
Elizabeth Shoenfelt Erffmeyer

Louisiana State University and Agricultural & Mechanical College

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_disstheses

Recommended Citation
https://digitalcommons.lsu.edu/gradschool_disstheses/3884

This Dissertation is brought to you for free and open access by the Graduate School at LSU Digital Commons. It has been accepted for inclusion in LSU Historical Dissertations and Theses by an authorized administrator of LSU Digital Commons. For more information, please contact gradetd@lsu.edu.
INFORMATION TO USERS

This reproduction was made from a copy of a document sent to us for microfilming. While the most advanced technology has been used to photograph and reproduce this document, the quality of the reproduction is heavily dependent upon the quality of the material submitted.

The following explanation of techniques is provided to help clarify markings or notations 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 through an image and duplicating adjacent pages to assure complete continuity.

2. When an image on the film is obliterated with a round black mark, it is an indication of either blurred copy because of movement during exposure, duplicate copy, or copyrighted materials that should not have been filmed. For blurred pages, a good image of the page can be found in the adjacent frame. If copyrighted materials were deleted, a target note will appear listing the pages in the adjacent frame.

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

4. For illustrations that cannot be satisfactorily reproduced by xerographic means, photographic prints can be purchased at additional cost and inserted into your xerographic copy. These prints are available upon request from the Dissertations Customer Services Department.

5. Some pages in any document may have indistinct print. In all cases the best available copy has been filmed.
PLEASE NOTE:

In all cases this material has been filmed in the best possible way from the available copy. Problems encountered with this document have been identified here with a check mark \checkmark.

1. Glossy photographs or pages
2. Colored illustrations, paper or print
3. Photographs with dark background
4. Illustrations are poor copy
5. Pages with black marks, not original copy
6. Print shows through as there is text on both sides of page
7. Indistinct, broken or small print on several pages
8. Print exceeds margin requirements
9. Tightly bound copy with print lost in spine
10. Computer printout pages with indistinct print
11. Page(s) lacking when material received, and not available from school or author.
12. Page(s) seem to be missing in numbering only as text follows.
13. Two pages numbered. Text follows.
14. Curling and wrinkled pages
15. Other
THE VROOM-YETTON MODEL OF DECISION MAKING:
AN EMPIRICAL EVALUATION IN APPLIED SETTINGS

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Psychology

by

Elizabeth Shoenfelt Erffmeyer
B.A., Louisiana State University, 1978
M.A., Louisiana State University, 1980
August 1983
ACKNOWLEDGMENTS

The author would like to give special thanks to Dr. Irv Lane, who chaired her committee, for his sincere interest and helpful assistance in all phases of this project. The author would also like to express her gratitude to Drs. Laurence Siegel, Robert C. Mathews, David C. Blouin, and Evelyn G. Hall for their time and suggestions as members of the committee. Each member contributed to this project in many ways, but the author would especially like to thank Drs. Lane, Hall, and Siegel for their help in recruiting subjects and Dr. Blouin for his much appreciated assistance in the analysis of the data for the project.

Thanks must also be expressed to Jo Ellen Livingston and Mary Rhordam for their help in preparing the seemingly unending number of participant questionnaires and in coding and punching the questionnaire data.

A very special thanks must be given to my husband, Bob Erffmeyer. I extend to Bob my most sincere appreciation for his constant help, encouragement, and loving support that he has always been there to give.

Finally, I would like to thank my parents, Oscar and Elizabeth Shoenfelt, for the love and support they have given me throughout my studies. I regret that the unexpected March death of my grandfather, Mr. Oscar L. Shoenfelt, Sr., prevents me from thanking him once again for his continued support which enabled me to complete my education.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>ii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>vii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>viii</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>The Vroom-Yetton Model of Decision Making</td>
<td>1</td>
</tr>
<tr>
<td>Normative Aspects of the Model</td>
<td>1</td>
</tr>
<tr>
<td>Decision-Making Processes</td>
<td>3</td>
</tr>
<tr>
<td>The Conceptual Basis of the Model</td>
<td>5</td>
</tr>
<tr>
<td>The Empirical Basis of the Model</td>
<td>11</td>
</tr>
<tr>
<td>Subsequent Research on the Vroom-Yetton Model</td>
<td>15</td>
</tr>
<tr>
<td>Subjectivity of the Model</td>
<td>15</td>
</tr>
<tr>
<td>The Validity of the Model</td>
<td>17</td>
</tr>
<tr>
<td>Recent Validity Studies</td>
<td>20</td>
</tr>
<tr>
<td>The Present Research</td>
<td>24</td>
</tr>
<tr>
<td>Objectives</td>
<td>24</td>
</tr>
<tr>
<td>Characteristics</td>
<td>26</td>
</tr>
<tr>
<td>Hypotheses</td>
<td>27</td>
</tr>
<tr>
<td>METHOD</td>
<td>28</td>
</tr>
<tr>
<td>Subjects</td>
<td>28</td>
</tr>
<tr>
<td>Instruments</td>
<td>28</td>
</tr>
<tr>
<td>Procedure</td>
<td>29</td>
</tr>
<tr>
<td>Dependent Variables</td>
<td>31</td>
</tr>
<tr>
<td>RESULTS</td>
<td>33</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>33</td>
</tr>
<tr>
<td>Quality</td>
<td>43</td>
</tr>
<tr>
<td>Acceptance</td>
<td>44</td>
</tr>
<tr>
<td>Descriptive Statistics</td>
<td>56</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>63</td>
</tr>
<tr>
<td>Discussion of the Results for Each Type of Leader</td>
<td>65</td>
</tr>
<tr>
<td>Limitations of the Present Research and the Vroom-Yetton Model</td>
<td>70</td>
</tr>
<tr>
<td>Conclusion</td>
<td>72</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>74</td>
</tr>
</tbody>
</table>

iii
TABLE OF CONTENTS (continued)

<table>
<thead>
<tr>
<th>APPENDICES</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Sample Problems Typical of Those Found in a Problem Set.</td>
<td>78</td>
</tr>
<tr>
<td>B: Response Format for Leaders.</td>
<td>82</td>
</tr>
<tr>
<td>C: Response Format for Subordinates</td>
<td>90</td>
</tr>
<tr>
<td>D: Delayed Response Format for Leaders.</td>
<td>97</td>
</tr>
<tr>
<td>E: Delayed Response Format for Subordinates</td>
<td>104</td>
</tr>
<tr>
<td>VITA</td>
<td>112</td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Table 1</td>
<td>Decision-Making Processes</td>
</tr>
<tr>
<td>Table 2</td>
<td>Problem Attributes Used in the Model</td>
</tr>
<tr>
<td>Table 3</td>
<td>Rules Underlying the Model</td>
</tr>
<tr>
<td>Table 4</td>
<td>Summary Table for the Analysis of Variance of the Immediate Ratings of the Effectiveness Measures for Nurses</td>
</tr>
<tr>
<td>Table 5</td>
<td>Summary Table for the Analysis of Variance of the Immediate Ratings of the Effectiveness Measures for University Administrators</td>
</tr>
<tr>
<td>Table 6</td>
<td>Summary Table for the Analysis of Variance of the Immediate Ratings of the Effectiveness Measures for Managers</td>
</tr>
<tr>
<td>Table 7</td>
<td>Summary Table for the Analysis of Variance of the Immediate Ratings for the Effectiveness Measures for Fraternity and Sorority Presidents</td>
</tr>
<tr>
<td>Table 8</td>
<td>Summary Table for the Analysis of Variance of the Delayed Ratings of the Effectiveness Measures for Nurses</td>
</tr>
<tr>
<td>Table 9</td>
<td>Summary Table for the Analysis of Variance of the Delayed Ratings of the Effectiveness Measures for University Administrators</td>
</tr>
<tr>
<td>Table 10</td>
<td>Summary Table for the Analysis of Variance of the Delayed Ratings of the Effectiveness Measures for Managers</td>
</tr>
<tr>
<td>Table 11</td>
<td>Summary Table for the Analysis of Variance of the Delayed Ratings of the Effectiveness Measures for Fraternity and Sorority Presidents</td>
</tr>
<tr>
<td>Table 12</td>
<td>Mean Effectiveness Measures for Significant Effects from the Analysis for the Immediate and Delayed Ratings</td>
</tr>
<tr>
<td>Table 13</td>
<td>Summary Table for the Analysis of Variance of the Quality Measures for Nurses</td>
</tr>
<tr>
<td>Table 14</td>
<td>Summary Table for the Analysis of Variance of the Quality Measures for University Administrators</td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Table 15</td>
<td>Summary Table for the Analysis of Variance of the Quality Measures for Managers</td>
</tr>
<tr>
<td>Table 16</td>
<td>Summary Table for the Analysis of Variance of the Quality Measures for Fraternity and Sorority Presidents</td>
</tr>
<tr>
<td>Table 17</td>
<td>Mean Quality Measures for Significant Main Effects and Interactions from the Analyses of Variance.</td>
</tr>
<tr>
<td>Table 18</td>
<td>Summary Table for the Analysis of Variance of the Acceptance Measures for Nurses</td>
</tr>
<tr>
<td>Table 19</td>
<td>Summary Table for the Analysis of Variance of the Acceptance Measures for University Administrators</td>
</tr>
<tr>
<td>Table 20</td>
<td>Summary Table for the Analysis of Variance of the Acceptance Measures for Managers</td>
</tr>
<tr>
<td>Table 21</td>
<td>Summary Table for the Analysis of Variance of the Acceptance Measures for Fraternity and Sorority Presidents</td>
</tr>
<tr>
<td>Table 22</td>
<td>Mean Acceptance Measures for Significant Main Effects and Interactions from the Analysis of Variance</td>
</tr>
<tr>
<td>Table 23</td>
<td>Chi Square Values for Differences in Quality and Acceptance Rule Violations</td>
</tr>
<tr>
<td>Table 24</td>
<td>Percentage of Decisions Falling Within and Outside of the Feasible Set and Percentage of Successful Decisions for Both Cases</td>
</tr>
<tr>
<td>Table 25</td>
<td>Frequency of Quality and Acceptance Rule Violations</td>
</tr>
<tr>
<td>Table 26</td>
<td>Percent Distribution of Responses on the Six-Point Likert Scale for Measures of Decision Effectiveness, Quality, and Acceptance</td>
</tr>
<tr>
<td>Table 27</td>
<td>Distribution of Problem Type for the Decisions Selected by Leaders</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1: Decision-Process Flow Chart for Group Problems</td>
<td>10</td>
</tr>
</tbody>
</table>
ABSTRACT

A test of the validity of the Vroom-Yetton model of decision making was conducted using four types of organizational leaders: nurses, university administrators, managers from business and industry, and fraternity and sorority presidents. The present study was designed to avoid some of the methodological deficiencies of previous attempts to validate the model. Specifically, the present research incorporated two important characteristics: the use of naturally occurring decisions that were currently being confronted by the leaders and the use of objective, independent measures of the decision method used and the effectiveness, quality, and acceptance of the decision.

The forty-two leaders were each asked to report five decision-making situations they were currently facing and to evaluate each decision in terms of the seven problem attributes defined by the Vroom-Yetton model, the decision process used to make the decision, and the effectiveness, quality, and acceptance of the decision. From three to five subordinates for each leader also participated in the study by evaluating each of the decisions selected by his/her leader. The leaders and subordinates evaluated each decision twice, once immediately after the decision was made and again after a period of time had elapsed since the decision was made.

The results of the analyses on the effectiveness, quality, and acceptance measures indicated only modest support for the Vroom-Yetton model. The results for two groups of leaders, the nurses and the managers, generally supported the model. For the nurses,
decisions made by methods in accordance with the model were perceived
to be both more effective and better accepted than were decisions
made by methods that violated the rules underlying the model.
Manager's decisions following the model were perceived to be both
of higher quality and better accepted than were decisions that
violated the model. However, the results for the two other groups
of leaders, the university administrators and the fraternity and
sorority presidents, showed no support for the validity of the model.
These equivocal results suggest that there are limitations to the
generalizability of the Vroom-Yetton model.
INTRODUCTION

The phenomenon of leadership is probably the most extensively researched social influence process known to the behavioral sciences (Barrow, 1977). To leaders, whether they are managers, executives, or administrators, no other job function represents the concept of leadership as well as does decision making. Hill and Schmitt (1977) stated that the dominant issue in the study of leadership concerns the consequences of participative decision making. Leadership style in decision making typically has been described as lying on an autocratic-participative continuum. Vroom (1976b) concluded that the past research on decision making indicates that the effectiveness of participative methods varies with the situational circumstances. The general notion is that leaders diagnose decision problems in a systematic manner and then select a decision strategy contingent upon the diagnosis. Thus, it is important that a leader select a decision-making method appropriate for the particular situation. Vroom and Yetton have developed a model of leadership and decision making based on the above considerations.

The Vroom-Yetton Model of Decision Making

Normative Aspects of the Model

Vroom (1976a, 1976b) has described leadership behavior as consisting of two classes of variables; attributes of the leader and attributes of the situation. Vroom suggested that an understanding of differences in leadership behavior may be had only by an analysis of
the joint effects of these two classes of variables and their interactions. He has categorized attempts at explaining leadership behavior as being either descriptive models or normative models. In both types of models situational variables are considered as a set of moderating variables which interact with leader behavior to determine organizational outcomes. The descriptive model explains the processes which govern the behavior of the person in the role of the leader while the normative model is concerned with the actions of the leader that guide the organization in achieving its objectives. Thus, in a descriptive model the leader behavior is the dependent variable and the properties of the situation and the relatively stable attributes of the person are the independent variables. In a normative model the leader behavior is the independent variable and the organizational outcomes are the dependent variables. Vroom and Yetton (1973) have expressed the need for both descriptive models in which leader behavior is treated as a joint function of situational variables and personal attributes and normative models in which organizational outcomes are a function of leader behavior and situational variables.

Vroom and Yetton (1973) proposed a model of leadership which focuses on the social processes utilized in decision making. Specifically, their model focuses on the leader's decision about the amount and the manner in which subordinates should be involved in the decision-making process. Their model is normative to the extent that it was developed as a model of how a leader should make decisions if they are to be effective within an organizational context, i.e., the consequences for the organization of a leader adopting a particular
behavior or leadership style.

Vroom and Yetton (1973) stated that participation in decision making by subordinates is one of the more persistent and controversial issues in the study of management. Their model adopts a contingency approach to decision making as it is based on the idea that the consequences of participation in decision making vary with the situation. The Vroom-Yetton model attempts to define the circumstances under which participation in decision making may either contribute to or hinder organizational effectiveness. The model was developed from empirical evidence and proposes a set of rules to be used to determine the amount and form of participation by subordinates that should be used in different situations. Accordingly, the leader's behavior should be matched with the demands of the situation.

Decision-Making Processes

Vroom and Yetton (1973) developed a taxonomy of decision processes that are available to a manager. Since the taxonomy was developed for normative purposes, it distinguished among methods that are likely to result in different outcomes for the organization. Vroom and Yetton further distinguished between group and individual problems. If the solution to the problem has potential effects on all immediate subordinates it is termed a group problem. If the solution to the problem affects only one subordinate it is termed an individual problem. The classification of the problem as "group" or "individual" determines the decision-making processes available to the manager. Table 1 shows the taxonomy of decision-making processes presented by Vroom and Yetton (1973).
### TABLE 1
**Decision-Making Processes**

<table>
<thead>
<tr>
<th>For Individual Problems</th>
<th>For Group Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A1</strong></td>
<td><strong>A1</strong></td>
</tr>
<tr>
<td>You solve the problem or make the decision yourself, using information available to you at that time.</td>
<td>You solve the problem or make the decision yourself, using information available to you at that time.</td>
</tr>
<tr>
<td><strong>AII</strong></td>
<td><strong>AII</strong></td>
</tr>
<tr>
<td>You obtain any necessary information from the subordinate, then decide on the solution to the problem yourself. You may or may not tell the subordinate what the problem is, in getting the information from him. The role played by your subordinate in making the decision is clearly one of providing specific information which you request, rather than generating or evaluating alternative solutions.</td>
<td>You obtain any necessary information from subordinates, then decide on the solution to the problem yourself. You may or may not tell subordinates what the problem is, in getting the information from them. The role played by your subordinates in making the decision is clearly one of providing specific information which you request, rather than generating or evaluating solutions.</td>
</tr>
<tr>
<td><strong>C1</strong></td>
<td><strong>C1</strong></td>
</tr>
<tr>
<td>You share the problem with the relevant subordinate, getting his ideas and suggestions. Then you make the decision. This decision may or may not reflect your subordinate's influence.</td>
<td>You share the problem with the relevant subordinates individually, getting their ideas and suggestions without bringing them together as a group. Then you make the decision. This decision may or may not reflect your subordinates' influence.</td>
</tr>
<tr>
<td><strong>CII</strong></td>
<td><strong>CII</strong></td>
</tr>
<tr>
<td>You share the problem with your subordinates in a group meeting. In this meeting you obtain their ideas and suggestions. Then, you make the decision which may or may not reflect your subordinates' influence.</td>
<td>You share the problem with your subordinates as a group. Together you generate and evaluate alternatives and attempt to reach agreement (consensus) on a solution. Your role is much like that of chairman, coordinating the discussion, keeping it focused on the problem, and making sure that the critical issues are discussed. You do not try to influence the group to adopt &quot;your&quot; solution and are willing to accept and implement any solution which has the support of the entire group.</td>
</tr>
<tr>
<td><strong>D1</strong></td>
<td></td>
</tr>
</tbody>
</table>
| You delegate the problem to one of your subordinates, providing him with any relevant information that you possess, but giving him responsibility for solving the problem by himself. Any solution which the person reaches will receive your support. | }
Each process is represented by a symbol (e.g., AI, GII) which
Vroom and Yetton use to refer to a process. The letter in the symbol
represents the basic property of the process. "A" stands for
autocratic, "C" for consultative, "G" for group, and "D" for delegated.
The numeral following the letter represents a variation of the basic
process. Thus, AI and AII are variants of the autocratic process. The
processes are arranged in order of increasing opportunity for the
subordinate to influence the solution to the problem. The autocratic
methods are the least participative and the group or delegated methods
are the most participative.

Vroom and Yetton (1973) contended that no one process of
decision making is appropriate for or applicable to all situations.
Therefore, one purpose of the normative model is to provide the
framework for the analysis of the circumstances surrounding the
decision-making situation. The normative model is prescriptive in the
sense that it attempts to prescribe the most appropriate leadership
style for a given situation.

The Conceptual Basis of the Model

Classes of Outcomes. Vroom and Yetton (1973) distinguished
three classes of outcomes which follow from Maier's work (1963) in
problem solving. The effectiveness of a decision is a function of
these three classes of outcomes. Each of the outcomes, in turn, is
affected by the decision process used. The three classes of outcomes
are:

1. The quality of rationality of the decision.
2. The acceptance or commitment on the part of subordinates to execute the decision effectively.

3. The amount of time required to make the decision.

Vroom (1970) concluded that generally, participation by subordinates in the decision-making process requires a greater investment of man-hours but it usually results in higher acceptance of decisions and more commitment to the efficient execution of the decisions. The relationship between the quality of the decision and the elapsed time is inconclusive. The effectiveness of the method of decision making employed depends upon the importance given to quality, acceptance, and time variables, which will vary with the situation.

Problem Attributes. Vroom and Yetton (1973) used the properties of the situation or problem to identify the basic elements in their model. Problem attributes may be of two types: (1) those which specify the importance of quality and acceptance for a particular problem, and (2) those which have a high probability of moderating the effects of participation on quality and acceptance. The problem attributes used in the Vroom-Yetton model may be found in Table 2. These attributes may be used by a leader to assess the situation or problem before choosing a decision-making method. Vroom and Yetton have expressed the attributes in the form of yes-no questions for this purpose (see Table 2). Vroom and Yetton (1973) and others (e.g., Jago, 1978; Jago and Vroom, 1978, 1980) have found that managers can diagnose a problem situation quickly and accurately using this set of seven questions.

The Feasible Set. Vroom and Yetton (1973) utilize the status
TABLE 2
Problem Attributes Used in the Model

<table>
<thead>
<tr>
<th>Problem Attributes</th>
<th>Diagnostic Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. The importance of the quality of the decision.</td>
<td>Is there a quality requirement such that one solution is likely to be more rational than another?</td>
</tr>
<tr>
<td>B. The extent to which the leader possesses sufficient information/expertise to make a high-quality decision by himself.</td>
<td>Do I have sufficient information to make a high-quality decision?</td>
</tr>
<tr>
<td>C. The extent to which the problem is structured.</td>
<td>Is the problem structured?</td>
</tr>
<tr>
<td>D. The extent to which acceptance or commitment on the part of subordinates is critical to the effective implementation of the decision.</td>
<td>Is acceptance of decision by subordinates critical to effective implementation?</td>
</tr>
<tr>
<td>E. The prior probability that the leader's autocratic decision will receive acceptance by subordinates.</td>
<td>If you were to make the decision by yourself, is it reasonably certain that it would be accepted by your subordinates?</td>
</tr>
<tr>
<td>F. The extent to which subordinates are motivated to attain the organizational goals as represented in the objectives explicit in the statement of the problem.</td>
<td>Do subordinates share the organizational goals to be obtained in solving this problem?</td>
</tr>
<tr>
<td>G. The extent to which subordinates are likely to be in conflict over preferred solutions.</td>
<td>Is conflict among subordinates likely in preferred solutions?</td>
</tr>
</tbody>
</table>

of a problem on the seven problem attributes to define a feasible set of alternatives from the taxonomy of decision-making processes. The feasible alternatives are specified by applying a set of rules which eliminate inappropriate methods for the particular situation. The rules underlying the Vroom-Yetton model may be found in Table 3. Three of the rules are designed to protect the quality of the decision and four of the rules are designed to protect the acceptance of the decision.

Vroom and Yetton (1973) represent the rules in the form of a decision tree (see Figure 1). The development of the model and subsequent research have focused primarily on group problems. Therefore the rules underlying the model as represented in the decision tree include only the decision-making processes appropriate for group problems. The problem attributes may be found along the top of Figure 1. To use the model, one would start at the left-hand side and evaluate the situation according to the question regarding the problem attribute, then follow the appropriate branch of the decision tree. The decision tree generates 18 terminal nodes or problem types. For each problem type one or more of the decision-making processes is prescribed by applying the set of rules. The processes which are appropriate for a problem type have been termed the "feasible set" of decision-making processes. The feasible set for each of the problem types in the model is indicated in Figure 1.

When more than one decision-making process remains in the feasible set, the manager may use any of them and still protect decision quality and acceptance. Although there are several methods
TABLE 3
Rules Underlying the Model

Rules to Protect the Quality of the Decision
1. The Leader Information Rule
   If the quality of the decision is important and the leader does not possess enough information or expertise to solve the problem by himself, then AI is eliminated from the feasible set.

2. The Goal Congruence Rule
   If the quality of the decision is important and subordinates are not likely to pursue the organization's goals in their efforts to solve this problem, then GII is eliminated from the feasible set.

3. The Unstructured Problem Rule
   In decisions in which the quality of the decision is important, if the leader lacks the necessary information or expertise to solve the problem by himself, and if the problem is unstructured, the method of solving the problem should provide for interaction among subordinates likely to possess relevant information. Accordingly, AI, AII, and C1 are eliminated from the feasible set.

Rules to Protect the Acceptance of the Decision
4. The Acceptance Rule
   If the acceptance of the decision by subordinates is critical to effective implementation and if it is not certain that an autocratic decision will be accepted, AI and AII are eliminated from the feasible set.

5. The Conflict Rule
   If the acceptance of the decision is critical, an autocratic decision is not certain to be accepted and disagreement among subordinates in methods of attaining the organizational goal is likely, the methods used in solving the problem should enable those in disagreement to resolve their differences with full knowledge of the problem. Accordingly, under these conditions, AI, AII, and C1, which permit no interaction among subordinates and therefore provide no opportunity for those in conflict to resolve their differences, are eliminated from the feasible set. Their use runs the risk of leaving some of the subordinates with less than the needed commitment to the final decision.

6. The Fairness Rule
   If the quality of the decision is unimportant but acceptance of the decision is critical and not certain to result from an autocratic decision, it is important that the decision process used generate the needed acceptance. The decision process used should permit the subordinates to interact with one another and negotiate over the fair method of resolving any differences with full responsibility on them for determining what is fair and equitable. Accordingly, under these circumstances, AI, AII, C1 and CII are eliminated from the feasible set.

7. The Acceptance Priority Rule
   If acceptance is critical, not certain to result from an autocratic decision, and if subordinates are motivated to pursue the organizational goals represented in the problem, then methods that provide equal partnership in the decision-making process can provide greater acceptance without risking decision quality. Accordingly, AI, AII, C1 and CII are eliminated from the feasible set.

Note. See Table 1 for a description of AI, AII, C1, CII, and GII.

A. Is there a quality requirement such that one solution is likely to be more rational than another?
B. Do I have sufficient information to make a high-quality decision?
C. Is the problem structured?
D. Is acceptance of decision by subordinates critical to effective implementation?
E. If I were to make the decision by myself, is it reasonably certain that it would be accepted by my subordinates?
F. Do subordinates share the organizational goals to be attained in solving this problem?
G. Is conflict among subordinates likely in preferred solutions?

The feasible set is shown for each problem type

1. AI, All, Cl, CII, GII
2. GII
3. AI, All, Cl, CII, GII
4. AI, All, Cl, CII
5. GII
6. Cl
7. Cl, CII
8. All, Cl, CII
9. AI, Cl, CII, GII
10. CII
11. Cl, GII
12. GII
13. Cl

Figure 1. Decision-Process Flow Chart for Group Problems.

for choosing among alternatives in the feasible set, Vroom and Yetton (1973) emphasize two. When a manager desires to reach a solution by expending the least personnel hours, he should use what has been termed the "minimize man-hours" model. This model would dictate using the method farthest to the left in the feasible set, i.e., the most autocratic method. This model of selecting among alternatives has been described as a short-term model. Its emphasis is on finding an adequate solution in the least amount of time without regard to any long-term consequences. Vroom and Yetton called this model Model A. The other method described by Vroom and Yetton is called Model B and may be thought of as a long-term model. Model B emphasizes the development of subordinates through participation and places no weight on the number of man-hours used. Thus, Model B would suggest using the method farthest to the right in the feasible set, i.e. the most participative method. Model B's long-term orientation requires more man-hours but results in more subordinate development which should ultimately result in a more effective problem-solving team and increase subordinate knowledge and identification with organizational goals.

The Empirical Basis of the Model

Standardized Problem Sets. Vroom and Yetton (1973) stated that the potential usefulness of their model as a basis for leader's judgements is directly proportional to the veridicality of those judgements. In order to evaluate the model, Vroom and Yetton felt that it was necessary to have standardized situations, representative of the kinds of problems confronted by leaders, which could be presented to a number of leaders. The situations should be stated in such a manner
that cues typical of those normally available to the leader would be
provided concerning each problem attribute. Vroom and Yetton developed
several sets of these standardized situations and termed them "problem
sets". The problem sets were developed from actual problems
encountered by a group of over a thousand managers who participated
in management development programs. The cases were selected in
accordance with an experimental design so that they varied in terms
of the seven problem attributes and so that each attribute was
independent of every other attribute. Each problem set usually
contained thirty standardized cases describing authentic but
hypothetical decision-making situations. Six problems typical of those
found in a problem set may be found in Appendix A.

The problem sets have been used in subsequent research to
determine the factors that influence managers' decisions concerning
participation in decision making. Each case in the problem set depicts
a manager faced with a problem to solve or a decision to make. The
situations presented cover a wide range of managerial problems. In
each case, the subject in the research assumes the role of the manager
described and indicates which decision-making process he would use if
faced with that decision. Vroom and Yetton (1973) and Vroom and Jago
(1974) have developed descriptive models of leader behavior through
the analysis of responses to problem sets.

Vroom and Yetton (1973) conducted empirical investigations of
the decision processes actually used by managers in solving
administrative problems in order to evaluate their model of decision
making. Vroom and Yetton used two methods in their research, one
involving recalled problems and one using the standardized cases in the problem sets. Based on their research, Vroom and Yetton were able to establish that managers do use more than one decision-making process in their roles as leaders. The majority of the subjects in the research employed all five leadership methods in the normative model.

Vroom and Yetton (1973) drew several conclusions from their research using the problem sets. They found that the situational factors, i.e., the problem attributes, had roughly four times the influence of individual differences in the mean level of participation in the choice of the decision-making process. This would indicate that participativeness is not a general trait that individual managers possess to differing degrees, although individual differences did account for about 10 percent of the total variance in decision processes selected. On the standardized problem sets no manager indicated the same process for all situations and most used all five processes at some time. Based on these results, Vroom and Yetton concluded that "It makes more sense to talk about participative and autocratic situations than it does to talk about participative and autocratic managers." (Vroom, 1976b, p. 1545).

Comparing Normative with Actual Behavior. Vroom and Yetton (1973) were also interested in comparing the behavior suggested by the normative model and the actual behavior of managers. Vroom and Yetton used the decision-making processes used by managers on both recalled and standardized problems to investigate the differences between normative and actual behavior. The greatest difference in the actual and normative behavior was between the variances in behavior. On both
types of problems the normative model called for greater variance in
the decision processes than what the managers reported. The normative
model would suggest that the managers become both more autocratic in
situations in which subordinates are not directly affected and more
participative in situations in which subordinates' cooperation is
critical and/or their expertise is required than what the typical
manager reported.

Vroom and Yetton (1973) reported that the typical manager said
he would use the decision process that was called for by the normative
Model A in 40 percent of the situations. In about two-thirds (68
percent) of the situations the managers' behavior fell within the
feasible set proposed by the model. Thus, in about one-third of the
situations, the managers' behavior violated at least one of the seven
rules underlying the model. Vroom and Yetton concluded that an
inaccurate perception of the situational attributes was likely to be
the cause of behavior that was inconsistent with the model. They
speculated that when a subject's response was outside of the feasible
set it was likely that his judgments about the problem attributes
also would have differed with those of experts and those of most
managers. Vroom and Yetton found that the four rules designed to
protect the acceptance of the decision had a much higher probability
of being violated than did the three rules designed to protect the
quality of the decision. The Fairness Rule was violated in about three
quarters of the situations in which it was applicable. Thus, if the
quality and acceptance rules were of equal validity, it appeared that
a typical manager was more likely to use a process that risked
commitment or acceptance by a subordinate than one that risked the quality of rationality of the decision.

Vroom and Yetton (1973) concluded from their research that individual differences in performance on the problem sets were too small to use the standardized problems as a predictive instrument. They did conclude that the standardized problems could be used as a tool in leader development. The underlying concept of Vroom and Yetton's leadership development program is to educate managers to critically examine the leadership methods they use in specific, well-defined situations in order to better fit their style of leadership to the demands of the situation. Vroom and Yetton's model provides a mechanism for analyzing both the circumstances of the situation and the decision processes feasible under those circumstances. The goal of the development is not to train the managers in the use of the model, but to teach them to examine their own leadership style and whether their methods are the most effective ones to be using in terms of organizational outcomes.

**Subsequent Research on the Vroom-Yetton Model**

**Subjectivity of the Model**

Shortly after the appearance of Vroom and Yetton's book (1973) and several of Vroom's earlier articles on the normative model (Jago and Vroom, 1975; Vroom, 1973, 1976; Vroom and Jago, 1974) several critiques of the model appeared in the literature. Hoffman (1974) offered several criticisms of the Vroom-Yetton model dealing with the subjectivity involved in the actual use of the model by managers and in the data Vroom and Yetton (1973) used to support the model.
Hoffman stated that Vroom and Yetton failed to recognize that the managers most likely to benefit from the model are probably those who employ the most perceptual distortion in evaluating the situation. For example, an autocratic manager who believed his subordinates to be at his command would incorrectly answer "yes" to the model's Question E ("If you were to make the decision by yourself, is it reasonably certain that it would be accepted by your subordinates?"). The model would then instruct the manager to make an autocratic decision which would be likely to lead to negative feelings in subordinates. Hoffman concluded that model is not operational if it is dependent upon the uniform interpretation of the criteria by managers.

Vroom and Yetton (1973) addressed the issue of subjective factors in problem coding and acknowledged that managers indeed might misinterpret the situation. They suggested that conditions could be created that would provide the manager with feedback concerning the acceptability of a decision in enough time to modify the decision-making process. However, they noted that feedback concerning the quality of a decision usually has a much longer feedback cycle which militates against the feasibility of altering the decision-making process.

Hoffman (1974) also indicated that the data Vroom and Yetton (1973) gathered to support their model suffered from perceptual biases. The problems recalled by managers were biased toward successful decisions. Hoffman stated that Vroom and Yetton failed to demonstrate the external validity of their model because they made no independent
analysis of the problem attributes as they existed in the managers'
organizations or of the actual effectiveness of the managers'
decisions.

Hoffman (1974) concluded his critique by suggesting that
Vroom and Yetton (1973) should have issued a caveat warning managers
that simply following their model will not automatically solve their
problems. Incorrect analysis of the problem may create difficulties;
leaders and subordinates need to be skilled in problem solving.
Hoffman also cautioned that there may be long-term organizational
consequences of a negative sort if subordinates' trustworthiness is
underestimated.

Weissenberg (1975) also offered comments on the Vroom-Yetton
model and in particular a response to Jago and Vroom's paper (1975)
in which managers' reports of their decision-making behavior on problem
sets were compared with those of the managers' subordinates. Jago and
Vroom found that subordinates' perceptions did not correlate
significantly with superiors' self-descriptions. Subordinates described
their superiors as being more autocratic than the superiors believed
themselves to be. Subordinates also perceived their superiors to be
more autocratic than themselves. Weissenberg suggested that this
discrepancy may be due to the fact that the Vroom-Yetton model does not
measure actual behavior but behavioral intent. Although Vroom and
Yetton (1973) have acknowledged this, Weissenberg further contended that
their instrument may reflect attitudes and not even behavioral intent.

The Validity of the Model

Jago and Vroom (1978) conducted a study to assess the validity
of the problem set as a predictive measure of actual leader behavior. They based the study on the notion that if the problem set is a valid measure of actual managerial behavior then a response to a given case in a problem set should be predictive of actual behavior in situations that are similar to the case as represented by the coding on the seven problem attributes. Jago and Vroom had seventy-two managers respond to the thirty problems in a problem set. Each manager was then asked to recall two recent decision-making situations in his organization, one with a successful outcome and one with an unsuccessful outcome. Each recalled case was then coded on the problem attributes and matched with a case from the problem set having similar situational attributes. A correlation coefficient was computed for the decision processes used in each pair of matched cases. Jago and Vroom found a correlation coefficient of $r = .29$ ($p < .01$), which was significantly different from the correlation between a recalled case and a randomly selected case from the problem set. An even stronger relationship ($r = .37$, $p < .01$) was found using only the matched pairs in which the recalled solution was successful. Further analysis revealed that the measure of behavioral intent on a matched problem set case was more similar to actual behavior as reported on the recalled case than could be expected by chance. As a result, Jago and Vroom concluded that differences in problem set responses were predictive of differences in the reported degree of participation used in actual managerial decision-making situations.

Vroom and Jago (1978) and Jago and Vroom (1978) expressed the concern that the validity of the Vroom-Yetton normative model rested
primarily on the validity of its underlying assumptions as expressed in the rules underlying the model. They suggested that the validity of the model could be strengthened by demonstrating that decisions made in accordance with the model are more effective than those that are not made in accordance with the model, i.e., those which violate one or more of the underlying rules. Vroom and Jago (1978) had managers select two decision-making experiences from their actual experience, one that was successful and one that was unsuccessful from an organizational point of view. For each case the manager specified the actual decision-making process used, the overall effectiveness of the outcome, the quality of the decision, and the degree of acceptance of the decision by subordinates. The latter three ratings were made on a seven-point scale. The subjects were then trained in the use of the normative model. Finally, the subjects reread the cases they had reported earlier and applied the model to determine the problem type and the feasible set for each of their cases. Vroom and Jago found that 65 percent of the managers' decision-making processes fell within the feasible set suggested by the model. Of the decisions in which the managers' behavior agreed with the feasible set 68 percent were successful. Of the decisions in which the managers' behavior disagreed with the feasible set only 22 percent were successful. In an analysis of the instances outside of the feasible set, Vroom and Jago found that managers' ratings of the success of the decision declined as the number of rule violations increased. Acceptance rules were almost twice as likely to be violated as were quality rules.
Vroom and Jago (1978) concluded that they had demonstrated the concurrent validity of the normative model. Behavior that was consistent with the prescriptions of the model increased the probability of successful decision outcomes, although the relationship was not perfect. Vroom and Jago suggested that the error in prescription may in part be due to the fact that organizations are open systems. As such, decisions must be made under conditions of uncertainty and will be affected by variables whose effect may not be anticipated at the time the decision is made.

**Recent Validity Studies**

Other researchers have attempted to test the validity of the Vroom-Yetton model. Generally, their results have been supportive of the model. Margerison and Glube (1979) asked forty-seven owner-managers of small cleaning firms to respond to the thirty cases in a problem set. The managers were then classified into two groups on the basis of their responses, those high in agreement with the feasible set and those low in agreement with the feasible set. Margerison and Glube found that managers who were high in agreement with the Vroom-Yetton model had significantly higher subordinate satisfaction with supervision and significantly higher store productivity than managers who were low in agreement with the model. Margerison and Glube concluded that their results lend support to the validity of the Vroom-Yetton model as well as to the external validity of the problem set as a measure of leader behavior.

Pate and Heiman (1981) conducted a study that questioned the construct validity of the Vroom-Yetton model. Some 530 hospital
employees from seven institutions were asked to respond to three cases in which a manager faced a decision-making situation. Each employee was asked to indicate that decision-making process he would use in each case and his interpretation of each situation on the seven problem attributes. Demographic data was also collected for each subject. The subjects' responses were coded as falling either within the feasible set or outside of the feasible set. Pate and Heiman found that 70.7 percent of all decision processes were within the feasible set. However, they also found that whether or not a response would fall within the feasible set could not be predicted by the demographic variables of age, race, sex, level of education, managerial level, tenure, or organization. The latter finding led Pate and Heiman to conclude that the decision process and problem attributes may have been randomly determined by their subjects. They indicated that the probability of a randomly chosen decision process falling within a randomly chosen feasible set to be p=.71. Based on their finding and the earlier finding of Vroom and Yetton (1973) that in 68 percent of the situations managers' decisions fell within the feasible set, Pate and Heiman concluded that there is little difference between the two sets of findings and chance response. They further concluded that these results question the construct validity of the Vroom-Yetton model.

Wedley and Field (1982) conducted two studies in order to test this random chance hypothesis and the validity of the normative model. In the first study 92 undergraduates were asked to respond to two of the thirty cases in a problem set. Each case was responded to six times. Each subject chose a decision process for each case and then
answered the situational attributes for the case by following the decision tree of the Vroom-Yetton model. Thus not all attributes were answered for each case as it is not required for all tree paths.

The second study conducted by Wedley and Field (1982) asked thirty-seven managers to recall one successful and one unsuccessful decision they had recently made. Each manager reported the decision process he had used and the situational attributes for each case. Based upon these responses, the feasible set was determined for each case.

In order to test the random chance hypothesis, Wedley and Field (1982) computed the random probability for each path of the Vroom-Yetton decision tree, i.e., the expected probability at each terminal node, and the random probability for each specific process, i.e., the sum of the random path probabilities for the feasible sets that contain that process. The simple average of the specific process probabilities is 68.9 percent for the Vroom-Yetton model. Wedley and Field termed this the random process probability, that is, the probability that a randomly chosen decision process will be in a randomly derived feasible set.

Wedley and Field (1982) found results similar to those of Pate and Heiman (1981), 66.3 percent of the decisions in the first study fell within the feasible set and 70.3 percent of the decisions in the second study fell within the feasible set. However, rather than interpreting this as an indication that the decision processes chosen are in the feasible set by chance, Wedley and Field tested the hypothesis that subjects randomly interpret the situational attributes
and therefore randomly choose the path of the decision tree. The observed frequency of each model path was compared to the random expected frequency of each path; a significant difference was found between the two. Thus, the subjects were not responding to the situational attributes or choosing a decision process at random. Wedley and Field concluded that the random chance hypothesis had been rejected and that the overall construct validity of the Vroom-Yetton model was intact.

Field (1982) conducted a laboratory study with 276 university business students to test the validity of the Vroom-Yetton model. The subjects were divided into groups of four with the randomly assigned roles of leader, two subordinates, and an observer. Each group was asked to solve each of five decision-making problems using one specified process of the five decision processes in the Vroom-Yetton model. The leader and each subordinate reported acceptance, quality, overall effectiveness, and satisfaction measures on a six-point scale for each decision. An additional effectiveness measure was determined for each decision based on the quality and acceptance ratings as compared to the corresponding a priori quality and acceptance requirements for each problem. The observer reported which of the five decision processes was closest to what the leader actually did. Only those decisions in which the appropriate decision process was verified were used in the analysis.

Field (1982) noted that overall 43 percent of the decisions made were effective; 49 percent of the decisions made by processes within the feasible set were effective; and 36 percent of the decisions
made by decision processes outside of the feasible set were effective. Field found that using a decision process within the feasible set was significantly related to decision effectiveness although the type and difficulty of the problem encountered had the largest effect on decision effectiveness. Field also determined that when a particular quality rule was applicable and was violated decision quality was lower than when the rule was not broken. This same finding held true for the acceptance rules. Although cautious about the external generalizability of his study, Field concluded that his findings supported the validity of the Vroom-Yetton model as decisions made with decision-making processes falling within the feasible set were significantly more effective than those made with processes outside of the feasible set.

The Present Research

Objectives

There have been a number of investigations of the Vroom-Yetton model questioning its validity and it appears that the model generally has been supported. One of the most serious threats to the validity of the model stems from the fact that the data used to evaluate the model have been almost entirely self-reported by the subjects (Jago and Vroom, 1978; Vroom and Jago, 1978; Vroom and Yetton, 1973; and Wedley and Field, 1982). In studies that used an objective evaluation of the model, the problem situations faced by the managers or subjects were hypothetical cases and have questionable external validity (Field, 1982; Margerison and Glube, 1979; Pate and Heiman, 1981; Vroom and Yetton, 1973; and Wedley and Field, 1982). In order to corroborate
the validity of the Vroom-Yetton model an empirical study was needed which incorporated two characteristics: (1) the use of actual, current decisions faced by leaders, and (2) the use of objective, independent measures of the problem attributes, the decision process utilized, the decision effectiveness, and the quality and acceptance of the decision. The objective of the present research was to attempt such a study by utilizing current decision-making situations encountered by leaders and objective measures of the problem situations.

Previous research (Jago and Vroom, 1975) found that subordinate perceptions of leadership style did not agree with superiors' self-descriptions. However, a recent report (House, Field, and Steinman, 1982) indicated that managers and their subordinates agreed in their perceptions of the problem situation. Thus, an additional purpose of the present study was to evaluate superior-subordinate agreement on the coding of the problem attributes, the perception of the decision-making process used, the appropriateness of the decision-making method, and the effectiveness of the decision.

Other questions of interest in the present study included:

1. How often was the decision process used by a leader identical to that prescribed by the Vroom-Yetton model?

2. In what kinds of problems (e.g., those with a quality requirement, acceptance requirement, etc.) did the model and leaders most often agree?

3. Which of the rules underlying the model were most frequently violated by leaders?
Characteristics

The present study assessed the validity of the Vroom-Yetton model by comparing the effectiveness of decisions made within the model with the effectiveness of decisions falling outside of the model. Leaders were asked to select current decisions they were making and to report the decision-making process they were using as well as to evaluate the situation on the seven problem attributes. A number of subordinates for each leader also were asked to evaluate each decision by reporting the decision process used and by rating the decision situation on the problem attributes. Decision effectiveness was determined by using ratings by the leader responsible for the decision and by his subordinates. Decision effectiveness was also evaluated in terms of the quality and acceptance of the decision by determining the correspondence between the status of the problem on the appropriate problem attributes and the success of the decision actually reached, as rated by the leader and the subordinates in fulfilling any quality or acceptance requirements.

The perception of decision effectiveness may have changed over time as the decision was implemented and its appropriateness or inappropriateness became apparent. The present study attempted to assess the perceived effectiveness of decisions immediately after the decision was made and after a period of time had elapsed since making the decision. This allowed for a comparison of both the immediate and the delayed effectiveness of solutions reached by processes within and outside of the Vroom-Yetton model.
Hypotheses

Based on the previously cited research on the Vroom-Yetton model, the following hypotheses were generated:

Hypothesis 1: Decisions made by processes falling within the Vroom-Yetton feasible set will be rated by both leaders and subordinates as more effective than will decisions made by processes outside of the feasible set (Field, 1982; Jago and Vroom, 1978; and Vroom and Jago, 1978).

Hypothesis 1A: Decisions made within the Vroom-Yetton model will be rated as more effective than decisions made outside of the model immediately after the decision is made.

Hypothesis 1B: Decisions made within the Vroom-Yetton model will be rated as more effective than decisions made outside the model after a period of time has elapsed since the decision was made.

Hypothesis 2: Rules which protect the acceptance of the decision will be violated more often than will rules which protect the quality of the decision (Vroom and Jago, 1978; and Vroom and Yetton, 1973).

Hypothesis 2A: When a quality rule is applicable and is violated, the decision quality will be rated as lower than when a quality rule is not violated (Field, 1982; Vroom and Yetton, 1973).

Hypothesis 2B: When an acceptance rule is applicable and is violated, the decision acceptance will be rated as lower than when an acceptance rule is not violated (Field, 1982; and Vroom and Yetton, 1973).
METHOD

Subjects

The subjects were forty-two "leaders" who voluntarily agreed to participate in the study. The participants included ten leaders from each of the following groups: nurses, university administrators, and fraternity and sorority presidents, and twelve leaders who were managers from industry or the business community.

The subjects also included three to five subordinates for each leader. The subordinates were selected from the leader's organization. They were drawn from the set of people potentially affected by the decisions used in the study and who were one level below the leader in the organization.

Any of the subjects who were students enrolled in undergraduate psychology classes at Louisiana State University (e.g., fraternity or sorority members), were given extra credit for their participation in the study.

Instruments

Response Format for Leaders. The leaders were asked to report five decision-making situations they were currently facing and to evaluate the decision process used and the solution for each situation. The response format, which was provided for the leaders, is included as Appendix B. The response format provided (a) guidelines for reporting the decision situations and (b) questions addressing the status of each decision on the seven problem attributes, and the quality, acceptance, and effectiveness of the solution.
Response Format for Subordinates. The subordinates also were asked to evaluate the decision-making process used and the decision made for each of the situations selected by their leader. The response format, which was provided for the subordinates, is included as Appendix C. The response format included questions addressing the status of each decision on the seven problem attributes and the quality, acceptance, and effectiveness of the solution.

Delayed Response Format for Leaders and Subordinates. The leaders and their subordinates were asked to evaluate each decision after an elapsed period of time. The format used for the delayed evaluation contained items identical to those in the above formats with the following two exceptions: (1) the leaders were not asked to record a description of the decision situation, and (2) three additional questions were included. The Delayed Response Format for Leaders is included as Appendix D and the Delayed Response Format for Subordinates is included as Appendix E.

Procedure

The experimenter contacted potential subjects, i.e., nurses, university administrators, managers, and fraternity and sorority presidents, to solicit their participation in the study. The purpose of the study and the basic procedure involved in the study (emphasizing what would be required from them and their subordinates) were explained. Individuals willing to participate in the study became the "leader" subjects.

Each leader was asked to select five decision-making situations he/she was currently facing and to record the situation on the response
format. The leaders were asked to select the decisions from situations that had occurred within a one-week period of time. The leader then evaluated the decision process used and the solution reached by responding to the items on the Response Format for Leaders. The experimenter explained the response format to each leader and answered any questions the leader might have had about selecting and describing the problem situation or answering the questions pertaining to the decision. If it was necessary, the experimenter assisted the leader in selecting and describing an example problem and in answering the questions on the response format for the example problem. Each leader returned his completed response formats directly to the experimenter.

Upon receiving the response formats from the leaders, the experimenter prepared the Response Formats for Subordinates. If the leader's response format lacked information, the experimenter contacted the leader to obtain the missing information.

The experimenter explained the experiment to subordinates from each of the leader's organization. A representative sample of from three to five subordinates for each leader was selected to evaluate each of the decisions chosen by the leader. In many cases (61% overall; 81% excluding fraternity and sorority presidents) the leader had only three to five subordinates. The subordinates were given response formats appropriately prepared for each of their leader's five decisions and an additional format prepared as a leader's example decision. The experimenter explained the response format to the subordinates and answered any questions they might have had about responding to items in the format. The experimenter used the example of a leader's decision
in explaining the response format to the subordinates. The subordinates then were asked to respond to each of the items on the Response Formats for Subordinates. The subordinates returned their completed response formats directly to the experimenter.

After a period of four weeks had elapsed, the leaders and the subordinates were given the Delayed Response Formats prepared for each of the five decisions. The subjects were asked to reevaluate the decisions by responding to the items on the format. The completed Delayed Response Formats were returned directly to the experimenter.

Upon completion of the study, those leaders requesting it will receive an explanation of the findings of the study and a summary of the results that pertain to them.

**Dependent Variables**

The dependent variables in this study were the quality of the decision, the acceptance of the decision, and the effectiveness of the decision as rated on a 6-point Likert scale by both leaders and subordinates.

A second measure of decision effectiveness was based on the correspondence between the leader's and subordinates' ratings of decision quality (response format item #13) and acceptance (response format item #14) and the requirement of the problem attributes for decision quality (response format item #5) and acceptance (response format item #8). Decision effectiveness was determined in the following manner. The quality and acceptance measures were dichotomized. A mean quality rating from 1-3.5 was considered low quality and mean rating from 3.5-6 was considered high quality. A
mean acceptance rating from 1-3.5 was considered low acceptance and a
mean rating from 3.5-6 was considered high acceptance. If the problem
was determined to have a quality requirement and a high quality
rating, i.e., there was correspondence, it was considered to be an
effective or successful decision. If the problem was determined to
have a quality requirement and had a low quality rating, i.e., it
lacked correspondence, then it was considered to be an ineffective or
unsuccessful decision. Likewise, a problem in which the acceptance
requirement corresponded with the acceptance rating was considered to
be an effective or successful decision, while a problem which lacked
correspondence was considered to be an ineffective or unsuccessful
decision. If a problem was determined to have both a quality and an
acceptance requirement and had correspondence on both measures, it was
considered to be an effective or successful decision; if the problem
had correspondence on only one of the measures and lacked correspondence
on the other, it was considered to be an ineffective or unsuccessful
decision. If a problem was determined to have neither a quality
requirement nor an acceptance requirement, the decision was considered
to be effective or successful irrespective of the quality and acceptance
ratings (Field, 1982). This measure of decision effectiveness was used
for dichotomizing decision effectiveness only for descriptive purposes.
RESULTS

Effectiveness

The effectiveness measures were the individual ratings by the leaders and subordinates of decision effectiveness. The measures were defined on a pooled problem basis, i.e., the ratings were pooled across problems. The effectiveness measures were analyzed by an analysis of variance involving one multi-level factor, supervisory unit (leader/subordinate units within each type of leader), and two bi-level factors: feasibility (decision processes falling within the feasible set and decision processes falling outside of the feasible set), and level (leader and subordinate). The analysis was conducted twice for each type of leader (i.e., nurses, university administrators, managers, and fraternity and sorority presidents), once using only the data from the immediate ratings and then again using only the data from the delayed ratings.

The summary tables for the analyses for each type of leader may be found in Tables 4, 5, 6, and 7 for the immediate ratings and in Tables 8, 9, 10, and 11 for the delayed ratings. An inspection of these tables revealed that in no case was there a significant main effect for supervisory unit. In both the analyses for the immediate ratings and the analyses for the delayed ratings only the nurses demonstrated a significant main effect for feasibility (p < .05). The means for these significant effects may be found in Table 12. None of the main effects for level nor any of the feasibility X level interactions reached significance in the analyses for either the immediate or the delayed ratings.
<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>9</td>
<td>.3171</td>
<td>2.77</td>
<td>.0688</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>.8859</td>
<td>7.73*</td>
<td>.0194</td>
</tr>
<tr>
<td>Error A (Feas. X S.U.)</td>
<td>5</td>
<td>.1145</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>.4978</td>
<td>1.10</td>
<td>.3123</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>.0008</td>
<td>.00</td>
<td>.9654</td>
</tr>
<tr>
<td>Error B (S.U. X Feas. X Level)</td>
<td>14</td>
<td>.4530</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>9</td>
<td>.5241</td>
<td>.52</td>
<td>.4084</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>3.5811</td>
<td>3.53</td>
<td>.0596</td>
</tr>
<tr>
<td>Error A (Feas. X S.U.)</td>
<td>5</td>
<td>1.0158</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>.8062</td>
<td>1.96</td>
<td>.1838</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>1.7918</td>
<td>4.35</td>
<td>.0559</td>
</tr>
<tr>
<td>Error B (S.U. X Feas. X Level)</td>
<td>14</td>
<td>.4123</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 6

Summary Table for the Analysis of Variance of the Immediate Ratings of the Effectiveness Measures for Managers

<table>
<thead>
<tr>
<th>Factor</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>11</td>
<td>.5912</td>
<td>1.49</td>
<td>.1611</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>1.0544</td>
<td>2.50</td>
<td>.0761</td>
</tr>
<tr>
<td>Error A (Feas. X S.U.)</td>
<td>8</td>
<td>.4213</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>.4481</td>
<td>1.67</td>
<td>.2113</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>.0606</td>
<td>.23</td>
<td>.6396</td>
</tr>
<tr>
<td>Error B (S.U. X Feas. X Level)</td>
<td>19</td>
<td>.2678</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor</td>
<td>df</td>
<td>MS</td>
<td>F</td>
<td>P</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----</td>
<td>------</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td>Supervisory Unit</td>
<td>9</td>
<td>0.2933</td>
<td>0.87</td>
<td>0.2962</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>0.0343</td>
<td>0.10</td>
<td>0.3802</td>
</tr>
<tr>
<td>Error A (Feas. X S.U.)</td>
<td>6</td>
<td>0.3375</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>0.0288</td>
<td>0.33</td>
<td>0.5733</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>0.0407</td>
<td>0.47</td>
<td>0.5045</td>
</tr>
<tr>
<td>Error B (S.U. X Feas. X Level)</td>
<td>15</td>
<td>0.0870</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 8

Summary Table for the Analysis of Variance of the Delayed Ratings of the Effectiveness Measures for Nurses

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>9</td>
<td>0.4255</td>
<td>2.06</td>
<td>0.1106</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>0.8437</td>
<td>4.08*</td>
<td>0.0497</td>
</tr>
<tr>
<td>Error A (Feas. X S.U.)</td>
<td>5</td>
<td>0.2070</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>1.2957</td>
<td>2.03</td>
<td>0.1763</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>0.0834</td>
<td>0.13</td>
<td>0.7232</td>
</tr>
<tr>
<td>Error B (S.U. X Feas. X Level)</td>
<td>14</td>
<td>0.6386</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*P < .05
<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>9</td>
<td>.7677</td>
<td>.69</td>
<td>.3511</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>.3172</td>
<td>.29</td>
<td>.3077</td>
</tr>
<tr>
<td>Error A (Feas. X S.U.)</td>
<td>5</td>
<td>1.1074</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>1.3827</td>
<td>2.26</td>
<td>.1548</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>.8343</td>
<td>1.36</td>
<td>.1311</td>
</tr>
<tr>
<td>Error B (S.U. X Feas. X Level)</td>
<td>14</td>
<td>.6114</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 10

Summary Table for the Analysis of Variance of the Delayed Ratings of the Effectiveness Measures for Managers

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>11</td>
<td>.9609</td>
<td>1.27</td>
<td>.1881</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>.0201</td>
<td>.03</td>
<td>.4372</td>
</tr>
<tr>
<td>Error A (Feas. X S.U.)</td>
<td>8</td>
<td>3.0290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>.0352</td>
<td>.06</td>
<td>.8128</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>.0150</td>
<td>.02</td>
<td>.8771</td>
</tr>
<tr>
<td>Error B (S.U. X Feas. X Level)</td>
<td>19</td>
<td>.6113</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE II
Summary Table for the Analysis of Variance of the Delayed Ratings of the Effectiveness Measures for Fraternity and Sorority Presidents

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>9</td>
<td>.1592</td>
<td>1.26</td>
<td>.2005</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>.4651</td>
<td>3.69</td>
<td>.0515</td>
</tr>
<tr>
<td>Error A (Feas. X S.U.)</td>
<td>6</td>
<td>.1259</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>.7692</td>
<td>6.64*</td>
<td>.0211</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>.2729</td>
<td>2.35</td>
<td>.4158</td>
</tr>
<tr>
<td>Error B (S.U. X Feas. X Level)</td>
<td>15</td>
<td>.1159</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
TABLE 12
Mean Effectiveness Measures for Significant Effects from the Analysis for the Immediate and Delayed Ratings

<table>
<thead>
<tr>
<th>Type of Leader</th>
<th>Independent Variable</th>
<th>Feasibility - Immediate Ratings</th>
<th>Feasibility - Delayed Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurses</td>
<td>Feasible</td>
<td>4.63</td>
<td>4.88</td>
</tr>
<tr>
<td></td>
<td>Non-Feasible</td>
<td>4.45</td>
<td>4.51</td>
</tr>
</tbody>
</table>
Hypothesis 1A and Hypothesis 1B stated that decision effectiveness would be a function of decision-process feasibility, as defined by the Vroom-Yetton model, immediately after the decision was made and after a period of time had elapsed since making the decision. Hypothesis 1A and 1B received only weak support. The nurses were the only type of leader for which decisions made by processes falling within the Vroom-Yetton feasible set were rated as more effective than were decisions made by processes outside of the feasible set. For the nurses, feasibility was significant for both the immediate \((p < .05)\) and the delayed ratings \((p < .05)\) of decision effectiveness. There were no differences in the effectiveness of decisions made by feasible methods and decisions made by non-feasible methods for the university administrators, the managers, or the fraternity and sorority presidents.

Analyses of variance for the effectiveness measures involving the multi-level factor of supervisory unit, the two bi-level factors of feasibility and level, all as defined above, and the bi-level factor of time (immediate and delayed) provided essentially the same results as the separate analyses for the immediate and delayed ratings.

**Quality**

The quality measures were the individual ratings by the leaders and subordinates of decision quality. The measures were defined on a pooled problem basis, i.e., the ratings were pooled across problems. The quality measures were analyzed by an analysis of variance involving one multi-level factor, supervisory unit (leader/subordinate units within each type of leader), and three bi-level factors: feasibility (decision processes falling within the feasible set and decision
processes falling outside of the feasible set), level (leader and subordinate), and time (immediate and delayed). The analysis was conducted separately for each type of leader (i.e., nurses, university administrators, managers, and fraternity and sorority presidents). The summary tables for these analyses may be found in Tables 13, 14, 15, and 16, respectively. The results of the analyses indicated that only the managers had a significant main effect for supervisory unit \((p < .05)\). The managers also demonstrated a significant main effect for feasibility \((p < .01)\). The only type of leader that had a significant main effect for level \((p < .001)\) was nurses. There were no significant main effects for time. Only one of the interactions reached significance; the level X time interaction was significant for the university administrators \((p < .001)\). Table 17 contains the mean quality measures for the significant main effects and interactions of interest.

Hypothesis 2 stated that rules which protect the acceptance of the decision would be violated more often than would rules which protect the quality of the decision. This hypothesis will be addressed following the presentation of the results for the acceptance measures.

Hypothesis 2A stated that decision quality would be a function of the feasibility of the decision process as defined by the Vroom-Yetton model. This hypothesis received partial support as only one type of leader, managers, had a significant main effect for feasibility \((p < .01)\).

Acceptance

The acceptance measures were the individual ratings by the
<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>9</td>
<td>1.7593</td>
<td>1.99</td>
<td>.1552</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>4.0632</td>
<td>4.59</td>
<td>.0608</td>
</tr>
<tr>
<td>Error A</td>
<td>3</td>
<td>.8850</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>2.9761</td>
<td>28.26***</td>
<td>.0001</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>.0412</td>
<td>.39</td>
<td>.2716</td>
</tr>
<tr>
<td>Error B</td>
<td>12</td>
<td>.1052</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>1</td>
<td>.1180</td>
<td>1.08</td>
<td>.3084</td>
</tr>
<tr>
<td>Feasibility X Time</td>
<td>1</td>
<td>.1626</td>
<td>1.49</td>
<td>.2337</td>
</tr>
<tr>
<td>Level X Time</td>
<td>1</td>
<td>.0644</td>
<td>.59</td>
<td>.4494</td>
</tr>
<tr>
<td>Feasibility X Level X Time</td>
<td>1</td>
<td>.0020</td>
<td>.02</td>
<td>.8929</td>
</tr>
<tr>
<td>Error C</td>
<td>24</td>
<td>.1089</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***p < .001
<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>9</td>
<td>.8445</td>
<td>.89</td>
<td>.2980</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>1.2870</td>
<td>1.36</td>
<td>.1544</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error A</td>
<td>4</td>
<td>.9483</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Feas. X S.U.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>1.0006</td>
<td>1.13</td>
<td>.1534</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>1.4168</td>
<td>1.60</td>
<td>.1139</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error B</td>
<td>13</td>
<td>.8844</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(S.U. X Feas. X Level)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>1</td>
<td>.0606</td>
<td>4.04</td>
<td>.0548</td>
</tr>
<tr>
<td>Feasibility X Time</td>
<td>1</td>
<td>.4253</td>
<td>2.84</td>
<td>.1042</td>
</tr>
<tr>
<td>Level X Time</td>
<td>1</td>
<td>2.4488</td>
<td>16.33***</td>
<td>.0004</td>
</tr>
<tr>
<td>Feasibility X Level X Time</td>
<td>1</td>
<td>.2329</td>
<td>1.55</td>
<td>.2238</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error C</td>
<td>26</td>
<td>.1500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Residual)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***p < .001
<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>11</td>
<td>1.1308</td>
<td>4.68</td>
<td>.0127</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>2.8368</td>
<td>11.73**</td>
<td>.0055</td>
</tr>
<tr>
<td>Error A (Feas. X S.U.)</td>
<td>7</td>
<td>.2418</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>1.0779</td>
<td>1.78</td>
<td>.0992</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>.0338</td>
<td>.06</td>
<td>.4079</td>
</tr>
<tr>
<td>Error B (S.U. X Feas. X Level)</td>
<td>18</td>
<td>.6048</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>1</td>
<td>.0581</td>
<td>.36</td>
<td>.5499</td>
</tr>
<tr>
<td>Feasibility X Time</td>
<td>1</td>
<td>.0947</td>
<td>.59</td>
<td>.4459</td>
</tr>
<tr>
<td>Level X Time</td>
<td>1</td>
<td>.0271</td>
<td>.17</td>
<td>.6826</td>
</tr>
<tr>
<td>Feasibility X Level X Time</td>
<td>1</td>
<td>.0546</td>
<td>.34</td>
<td>.5621</td>
</tr>
<tr>
<td>Error C (Residual)</td>
<td>36</td>
<td>.1595</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**p < .01
<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>9</td>
<td>.2809</td>
<td>3.15</td>
<td>.0549</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>1.7493</td>
<td>19.59</td>
<td>.0069</td>
</tr>
<tr>
<td>Error A (Feas. X S.U.)</td>
<td>5</td>
<td>.0892</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>.0175</td>
<td>.06</td>
<td>.4027</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>.0149</td>
<td>.05</td>
<td>.4102</td>
</tr>
<tr>
<td>Error B (S.U. X Feas. X Level)</td>
<td>14</td>
<td>.2786</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>1</td>
<td>.1990</td>
<td>.99</td>
<td>.3282</td>
</tr>
<tr>
<td>Feasibility X Time</td>
<td>1</td>
<td>.1052</td>
<td>.52</td>
<td>.4754</td>
</tr>
<tr>
<td>Level X Time</td>
<td>1</td>
<td>.7788</td>
<td>3.87</td>
<td>.0590</td>
</tr>
<tr>
<td>Feasibility X Level X Time</td>
<td>1</td>
<td>.0046</td>
<td>.02</td>
<td>.8800</td>
</tr>
<tr>
<td>Error C (Residual)</td>
<td>28</td>
<td>.2010</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 17
Mean Quality Measures for Significant Main Effects and Interactions from the Analyses of Variance

<table>
<thead>
<tr>
<th>Type of Leader</th>
<th>Independent Variable</th>
<th>Feasibility</th>
<th>Level</th>
<th>Level X Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managers</td>
<td>Feasible</td>
<td>4.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Feasible</td>
<td>4.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurses</td>
<td>Leader</td>
<td>4.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subordinate</td>
<td>4.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University Administrators</td>
<td>Leader/Immediate</td>
<td>4.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leader/Delayed</td>
<td>5.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subordinate/Immediate</td>
<td>4.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subordinate/Delayed</td>
<td>4.29</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
leaders and subordinates of decision acceptance. The measures were defined on a pooled problem basis, i.e., the ratings were pooled across problems. The acceptance measures were analyzed by an analysis of variance involving one multi-level factor, supervisory unit (leader/subordinate units within each type of leader), and three bi-level factors: feasibility (decision processes falling within the feasible set and decision processes falling outside of the feasible set), level (leader and subordinate), and time (immediate and delayed). The analysis was conducted separately for each type of leader (i.e., nurses, university administrators, managers, and fraternity and sorority presidents). The summary table for each analysis may be found in Tables 18, 19, 20, and 21, respectively. The results of the analyses indicated that there were no significant main effects for supervisory unit. Both the nurses and the managers demonstrated significant (p < .05) main effects for feasibility. Only the managers had a significant (p < .05) main effect for level. Again, there were no significant main effects for time. The only two interactions that reached significance, feasibility X time (p < .05) and level X time (p < .05), were both for fraternity and sorority presidents. The mean acceptance measures for these significant main effects and interactions may be found in Table 22.

Hypothesis 2B stated that decision acceptance would be a function of feasibility, as defined by the Vroom-Yetton model. This hypothesis was partially supported as nurses and managers had significant main effects for feasibility, i.e., decisions made by methods within the feasible set were rated higher in acceptance than were decisions made by methods outside of the feasible set.
TABLE 18
Summary Table for the Analysis of Variance of the Acceptance Measures for Nurses

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>9</td>
<td>.6506</td>
<td>1.07</td>
<td>.2480</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>2.6826</td>
<td>4.43*</td>
<td>.0446</td>
</tr>
<tr>
<td>Error A (Feas. X S.U.)</td>
<td>5</td>
<td>.6061</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>.1606</td>
<td>.26</td>
<td>.3084</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>.3955</td>
<td>.64</td>
<td>.2176</td>
</tr>
<tr>
<td>Error B (S.U. X Feas. X Level)</td>
<td>14</td>
<td>.6132</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>1</td>
<td>.2968</td>
<td>1.51</td>
<td>.2301</td>
</tr>
<tr>
<td>Feasibility X Time</td>
<td>1</td>
<td>.0725</td>
<td>.37</td>
<td>.5490</td>
</tr>
<tr>
<td>Level X Time</td>
<td>1</td>
<td>.0627</td>
<td>.32</td>
<td>.5771</td>
</tr>
<tr>
<td>Feasibility X Level X Time</td>
<td>1</td>
<td>.1411</td>
<td>.72</td>
<td>.4046</td>
</tr>
<tr>
<td>Error C (Residual)</td>
<td>27</td>
<td>.1968</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>9</td>
<td>1.5019</td>
<td>1.11</td>
<td>.2496</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>1.6673</td>
<td>1.23</td>
<td>.1650</td>
</tr>
<tr>
<td>Error A (Feas. X S.U.)</td>
<td>4</td>
<td>1.3581</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>.1</td>
<td>.5810</td>
<td>.46</td>
<td>.2548</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>2.8730</td>
<td>2.27</td>
<td>.0777</td>
</tr>
<tr>
<td>Error B (S.U. X Feas. X Level)</td>
<td>13</td>
<td>1.2637</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>1</td>
<td>.0479</td>
<td>.51</td>
<td>.4820</td>
</tr>
<tr>
<td>Feasibility X Time</td>
<td>1</td>
<td>.0083</td>
<td>.09</td>
<td>.7688</td>
</tr>
<tr>
<td>Level X Time</td>
<td>1</td>
<td>.3308</td>
<td>3.51</td>
<td>.0723</td>
</tr>
<tr>
<td>Feasibility X Level X Time</td>
<td>1</td>
<td>.0007</td>
<td>.01</td>
<td>.9299</td>
</tr>
<tr>
<td>Error C (Residual)</td>
<td>26</td>
<td>.0942</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 20
Summary Table for the Analysis of Variance of the
Acceptance Measures for Managers

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>11</td>
<td>.9071</td>
<td>1.77</td>
<td>.1067</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>2.4400</td>
<td>4.76*</td>
<td>.0303</td>
</tr>
<tr>
<td>Error A (Feas. X S.U.)</td>
<td>8</td>
<td>.5122</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>2.1873</td>
<td>3.11*</td>
<td>.0469</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>.1081</td>
<td>.15</td>
<td>.3496</td>
</tr>
<tr>
<td>Error B (S.U. X Feas. X Level)</td>
<td>19</td>
<td>.7034</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>1</td>
<td>.7823</td>
<td>2.85</td>
<td>.0997</td>
</tr>
<tr>
<td>Feasibility X Time</td>
<td>1</td>
<td>.1664</td>
<td>.61</td>
<td>.4412</td>
</tr>
<tr>
<td>Level X Time</td>
<td>1</td>
<td>.6767</td>
<td>2.46</td>
<td>.1248</td>
</tr>
<tr>
<td>Feasibility X Level X Time</td>
<td>1</td>
<td>.0233</td>
<td>.08</td>
<td>.7724</td>
</tr>
<tr>
<td>Error C (Residual)</td>
<td>38</td>
<td>.2747</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
TABLE 21
Summary Table for the Analysis of Variance of the Acceptance Measures for Fraternity and Sorority Presidents

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisory Unit</td>
<td>9</td>
<td>.6815</td>
<td>.83</td>
<td>.3106</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1</td>
<td>1.1706</td>
<td>1.43</td>
<td>.1432</td>
</tr>
<tr>
<td>Error A</td>
<td>5</td>
<td>.8230</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Feas. X S.U.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>1</td>
<td>.2192</td>
<td>.94</td>
<td>.1741</td>
</tr>
<tr>
<td>Feasibility X Level</td>
<td>1</td>
<td>.3476</td>
<td>1.49</td>
<td>.1209</td>
</tr>
<tr>
<td>Error B</td>
<td>14</td>
<td>.2326</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(S.U. X Feas. X Level)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>1</td>
<td>.5564</td>
<td>3.23</td>
<td>.0830</td>
</tr>
<tr>
<td>Feasibility X Time</td>
<td>1</td>
<td>.8333</td>
<td>4.84*</td>
<td>.0362</td>
</tr>
<tr>
<td>Level X Time</td>
<td>1</td>
<td>1.0175</td>
<td>5.91*</td>
<td>.0217</td>
</tr>
<tr>
<td>Feasibility X Level X Time</td>
<td>1</td>
<td>.0004</td>
<td>.00</td>
<td>.9580</td>
</tr>
<tr>
<td>Error C</td>
<td>28</td>
<td>.1721</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Residual)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
<table>
<thead>
<tr>
<th>Type of Leader</th>
<th>Independent Variable</th>
<th>Mean Acceptance Measures for Significant Main Effects and Interactions from the Analysis of Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurses</td>
<td>Feasible</td>
<td>4.99</td>
</tr>
<tr>
<td></td>
<td>Non-Feasible</td>
<td>4.62</td>
</tr>
<tr>
<td>Managers</td>
<td>Feasible</td>
<td>5.08</td>
</tr>
<tr>
<td></td>
<td>Non-Feasible</td>
<td>4.68</td>
</tr>
<tr>
<td>Managers</td>
<td>Leader</td>
<td>5.06</td>
</tr>
<tr>
<td></td>
<td>Subordinate</td>
<td>4.75</td>
</tr>
<tr>
<td>Fraternity and Sorority Presidents</td>
<td>Feasible/Immediate</td>
<td>4.98</td>
</tr>
<tr>
<td></td>
<td>Feasible/Delayed</td>
<td>4.94</td>
</tr>
<tr>
<td></td>
<td>Non-Feasible/Immediate</td>
<td>4.33</td>
</tr>
<tr>
<td></td>
<td>Non-Feasible/Delayed</td>
<td>4.75</td>
</tr>
<tr>
<td>Fraternity and Sorority Presidents</td>
<td>Leader/Immediate</td>
<td>4.68</td>
</tr>
<tr>
<td></td>
<td>Leader/Delayed</td>
<td>5.08</td>
</tr>
<tr>
<td></td>
<td>Subordinate/Immediate</td>
<td>4.79</td>
</tr>
<tr>
<td></td>
<td>Subordinate/Delayed</td>
<td>4.66</td>
</tr>
</tbody>
</table>
Hypothesis 2 stated that rules which protect the acceptance of the decision would be violated more often than would rules which protect the quality of the decision. This hypothesis was tested by a series of \(X^2\) two-sample tests, one for a test across all types of leaders and a separate test for each type of leader. The \(2 \times 2\) contingency tables for the \(X^2\) tests were composed of the group of decisions for which there was an acceptance requirement and the group of decisions for which there was a quality requirement as the rows and the categories of feasible (indicating no rule violation) and non-feasible (indicating a rule violation) as the columns. The results of the \(X^2\) tests may be found in Table 23. None of the \(X^2\) tests reached significance. Thus, Hypothesis 2 was not supported; acceptance rules were not violated more frequently than were quality rules.

Descriptive Statistics

Several descriptive statistics were of interest. The percentages of decisions which were made with processes that fell within the feasible set are presented in Table 24 for each type of organization as well as the overall rates of decision-process feasibility. This table also contains the percentage of successful decisions for both cases within the feasible set and cases outside of the feasible set. Regardless of the status of the decision, feasible or non-feasible, over 90% of the decisions were rated as successful. The overall number of instances of acceptance rule violations and the overall number of instances of quality rule violations, as well as the number of instances of rule violation by type of leader may be found in Table 25. Table 26 contains the percent
TABLE 23
Chi Square Values for Differences in Quality and Acceptance Rule Violations

<table>
<thead>
<tr>
<th>Type of Leader</th>
<th>$X^2$ Value</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across All Types</td>
<td>.003</td>
<td>.94</td>
</tr>
<tr>
<td>Nurses</td>
<td>.012</td>
<td>.91</td>
</tr>
<tr>
<td>University Administrators</td>
<td>.421</td>
<td>.56</td>
</tr>
<tr>
<td>Managers</td>
<td>.001</td>
<td>.96</td>
</tr>
<tr>
<td>Fraternity and Sorority Presidents</td>
<td>.010</td>
<td>.92</td>
</tr>
<tr>
<td>Type of Leader</td>
<td>% of Decisions Within the Feasible Set</td>
<td>% of Decisions Outside of the Feasible Set</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------------------------------------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>Across All Types</td>
<td>72.38</td>
<td>27.68</td>
</tr>
<tr>
<td>Nurses</td>
<td>72.00</td>
<td>28.00</td>
</tr>
<tr>
<td>University Administrators</td>
<td>84.00</td>
<td>16.00</td>
</tr>
<tr>
<td>Managers</td>
<td>63.33</td>
<td>36.66</td>
</tr>
<tr>
<td>Fraternity and Sorority</td>
<td>72.00</td>
<td>28.00</td>
</tr>
<tr>
<td>Presidents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of Leader</td>
<td># of Decisions with Quality Rule Violations</td>
<td># of Decisions with Acceptance Rule Violations</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Across All Types</td>
<td>49 (32.24%)</td>
<td>56 (33.14%)</td>
</tr>
<tr>
<td>Nurses</td>
<td>11 (28.95%)</td>
<td>14 (32.56%)</td>
</tr>
<tr>
<td>University Administrators</td>
<td>7 (21.88%)</td>
<td>7 (20.59%)</td>
</tr>
<tr>
<td>Managers</td>
<td>19 (42.22%)</td>
<td>22 (44.00%)</td>
</tr>
<tr>
<td>Fraternity and Sorority Presidents</td>
<td>12 (32.43%)</td>
<td>13 (30.95%)</td>
</tr>
</tbody>
</table>
### TABLE 26

Percent Distribution of Responses on the Six-Point Likert Scale for Measures of Decision Effectiveness, Quality, and Acceptance

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>%</th>
<th>Quality</th>
<th>%</th>
<th>Acceptance</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely Ineffective</td>
<td>2.94</td>
<td>Extremely Low</td>
<td>1.27</td>
<td>Totally Unaccepted</td>
<td>1.65</td>
</tr>
<tr>
<td>Quite Ineffective</td>
<td>6.63</td>
<td>Quite Low</td>
<td>3.59</td>
<td>Most Unaccepted</td>
<td>4.28</td>
</tr>
<tr>
<td>Slightly Ineffective</td>
<td>4.74</td>
<td>Slightly Low</td>
<td>8.72</td>
<td>Slightly Unaccepted</td>
<td>5.81</td>
</tr>
<tr>
<td>Slightly Effective</td>
<td>20.16</td>
<td>Slightly High</td>
<td>24.56</td>
<td>Slightly Accepted</td>
<td>12.20</td>
</tr>
<tr>
<td>Quite Effective</td>
<td>44.85</td>
<td>Quite High</td>
<td>41.88</td>
<td>Most Accepted</td>
<td>43.43</td>
</tr>
<tr>
<td>Extremely Effective</td>
<td>20.65</td>
<td>Extremely High</td>
<td>19.95</td>
<td>Totally Accepted</td>
<td>32.59</td>
</tr>
</tbody>
</table>

Total Number of Respondents = 229
distribution of responses on the 6-point Likert scale for the measures of decision effectiveness, quality, and acceptance. The distribution of the problem type for the decisions selected by the leaders may be found in Table 27.
## TABLE 27
Distribution of Problem Type for the Decisions Selected by Leaders

<table>
<thead>
<tr>
<th>Problem Type</th>
<th>Feasible Set</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A1, A11, C1, C11, G11</td>
<td>42</td>
<td>20.00</td>
</tr>
<tr>
<td>2</td>
<td>G11</td>
<td>16</td>
<td>7.61</td>
</tr>
<tr>
<td>3</td>
<td>A1, A11, C1, C11, G11</td>
<td>56</td>
<td>26.66</td>
</tr>
<tr>
<td>4</td>
<td>A1, A11, C1, C11</td>
<td>9</td>
<td>4.28</td>
</tr>
<tr>
<td>5</td>
<td>G11</td>
<td>35</td>
<td>16.66</td>
</tr>
<tr>
<td>6</td>
<td>C11</td>
<td>5</td>
<td>2.38</td>
</tr>
<tr>
<td>7</td>
<td>C1, C11</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>8</td>
<td>A11, C1, C11</td>
<td>3</td>
<td>1.42</td>
</tr>
<tr>
<td>9</td>
<td>A11, C1, C11, G11</td>
<td>19</td>
<td>9.04</td>
</tr>
<tr>
<td>10</td>
<td>C11</td>
<td>2</td>
<td>.95</td>
</tr>
<tr>
<td>11</td>
<td>C11, G11</td>
<td>13</td>
<td>6.19</td>
</tr>
<tr>
<td>12</td>
<td>G11</td>
<td>8</td>
<td>3.81</td>
</tr>
<tr>
<td>13</td>
<td>C11</td>
<td>2</td>
<td>.95</td>
</tr>
</tbody>
</table>

Total Number of Decisions = 210
DISCUSSION

The Vroom-Yetton model of decision making was tested using four different types of organizational leaders: nurses, university administrators, managers from business and industry, and fraternity and sorority presidents. The results of the present study provided only modest support for the validity of the model.

The first hypothesis, which stated that decision effectiveness would be a function of decision method feasibility, as defined by the Vroom-Yetton model, immediately after the decision was made (Hypothesis 1A) and after a period of time had elapsed (Hypothesis 1B), was supported by only one type of leader, the nurses. Nurses perceived feasible decisions to be more effective than non-feasible decisions both immediately after the decision was made and after the period of elapsed time. Thus, Hypothesis 1 received only weak support; three types of leaders, the university administrators, the managers, and the fraternity and sorority presidents, perceived no difference in decision effectiveness as a function of decision-method feasibility.

No support was found by any of the four types of leaders for Hypothesis 2, which stated that rules protecting the acceptance of the decision would be violated more often than would rules protecting the quality of the decision. In the present study, all four types of leaders violated quality rules at the same rate that they violated effectiveness rules. The results provided weak support for Hypothesis 2A, which stated that decision quality would be a function of decision-method feasibility as defined by the Vroom-Yetton model.
This hypothesis held true only for the group of managers. Decision quality was not a function of decision-method feasibility for the nurses, the university administrators, or the fraternity and sorority presidents. Stronger support was obtained for the second sub-hypothesis, Hypothesis 2B, which stated that decision acceptance would be a function of decision-method feasibility as defined by the Vroom-Yetton model. The results of the present study supported this hypothesis for two of the groups of leaders, the nurses and the managers. However, once again, the Vroom-Yetton model did not hold true for the university administrators or the fraternity and sorority presidents.

An additional intention of the present study was to examine superior-subordinate agreement on their perceptions of the effectiveness, quality, and acceptance of the decisions selected by the leaders. The results indicated that across all four types of leaders and across all three dependent variables in only three instances was there a difference between the leader's and the subordinates' ratings: on the effectiveness measure for fraternities and sororities, on the quality measure for the nurses, and on the acceptance measure for the managers. In each case the leader's ratings were higher than the ratings of the subordinates. This finding coincides with the findings of House, Field, and Steinman (1982), that managers and their subordinates generally agree in their perceptions of decision characteristics.

One final variable included in the present study was time; decision effectiveness, quality, and acceptance were evaluated
immediately after a decision was made and after a period of four to six weeks had elapsed since the decision was made. Across all four types of leaders and across all three dependent variables not once was there a significant difference between the immediate and delayed ratings. Apparently, evaluations of decision effectiveness, quality, and acceptance remain stable across a time period such as the one utilized in the present research.

Discussion of the Results for Each Type of Leader

More insight into an explanation of the results of the present study can be had by examining individually the findings for each type of leader. Therefore, the discussion of the results of this study will be organized by type of leader.

Managers

The managers used in the present study were the subjects most similar to the typical subjects used in previous research investigating the Vroom-Yetton model. In the present study the results for the managers indicated that the Vroom-Yetton model was supported by significant main effects for feasibility on both the measures of decision quality and the measures of decision acceptance. That is, decisions made by methods within the feasible set were perceived by managers and their subordinates to be both of higher quality and better accepted than decisions outside of the feasible set. These results closely parallel those of Vroom and Jago (1978) who found that managerial decisions that followed the Vroom-Yetton model received significantly higher ratings for decision effectiveness,
quality, and acceptance. The rate at which the present managers' decisions fell within the feasible set, 63% (see Table 24), also follows the results for managers from previous studies, e.g., rates of 68% (Vroom and Yetton, 1973), 65% (Vroom and Jago, 1978), and 70% (Wedley and Field, 1982).

The validity of the Vroom-Yetton model was supported by managers in the present study as it has been in a number of other studies (e.g., Jago and Vroom, 1978; Vroom and Jago, 1978; and Wedley and Field, 1982). However, previous research typically has used either data that has been entirely self-reported by the leaders (Jago and Vroom, 1978; Vroom and Jago, 1978; Vroom and Yetton, 1973; and Wedley and Field, 1982) or hypothetical problem set cases that have questionable external validity (Field, 1982; Margerison and Glube, 1979; Pate and Heiman, 1981; Vroom and Yetton, 1973; and Wedley and Field, 1982). In the present study, at least for the group of managers, the Vroom-Yetton model was able to withstand a more methodologically rigorous test of its validity that utilized actual, current decisions and objective, independent estimates of decision effectiveness, quality, and acceptance.

Nurses

The findings of this study revealed that the nurses supported the Vroom-Yetton model on two of the three evaluative measures. The significant feasibility main effects for effectiveness and acceptance indicated that decisions made by decision methods that were consistent with the Vroom-Yetton model were perceived by the nurses to be both
more effective and better accepted than decisions not following the model. The one previous study that involved evaluations of actual decisions made by managers (Vroom and Jago, 1978) found that the main effect for agreement with the feasible set accounted for a significant proportion of the variance in overall effectiveness, decision quality, and decision acceptance.

Table 24 indicates that 72% of the decisions made by the nurses fell within the feasible set. Other studies utilizing managers to investigate the Vroom-Yetton model have observed similar rates of feasible decisions: Pate and Heiman (1981) found 71%, Vroom and Yetton (1973) found 68%, Vroom and Jago (1978) found 65%, and Wedley and Field (1982) found 70%. These findings suggest that nurses' decision-making behavior closely resembles that of typical managers used in the present and in previous studies of the Vroom-Yetton model. Thus, the principles underlying the model and the potential applications of the model appear to generalize to nurses as leaders in their professional settings.

University Administrators

The third group of leaders involved in the present research were university administrators. The results of the present study for the university administrators revealed no support for the Vroom-Yetton model on any of the three dependent variables. The evaluations by the university administrators and their faculty members of decision effectiveness, quality, and acceptance showed no variation as a function of whether or not the decision was made by a method that fell within the feasible set.
The previous studies testing the validity of the Vroom-Yetton model (e.g., Margerison and Glube, 1979; Pate and Heiman, 1981; Vroom and Jago, 1978; and Wedley and Field, 1982) typically have used managers from business and industry as subjects. Likewise, the Vroom-Yetton model was developed from data collected from "typical" managers. Thus, the Vroom-Yetton model has failed what appears to be one of the first tests of its validity on a sample of "atypical" leaders. University administrators differ from typical managers in a number of ways. The administrators in the present study were mostly department chairmen who were appointed with the sanction of the members of their department. They were not unilaterally appointed by upper level management as was the case with the managers involved in the study. The university administrators were comprised of a group of very well-educated individuals, who generally are highly regarded professionals in their respective fields. The purpose or goal of the organization, i.e., the university, is not profit oriented as might be expected of most business organizations. Thus, it is possible that the university administrator would take a somewhat different approach to managing his/her organization.

Interestingly, the university administrators had the highest rate of feasible decisions, 84% (see Table 24), of any of the four groups of leaders that participated in the present research. This rate is quite a bit higher than the rates of feasible decisions reported for managers in earlier studies, e.g., rates of 68% (Vroom and Yetton, 1973), 65% (Vroom and Jago, 1978), and 70% (Wedley and Field, 1982). By the standard of the Vroom-Yetton model, university
administrators appear to have above average ability in decision making. This fact, coupled with the generally across-the-board high ratings (see Tables 24 and 26) for the measures of decision effectiveness, quality, and acceptance, may, in part, account for the failure of the Vroom-Yetton model to generalize to the university setting.

**Fraternity and Sorority Presidents**

The final group of leaders in the present study was comprised of fraternity and sorority presidents. As in the case of the university administrators, the results for the fraternity and sorority presidents failed to support the validity of the Vroom-Yetton model. That is, the fraternity and sorority presidents and members perceived no difference in the effectiveness, quality, and acceptance of decisions that were made by methods that followed the Vroom-Yetton model and decisions made by methods that violated the rules underlying the model.

Again, as with the university administrators, a case may be made that fraternity and sorority presidents differ from "typical" managers. The presidents are elected leaders in the truest sense of the term. Undoubtedly, the purpose or organizational goals held by a fraternity or sorority differ from those held by a typical business organization. Yet, fraternities and sororities are viable organizations which require leadership and decision making to function effectively. Therefore, a test of the generalizability of the Vroom-Yetton model may reasonably extend to include this organizational setting. However, as the results of the present study indicate, the validity of the Vroom-Yetton model did not withstand the test.
Limitations of the Present Research and the Vroom-Yetton Model

The present study represents an investigation designed to avoid some of the methodological deficiencies of previous attempts to validate the Vroom-Yetton model. Specifically, the present research simultaneously incorporated two important characteristics: the use of naturally occurring decision situations that were currently being confronted by the leaders and the use of objective, independent measures of the problem attributes, the decision method used, and the effectiveness, quality, and acceptance of the decision. However, it is likely that the present study is not free from error and bias. The potential bias stems not only from the research design of the present study but from inherent characteristics of the Vroom-Yetton model as well. Therefore, several possible limitations of the present study and the Vroom-Yetton model follow.

The leaders in the present study were asked to select five current decisions, including at least two that were ineffective decisions. Allowing the leaders to select the decisions introduced a potential source of bias. Although the leaders were asked to include two ineffective decisions, 86% of the decisions selected were rated on the upper half of the Likert scale for effectiveness (see Table 26) and 96% were considered to be successful decisions (see Table 24). House, Field, and Steinman (1982) also found that managers and subordinates tended to give high ratings to the selected decisions (managers rated 66% of the decisions and subordinates rated 83% of the decisions above the midpoint on the overall effectiveness scale), as did Vroom and Yetton (1973) who reported that managers who were asked
to evaluate recalled decisions had a modal rating of six on a seven-point scale. It appears that there is a strong selection bias operating in favor of more effective decisions. House, et. al. (1982) concluded on the basis of an assessment of convergent and discriminant validity of the ratings by leaders and a single subordinate that the bias in managerial reporting reflects a recall bias rather than a distortion in the evaluation of the decision. Their findings suggested that once the decision was selected, the manager's evaluation of the decision process used and the measures of decision effectiveness were valid. These findings may indicate an inherent problem in the study of the Vroom-Yetton model. In order to evaluate the validity of the model it is necessary to obtain a sample of ineffective as well as effective decisions. Yet, leaders are very reluctant to or have difficulty reporting ineffective decisions. Perhaps future studies could be improved if the decisions to be included in the study were selected by someone other than the leader and then evaluated by the leader and the subordinates.

Another concern in the present study was the high rate of decisions which fell within the feasible set (see Table 24). Although the overall rate of decision feasibility (72%) was similar to that found by previous researchers (e.g., Pate and Heiman, 1981; Vroom and Jago, 1978; and Vroom and Yetton, 1973), it was of concern because the somewhat low frequency of rule violations in the selected decisions and the tendency of leaders and subordinates to give highly favorable ratings (see Table 26) may have limited comparisons of decisions within and outside of the feasible set. Thus, although the Vroom-Yetton
model is descriptive of decision-making behavior, the high occurrence of feasible decisions appears to limit studies attempting to assess the validity of the model. The high rate of feasible decisions also limits the potential usefulness of the model as a prescriptive tool. Since approximately 70% of leaders' decisions fall within the feasible set (e.g., Pate and Heiman, 1981; Vroom and Yetton, 1973; and Wedley and Field, 1982), the use of the Vroom-Yetton model has the potential to improve only the remaining 30% of the decisions.

Conclusion

A test of the validity of the Vroom-Yetton model of decision making was conducted using four types of organizational leaders: nurses, university administrators, managers, and fraternity and sorority presidents. The results for two groups of leaders, the managers and the nurses, generally supported the validity of the Vroom-Yetton model. However, the results for the two other groups of leaders, the university administrators and the fraternity and sorority presidents, showed no support for the validity of the model. These equivocal results suggest that there are limitations to the applicability of the model.

On the basis of the present study, one might speculate that the Vroom-Yetton model is more likely to prove valid in leadership situations similar to the "typical" managerial situations from which the model was developed and with which it was subsequently validated. The exact parameters defining these situations cannot be specified from the present research, but they may include a leader who has been appointed by upper-level management rather than elected or sanctioned
by the subordinates, a leader whose primary loyalty is to those above him/her in the organizational hierarchy rather than to those below him/her in the organizational hierarchy, a primary organizational orientation toward profit or service rather than toward academic or personal goals, and a consumer situation such that the user of the service or product is outside of the organization rather than the members of the organization itself.

In sum, the validity of the Vroom-Yetton model was partially supported and partially refuted. The use of the model to prescribe appropriate decision-making methods cannot guarantee more effective decisions. However, for the appropriate groups of leaders the model may work to reduce errors made in current managerial decision-making situations.
REFERENCES
REFERENCES


APPENDICES
Appendix A

Sample Problems Typical of Those Found in a Problem Set
CASE 1 - THE FINANCE CASE

You are the head of a staff unit reporting to the vice president of finance. He has asked you to provide a report on the firm's current portfolio to include recommendations for changes in the selection criteria currently employed. Doubts have been raised about the efficiency of the existing system in the current market conditions, and there is considerable dissatisfaction with prevailing rates of return.

You plan to write the report, but at the moment you are quite perplexed about the approach to take. Your own specialty is the bond market, and it is clear to you that detailed knowledge of the equity market, which you lack, would greatly enhance the value of the report. Fortunately, four members of your staff are specialists in different segments of the equity market. Together, they possess a vast amount of knowledge about the intricacies of investment. However, they seldom agree on the best way to achieve anything when it comes to investment philosophy and strategy.

You have six weeks before the report is due. You have already begun to familiarize yourself with the firm's current portfolio and have been provided by management with a specific set of constraints that any portfolio must satisfy. Your immediate problem is to come up with some alternatives to the firm's present practices and select the most promising for detailed analysis in your report.

CASE 2 - INTERNATIONAL CONSULTING COMPANY

You are regional manager of an international management consulting company. You have a staff of six consultants reporting to you, each of whom enjoys a considerable amount of autonomy with clients in the field.

Yesterday you received a complaint from one of your major clients to the effect that the consultant whom you assigned to work on the contract with them was not doing his job effectively. They were not very explicit as to the nature of the problem, but it was clear that they were dissatisfied and that something would have to be done if your were to restore the client's faith in your company.

The consultant assigned to work on that contract has been with the company for six years. He is a systems analyst and is one of the best in that profession. For the first four or five years his performance was superb, and he was a model for the more junior consultants. However, recently he has seemed to have a "chip on his shoulder," and his previous identification with the company and its objectives has been replaced with indifference. His negative attitude has been noticed by other consultants, as well as by clients. This is not the first such complaint that you have had from a client this year about his performance. A previous client even reported to you that the consultant reported to work several times obviously suffering from a hangover and that he had been seen around town in the company of "fast" women.

It is important to get to the root of this problem quickly if that client is to be retained. The consultant obviously has the skill necessary to work with the clients effectively. If only he were willing to use it!
CASE 3 - THE UNIVERSAL DATA SYSTEM

You are on the division manager's staff and work on a wide variety of problems of both an administrative and a technical nature. You have been given the assignment of developing a universal method to be used in each of the five plants in the division for manually reading equipment registers, recording the readings, and transmitting the scorings to a centralized information system. All plants are located in a relatively small geographical region.

Until now there has been a high error rate in the reading and/or transmittal of the data. Some locations have considerably higher error rates than others, and the methods used to record and transmit the data vary between plants. It is probable, therefore, that part of the error variance is a function of specific local conditions rather than anything else, and this will complicate the establishment of any system common to all plants. You have the information on error rates but no information on the local practices that generate these errors or on the local conditions that necessitate the different practices.

Everyone would benefit from an improvement in the quality of the data as it is used in a number of important decisions. Your contacts with the plants are through the quality control supervisors, who are responsible for collecting the data. They are a conscientious group committed to doing their jobs well but are highly sensitive to interference on the part of higher management in their own operations. Any solution that does not receive the active support of the various plant supervisors is unlikely to reduce the error rate significantly.

CASE 4 - THE OIL PIPELINE

You are general foreman in charge of a large gang laying an oil pipeline. It is now necessary to estimate your expected rate of progress in order to schedule material deliveries to the next field site.

You know the nature of the terrain you will be traveling and have in your records the historical data needed to compute the mean and variance in the rate of speed over that type of terrain. Given these two variables it is a simple matter to calculate the earliest and latest times at which materials and support facilities will be needed at the next site. It is important that your estimate be reasonably accurate. Underestimates result in idle foremen and workers, and an overestimate results in tying up materials for a period of time before they are to be used.

Progress has been good, and your five foremen and other members of the gang stand to receive substantial bonuses if the project is completed ahead of schedule.
CASE 5 - THE PHARMACEUTICAL COMPANY

You are executive vice president for a small pharmaceutical manufacturer. You have the opportunity to bid on a contract for the Defense Department pertaining to biological warfare. The contract is outside the mainstream of your business; however, it could make economic sense, since you do have unused capacity in one of your plants, and the manufacturing processes are not dissimilar.

You have written the document to accompany the bid and now have the problem of determining the dollar value of the quotation which you think will win the job for your company. If the bid is too high, you will undoubtedly lose to one of your competitors; if it is too low, you would stand to lose money on the program.

There are many factors to be considered in making this decision, including the cost of the new raw materials and the additional administrative burden of relationships with a new client, not to speak of factors that are likely to influence the bids of your competitors, such as how much they need this particular contract. You have been busy assembling the necessary data to make this decision, but there remain several "unknowns", one of which involves the manager of the plant in which the new products will be manufactured. Of all your subordinates, only he is in the position to estimate the costs of adapting the present equipment to its new purpose, and his cooperation and support will be necessary in ensuring that the specifications of the contract will be met. However, in an initial discussion with him when you first learned of the possibility of the contract, he seemed adamantly opposed to the idea. His previous experience has not particularly equipped him with the ability to evaluate projects like this one, so you were not overly influenced by his opinions. From the nature of his arguments, you inferred that his opposition was ideological rather than economic. You recall that he was actively involved in local "peace organizations" and was one of the most vocal opponents in the company to the war in Vietnam.

CASE 6 - OVERSEAS ASSIGNMENT CASE

You are supervising the work of twelve engineers. Their formal training and work experience are very similar, permitting you to use them interchangeably on projects. Yesterday, your manager informed you that a request had been received from an overseas affiliate for four engineers to go abroad on extended loan for a period of six to eight months. For a number of reasons he argued, and you agreed, that this request should be met from your group.

All your engineers are capable of handling this assignment, and, from the standpoint of present and future projects, there is no particular reason why any one should be retained over any other. The problem is somewhat complicated by the fact that the overseas assignment is in what is generally regarded as an undesirable location.
Appendix B
Response Format for Leaders
This information is being collected as part of a study on leadership and decision making. In your position as a leader you are required to make many decisions each day. Some of these decisions may require you to seek information from others in your organization while with other decisions it may be appropriate that you solve the problem entirely on your own. Research on decision making emphasizes that no one decision-making strategy is best under all circumstances.

In the present study we are collecting information on decision making from a variety of leaders. In order to gain a more complete understanding of the decision-making process, it is necessary to collect information of a number of decisions made by each leader. We would like for you to choose five decisions that you are currently facing to use in this study. You may choose any 5 decisions that you wish as long as they meet the following criteria:

1. It must be a decision-making situation or problem and not a solution.
2. It must be within your area of freedom or discretion to make the decision.
3. It must have potential effects on at least two of your subordinates.
4. It must be a decision that will have been made within the next seven days.
5. Of the five decisions, select at least two that you believe may be ineffective decisions.

For each of the five decision-making situations, we would like for you to provide a brief written description of the problem and to answer the 14 questions that follow. The description of the problem should not be written until after the decision has been made. A response format for each problem with guidelines for reporting the situation and answering the questions follows.
Below please write a brief description of the problem situation. Include information that you believe was important in reaching a decision. If they apply, the following situational aspects should be included in the problem description:

a) whether or not one solution is likely to be more effective than another
b) if specific information is necessary to solve the problem or to make the decision, who has this information
c) whether or not it is important that the subordinates accept the decision
d) whether or not subordinates are likely to accept a decision made by you, the leader, by yourself
e) whether or not subordinates are likely to be in conflict over the decision
f) the method or procedure used to find a solution to the problem or to make the decision

The following examples of problem situations might be helpful to you. The situational aspects listed above are identified in the examples with an asterisk and the letter identifying which aspect the information refers to.

Example 1.

A newly appointed chairman of a university department was faced with the task of assigning the courses to be taught among his seven-member faculty. He judged that it was important to match the requirements of the course with the competence and training of the faculty member (*a). The chairman knew (*b) the course descriptions and the areas in which the faculty were trained and were currently doing research. The chairman believed that it was important that the faculty accept the decision (*c) because they would have to teach the courses and would not be closely supervised in the classroom. The chairman also believed that as the chairman of the department the faculty saw it as his job to make the course assignments and that they would accept his decisions (*d). The chairman assigned the courses as he thought appropriate and sent a memo to each faculty member concerned containing the courses he was expected to teach (*f).
Example 2.

A plant manager and his staff were about to move into a new plant. On inspecting the plans, he discovered that there were insufficient reserved parking places (directly in front of the building) to accommodate all six of his department heads. The design of the building permitted only four such parking places with all other cars having to park across the street in a large parking lot. There was no possible way to increase the number of parking spaces without modifying the design of the building, and the cost would be prohibitive. Each of the department heads expected to receive a reserved parking space (*c). Any solution which had the support of the department heads (*c) would satisfy the plant manager (*a). The manager decided to let the department heads develop a solution (*f).

Example 3.

A manager had been chosen by his firm to attend a nine-week senior executive program at a famous university. The problem was to choose one of his subordinates to take his place during his absence. All of the subordinates were capable of handling this assignment (*a), and from the standpoint of present and future projects, there was no particular reason why any one should be chosen over any other. The problem was somewhat complicated by the fact that this assignment is generally regarded in the company as a very desirable position (*e). The manager consulted each of his subordinates to see why he/she would or would not want to take his place. The manager then selected the subordinate that had the most convincing arguments to assume his position during his absence (*f).
Leader___________________

Problem #______________

Please write a brief description of the problem or decision-making situation. Refer to the six situational aspects (a-f), which are listed below, to help guide you in your writing.

a) whether or not one solution is likely to be more effective than another
b) if specific information is necessary to solve the problem or to make the decision, who has this information
c) whether or not it is important that the subordinates accept the decision
d) whether or not subordinates are likely to accept a decision made by you, the leader, by yourself
e) whether or not subordinates are likely to be in conflict over the decision
f) the method or procedure used to find a solution to the problem or to make the decision
Refer to the problem or decision-making situation you just described and answer the following questions by marking the response that you believe is the most accurate.

1. How was this decision made?
   ___(a) You made the decision by yourself with the information available to you at the time.
   ___(b) You obtained any necessary information from individuals, then you decided on the solution to the problem yourself. (The individuals may or may not have known what the problem was when they supplied the information.)
   ___(c) You shared the problem with relevant individuals on an individual basis, getting their ideas and suggestions without bringing them together as a group. Then you made the decision, which may or may not have been based on the individual suggestions.
   ___(d) You shared the problem with individuals in a group meeting in which the individuals' ideas and suggestions were given. Then you made the decision, which may or may not have been based on the individuals' suggestions.
   ___(e) You shared the problem with individuals as a group, alternatives were evaluated, and the decision was made as a group.

2. Was the process used to make the decision the most appropriate or best method to use to solve this problem?
   ___(a) yes
   ___(b) no

3. If the process used to make this decision was not the most appropriate or best method to use for this problem, which of the methods listed in Question #1 is the best?
   ___(a)
   ___(b)
   ___(c)
   ___(d)
   ___(e)
   ___(f) The method indicated in Question #1 is the best method.
4. Who was affected by the decision?
   (a) only one individual
   (b) several individuals
   (c) almost the entire organization
   (d) no one in the organization was affected

5. Was there a "quality" requirement in this problem such that one solution or decision was likely to be better than any other solution or decision?
   (a) yes
   (b) no

6. Did you have enough information to make a high quality decision before consulting other individuals?
   (a) yes
   (b) no

7. Was the problem structured, that is, was the problem clear and the avenues of finding a solution straightforward?
   (a) yes
   (b) no

8. For the decision to be implemented or followed through was it necessary for the individuals involved to accept the decision or to be committed to the solution?
   (a) yes
   (b) no

9. If you made this decision by yourself, would it be reasonably certain that it would be accepted by the individuals in the organization?
   (a) yes
   (b) no

10. Do the individuals involved with this problem share the organizational goals to be obtained by solving this problem?
    (a) yes
    (b) no

11. Are individuals likely to be in conflict over different solutions to this problem?
    (a) yes
    (b) no
12. How effective was the decision that was made?
   _____(a) extremely ineffective
   _____(b) quite ineffective
   _____(c) slightly ineffective
   _____(d) slightly effective
   _____(e) quite effective
   _____(f) extremely effective

13. How do you rate the technical quality of this decision? That is, if there were an "objectively" correct solution to this problem, how would the quality of your decision compare?
   _____(a) extremely low
   _____(b) quite low
   _____(c) slightly low
   _____(d) slightly high
   _____(e) quite high
   _____(f) extremely high

14. How well was this decision accepted by the individuals affected by the decision?
   _____(a) totally unaccepted
   _____(b) mostly unaccepted
   _____(c) slightly unaccepted
   _____(d) slightly accepted
   _____(e) mostly accepted
   _____(f) totally accepted
Appendix C

Response Formats for Subordinates
GUIDELINES FOR PARTICIPANTS IN THE DECISION-MAKING STUDY

This information is being collected as part of a study on leadership and decision making. Specifically we are interested in three aspects of decision making:

1. Decision-Making Methods. This study is attempting to determine if different methods or ways of making decisions are differentially effective depending upon the situation surrounding the decision. Research on decision making has identified 5 methods of decision making that are theoretically linked to different situational characteristics. This study is attempting to test some of these theoretical relationships by asking a group of fifty "leaders" to select five decisions they have made in their role as a leader and by having the leader answer a short (14 item) questionnaire about each decision.

2. Organizational Members' Perceptions of Decisions. This study is also attempting to determine if a leader's perception of the decision-making situation agrees with the perceptions of the members of his/her organization. Thus, we are asking members from each of the leader's organization to answer the same short questionnaire about each of the five decisions selected by the leader of the organization.

3. Time. Each leader was asked to select current decisions. These decisions will then be evaluated while they are still current, perhaps before they are even implemented. After a period of approximately 4 weeks has elapsed, each leader and organizational member participating in the study will be asked to evaluate each decision a second time by answering the same short questionnaire about the same five decisions. This is to determine if the evaluation of decisions while they are current differs from the evaluation of the same decisions after some time has elapsed when the effectiveness of the decision may be more apparent.

PROCEDURE

A. Please answer every question on each questionnaire. There are no "right" or "wrong" answers; we are interested only in your opinion. If you do not know the answer to a question, please mark the answer that you think is probably appropriate - even if this means guessing what might result in the future.

B. Your answers will be kept strictly confidential. NO ONE, other than the researchers, will see your answers. (The results of the study will not identify any individual responses.) To help ensure your anonymity, an ID number and not your name will be used on the questionnaires (see the blue sheet).

C. You will be asked to answer the same questions after a period of three to four weeks has elapsed. (This is why we need an ID number - so we can match your two sets of questionnaires to see if your opinion has changed.)

D. If you have any questions about how to answer these questionnaires or about the study in general, please call me: Betsy Effmeyer phone: 360-8745 (This is the LSU Psychology Dept. You can leave a message and I will get back in touch with you.)

E. These questionnaires should be completed and returned to:

Please return them by: ____________

The time you are taking to participate in this study is greatly appreciated.

THANK YOU!
The information asked for on the following pages will be used in a study being conducted on leadership and decision making. The source of the information (individuals and organizations) will be kept strictly confidential. No individual respondents will be identified to anyone other than the researcher. Therefore, we ask that you do not put your name on this sheet. However, since you will be asked to rate several decisions immediately after they occur and after some time has passed since the decision was made, it is necessary that you put an ID number on your response sheets so that we may match your two ratings. Please use the last four digits of your social security number as your ID number. Only you will be able to identify your number but we, the researchers, will be able to pair your first rating with your second rating.
In answering the following questions, please refer to the decision to

Please regard __________________________ as the "leader" referred to in the questions.

ID # __________________
Problem # __________

Approximate date of decision:
Answer the following questions by marking the response that you believe is the most accurate.

1. How was this decision made?

   ____ (a) The leader made the decision by himself/herself with the information available to him/her at the time.

   ____ (b) The leader obtained any necessary information from individuals, then the leader decided on the solution to the problem himself/herself. (The individuals may or may not have known what the problem was when they supplied the information.)

   ____ (c) The leader shared the problem with relevant individuals on an individual basis, getting their ideas and suggestions without bringing them together as a group. Then the leader made the decision, which may or may not have been based on the individual suggestions.

   ____ (d) The leader shared the problem with individuals in a group meeting in which the individuals' ideas and suggestions were given. Then the leader made the decision, which may or may not have been based on the individuals' suggestions.

   ____ (e) The leader shared the problem with individuals as a group, alternatives were evaluated, and the decision was made as a group.

2. Was the process used to make the decision the most appropriate or best method to use to solve this problem?

   ____ (a) yes

   ____ (b) no

3. If the process used to make this decision was not the most appropriate or best method to use for this problem, which of the methods listed in Question #1 is the best?

   ____ (a)

   ____ (b)

   ____ (c)

   ____ (d)

   ____ (e)

   ____ (f) the method indicated in Question #1 is the best method.
4. Who was affected by the decision?
   ___(a) only one individual
   ___(b) several individuals
   ___(c) almost the entire organization
   ___(d) no one in the organization was affected

5. Was there a "quality" requirement in this problem such that one solution or decision was likely to be better than any other solution or decision?
   ___(a) yes
   ___(b) no

6. Did the leader have enough information to make a high quality decision before consulting other individuals?
   ___(a) yes
   ___(b) no

7. Was the problem structured, that is, was the problem clear and the avenues of finding a solution straightforward?
   ___(a) yes
   ___(b) no

8. For the decision to be implemented or followed through was it necessary for the individuals involved to accept the decision or to be committed to the solution?
   ___(a) yes
   ___(b) no

9. If the leader made this decision by himself/herself, would it be reasonably certain that it would be accepted by the individuals in the organization?
   ___(a) yes
   ___(b) no

10. Do the individuals involved with this problem share the organizational goals to be obtained by solving this problem?
    ___(a) yes
    ___(b) no

11. Are individuals likely to be in conflict over different solutions to this problem?
    ___(a) yes
    ___(b) no
12. How effective was the decision that was made?
   _____(a) extremely ineffective
   _____(b) quite ineffective
   _____(c) slightly ineffective
   _____(d) slightly effective
   _____(e) quite effective
   _____(f) extremely effective

13. How do you rate the technical quality of this decision? That is, if there were an "objectively" correct solution to this problem, how would the quality of your decision compare?
   _____(a) extremely low
   _____(b) quite low
   _____(c) slightly low
   _____(d) slightly high
   _____(e) quite high
   _____(f) extremely high

14. How well was this decision accepted by the individuals affected by the decision?
   _____(a) totally unaccepted
   _____(b) mostly unaccepted
   _____(c) slightly unaccepted
   _____(d) slightly accepted
   _____(e) mostly accepted
   _____(f) totally accepted
Appendix D

Delayed Response Format for Leaders
GUIDELINES FOR PARTICIPANTS IN THE DECISION-MAKING STUDY

This information is being collected as part of a study on leadership and decision making. Specifically we are interested in three aspects of decision making:

1. Decision-Making Methods. This study is attempting to determine if different methods or ways of making decisions are differentially effective depending upon the situation surrounding the decision. Research on decision making has identified 5 methods of decision making that are theoretically linked to different situational characteristics. This study is attempting to test some of these theoretical relationships by asking a group of fifty "leaders" to select five decisions they have made in their role as a leader and by having the leader answer a short (14 item) questionnaire about each decision.

2. Organizational Members' Perceptions of Decisions. This study is also attempting to determine if a leader's perception of the decision-making situation agrees with the perceptions of the members of his/her organization. Thus, we are asking members from each of the leader's organization to answer the same short questionnaire about each of the five decisions selected by the leader of the organization.

3. Time. Each leader was asked to select current decisions. These decisions will then be evaluated while they are still current, perhaps before they are even implemented. After a period of approximately 4 weeks has elapsed, each leader and organizational member participating in the study will be asked to evaluate each decision a second time by answering the same short questionnaire about the same five decisions. This is to determine if the evaluation of decisions while they are current differs from the evaluation of the same decisions after some time has elapsed when the effectiveness of the decision may be more apparent.

PROCEDURE

A. Please answer every question on each questionnaire. There are no "right" or "wrong" answers; we are interested only in your opinion. If you do not know the answer to a question, please mark the answer that you think is probably appropriate - even if this means guessing what might result in the future.

B. Your answers will be kept strictly confidential. NO ONE, other than the researchers, will see your answers. (The results of the study will not identify any individual responses.)

C. You will be asked to answer the same questions after a period of three to four weeks has elapsed.

D. If you have any questions about how to answer these questionnaires or about the study in general, please call me:
   Betsy Erfmeyer phone: 388-8745 (This is the LSU Psychology Dept. You can leave a message and I will get back in touch with you.)

E. These questionnaires should be completed and returned to:

Please return them by:

The time you are taking to participate in this study is greatly appreciated.

THANK YOU!
In answering the following questions, please refer to the decision to

ID# ______________
Problem #__________

Approximate date of decision:
Refer to the problem or decision-making situation you just described and answer the following questions by marking the response that you believe is the most accurate.

1. How was this decision made?

   (a) You made the decision by yourself with the information available to you at the time.

   (b) You obtained any necessary information from individuals, then you decided on the solution to the problem yourself. (The individuals may or may not have known what the problem was when they supplied the information.)

   (c) You shared the problem with relevant individuals on an individual basis, getting their ideas and suggestions without bringing them together as a group. Then you made the decision, which may or may not have been based on the individual suggestions.

   (d) You shared the problem with individuals in a group meeting in which the individuals' ideas and suggestions were given. Then you made the decision, which may or may not have been based on the individuals' suggestions.

   (e) You shared the problem with individuals as a group, alternatives were evaluated, and the decision was made as a group.

2. Was the process used to make the decision the most appropriate or best method to use to solve this problem?

   (a) yes

   (b) no

3. If the process used to make this decision was not the most appropriate or best method to use for this problem, which of the methods listed in Question #1 is the best?

   (a)

   (b)

   (c)

   (d)

   (e)

   (f) The method indicated in Question #1 is the best method.
4. Who was affected by the decision?
   (a) only one individual
   (b) several individuals
   (c) almost the entire organization
   (d) no one in the organization was affected

5. Was there a "quality" requirement in this problem such that one solution or decision was likely to be better than any other solution or decision?
   (a) yes
   (b) no

6. Did you have enough information to make a high quality decision before consulting other individuals?
   (a) yes
   (b) no

7. Was the problem structured, that is, was the problem clear and the avenues of finding a solution straightforward?
   (a) yes
   (b) no

8. For the decision to be implemented or followed through was it necessary for the individuals involved to accept the decision or to be committed to the solution?
   (a) yes
   (b) no

9. If you made this decision by yourself, would it be reasonably certain that it would be accepted by the individuals in the organization?
   (a) yes
   (b) no

10. Do the individuals involved with this problem share the organizational goals to be obtained by solving this problem?
    (a) yes
    (b) no

11. Are individuals likely to be in conflict over different solutions to this problem?
    (a) yes
    (b) no
12. How effective was the decision that was made?

  ____ (a) extremely ineffective
  ____ (b) quite ineffective
  ____ (c) slightly ineffective
  ____ (d) slightly effective
  ____ (e) quite effective
  ____ (f) extremely effective

13. How do you rate the technical quality of this decision? That is, if there were an "objectively" correct solution to this problem, how would the quality of your decision compare?

  ____ (a) extremely low
  ____ (b) quite low
  ____ (c) slightly low
  ____ (d) slightly high
  ____ (e) quite high
  ____ (f) extremely high

14. How well was this decision accepted by the individuals affected by the decision?

  ____ (a) totally unaccepted
  ____ (b) mostly unaccepted
  ____ (c) slightly unaccepted
  ____ (d) slightly accepted
  ____ (e) mostly accepted
  ____ (f) totally accepted
15. Are there any indications in your organization or evidence of the effectiveness or ineffectiveness of this decision?

   (a) yes
   (b) no

16. Was there any information relevant to this decision that was not available at the time the decision was made that is now available that would have affected how the decision was made or that would have affected the actual decision that was made.

   (a) yes
   (b) no

17. How familiar are you with this decision?

   (a) extremely unfamiliar
   (b) quite unfamiliar
   (c) slightly unfamiliar
   (d) slightly familiar
   (e) quite familiar
   (f) extremely familiar
Appendix E

Delayed Response Format for Subordinates
GUIDELINES FOR PARTICIPANTS IN THE DECISION-MAKING STUDY

This information is being collected as part of a study on leadership and decision making. Specifically we are interested in three aspects of decision making:

1. Decision-Making Methods. This study is attempting to determine if different methods or ways of making decisions are differentially effective depending upon the situation surrounding the decision. Research on decision making has identified 5 methods of decision making that are theoretically linked to different situational characteristics. This study is attempting to test some of these theoretical relationships by asking a group of fifty "leaders" to select five decisions they have made in their role as a leader and by having the leader answer a short (14 item) questionnaire about each decision.

2. Organizational Members' Perceptions of Decisions. This study is also attempting to determine if a leader's perception of the decision-making situation agrees with the perceptions of the members of his/her organization. Thus, we are asking members from each of the leader's organization to answer the same short questionnaire about each of the five decisions selected by the leader of the organization.

3. Time. Each leader was asked to select current decisions. These decisions will then be evaluated while they are still current, perhaps before they are even implemented. After a period of approximately 4 weeks has elapsed, each leader and organizational member participating in the study will be asked to evaluate each decision a second time by answering the same short questionnaire about the same five decisions. This is to determine if the evaluation of decisions while they are current differs from the evaluation of the same decisions after some time has elapsed when the effectiveness of the decision may be more apparent.

PROCEDURE

A. Please answer every question on each questionnaire. There are no "right" or "wrong" answers; we are interested only in your opinion. If you do not know the answer to a question, please mark the answer that you think is probably appropriate - even if this means guessing what might result in the future.

B. Your answers will be kept strictly confidential. NO ONE, other than the researchers, will see your answers. (The results of the study will not identify any individual responses.) To help ensure your anonymity, an ID number and not your name will be used on the questionnaires (see the blue sheet).

C. You will be asked to answer the same questions after a period of three to four weeks has elapsed. (This is why we need an ID number - so we can match your two sets of questionnaires to see if your opinion has changed.)

D. If you have any questions about how to answer these questionnaires or about the study in general, please call me:
   Betsy Erffmeyer  phone: 388-8745 (This is the LSU Psychology Dept. You can leave a message and I will get back in touch with you.)

E. These questionnaires should be completed and returned to:

Please return them by: ____________________________

The time you are taking to participate in this study is greatly appreciated.

THANK YOU!
The information asked for on the following pages will be used in a study being conducted on leadership and decision making. The source of the information (individuals and organizations) will be kept strictly confidential. No individual respondents will be identified to anyone other than the researcher. Therefore, we ask that you do not put your name on this sheet. However, since you will be asked to rate several decisions immediately after they occur and after some time has passed since the decision was made, it is necessary that you put an ID number on your response sheets so that we may match your two ratings. Please use the last four digits of your social security number as your ID number. Only you will be able to identify your number but we, the researchers, will be able to pair your first rating with your second rating.
In answering the following questions, please refer to the decision to

Please regard ______________________ as the "leader" referred to in the questions.

ID # ______________________
Problem # ______________________

Approximate date of decision:
Answer the following questions by marking the response that you believe is the most accurate.

1. How was this decision made?
   (a) The leader made the decision by himself/herself with the information available to him/her at the time.
   (b) The leader obtained any necessary information from individuals, then the leader decided on the solution to the problem himself/herself. (The individuals may or may not have known what the problem was when they supplied the information.)
   (c) The leader shared the problem with relevant individuals on an individual basis, getting their ideas and suggestions without bringing them together as a group. Then the leader made the decision, which may or may not have been based on the individual suggestions.
   (d) The leader shared the problem with individuals in a group meeting in which the individuals' ideas and suggestions were given. Then the leader made the decision, which may or may not have been based on the individuals' suggestions.
   (e) The leader shared the problem with individuals as a group, alternatives were evaluated, and the decision was made as a group.

2. Was the process used to make the decision the most appropriate or best method to use to solve this problem?
   (a) yes
   (b) no

3. If the process used to make this decision was not the most appropriate or best method to use for this problem, which of the methods listed in Question #1 is the best?
   (a)
   (b)
   (c)
   (d)
   (e)
   (f) the method indicated in Question #1 is the best method.
4. Who was affected by the decision?
   (a) only one individual
   (b) several individuals
   (c) almost the entire organization
   (d) no one in the organization was affected

5. Was there a "quality" requirement in this problem such that one solution or decision was likely to be better than any other solution or decision?
   (a) yes
   (b) no

6. Did the leader have enough information to make a high quality decision before consulting other individuals?
   (a) yes
   (b) no

7. Was the problem structured, that is, was the problem clear and the avenues of finding a solution straightforward?
   (a) yes
   (b) no

8. For the decision to be implemented or followed through was it necessary for the individuals involved to accept the decision or to be committed to the solution?
   (a) yes
   (b) no

9. If the leader made this decision by himself/herself, would it be reasonably certain that it would be accepted by the individuals in the organization?
   (a) yes
   (b) no

10. Do the individuals involved with this problem share the organizational goals to be obtained by solving this problem?
    (a) yes
    (b) no

11. Are individuals likely to be in conflict over different solutions to this problem?
    (a) yes
    (b) no
12. How effective was the decision that was made?
   (a) extremely ineffective
   (b) quite ineffective
   (c) slightly ineffective
   (d) slightly effective
   (e) quite effective
   (f) extremely effective

13. How do you rate the technical quality of this decision? That is, if there were an "objectively" correct solution to this problem, how would the quality of your decision compare?
   (a) extremely low
   (b) quite low
   (c) slightly low
   (d) slightly high
   (e) quite high
   (f) extremely high

14. How well was this decision accepted by the individuals affected by the decision?
   (a) totally unaccepted
   (b) mostly unaccepted
   (c) slightly unaccepted
   (d) slightly accepted
   (e) mostly accepted
   (f) totally accepted
15. Are there any indications in your organization or evidence of the effectiveness or ineffectiveness of this decision?

_____ (a) yes
_____ (b) no

16. Was there any information relevant to this decision that was not available at the time the decision was made that is now available that would have affected how the decision was made or that would have affected the actual decision that was made?

_____ (a) yes
_____ (b) no

17. How familiar are you with this decision?

_____ (a) extremely unfamiliar
_____ (b) quite unfamiliar
_____ (c) slightly unfamiliar
_____ (d) slightly familiar
_____ (e) quite familiar
_____ (f) extremely familiar
VITA

Elizabeth Shoenfelt Erffmeyer was born in Peekskill, New York, on March 2, 1956. She has since lived in Atlanta, Ga., Shreveport, La., Mandeville, La., Doswell, Va., and Baton Rouge, La. She attended Captain Shreve High School in Shreveport until her junior year when she transferred to Mandeville High School. In May, 1974 she graduated as valedictorian from Mandeville. In the fall of 1974 she enrolled in Abilene Christian College in Abilene, Texas to study English. A year later she transferred to Louisiana State University and changed the emphasis of her study to psychology. While at LSU she was elected to the honor societies of Phi Beta Kappa and Phi Kappa Phi. After receiving her Bachelor of Arts degree, summa cum laude, from LSU in May, 1978, she enrolled in the LSU Graduate School. In December, 1980, she received her Master of Arts degree in Experimental Psychology. At this time she changed the emphasis of her graduate studies to Industrial/Organizational Psychology with a split-minor in Experimental Statistics and Sports Psychology (HPERD). On June 14, 1981, she married Robert Charles Erffmeyer, who shares her interest in Industrial/Organizational Psychology and earned his doctorate in this area from LSU in 1981.

Elizabeth Shoenfelt Erffmeyer is a candidate for the Doctor of Philosophy degree at the summer commencement, August, 1983. Beginning August 16, 1983, she will be employed as an Assistant Professor of Psychology at Western Kentucky University in Bowling Green, Kentucky.
EXAMINATION AND THESIS REPORT

Candidate: Elizabeth Shoenfelt Erffmeyer

Major Field: Psychology


Approved:

[Signatures]

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Geoffrey Broadhead
Robert C. Mathews
Evelyn D. Hall
David C. Blank

Date of Examination:

July 7, 1983