from your present job
and you might feel rather lonesome. Mr. Wagner's work required
a considerable amount of detail. You would have to get
acquainted with many customers, their accounts and requirements,
with styles, prices and discounts. You would handle his
correspondence, keep his files, and run his office when he is
out of town. This would involve contact with customers in
person as well as over the telephone. If you should be
transferred to this job you would receive a slight increase
in salary at once, and more later if you do well. Do you
think you would like to try this job?

Barnes: Really, I don't know, Mr. Randall. It sounds like a
lot to learn, and so different from what I've been doing. I'd
hate to fail. Is there much dictation?

Randall: Yes, there's a good deal. But I'm sure you can
handle that part of it. How about it, would you like to give
this a try?

Barnes: Well, it's awfully hard to say, Mr. Randall. Could
I think it over and let you know later?

Randall: Certainly, Cheryl, just let me know in a few days
when you've made up your mind.
Appendix B
General Leader Instructions

The purpose of this experiment is to see how groups make decisions. The other three group members will be examining and sharing information on two persons: Miss Mary Everett and Miss Cheryl Barnes. After they have finished sharing this information, your job, as group leader, will be to lead them in making decisions about these persons. Thus, your task for each case is as follows:

(1) Observe the group while it is sharing information, without saying anything.
(2) Lead the group when the experimenter announces it is time to make the decisions. However, do not make the decisions yourself. The group members make the decisions, while you simply lead them in the process.

Record the group decisions below.

1. Case of Mary Everett-
   a. Miss Everett's request for a raise or transfer is
      ___ realistic, stemming from inequities in the company
      ___ unrealistic, stemming from personal problems
   b. The counselor should
      ___ actively suggest solutions to her problems (for example, encourage job transfer, suggest persons to live with to cure her loneliness)
      ___ let her solve the problems, while remaining an understanding listener

2. Case of Cheryl Barnes-
   a. From the point of view of the good of the company, we recommend that Cheryl be
      ___ discouraged from taking the new job
      ___ encouraged to take the new job
   b. From the point of view of Cheryl's best welfare, we recommend that she be
      ___ discouraged from taking the new job
      ___ encouraged to take the new job
Appendix C

Consideration Instructions

You will be leading the group in making decisions in the cases of Mary Everett and Cheryl Barnes. In general,

A. Be as friendly and considerate towards the group members as you can. Do not put yourself above them. Be a group member in spirit.

B. Try to get everyone to voice their views and to give reasons for their ideas. Encourage interaction of ideas.

C. Do not impose your views on the group. Be as permissive as you can.

D. See if you can get agreement on the recommendations made.

E. Get a final vote on the recommendations and record the group decisions.
Appendix D

Structure Instructions (Preliminary Problems for Each Case)

To assist in making the final decision, obtain unanimous group decisions on each of the preliminary problems below:

Problem 1. List Mary Everett's dominant personality traits.

Problem 2. List her criticisms of the job.

Problem 3. List her non job-related problems.

Problem 4. Based on your knowledge of her personality, check the problems in (2) and (3) which you feel are important and valid.
Appendix D (continued)

To assist in making the final decision, obtain unanimous group decisions on each of the preliminary problems below.

Problem 1. Develop a list of Cheryl's activities on her present job.
Problem 2. Grade Cheryl's proficiency on each with letters A, B, C, D, or E, and write the grade after the activity.

Problem 3. Develop a list of activities Cheryl would be expected to perform on her new job.
Problem 4. Grade how well Cheryl would do on each.

Problem 5. Select the three activities Cheryl's new boss will consider most important for the success of his office.
Appendix E
General Subordinate Instructions

The purpose of this experiment is to see how groups make decisions. You will be making group decisions on two workers of a company: Miss Mary Everett and Miss Cheryl Lames. Each group member has one of the following portions of the work records of these persons:

Mary Everett: (1) work history, (2) transcript of a conversation between Miss Everett and the personnel counselor (first half), (3) transcript of the second half of this conversation.

Cheryl Lames: (1) work history, (2) transcript of a conversation between Miss Lames and the assistant personnel manager, Mr. Randall, (3) transcript of a conversation between Mr. Randall and Miss Lames' current supervisor, Mr. Birdsell.

Before making decisions on each case, you will have some time to (1) examine your portion of the record, and (2) share this information with the other group members (without actually exchanging records). A group leader or supervisor will be observing this process, but will not actually lead the group until the experimenter announces that the decisions are to be made. Your schedule, then, is as follows:

1. Examine your portion of Miss Everett's record
2. Share this information with the other group members
3. Make decisions under supervisory leadership
4. Examine your portion of Miss Lames' record
5. Share this information with the other group members
6. Make decisions under supervisory leadership

Each stage of this process will be scrupulously timed by the experimenter, who will announce the time limits permitted.

The decisions you will eventually make are:

Case of Mary Everett-
Is Miss Everett's request for a raise or transfer realistic (stemming from inequities in the company) or unrealistic (stemming from personal problems)?
Should the counselor actively suggest solutions to her problems or just remain an understanding listener?

Case of Cheryl Lames-
From the company's point of view, should Cheryl be encouraged to or discouraged from taking the new job?
From the point of view of Cheryl's welfare, should she be encouraged to or discouraged from taking the new job?
Appendix F
Case of Mary Everett

Work Record of Miss Mary Everett

Miss Everett is middle-aged and has been employed by the company for over 15 years. She is single, and her progress in the company has been average or somewhat less than average. For some years she has been receiving the maximum wage for her classification. Her rating is that of an average employee. Miss Everett has a comfortable apartment in the city and lives alone. In appearance she is plain looking. Her social behavior is retiring, and she is never seen at company social functions. On the job she associates primarily with the older group of employees, who are in the minority.

Miss Everett, when younger, used to visit her father on weekends and vacations. At that time, she was satisfied with her job and with life in general. Since her father died, she has been lonely, and has considered finding another woman to live with. She has not, however, been able to find anyone she likes.

Part 1 of Interview Between Miss Everett and Mr. Jones (Personnel Counselor)

Everett: The only pay increases I have had in 10 years are where the top rate has been raised. Everyone gets those increases. I think I should get an increase once in a while that isn't due to the top being raised.

Jones: I have been thinking a lot about wage matters lately and, although I have some ideas that might be helpful, I would like to hear what ideas you have.

Everett: A girl with a good attendance record should be given an increase for that reason alone.

Jones: I see.

Everett: New girls come into the office and they get increases whether they are any good or not. Lots of girls working for the company get more money than I do, and I'm just as good as they are. There is a lady who works for another company who gets $125 a week, and this company is making lots of money now, and if others can pay those salaries so can this company.
Appendix F (continued)

Part 2 of Interview Between Miss Everett and Mr. Jones (Personnel Counselor)

Everett: I deserve more money than I'm getting in this department. If there's no more money for me here why don't you transfer me? They have lots of good jobs in other departments and they don't work as hard as I do.

Jones: I see. Are there other problems within our department?

Everett: If I were pretty you'd give me an increase. You don't want me here. You just want young girls. I'm getting old, so I guess I should get out. (Cries). No one pays attention to me any more. All my troubles seem to have started since my father died. Since then things haven't gone good for me. I used to always visit him on weekends and vacations, and he was so glad to see me.
Appendix G

Post-Experimental Questionnaire

1. In your own opinion (not the group's), which are the correct decisions?
   a. Mink Everett's request for a raise or transfer is:
      ____ realistic, stemming from inequities in the company
      ____ unrealistic, stemming from personal problems
   b. The counselor should
      ____ actively suggest solutions to her problems (for example, encourage job
          transfer, suggest persons to live with to cure her loneliness
      ____ let her solve the problems, while remaining an understanding listener

   CASE OF MARY EVERETT
   a. From the point of view of the company, I recommend that Cheryl be
      ____ discouraged from taking the new job
      ____ encouraged to take the new job
   b. From the point of view of Cheryl's best welfare, I recommend that she be
      ____ discouraged from taking the new job
      ____ encouraged to take the new job

2. Please put a Y beside each item which accurately describes the group leader, an
   N beside each item which does not accurately describe him, a ? if you cannot decide
   ____ asks my advice    ____ friendly and can be easily approached
   ____ hard to please    ____ tells me where I stand
   ____ impolite         ____ acts without consulting group members first
   ____ praises good work ____ annoying
   ____ tactful          ____ stubborn
   ____ influential      ____ knows job well
   ____ up-to-date       ____ good
   ____ doesn't supervise enough ____ willing to make changes
   ____ quick tempered   ____ intelligent
   ____ refuses to explain his actions ____ around when needed
   ____ leaves me on my own
   ____ treats people under him without considering their feelings
   ____ puts suggestions that are made by group members into operation
   ____ makes those under him feel at ease when talking to him
   ____ changes duties of people under him without first talking it over with them

   3. Overall, my satisfaction with the group leader was (check one):

      _______ extremely high _______ so-so _______ extremely low

4. Please put a Y beside each item which accurately describes your co-workers
   (excluding the leader), an N beside each item which does not accurately describe
   them, a ? if you cannot decide
   ____ stimulating    ____ fast    ____ unpleasant
   ____ boring         ____ intelligent ____ no privacy
   ____ easy to make enemies
   ____ ambitious      ____ talk too much ____ narrow interests
   ____ stupid         ____ smart    ____ loyal
   ____ responsible    ____ lazy     ____ hard to meet

5. Overall, my satisfaction with the co-workers was (check one):

      _______ extremely high _______ so-so _______ extremely low

6. For this question, consider only the information you remembered after
   examining your portions of the work records of Mary Everett and Cheryl Somes.
   About what percentage of the information you remembered did you bring up
   during the decision phase (when you made group decisions under leadership)?

   CASE OF MARY EVERETT ______
   CASE OF CHERYL SOMES ______
Appendix H

Variables Included in Correlations and Canonical Correlations

(A) = Set 1 of canonical correlations
(B) = Set 2 of canonical correlations

1. (A) orientation
2. (A) structure
3. (A) consideration, experimental manipulation
4. (A) LBDQ refuses to explain actions
5. (A) LBDQ treats without considering feelings
6. (A) LBDQ puts suggestions into operation
7. (A) LBDQ makes feel at ease
8. (A) LBDQ changes duties
9. (A) LBDQ friendly
10. (A) LBDQ acts without consulting
11. (A) LBDQ willing to make changes
12. (B) Dec. qual., M.E. (request realistic?)
13. (B) Dec. qual., M.E. (actively suggest solutions?)
14. (B) Dec. qual., C.B. (company's point of view?)
15. (B) Dec. qual., C.B. (Cheryl's point of view?)
16. (B) Individual dec. qual., M.E.
17. (B) Individual dec. qual., M.E.
18. (B) Individual dec. qual., C.B.
19. (B) Individual dec. qual., C.B.
20. (B) Graphic rating of leader satisfaction
21. (B) Graphic rating of coworker satisfaction
22. (B) JDI,L asks my advice
23. (B) JDI,L hard to please
24. (B) JDI,L impolite
25. (B) JDI,L praises good work
26. (B) JDI,L tactful
27. (B) JDI,L influential
28. (B) JDI,L up-to-date
29. (B) JDI,L doesn't supervise enough
30. (B) JDI,L quick tempered
31. (B) JDI,L leaves me on my own
32. (B) JDI,L tells me where I stand
33. (B) JDI,L annoying
34. (B) JDI,L stubborn
35. (B) JDI,L knows job well
36. (B) JDI,L bad
37. (B) JDI,L intelligent
38. (B) JDI,L around when needed
39. (B) JDI,CoW stimulating
40. (B) JDI,CoW boring
41. (B) JDI,CoW slow
42. (B) JDI,CoW ambitious
43. (B) JDI,CoW stupid
Appendix H (continued)

44. (B) JDI, CoW responsible
45. (B) JDI, CoW fast
46. (B) JDI, CoW intelligent
47. (B) JDI, CoW easy to make enemies
48. (B) JDI, CoW talk too much
49. (B) JDI, CoW smart
50. (B) JDI, CoW lazy
51. (B) JDI, CoW unpleasant
52. (B) JDI, CoW no privacy
53. (B) JDI, CoW active
54. (B) JDI, CoW narrow interests
55. (B) JDI, CoW loyal
56. (B) JDI, CoW hard to meet
57. total of structure plus consideration (manipulation)
58. total LBDQ consideration score
59. total decision quality, group
60. total decision quality, individual
61. total of 2 graphic satisfaction scales
62. JDI, Leader Satisfaction: total
63. JDI, Coworker satisfaction: total
64. agreement with group decision on 1st question
65. agreement with group decision on 2nd question
66. agreement with group decision on 3rd question
67. agreement with group decision on 4th question
68. total agreement
Appendix I

Criterion Weights for the Significant Canonical Correlations

<table>
<thead>
<tr>
<th>Criterion Number (see Appendix H)</th>
<th>Consideration</th>
<th>Orientation (negative)</th>
<th>Structure-Unfriendly</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Group</td>
<td>.06</td>
<td>.12</td>
<td>.08</td>
<td>.09</td>
</tr>
<tr>
<td>13 Dec.</td>
<td>-.06</td>
<td>.13</td>
<td>.04</td>
<td>-.16</td>
</tr>
<tr>
<td>14 Qual.</td>
<td>-.02</td>
<td>.16</td>
<td>.17</td>
<td>.21</td>
</tr>
<tr>
<td>15</td>
<td>.03</td>
<td>.25</td>
<td>.04</td>
<td>-.23</td>
</tr>
<tr>
<td>16 Indiv.</td>
<td>-.06</td>
<td>.23</td>
<td>.08</td>
<td>-.04</td>
</tr>
<tr>
<td>17 Dec.</td>
<td>.02</td>
<td>.22</td>
<td>-.13</td>
<td>.02</td>
</tr>
<tr>
<td>18 Qual</td>
<td>.02</td>
<td>.19</td>
<td>.02</td>
<td>-.14</td>
</tr>
<tr>
<td>19</td>
<td>.04</td>
<td>.19</td>
<td>.04</td>
<td>-.37</td>
</tr>
<tr>
<td>20 LSat</td>
<td>.17</td>
<td>-.18</td>
<td>.00</td>
<td>.13</td>
</tr>
<tr>
<td>21 CoWSat</td>
<td>.16</td>
<td>-.03</td>
<td>-.06</td>
<td>.01</td>
</tr>
<tr>
<td>22</td>
<td>.13</td>
<td>.27</td>
<td>-.20</td>
<td>.17</td>
</tr>
<tr>
<td>23</td>
<td>.21</td>
<td>.25</td>
<td>-.09</td>
<td>-.01</td>
</tr>
<tr>
<td>24</td>
<td>.08</td>
<td>.21</td>
<td>.13</td>
<td>.11</td>
</tr>
<tr>
<td>25</td>
<td>.02</td>
<td>.10</td>
<td>-.24</td>
<td>.05</td>
</tr>
<tr>
<td>26</td>
<td>.08</td>
<td>.05</td>
<td>-.17</td>
<td>.05</td>
</tr>
<tr>
<td>27</td>
<td>.04</td>
<td>.04</td>
<td>-.13</td>
<td>.25</td>
</tr>
<tr>
<td>28 JDI</td>
<td>.19</td>
<td>.03</td>
<td>-.00</td>
<td>.14</td>
</tr>
<tr>
<td>29</td>
<td>.13</td>
<td>.05</td>
<td>.17</td>
<td>.06</td>
</tr>
<tr>
<td>30</td>
<td>.16</td>
<td>-.04</td>
<td>.40</td>
<td>-.05</td>
</tr>
<tr>
<td>31 Leader</td>
<td>-.04</td>
<td>-.08</td>
<td>-.12</td>
<td>-.31</td>
</tr>
<tr>
<td>32</td>
<td>.08</td>
<td>.04</td>
<td>.10</td>
<td>-.02</td>
</tr>
<tr>
<td>33</td>
<td>.15</td>
<td>.14</td>
<td>-.08</td>
<td>.00</td>
</tr>
<tr>
<td>34</td>
<td>.27</td>
<td>.04</td>
<td>.14</td>
<td>.13</td>
</tr>
<tr>
<td>35</td>
<td>.13</td>
<td>.12</td>
<td>-.14</td>
<td>-.04</td>
</tr>
<tr>
<td>36</td>
<td>.22</td>
<td>.04</td>
<td>-.09</td>
<td>-.10</td>
</tr>
<tr>
<td>37</td>
<td>.22</td>
<td>-.01</td>
<td>-.19</td>
<td>-.25</td>
</tr>
<tr>
<td>38</td>
<td>.22</td>
<td>-.03</td>
<td>-.09</td>
<td>-.18</td>
</tr>
<tr>
<td>39</td>
<td>.11</td>
<td>-.11</td>
<td>-.15</td>
<td>.01</td>
</tr>
<tr>
<td>40</td>
<td>.15</td>
<td>-.17</td>
<td>-.02</td>
<td>-.07</td>
</tr>
<tr>
<td>41</td>
<td>.03</td>
<td>-.06</td>
<td>-.20</td>
<td>.16</td>
</tr>
<tr>
<td>42</td>
<td>.09</td>
<td>-.22</td>
<td>.16</td>
<td>.02</td>
</tr>
<tr>
<td>43</td>
<td>.31</td>
<td>.17</td>
<td>.22</td>
<td>-.01</td>
</tr>
<tr>
<td>44</td>
<td>.20</td>
<td>-.16</td>
<td>.08</td>
<td>.15</td>
</tr>
<tr>
<td>45</td>
<td>.05</td>
<td>-.20</td>
<td>-.27</td>
<td>.20</td>
</tr>
<tr>
<td>46 JDI</td>
<td>.19</td>
<td>-.15</td>
<td>-.17</td>
<td>.02</td>
</tr>
<tr>
<td>47</td>
<td>.22</td>
<td>-.08</td>
<td>-.01</td>
<td>-.10</td>
</tr>
<tr>
<td>48</td>
<td>.07</td>
<td>.12</td>
<td>-.28</td>
<td>-.02</td>
</tr>
<tr>
<td>49</td>
<td>.19</td>
<td>-.12</td>
<td>-.15</td>
<td>.15</td>
</tr>
<tr>
<td>50</td>
<td>.26</td>
<td>.02</td>
<td>-.01</td>
<td>.16</td>
</tr>
<tr>
<td>51 Coworker</td>
<td>.13</td>
<td>-.15</td>
<td>.15</td>
<td>.17</td>
</tr>
<tr>
<td>52</td>
<td>.19</td>
<td>-.22</td>
<td>.07</td>
<td>-.26</td>
</tr>
<tr>
<td>53</td>
<td>.20</td>
<td>-.20</td>
<td>.14</td>
<td>-.19</td>
</tr>
<tr>
<td>54</td>
<td>.14</td>
<td>-.12</td>
<td>-.09</td>
<td>-.21</td>
</tr>
<tr>
<td>55</td>
<td>.16</td>
<td>.03</td>
<td>.19</td>
<td>.08</td>
</tr>
<tr>
<td>56</td>
<td>-.04</td>
<td>-.26</td>
<td>.12</td>
<td>.09</td>
</tr>
</tbody>
</table>
Appendix J

Cell Means of 8-Item LEDQ (Consideration Check) Totals, as a Function of Orientation and Leader Style

<table>
<thead>
<tr>
<th>Leader Style</th>
<th>N</th>
<th>S</th>
<th>C</th>
<th>SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>14.20</td>
<td>14.20</td>
<td>14.47</td>
<td>14.53</td>
</tr>
<tr>
<td>Yes</td>
<td>14.93</td>
<td>15.00</td>
<td>14.63</td>
<td>16.87</td>
</tr>
</tbody>
</table>
REFERENCES


Misumi, J. & Tosaki, T. A study of the effectiveness of


