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THE CONTINGENCY THEORY OF LEADERSHIP:
AN EMPIRICAL INVESTIGATION AND EVALUATION

by

JOHN HENRY TURNER

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Faculty in Business in partial fulfillment of
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This manuscript has been read and accepted for the Graduate Faculty in Business in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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Abstract

THE CONTINGENCY THEORY OF LEADERSHIP: AN EMPIRICAL INVESTIGATION AND EVALUATION

by

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This study provides a rigorous large-sample test of the relationship between LPC and effectiveness along with an examination of actual leader behavior and LPC effectiveness. The major postulate of contingency theory is that the low LPC leader is more effective under either very unfavorable or favorable situations whereas the high LPC leader is more effective in situations of intermediate favorableness. Additionally, Fiedler implies that effective low LPC leaders in favorable situations will exhibit leadership behavior which is high in initiating structure and high in consideration whereas effective high LPC leaders in situations intermediate in favorableness will exhibit medium-medium levels of initiating structure and consideration. The present field study involves 65 leaders and 388 subordinates which are cast into a two-point test of Fiedler's model: 34 interacting groups in octant 1 and 31 interacting groups in octant 4. The hypothesized relationships between LPC and behavior for effective leadership with respect to situational favorableness are summarized as follows:

<u>Octant</u>	<u>LPC</u>	<u>Initiating Structure</u>	<u>Consideration</u>
1	Low	High	High
4	High	Medium	Medium

The subjects were all members of a large government organization primarily involved in engineering research and service activities. Fiedler's methodology was followed as closely as possible and was strengthened by (1) obtaining a large sample in each octant, (2) providing a buffer zone of inadmissible scores to eliminate marginal cases on each favorableness dimension, and (3) maintaining high levels of inter-rater agreement. Rank-order correlations (Spearman rho) between LPC and group performance were calculated for each octant with the following results:

<u>Octant</u>	<u>n</u>	<u>Spearman rho</u>	<u>Significance Level</u>	<u>Fiedler Prediction</u>
1	34	-.466	.01	-.52
4	31	.615	.001	.47

In addition, no correlation was obtained for the combined sample--therefore, the situational favorableness dimension is clearly shown to be a moderator between LPC and group performance. Thus, the LPC predictions of the contingency model were supported in both octants.

Subordinate behavior descriptions for the effective low and high LPC leaders in octants 1 and 4 respectively were as follows:

<u>Octant</u>	<u>LPC</u>	<u>n</u>	<u>Initiating Structure</u>	<u>Consideration</u>
1	Low	18	40.4 (High)	39.7 (High)
4	High	18	36.4 (Medium)	34.3 (Low)

An unexpected incidence of low consideration behavior among effective high LPC leaders was found in octant 4. Thus, behavioral predictions were supported in octant 1 but not entirely in octant 4.

Even though the present results support the basic LPC predictions of the contingency model, many questions must still be resolved before the model can be considered as a viable theory of leadership from which prescriptions for managerial practice may be drawn. Of particular importance is the need to establish reliability and validity for all measures in the model and to expand the model to include important aspects of the situation which are neglected. Longitudinal studies are also needed to determine the direction of causality. For example, is the LPC an attribute of the leader that causes him to be effective in a given situation or does the situation cause the leader to take on a particular LPC score?

With respect to actual leader behavior, the present data do not support Fiedler's explanation and prediction for effective high LPC leaders in octant 4. A possible explanation of the unexpected finding of low consideration behavior among successful high LPC leaders in octant 4 may be offered in a different interpretation of the Ohio State leadership scales (which do not appear to comprehensively describe leader behavior). For example, it may be that a low consideration score reflects a leader who is less active with his group which may have resulted in a good deal of discretion being delegated to the group members. Assuming the group is competent and motivated to accept more discretion in their work, the result may be high performance.

The contingency model is an important contribution in that it has fostered a more comprehensive approach to leadership and stimulated a wide range of investigations. A variety of unresolved questions and problems can provide clues for further analysis and improvement in the model. However, weak explanatory power and lack of convincing support detract from its utility as an efficient guide to future research. Therefore, researchers also should consider alternative frameworks and methods that have been recently advanced and show considerable promise.

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CHAPTER I

INTRODUCTION

Although leadership is one of the most important and widely studied areas in management, many key questions remain unanswered. The general purpose of the present study is to conduct an empirical investigation and evaluation of several major aspects of leadership theory. In particular, important elements of the contingency theory of leadership (Fiedler, 1967) are tested in a field study of 65 work groups. This research has significance because it assists in understanding three important facets of previous work: (1) the interpretation of leadership measures, (2) the refinement of relationships between leader behavior, situation and group effectiveness, and (3) the establishment of guidelines for theoretical refinements and further research. The remainder of this chapter presents background information in the following sequence of topics:

Definition of Leadership

Historical Perspective: Trait,
Behavioral and Situational Approaches

The Contingency Theory of Leadership

The Present Study

Summary

DEFINITION OF LEADERSHIP

Typical approaches to leadership define it in terms of facilitating the progress of the group toward its goal. More formally, leadership is defined as a process of personal interaction through which the leader influences his followers to engage in organizationally useful behavior. Thus, a leader has power (potential influence) over the members of his group. Almost all definitions of leadership contain the concepts of influence and power (Cartwright and Zander, 1960). Katz and Kahn (1966), for example, define leadership as follows:

"When people are influenced to engage in organizationally relevant behavior, leadership has occurred. When no such attempt at influence is made, there has been no leadership. We are not content to know, however, when the definition has been met. We want to know whether the influence transactions of leadership, when they occur, have the effects which the leader intended. We want also to compare the effectiveness of different acts and styles of leadership, and of different persons as leaders." (pp. 309-310).

What accounts for the fact that one person may be a successful leader while another is not? This is the overriding question that has concerned many scholars for hundreds of years. In the past fifty years this concern with leadership has been investigated more systematically and a substantial body of knowledge has been steadily accumulated. Much of this work has followed an evolutionary trend in which simplistic approaches have given way to more sophisticated analyses. In the next section, these developments are briefly reviewed to provide an historical perspective as a basis for examining more modern approaches to the study of leadership.

HISTORICAL PERSPECTIVE: TRAIT, BEHAVIORAL, AND SITUATIONAL APPROACHES

Early work in leadership focused on personality traits while later work shifted to the study of actual leader behavior; and more recently the leadership situation has come under analysis. Each of these approaches has generated several theories and a good deal of useful research evidence. More modern approaches to leadership utilize elements of all prior approaches, but also involve what Hollander and Julian (1969) call "a richer, more interactive conception" of the leadership process. Contemporary approaches such as Fiedler (1967) and House (1971) recognize that the study of leadership is a more formidable problem than was earlier supposed.

The Trait Approach

In the early 1900's most studies viewed leadership almost entirely in terms of the personal qualities or traits of the leader. The concept of a trait refers to some persistent characteristics of an individual. For example, an individual may be said to have the trait of submissiveness and that this is reflected in his passive and conciliatory behavior. Traits have also been defined in terms of biological characteristics such as intelligence, special talents, coordination, and aptitudes. The central assumption of trait psychology is that personality is multidimensional and that it can be broken down into more basic components. As McClelland (1951) has pointed out, "Trait psychology represents one of the earliest attempts to introduce some kind of order into the multiplicity of human responses. Its approach is simple. It consists of looking for consistencies in behavior." (p. 117).

Trait theorists concerned with leadership paid little attention to the actual behavior of leaders implicit in the identification of traits. Instead, they concentrated on uncovering universal trait profiles that would distinguish successful leaders from unsuccessful leaders and from followers. A large number of studies have been carried out and many traits such as honesty, reliability, intuition, industriousness, dependability, perseverance, and intelligence have been reported as qualities of a successful leader. The problem that remains is to find out if there are any traits which are common to all leaders. In an extensive review of the evidence, Gibb (1954) concluded that no consistent pattern of traits had been found which characterizes all leaders. Despite this failure to uncover any consistent findings, this does not mean that further research in this area would necessarily be fruitless. As more studies are conducted and as the effectiveness of our research techniques is improved, it may well be possible to identify common leadership traits. For example, Ghiselli (1963) suggests that previous failure to uncover common traits may be due to the researcher's inability to adequately measure these traits.

It must be remembered, of course, that even if researchers are able to identify certain universal traits, this does not necessarily mean that an individual who possesses them will be successful in a leadership position. That is, it would represent a necessary, but not a sufficient condition for effective leadership. Identification of these necessary traits, however, would constitute a significant advance in leadership knowledge with wide implications for managerial selection especially. Other useful possibilities may also derive from this line of research. It may be possible to identify traits necessary for success

in specific situations or in classes of situations. For example, traits may be found which are required for leadership success at different levels in the organization or for different kinds of tasks.

One of the problems with the trait approach is its lack of precision for predicting behavior in a given situation. As Lazarus (1963) has pointed out, the trait approach alone

"is not useful when the person's behavior patterns are absolutely consistent--that is, characteristic of a person regardless of circumstances. What limits the usefulness of any trait or type system is the problem of degree of trait generality. The statement that a person has the trait of submissiveness is useful for prediction only insofar as he is submissive in all or most situations. If he is submissive only in certain circumstances, then we can predict his behavior accurately only if we know what those circumstances are." (p. 57).

The questions of actual behavior and different circumstances mentioned by Lazarus comprise the primary concerns of two additional approaches to leadership: the behavioral and situational. The impetus for these approaches was provided primarily through the work of Lewin in the 1930's (see, for example, Lewin, Lippitt, and White, 1939).

The Behavioral Approach

This approach to the study of leadership focuses on the various ways in which a leader actually behaves and assumes that certain types of observable behavior "styles" (rather than personality traits) will characterize the effective leader. For example, one leader may be very friendly and courteous with his subordinates, while another leader may be harsh and impersonal toward his group. The emphasis is on identifying different kinds of leader styles and finding out which style is most effective. First, methods were developed to categorize and measure the various leader styles, and then studies comparing these styles to

successful leaders were made. Ideally, if it could be determined that successful leaders all had the same style of behavior toward their groups, the problem of leadership would in large part be solved.

Several large-scale research programs (e.g., University of California, University of Michigan, Ohio State University) have been undertaken to discover and measure the important aspects of leader behavior. These research studies have consistently shown that leadership can be viewed or categorized in terms of two broad concerns for (1) task factors, and (2) human elements. In other words, the leader has two major areas of concern--the first (task) refers to the level of performance or productivity of his group; the second (human) refers to group stability and satisfaction. A leader would therefore want to achieve high productivity so that performance goals are achieved, and he also would want to maintain stability and satisfaction in his group so that absenteeism, grievances, and turnover are reduced.

The research program at Ohio State University, for example, showed that leadership style could be described in terms of the way in which the leader acted or behaved in relation to these task and human elements in his job (Stogdill and Coons, 1957). Styles of leader behavior were defined in terms of the degree to which they reflect the two dimensions of "initiating structure" which relates to task factors, and "consideration" which relates to human elements. Fleishman and Peters (1962) give the following description:

"Initiating Structure: Reflects the extent to which an individual is likely to define and structure his role and those of his subordinates toward goal attainment. A high score on this dimension characterizes individuals who play a more active role in directing group activities through planning, communicating information, scheduling, trying out new ideas, etc.

"Consideration: Reflects the extent to which an individual is likely to have job relationships characterized by mutual trust, respect for subordinates' ideas, and consideration of their feelings. A high score is indicative of a climate of good rapport and two-way communication. A low score indicates the supervisor is likely to be more impersonal in his relations with group members." (In Korman, 1966, p. 349).

Scores for these two dimensions are primarily obtained by the Leader Behavior Description Questionnaire (LBDQ) which measures the subordinates' perceptions of the leader's actual behavior. These measurements provide one of the most accurate means of reliably measuring leader behavior and are widely used in social science research. Thus, a good way of examining differences in leadership styles is in terms of the quantitative levels of initiating structure and consideration for each leader.

Several theories of leadership style have been put forth, each arguing that a different combination of initiating structure and consideration will be more effective. These theories are often referred to as (1) instrumental, (2) supportive, and (3) great man (Filley and House, 1969). Instrumental theory can be interpreted as requiring a high level of initiating structure while supportive theory argues for a high level of consideration. Great man theory asserts that the effective leader will be characterized by both instrumental and supportive behavior. The label of a "great man" was given because it seemed unlikely that many leaders would be able to simultaneously carry out such basically different roles (Bales, Borgatta and Couch, 1954).

Research evidence suggests that leaders who exhibit either instrumental or supportive behavior are not always associated with high subordinate productivity and satisfaction. For example, Fleishman and Harris (1962) found that instrumental behavior alone (in the absence of

supportive leadership) tends to be perceived as threatening by group members with consequent increases in dissatisfaction, turnover and grievances. Vroom (1959) found that desirable performance results from supportive leadership when members have a low need for authoritarian rule and a high need for independence.

However, great man theory has received a good deal of consistent support from the research evidence. For example, Oaklander and Fleishman (1964) showed that while supportive behavior served to facilitate smooth working relationships, the concurrent instrumental behavior also served to prevent further tension and conflict by protecting the group from outside interference and arbitrary rule of high authority. Thus, the simultaneous execution of both types of behavior serve to complement each other and lead to effective leadership. Further evidence is presented by Fleishman and Harris (1962) who show that leaders who exhibit instrumental behavior alone have higher rates of grievances and turnover, while similar leaders who are also high in consideration have very little undesirable reactions.

As Korman (1966) has pointed out, there are no studies which show that a great man will become a good leader. That is, there is no predictive evidence which shows a cause-effect relationship between great man leadership and effectiveness. However, it appears that the undesirable effects of instrumental behavior can be offset or counterbalanced through supportive behavior. This assumes, of course, that the context within which the leadership acts take place are conducive to effectiveness. For instance, Vroom (1959) found that no particular leader style is better than any other when members have low skills relative to their jobs. In sum, this research illustrates the basic thrust of the situational approach--that leader effectiveness is multi-determined and that the behavior of the leader is only one input in the process.

The Situational Approach

Theorists and researchers who focus on the total leadership setting argue that the complexities of organizational life prevent the identification of universal leadership techniques. That is, no one pattern of leadership is appropriate for all situations. The problem of leadership from this perspective is therefore approached by attempting to identify the particular situational characteristics which determine or permit certain kinds of leaders to be effective. As Cartwright and Zander (1960) state: "the nature of the leadership behavior chosen for the performance of group functions will be influenced by situational factors both inside and outside the group." (p. 496).

The critical factors of the leadership setting can be broadly expressed in terms of the following four major categories: (1) the personal characteristics of the leader, (2) the demands and constraints of the tasks for both the leader and his members, (3) the personal characteristics of the members, and (4) the organizational and physical environment of the leader and his work group. Proponents of this situational approach to leadership assert that a leader who is successful in one situation will not necessarily be effective in another. The head of a team of research scientists, for example, would be viewed as needing much different leadership skills than the leader of a construction gang.

A large number of studies have been carried out to determine which factors are most critical. For example, different styles of leadership have been shown to be most successful when associated with factors such as the size of the work group, the time required for decision-making, the degree to which cooperation is required, the age of the leader, and the community in which the firm is located (Filley and House, 1969).

However, these and many other studies have been undertaken by a wide variety of researchers in a number of different situations. As a result, there does not appear to be any common framework within which these researchers have been operating. The potential danger here is that further research may lead to little more than long listings of important factors and different types of situations, with no mention of relating them.

What is needed, as Korman (1966) points out, "is not just recognition of this factor of situational determinants, but rather, a systematic conceptualization of situational variances as it might relate to leadership behavior and a research program designed to test derivations from such a conceptualization so that direction might be given to the field." (p. 359). This requires a melding of previous work into a more modern "systems approach" to leadership effectiveness. According to Hollander and Julian (1969), recognition of the system represented by the group and its enterprise

"provides a vehicle by which to surmount the misleading dichotomy of the leader and the situation which so long has prevailed. By adopting a systems approach, the leader, the led, and the situation defined broadly, are seen as interdependent inputs variously engaged toward the production of desired outputs." (p. 395).

One prominent attempt to provide this integrated approach is seen in the "contingency model" proposed by Fiedler (1967).

THE CONTINGENCY THEORY OF LEADERSHIP

In a long-term research effort encompassing more than 40 field and laboratory studies dating back to 1951, Fiedler has advanced and developed a "contingency" theory of leadership effectiveness. This work reflects a new perspective in the study of leadership in that it attempts

to relate the critical factors involved in the leadership process within a single framework. Thus, elements of the trait, behavioral, and situational approaches are integrated into a system of relationships. In this section, the general features of the theory are outlined--in the next chapter, more complete discussions of variables and relationships are provided along with detailed methods for operationalizing and testing important aspects of the theory.

The basic premise of contingency theory is that the appropriate leadership style which will lead to group effectiveness is contingent upon the favorableness of the situation for the leader. The main terms of the theory are (1) leadership style, (2) situational favorableness, and (3) leadership effectiveness. The predictor variable is leadership style which is defined in terms of the leader's score on the "Least Preferred Coworker" (LPC) scale. The criterion variable is leadership effectiveness which is defined in terms of the group's performance of its major assigned task. The contingency variable of situational favorableness moderates the relationship between LPC and effectiveness.

Situational favorableness is conceptualized as the degree to which the situation provides the leader with potential influence over the group's behavior and is defined in terms of leader-member relations, task structure, and leader position power. A classification of eight group situations or "octants" is derived from dichotomized combinations of these three factors. A very favorable situation is described as one in which a high score is obtained on each of the components. Thus, octant 1 in Table 1 is the most favorable situation and octant 8 is the least favorable. The major postulate of contingency theory is that leaders with low LPC scores are more effective in very favorable and unfavorable

situations, while high LPC leaders are more effective in situations intermediate in favorableness. The model was inductively arrived at by Fiedler based on 15 antecedent studies which were carried out prior to 1963. Table 1 also shows the median antecedent rank-order correlations between LPC and group effectiveness.

TABLE 1

CLASSIFICATION OF GROUP SITUATIONS AND MEDIAN CORRELATIONS
BETWEEN LPC AND GROUP EFFECTIVENESS FOR ANTECEDENT STUDIES*

<u>Octant</u>	<u>Group Atmosphere</u>	<u>Task Structure</u>	<u>Position Power</u>	<u>Median Correlation</u>	<u>Number of Relations Included in Median</u>
1	Good	High	Strong	-.52	8
2	Good	High	Weak	-.58	3
3	Good	Low	Strong	-.33	12
4	Good	Low	Weak	.47	10
5	Poor	High	Strong	.42	6
6	Poor	High	Weak		0
7	Poor	Low	Strong	.05	12
8	Poor	Low	Weak	-.43	12

*Adapted from: Fred E. Fiedler, A Theory of Leadership Effectiveness (New York: McGraw-Hill Book Co., 1967), p. 142.

A negative rank-order correlation shows that low LPC leaders are associated with group effectiveness while a positive correlation indicates the reverse. The median antecedent correlations are the point predictions against which validation studies are compared. The model deals only with "interacting" groups; that is, groups in which the members work cooperatively and interdependently on a common task. In these types of groups the contributions of individual members cannot be isolated readily, and performance is typically measured for the group as a whole.

Until recently, the behavioral correlates of LPC were generally assumed to be task related (high structure) for low LPC leaders and people related (high consideration) for high LPC leaders. This early interpretation led to many references in the literature that the task or instrumental style is more effective in Cells 1, 2, 3, 7 and 8 while the considerate or supportive style is more effective in Cells 4 and 5. Unfortunately, most earlier studies concerned with contingency theory did not measure leadership style along with the LPC with the result that little evidence was available to support these behavioral associations. Thus, an unsupported assertion received wide acceptance until later studies suggested that the relationship between LPC and leader behavior was more complex (Fiedler, 1970).

The lack of behavioral data is also evident in more than 25 studies carried out after 1963 to test or extend the contingency model. Although the methodology of some of these validation studies has been criticized (see, for example, Graen, et.al., 1970), this research suggests, on balance, that the model has been generally supported (Fiedler, 1970). However, this support is for the relationship between LPC (an attitudinal measure) and group effectiveness as moderated by situational favorableness and not for the merits of any particular leadership style. In effect, the research which is relevant to instrumental, supportive, and great man theories has not been adequately integrated into the contingency model. Therefore, one of the most significant problems for theoreticians and researchers is to provide explanations and evidence which not only reconcile the large bodies of information gathered by the behavioral and contingency approaches, but also to integrate the contributions of the trait and situational approaches.

THE PRESENT STUDY

This project seeks to take a further step in the integration of leadership approaches by not only testing antecedent predictions but also by including measures of actual behavior (as perceived by subordinates) for each leader. This field study of 65 groups provides evidence in an area that has obviously been neglected. One would expect that the relationship between effectiveness, LPC, and actual leader behavior as moderated by situational favorableness would have received systematic attention. However, few studies (e.g., Yukl, 1970) have sought to investigate the relationship between LPC and actual leader behavior. Even the Yukl study is of marginal usefulness because he did not use the Fiedler LPC instrument (he developed a similar scale of his own), he only used a random sample of three subordinates to describe the behavior of each leader, and he did not use situational favorableness (or any other dimension) as a contingency variable.

Most other investigations of LPC and actual behavior are a small group of laboratory studies (Fiedler, London, and Nemo, 1961; Fiedler, Meuwese, and Oonk, 1961; Fishbein, Landy, and Hatch, 1965; and Sample and Wilson, 1965). It is interesting to note that almost all of these laboratory experiments used a variety of techniques to describe leader behavior when a well-developed questionnaire (the Ohio State LBDQ) was already available. If LBDQ measures had been integrated with contingency studies at the outset, a great deal of additional information could have been gathered with relatively little extra effort. As Graen, Orris, and Alvares (1971) state:

"Before we attribute variance in group performance to the leader's style, we should show data that the leader's behavior was as assumed. This monitoring of the leader's behavior should help to dispel the mystery surrounding the concept of the LPC." (p. 209).

The divergence of the behavioral and contingency approaches has led to two separate streams of work on essentially the same problem. The LBDQ has been utilized in a large number of studies in the behavioral approach; however, it is usually measured under experimental designs which are not easily replicated. Thus, excellent measures of leader behavior have been gathered with little effort to quantify situational factors. On the other hand, the LPC has been used under a variety of controlled situations with little effort to quantify actual leader behavior. This study seeks to combine the LPC and LBDQ measures under a framework of situational favorableness. An underlying purpose of this research is to stimulate other investigators into combining research on situational quantification and leader behavior so that an integrated approach to the study of leadership is fostered. This approach supports the plea by Korman (1966) and Hollander (1971) to provide an overall framework within which the entire leadership process can be evaluated.

The specific hypotheses to be tested are derived from Fiedler's original contingency model and his new hypotheses on the relationship between LPC and actual behavior. The focus of research will therefore be concerned with developing a better understanding of the LPC measure and its behavioral correlates with respect to the leadership situation. This study provides a "starting point" for a new line of integrated leadership research and can serve as the basis for future elaboration. The fact that more than 40 studies, taken as a group, show some indication of systematic relationships between LPC and situational characteristics provides an important clue toward a fuller understanding of leadership phenomena.

If relationships can be found between LPC and actual leader behavior with respect to the favorableness of the situation, an important step will have been made toward the predictability and understanding of the leadership process. For example, if the favorableness of the situation could be specified in advance, the behavior of a leader could be predicted with greater accuracy if his LPC score is known. Thus, as a simple and easy to administer test, the LPC would provide a valuable psychological measure which would simplify the problems of leader selection, training, and group effectiveness. In the next chapter, the objectives of the study are more fully explored including the scope, limitations, methods, and hypotheses to be tested.

SUMMARY

The processes underlying group effectiveness have been the subject of much theory and research over the years, especially with respect to the relationship of the leader to his group. Leadership is defined as a process of personal interaction through which the leader influences his followers to engage in organizationally useful behavior. Early work in leadership focused on personality traits of the leader while later work shifted to the study of actual leader behavior; and more recently the leadership situation has come under analysis. Modern system approaches to leadership utilize elements of all prior approaches in an attempt to integrate previous work and develop more comprehensive and interactive conceptions of the leadership process.

One of the most broadly developed of the newer approaches is Fiedler's contingency theory of leadership. By utilizing the "least preferred coworker" (LPC) score of the leader and defining the favorableness of the leader's situation in terms of leader-member relations, task

structure, and position power, the effectiveness of interacting groups is situationally predicted. The major postulate of contingency theory is that the low LPC leader is more effective under either very unfavorable or favorable situations whereas the high LPC leader is more effective in situations of intermediate favorableness. Although some methodological weaknesses exist, the model has been generally supported by more than 40 studies dating back to 1951.

An important but relatively unexplored factor in contingency theory is the actual behavior which effective leaders display under varying conditions of situational favorableness. Thus, the contributions of the behavioral approach to leadership have not been adequately integrated into the contingency model. The present study seeks to combine the contingency model with behavioral measures of the leader so that an integrated systems approach to the study of leadership is fostered.

CHAPTER II

OBJECTIVES OF STUDY: SCOPE, METHODS AND HYPOTHESES

The overall purpose of the present study is to foster an integrative approach to the study of leadership by testing the antecedent predictions of the contingency model while also providing subordinate descriptions of actual leader behavior. In this chapter, the objectives and nature of the study are presented in more detail in the following sequence of topics:

- Scope of the Study
- Methodology and Operationalization
- Research Hypotheses
- Summary

SCOPE OF THE STUDY

In order to test antecedent predictions, it is necessary to obtain samples of groups at differing points on the favorableness dimension. For instance, a sample of groups in octants 1, 4, and 8 would provide a three-point test of Fiedler's situational LPC-effectiveness predictions. At a minimum, two differing octants would have to be sampled so that predictive variations could be compared; for example, octants 1 and 4 or 5 and 8.

In previous studies, the number of groups sampled in each octant has varied widely from five (Hunt, 1967) to more than seventy (Hawkins, 1962). The majority of studies have utilized samples of less

than ten for each octant. In addition, most single field studies report tests of only two or three octants at any one time because of the difficulty involved in obtaining a research location having the full range of octants. Thus, Fiedler inductively arrived at his hypotheses through the cumulative evidence of a wide variety of early studies, each dealing with segments of the favorableness dimension. Evidential support for the model is derived from a wide variety of studies of varying scope. In field studies, no more than four octants have been tested at any one time. The number of groups studied in each cell ranged from seven to 17 and included such diverse work situations as public health teams, engineering teams, meat market managers, and R&D chemists. Although most correlations are in the predicted direction, very few are statistically significant. One reason for the lack of significant correlations in any one field study is the relatively small number of groups that have been examined in each cell.

Actually, some of the components of situational favorableness have been found to be associated with each other. For example, Fiedler (1967) reports that task structure and leader position power are highly correlated. That is, when the task is highly structured, position power also tends to be high; and when the task is unstructured, position power tends to be low (pp. 152-153). Therefore, the probability is higher that octants 1, 4, 5, and 8 will be found in actual work locations.

A usable sample was available for the present study that fell almost completely into octants 1 and 4. This ultimately resulted in an N of 34 for octant 1 and an N of 31 for octant 4, which is much higher than the sample of groups typically reported in field studies. The scope of the present study therefore involves a total N of 65 groups which are

cast into a two-point test of the contingency model. This represents another evidential input into a stream of partial tests of the contingency model, each contributing to a cumulative body of evidence which can then be used to evaluate the contingency model. In addition, this study encompasses complete subordinate descriptions of the actual behavior of each leader.

METHODOLOGY AND OPERATIONALIZATION

The basic research procedure for an empirical test of the contingency model requires first that groups be classified into octants according to whether they score high or low on leader-member relations, task structure, and leader position power. Next, the rank-order correlations (Spearman rho) between leader LPC scores and group performance are computed for each octant. The obtained correlations are then tested for significance and compared with the antecedent predictions.

Studies which do not conform to Fiedler's methodology, yet purport to be testing or extending the contingency theory are not considered to be exact tests of the model and therefore are not compared with the antecedent predictions. These studies appear to be most useful in developing Fiedler's general hypothesis between situational favorableness and LPC or to extend the model to other than interacting groups. As Fiedler (1970) states:

"If a different partitioning of the situational favorability dimension is used, then a different model is implied and must run the gamut of evidential test... then a theory of situational favorability must be developed stating the rules of combination of various parameters of the situation in determining the favorability of the situation for the leader in a variety of settings. Then the more general hypothesis of a curvilinear relationship between situational favorability and the LPC-productivity correlation could be tested in a number of settings." (p. 261).

O'Brien (1969), for example, defined situation favorability in terms of the potential influence of the leader which was derived from the structural role theory framework of Oeser and Harary (1962). He found that the correlations between LPC and performance were moderated in a curvilinear fashion as predicted by Fiedler's general hypothesis. Evidential studies which are exact tests of the contingency model show that field studies indicate, on the whole, a very close relationship between the predicted curve and the obtained curve with a significantly large proportion of correlations in the predicted direction. On the other hand, laboratory experiments did not support the model in octant 2 and provided only weak support in certain other octants. Table 2 summarizes these findings.

TABLE 2

SUMMARY OF EVIDENTIAL STUDIES
TESTING THE CONTINGENCY MODEL*

<u>Octant</u>	<u>Median Antecedent Correlations</u>	<u>Median of All Evidential Correlations</u>	<u>Median Field Correlations</u>	<u>Median Laboratory Correlations</u>
1	-0.52	-0.64	-0.57	-0.72
2	-0.58	0.17	-0.21	0.24
3	-0.33	-0.22	-0.29	-0.16
4	0.47	0.38	0.23	0.38
5	0.42	0.22	0.21	0.16
6	None	0.10	-0.24	0.13
7	0.05	0.26	0.30	0.08
8	-0.43	-0.35	-0.33	-0.33

*Adapted from: T. R. Mitchell, et al., "The Contingency Model: Criticisms and Suggestions," The Academy of Management Journal (September, 1970), Vol. 15, No. 3, p. 256.

Methodological Problems

Fiedler's research procedures do not clearly specify exact methods for designating a particular group as high or low on leader-member relations, task structure, and position power. Although cutting points and guidelines are given, strong evidence is lacking to support these suggestions for dichotomization. Unfortunately, many other studies have used a variety of techniques to operationalize the variables in the contingency theory which has made their cumulative effect on the model difficult to interpret. Fiedler (1970) states that:

"Some of these investigators, by design, and others, by oversight, have not followed the methodology originally described. Different operationalizations of situational favorableness were used in some studies, while others extended the Model to co-acting groups (Hunt, 1967; Hill, 1969; Bates, 1969), and some used leadership style measures unrelated to LPC (Shaw & Blum, 1966). These differences in methodology and divergencies from the Model are, of course, quite appropriate and desirable. However, studies which do not conform to the explicit methodology of the earlier work cannot be used as exact tests of the Model." (p. 5).

Although contingency theory is a pioneering effort worthy of applause for fostering an interactive approach to leadership, methodological difficulties have not only detracted from the convincibility of evidential support (Graen, Alvares, Orris, and Martella, 1970), but have also led to fragmented research efforts which are difficult to interpret and not easily seen as contributions to an enriched interactive model. By strengthening the operationalization of variables and adhering to Fiedler's original techniques, the present study provides a rigorous test of the contingency model.

The measuring instruments utilized in the present study have all been used widely in previous research. Unfortunately, some of these variables have been traditionally reported as sums of scores while others

have been reported as averages. However, the present study adheres to all prior practices of reporting scores so that its results are comparable to previously reported data. The variables and their measuring instruments are as follows: (1) leadership (LPC), (2) leader-member relations (group atmosphere), (3) task structure (Shaw-Hunt), (4) leader position power (Hunt), (5) group performance (Lawler), and (6) leader behavior (LBDQ).

(1) Leadership (LPC)

The "Least Preferred Coworker" score represents the interpersonal attitudes which a leader has toward poor coworkers. The score is obtained by asking a leader to describe the one person with whom he has found it most difficult to work. Leaders with low LPC scores describe their least preferred coworker in a very negative manner whereas leaders with high LPC scores describe their least preferred coworker in relatively positive terms. Thus, the LPC score is a cognitive characteristic or "trait" of the leader which reflects attributes of his personality.

The LPC score has an interesting developmental history which originated in research on doctor-patient perceptions in the therapeutic relationship. In later studies, the concept was applied to leader-group relationships in the organizational setting. These studies showed that high LPC leaders tend to be more concerned with establishing good interpersonal relations through which they can gain prominence and self-esteem, whereas low LPC leaders tend to be more concerned with achieving success on assigned tasks. However, interpretation of these scores in terms of other personality attributes has been difficult because LPC has been uncorrelated with most personality test scores (Fiedler, 1970).

Fiedler specifies that leadership be measured by the score of the leader on a sixteen-item scale which measures the leader's "esteem for his least preferred coworker." It is obtained by asking the leader to think of everyone with whom he has ever worked on a common task, and then to describe the one person whom he least prefers as a coworker; that is, the individual with whom he has found it most difficult to work. Each item on the scale is a set of bi-polar adjectives (e.g., friendly - unfriendly, cooperative - uncooperative) separated by an eight-point scale. The LPC score is obtained by summing the sixteen item values, giving a value of 1 to the unfavorable pole of each scale and dividing by the number of items (sixteen). Thus, the lowest possible mean item LPC score is 1 and the highest is 8.

Averages for various samples range from 3.19 to 4.13 with a split-half reliability of above .90. A typical sample would have an average of about 3.32 and a standard deviation of about 1.39. Through trichotomization of distributions, Fiedler (1967) reports that the range of scores for low LPC is below 2.21, medium LPC from 2.21 to 4.10, and high LPC is above 4.10.

(2) Leader-Member Relations

The first of three components of situational favorableness is the quality of leader-member relations. Fiedler originally considered leader-member relations to be the most important dimension of situational favorableness and he claims that subsequent studies have supported his supposition (Fishbein, Landy, and Hatch, 1965; Mitchell, 1969). Thus, the leader with good member relations will have a greater proportion of accepted leadership acts, while a leader with poor member relations will

have a small proportion of accepted leadership acts. For example, the relationship between leader ability and group performance tends to be highly positive in groups where the leader is accepted, whereas it tends to be zero or slightly negative in groups in which the leader is not accepted (Fiedler and Meuwese, 1963).

Although leader-member relations can be assessed through sociometric preference ratings by group members, the most common method used by Fiedler and his associates is the "Group Atmosphere" scale which is obtained by asking the leader to rate his group on a ten-item scale of bi-polar adjectives (e.g., warm - cold, supportive - hostile, friendly - unfriendly) ranging in value from 1 (unfavorable) to 8 (favorable). A score is obtained by summing the responses to each item on the scale. Thus, the lowest possible score is 10 (worst leader-member relations) and the highest is 80. Although a cutting point for determining high and low group atmosphere scores is not strictly specified and earlier studies typically made the cut at the median of the sample, Fiedler (1970, p. 13) now reports that normative data suggest that scores below 55 should be classified as low.

Actually, the group atmosphere score reflects the perceptions of the leader's relations with members of his group. Fiedler (1967) contends that these perceptions are primary determinants of leader actions: "Leader behavior will, therefore, depend on how the leader thinks his subordinates feel about him rather than how the subordinates really feel about him." (p. 32). However, the group atmosphere measure has not been demonstrated to be independent of the other variables in the contingency model and they may be confounded.

(3) Task Structure

The second of the three components of situational favorableness is the degree of task structure. This dimension is of importance because the level of structure in the group task determines the leader's influence to a considerable extent. Thus, as the task becomes more structured, such as in assembly-line operations, the organization "above" the leader can issue more specific instructions and standard operating procedures. In effect, the organization can provide backing for the leader through sanctions and discipline since infractions and compliance to these rules is explicit and well-defined (see, for instance, Burns and Stalker, 1961; Lawrence and Lorsch, 1968).

For unstructured tasks, on the other hand, the organization cannot be as explicit in its rules, procedures and regulations, the leader is not in as strong a position to demand compliance to specific role behaviors. Furthermore, unstructured tasks (such as basic research or development) often require creativity or individuals with a good deal of skill and job mobility (see, for example, Wigdor, 1969). In situations such as these, the leader often has to draw upon sources of power other than those provided by the organization in order to exert an effective influence on his group.

Task structure is operationalized by utilizing the Shaw-Hunt (1966) system of four task dimensions:

- (1) Decision Verifiability - the degree to which the correctness of the solution or decision can be demonstrated either by appeal to authority, by logical procedures or by feedback.

- (2) Goal Clarity - the degree to which the requirements of the task are clearly stated or known to the group members.
- (3) Goal Path Multiplicity - the degree to which the task can be solved by a variety of procedures.
- (4) Solution Specificity - the degree to which there is more than one correct solution.

A task is rated by scoring each of these dimensions on an eleven-point scale and computing an average score of these four dimensions. The measure is generated by several raters and then compared for interrater agreement. Based on normative data, Mitchell, et.al. (1970, p. 257) specifies that an average score of 5.0 is the cutting point for dichotomizing the scale--that is, tasks below 5.0 are classified as low in structure while those that are 5.0 or above are classified as high in structure.

(4) Position Power

The third of the three components of situational favorableness is the level of position power. This dimension reflects the degree of formal power which the organization has delegated to the leader. Position power is the easiest of the favorableness dimensions to measure because in most situations the leader's formal authority is readily evident.

Fiedler (1967) explains the meaning of position power as follows:

"It means, first of all, that high position power makes his job easier. The leader who has rank and power can get his group members to perform their tasks more readily than would a leader who has little power (as in a volunteer group, for example). The leader with high position power can interact with his members in terms of the roles and mutual expectancies which exist in the group. The leader with low position power must first convince his group members that they should follow him, and he must be

continually aware of the fact that his hold on his group members is tenuous and dependent upon his personal relations with the individuals in his group. In many groups he can be readily deposed or ignored." (p. 25).

Position power is operationalized by utilizing Hunt's (1967) system of thirteen "yes - no" items and a score is obtained by summing the number of "yes" answers to the thirteen questions. The measure is generated by several raters and then compared for interrater agreement. Although Fiedler does not provide a cutting point for dichotomization based on normative data, the split is made at the median. Thus, scores below 7 are classified as low in position power while scores above 7 are classified as high.

In the interest of performing as strong a test as possible of the contingency model, the present study eliminated a portion of the sample that fell at or near the cutting points for each of the situational favorableness variables. The rules for elimination were arbitrarily arrived at and are expressed in terms of inadmissible scores as follows:

<u>Dimension</u>	<u>Cutting Point</u>	<u>Inadmissible Scores</u>
Group Atmosphere	55	53 through 57
Task Structure	5.0	4.8 through 5.2
Position Power	7.0	6.5 through 7.5

(5) Group Performance

Studies concerned with contingency theory have utilized a fair number of diverse performance variables including (a) quality of output per unit time, (b) objective accuracy, (c) observer ratings of quality of performance, (d) satisfactory output per unit time, (e) net income, (f) originality judgments, (g) time to criterion, (j) subjects' judgments of creativity. Since objective statistics on group productivity are not

always available or even possible to obtain, many studies have used various methods to assess group performance, the most popular being rater judgments. Fiedler does not provide any specific instructions for measuring effectiveness other than to say it should be objective whenever possible (1970, p. 259).

Lawler (1967) points out that most studies in all areas of management have relied primarily on the ratings of superiors only. He argues that multiraters should be used and that likely candidates to carry out these ratings include not only superiors, but also the leader himself as well as subordinates and peers who are familiar with the group. In addition, Lawler suggests that it is often desirable to obtain more than just a single global rating of the quality of performance. For example, assessments of ability and motivation may also be included. In effect, he argues for a multirater-multitrait approach to measuring job performance.

Following Lawler's suggestions, the present study utilized a six-item approach to effectiveness: (1) quality, (2) ability, (3) effort, (4) initiative, (5) ability to work independently, and (6) quantity. Group performance is rated by scoring each of these dimensions on a seven-point scale where A is high (7 points) and G is low (1 point) as follows: A is excellent, B is very good, C is good, D is average, E is fair, F is poor, and G is inadequate. A total score is then computed by summing the rater responses on each item. Thus, a multidimensional global measure is generated by each rater for each group.

The measures generated by each rater are compared for interrater agreement and then summed to provide a total performance score for each group which reflects a multirater-multitrait approach. To further

strengthen the performance measure, the split-half reliability of each rater is computed (based on the order in which the ratings were performed) to determine the existence of any intrarater halo. It is desirable to have a low split-half reliability which should be, at a minimum, less than the correlation of interrater agreement. These procedures provide performance scores with quality that exceeds the effectiveness measures reported in most contingency studies.

(6) Leader Behavior

The Ohio State LBDQ (Form XII) provides an excellent measure of leader behavior in terms of the quantitative levels of initiating structure and consideration. These factorially defined subscales have been widely used in empirical research, not only in industry, but also in military and educational organizations (e.g., Halpin, 1954, 1955). Halpin reports that "in several studies where the agreement among respondents in describing their respective leaders has been checked by a "between-group vs. within-group" analysis of variance, the F ratios all have been found significant at the .01 level. Followers tend to agree in describing the same leader, and the descriptions of different leaders differ significantly." (1957, p. 22).

Reliability coefficients for initiating structure and consideration in a wide variety of studies have been consistently good (usually in excess of .75). Halpin (1957) suggests that "a minimum of four respondents per leader is desirable, and additional respondents beyond ten do not increase significantly the stability of the index scores. Six or seven respondents per leader would be a good standard." (p. 29). The initiating structure and consideration subscales consist of ten items each (out of 100 total items) which consist of statements about the

leader such as "he lets group members know what is expected of them" and "he is friendly and approachable." The respondents indicate for each item on a one-to-five continuum (1. always, 2. often, 3. occasionally, 4. seldom, 5. never) the degree to which the leader behaves as described by the question.

The responses for each scale are summed and then averaged over all descriptions of the same leader. Thus, the scores for initiating structure and consideration have a range from 10 to 50. Stogdill (1963) has reported the average scores and standard deviations for a wide variety of samples (e.g., ministers, community leaders, senators, and college presidents). Of particular interest in the present study is Stogdill's data on an aircraft industry sample which contains engineering groups which are very similar to the present sample. These data are used as a basis for classifying the present sample as high, medium, or low on each scale. Stogdill reports that the aircraft sample (N = 165) had an average of 36.6 and a standard deviation of 5.4 for initiating structure and an average of 37.1 and a standard deviation of 5.8 for consideration (1963, p. 9). A medium score was therefore calculated by defining one-third of the distribution about the mean. This resulted in the following system of classification for the present sample:

<u>Subscale</u>	<u>Low</u>	<u>Medium</u>	<u>High</u>
Initiating Structure	below 34.3	34.3 to 38.9	above 38.9
Consideration	below 34.6	34.6 to 39.6	above 39.6

The biggest potential problem for anyone using the LBDQ is that the respondents must identify the leader. It takes only twenty minutes or so to complete and can be administered individually or in groups.

RESEARCH HYPOTHESES

The general hypothesis of the original contingency theory is that low LPC leaders will be more effective in very favorable and very unfavorable situations while the high LPC leader will be more effective in situations which are intermediate in favorableness (Fiedler, 1964). The general hypothesis put forth by Fiedler (1970) on the relationship between LPC and behavior is as follows:

"High LPC persons have as their primary goal the establishment and maintenance of interpersonal relations and as a secondary goal the attainment of prominence and self-enhancement. The low LPC person is seen as having as his primary goal the achievement of tasks and material rewards while he has as his secondary goal the development of good interpersonal relations...the individual will seek to achieve his primary as well as secondary goals in situations in which his control and influence is relatively great; he will concentrate on securing his primary goals in situations which are unfavorable and stressful."
(p. 1).

Actually, Fiedler is not entirely clear about what type of leader behavior he is predicting for each octant. It is presumed that only octants 1, 2, and 3 are situations in which control and influence is "relatively great." Thus, the effective low LPC leader will seek both primary and secondary goals which means he will be a "great man" and exhibit both task- and people-oriented behavior (high in consideration and high in initiating structure). As the situation became less favorable, it would appear that the effective leader would display lessening degrees of "great man" leader behaviors.

These general hypotheses are translated into the following specific hypotheses:

Hypothesis I. Correlations between leader LPC and group performance will be negative in octants 1, 2, 3, 7, and 8.

Hypothesis II. Correlations between leader LPC and group performance will be positive in octants 4 and 5.

Hypothesis III. A greater number of low LPC leaders in octants 1, 2, and 3 will be high in consideration and high in initiating structure than in octants 4 and 5.

Hypothesis IV. A greater number of high LPC leaders in octants 4 and 5 will be medium in consideration and medium in initiating structure than in octants 1, 2, and 3.

Hypothesis V. The average scores for all leaders in octants 1, 2, and 3 on consideration and initiating structure will be significantly greater than the average scores for all leaders in octants 4 and 5.

Hypothesis VI. The low LPC leaders in octants 7 and 8 will be low in consideration (and high in initiating structure).

NOTE: Fiedler does not predict for octant 6 and the antecedent studies do not strongly suggest a positive or negative LPC-performance correlation in octant 7.

For purposes of the present research, it will be assumed that octants 1, 2, and 3 allow both primary and secondary leader goals to be achieved, that octants 4 and 5 are somewhat constraining to the leader and motivate him to give less than full attention to primary and secondary goals, and that octants 7 and 8 are the most constraining to the leader which motivates him to achieve primary goals to the virtual exclusion of secondary goals. It is on this basis that hypotheses III, IV, V, and VI were derived for effective leadership behavior from the general Fiedler hypothesis. In short, consideration behavior for effective leaders should

be highest in octants 1, 2, and 3; less in octants 4 and 5; and least in octants 7 and 8. Initiating structure behavior should be higher in octants 1, 2, 3, 7, and 8; and lower in octants 4 and 5. The hypothesized relationships between LPC and behavior for effective leadership with respect to situational favorableness are summarized as follows:

	Octants							
	1	2	3	4	5	6	7	8
LPC	Lo	Lo	Lo	Hi	Hi		Lo	Lo
Initiating Structure	Hi	Hi	Hi	Me	Me		Hi	Hi
Consideration	Hi	Hi	Hi	Me	Me		Lo	Lo

The above hypotheses served to guide the present investigation. As stated above (see p. 18) the study was intended to test predictions of the theory in at least two octants. Because the octants in which the sample of leaders were to be placed could not be determined until the situational data were collected, it was not possible to predict which of the above hypotheses would be testable with the present sample. It was decided prior to data collection, however, that at least two octants must be adequately represented to claim a fair test of the theory. As will be shown, sufficient data were obtained to adequately test hypotheses concerned with octants 1 and 4. Thus, hypotheses 1 through 5 were tested as part of the present study.

SUMMARY

The overall purpose of the present study is to foster an integrative approach to leadership by testing the contingency model in its original form while also providing subordinate descriptions of actual leader behavior. In evidential field studies testing Fiedler's hypotheses,

no more than four octants have been tested at any one time and the number studied in each cell ranged from 7 to 17 groups. Although most correlations are in the predicted direction, very few are statistically significant. The scope of the present study is limited to a two-point test (octants 1 and 4); however, an N of 65 is reported which is substantially higher than most other studies in this line of research.

The essential variables necessary to test the model and their measuring instruments are: (1) leadership (LPC), (2) leader-member relations (Group Atmosphere), (3) task structure (Shaw-Hunt), (4) leader position power (Hunter), and (5) group performance (Lawler). In addition, the LBDQ is utilized to generate descriptions of leader behavior in terms of initiating structure and consideration. Two general hypotheses are tested: (1) low LPC leaders will be more effective in octants 1, 2, 3, 7, and 8 while high LPC leaders will be more effective in octants 4 and 5, (2) "great man" leadership styles will be more effective in octants 1, 2, and 3; to a lesser but proportional extent in octants 4 and 5; whereas instrumental leadership behavior will be more effective in octants 7 and 8.

CHAPTER III

STUDY PROCEDURES AND QUANTITATIVE RESULTS

In this chapter a description of the field study is provided along with a report of quantitative findings. However, no attempt is made to evaluate these findings--these discussions and evaluations are presented in the following chapters. The study procedures and quantitative results are developed in this chapter through the following sequence of topics:

- Preliminary Preparations
- Selection of Sample and Data Collection
- Leadership Measures
- Situational Favorableness Measures
- Effectiveness Measures
- Leader Behavior Measures
- Summary

PRELIMINARY PREPARATIONS

Permission was obtained from a high level executive in government administration to carry out a study within his organization. A meeting was arranged with the executive and several members of his staff to outline the full ramifications of the study in as much detail as possible. In attendance were three of the executive's staff assistants: (1) a systems and procedures analyst who had excellent knowledge of all administrative matters in the organization, (2) a technical staff assistant who was an expert in the work itself, and (3) an "assistant to" the executive

who served as liaison between the executive and the rest of the organization. They had volunteered to participate as raters in the study and since they were long service employees with excellent knowledge of all phases of the organization, they were well suited to the task. The executive also volunteered to do ratings himself.

The executive agreed to send a general announcement of the study to all employees explaining only that it was concerned with leadership and that anonymity would be preserved. He would encourage participation in the project and make it clear that respondents would receive no extra compensation or recognition for their participation, but that they would be making an important contribution to research. The researcher agreed to provide the executive and the staff assistants with general feedback on the range and average of group atmosphere scores reported by the participating leaders, and the level of agreement among the performance raters.

A point was raised at the meeting as to how anonymity would be preserved when subordinates were required to identify their supervisors on the Leader Behavior Description Questionnaire. Furthermore, the leaders would have to identify themselves on the Least Preferred Coworker questionnaire in order for the LBDQ and LPC scores to be compared, and the performance raters would have to identify the leaders. The researcher explained that a system of coding would be used to protect identities and avoid the use of names on any of the questionnaires.

It was explained to the executive that respondents could fill out questionnaires individually or in groups, but that the process would be facilitated if group arrangements could be made. In this way the answering of any questions could be widely heard and outside interference while

completing the questionnaires could be controlled and minimized. It was recommended that mass sessions be arranged and that the researcher could individually track down those who could not attend. The executive agreed to convene participants at appropriate times for the mass completion of questionnaires as long as these meetings could be held to approximately one-half hour.

Nature of the Organization

The subjects were all members of a division of a large government organization primarily involved in engineering activities. Total employees in this division numbered in the thousands with several hundred supervisory personnel not including staff and support services. Many of the employees were professional scientists and licensed engineers with long-term service to the organization. Qualitative assessments of the organization were obtained by the researcher through personal interviews and classroom discussions in seminars.

Job security for the subjects can be described as relatively high with most pressures in the past for temporary personnel reductions being accomplished through attrition. Actually, in recent years the force had been expanding to meet increasing work demands and commitments. The work is not defense-oriented and does not depend upon large federal contracts. It is more service-oriented to continuing public needs and the future work requirements are relatively predictable. In fact, several projects extending beyond ten years into the future were currently underway.

The atmosphere in the organization seemed good with no major work or morale problems in evidence. A number of external activities such as bowling and the like suggested better than average cohesiveness for many of the work groups. Most of the subjects were friendly and cooperative and showed little hesitation in discussing their work situations.

The division enjoyed a good reputation with respect to the larger organization of which it was a part and many subjects felt that they held desirable positions. Although demographic information was not formally collected, it was learned that many of the employees had salaries approaching \$20,000 per year.

The work of the division can be broadly divided into two major segments: (1) research and developmental efforts with medium- to long-range implications, and (2) short-term problem-solving efforts related to current operations. For purposes of the present study, the developmental subjects are referred to as "engineering R&D" while the operational subjects are referred to as "routine engineering" groups.

Both R&D and routine work was largely "interacting" in the Fiedler sense. Work was organized around teams where individual effort was difficult to isolate because of the interdependence of tasks. Performance was typically rated in terms of the team effort and recognition was rarely given to an individual for his singular contributions. When subjects talked to the researcher about their work, they continually referred to "our group" or "our team" rather than "my job" or "my task." For example, the subjects in both types of work spent a good deal of their time in meetings where problems and ideas were brainstormed with other members of the group. The heavy incidence of interacting work groups made the organization especially suited for research on the contingency model. In addition, a friendly atmosphere and willingness to cooperate contributed favorably to the research effort.

SELECTION OF SAMPLE AND DATA COLLECTION

The study was inaugurated when the executive sent a memo to all first-line supervisory personnel advising them of the general nature of the study and encouraging them to participate. They were invited to attend one of two brief meetings in which the researcher would explain the study in more detail. Approximately 200 supervisors attended these meetings and, after fully explaining the study, all completed the Least Preferred Coworker and Group Atmosphere scales. Each supervisor assigned himself a 7-digit number which he recorded on the questionnaire. In addition, each was asked to indicate (on a separate page) his willingness to participate further in the study either by supplying his name and code number or by simply indicating "no" on the paper. The researcher conducted the meetings alone, and no executives or staff personnel were present.

Attempts were made to maximize the usefulness of the questionnaires by emphasizing that careful attention and consideration be given and that every item on the page should be answered. After completing the questionnaire and the separate page, each supervisor returned both pages face down in separate piles on a table located to the side of the room. The meetings were very orderly with very sensible questions asked and almost no conversation during the completion of the questionnaires. Willingness to participate further in the study was excellent with 165 supervisors giving a favorable indication.

In the next phase of the project, each of the four raters (the executive and his three staff assistants) was briefed on the nature of interacting groups and given a list of the names of the participating leaders. Each rater was then asked to independently indicate which

leaders were not involved with interacting work groups. If any of the raters gave a negative indication, the group was eliminated from the study. This resulted in interrater agreement of 100 percent on the question of interacting groups, but also eliminated 35 groups which reduced the potential sample to 130 groups. All supervisors previously had been advised that several processes of elimination would take place and that they might not be included in later phases of the study even though they indicated their willingness to participate.

Each rater was then asked to rate independently each of the remaining 130 leaders on Position Power and Task Structure. Actually, the task of the raters was simplified because many of the leaders had the same or very similar tasks and positions. In order to keep interrater agreement high, only those groups were included in which three out of the four raters agreed that the group was either above or below the cutting point for dichotomizing the dimension. For example, the cutting point for task structure is 5 and at least three of the judges would have to rate the group at 4 (or less) or at 6 (or better). Thus, if two or more of the judges rated the group at 5 or if two of the judges rated 4 and the other two rated 6, the group would be eliminated from the sample. In this way, interrater agreement of at least .75 for casting the group as high or low on each dimension was maintained.

The requirement of high interrater agreement on task structure and position power resulted in the further elimination of 32 groups which reduced the sample to 98 groups. At this point, the researcher examined each group in terms of group atmosphere, task structure, and position power to determine in which octants along the situational favorableness dimension each group should be cast. This analysis resulted in the following distribution of groups according to octants:

	<u>Octant</u>							
	1	2	3	4	5	6	7	8
Number of Groups (N = 98)	39	4	4	38	7	2	1	3

It should be noted that the adoption of rather strong criteria resulting in the elimination of groups from the study was done not only to strengthen the test of the contingency model, but also purposely to reduce the size of the sample to conform with the executive's desire that "only 50 or so" groups be involved. The fact that a reservoir of about 200 groups was available from which the ultimate sample could be drawn allowed for the development of strong criteria for elimination of groups. From the above distribution of groups, it appeared that a very meaningful test of the research hypotheses could be performed by utilizing the 77 groups that fell into octants 1 and 4. The executive agreed that subordinate measures of leader behavior could be pursued from all of these 77 groups after it was explained that several of the groups would probably be further lost through incomplete questionnaires, absenteeism and other factors.

Upon examination of the groups it became evident that the 39 groups in octant 1 were very similar in that they were closely involved in the "routine engineering" tasks of the organization. Likewise, the 38 groups in octant 4 were similarly involved in "engineering R&D" activities. Thus, the two sets of groups had an obvious qualitative distinction which was firmly detected by Fiedler's favorableness dimension. It therefore appeared that assertions of the ability of the favorableness dimension to make meaningful distinctions among leader situations received qualitative support in this study.

The next step in the project was to notify the 77 supervisors that they had been selected for further study and that they should advise their subordinates of their code numbers so that they could participate in the exercise of describing their leaders' behavior. All supervisors had previously alerted their subordinates about the possibility of their participation. These subordinates were sent a letter of invitation by the executive and encouraged to participate in the study. Two separate meeting dates were announced in the letter and the subordinates were invited to attend either one. Attendance at the meetings was very good (over 300 subordinates) and the completion of the LBDQ was quickly accomplished without incident. The researcher individually followed up about 90 other subordinates who did not attend the meetings for one reason or another.

In the final tally, 388 usable LBDQ forms were returned which totally accounted for the leader behavior of 65 supervisors: 34 in octant 1 and 31 in octant 4. Thus, through absenteeism, unwillingness to cooperate, etc., another 12 groups were eliminated from the study. The data collection to this point had proceeded very smoothly and no adverse reactions to the study were detected by the researcher. Several of the supervisors and subordinates expressed an interest in the results of the study; however, they were advised that the results would not be distributed so that anonymity would be strictly preserved. The researcher expressed appreciation and gratitude to all participants in the study.

The final step in data collection involved having each of the four raters assess the performance of the 65 groups remaining in the study. This was carried out independently by each of the raters and returned to the researcher with the name of each supervisor on the form.

The researcher converted these names into code and then recoded all other measures. All prior references to identities were then destroyed to preserve complete anonymity in the data.

In the next sections, the quantitative results of the data collection phase of the study is reported in the following sequence of measures: leadership, situational favorableness, effectiveness, and leader behavior.

LEADERSHIP MEASURES

The leadership measures are the Least Preferred Coworker (LPC) scores submitted by each of the 65 supervisors. These scores ranged from 1.79 to 5.25 with an average of 3.47 and a standard deviation of 1.29. The results of this sample are very close to the "typical" sample reported by Fiedler which has an average of about 3.32 and a standard deviation of about 1.39. Using Fiedler's classification of low, medium and high LPC scores, the present sample was distributed as follows: 20 low, 23 medium, and 22 high LPC leaders.

However, when the leaders were classified according to whether they belonged in octant 1 or octant 4, a very different distribution emerged as follows:

	<u>LPC</u>		
	Low	Medium	High
Octant 1 (N = 34)	18 (53%)	12 (35%)	4 (12%)
Octant 4 (N = 31)	<u>2</u> (7%)	<u>11</u> (36%)	<u>18</u> (57%)
TOTALS (N = 65)	20 (31%)	23 (36%)	22 (33%)

Thus, the proportion of medium LPC scores is about the same, but octant 1 has a much greater incidence of low ($N = 18$) than high ($N = 4$) LPC scores. Octant 4, on the other hand, is just about the reverse with a much greater incidence of high ($N = 18$) than low ($N = 2$) LPC scores. Table 3 shows the complete LPC scores for all 65 leaders.

TABLE 3

COMPLETE LPC SCORES FOR FINAL SAMPLE ($N = 65$)

<u>Leader</u> <u>I.D. Number</u>	<u>LPC Score</u>	<u>Leader</u> <u>I.D. Number</u>	<u>LPC Score</u>
34	1.79	59	3.50
33	1.81	7	3.62
32	1.89	58	3.52
31	1.91	57	3.65
65	1.91	56	3.85
30	1.94	6	3.94
29	1.97	55	3.94
28	2.00	54	3.97
27	2.01	53	4.00
64	2.01	5	4.08
26	2.04	52	4.29
25	2.05	51	4.31
24	2.06	50	4.35
23	2.06	49	4.47
22	2.07	4	4.62
21	2.10	48	4.62
20	2.11	3	4.69
19	2.12	47	4.69
18	2.19	46	4.71
17	2.19	45	4.75
16	2.20	44	4.79
15	2.27	43	4.81
14	2.31	42	4.87
63	2.75	41	4.97
13	3.06	2	5.00
12	3.19	40	5.00
11	3.31	39	5.00
62	3.31	1	5.05
10	3.35	38	5.05
9	3.44	37	5.10
61	3.44	36	5.15
60	3.47	35	5.25
8	3.50		

SITUATIONAL FAVORABLENESS MEASURES

The situational favorableness dimension is comprised of the group atmosphere score which was obtained from the leaders themselves and the task structure and position power scores which were obtained from the averaging of scores from the four independent raters.

Group Atmosphere Measures

These scores ranged from 58 to 79 with an average of 66.5. All of the group atmosphere scores for the final sample of 65 leaders exceeded the cutoff point of 57. Thus, they are all in the upper half of the group atmosphere dimension and are referred to as groups having "good" leader-member relations.

Task Structure Measures

These scores ranged from 2.75 to 9.50 and no group was included whose average score fell from 4.8 through 5.2. Thus, there are two groups of scores reported: The first group ranging from 2.75 to 4.75 (low task structure) and the second group ranging from 5.25 to 9.50 (high task structure).

Position Power Measures

These scores ranged from 4.50 to 11.75 and no group was included whose average score fell from 6.5 through 7.5. Thus, there are two groups of scores reported: the first group ranging from 4.50 to 6.25 (low position power) and the second group ranging from 7.75 to 11.75 (high position power).

Based on their situational favorableness scores of group atmosphere, task structure, and position power, the 65 leaders were cast either into octant 1 (good leader-member relations, high task structure, X

strong position power) or octant 4 (good leader-member relations, low task structure, weak position power). Tables 4 and 5 show which leaders were assigned to octants 1 and 4 along with their situational favorableness scores.

TABLE 4
SITUATIONAL FAVORABLENESS SCORES
FOR OCTANT 1 (N = 34)

<u>Leader I.D. Number</u>	<u>Group Atmosphere Score</u>	<u>Task Structure Score</u>	<u>Position Power Score</u>
1	62	6.75	8.50
2	70	6.50	9.50
3	64	8.25	9.00
4	74	7.50	8.25
5	67	8.25	10.25
6	66	7.50	10.50
7	64	6.75	10.75
8	73	8.00	8.50
9	62	8.75	10.25
10	74	7.25	11.50
11	58	5.50	10.50
12	71	8.50	11.50
13	79	7.75	11.25
14	59	9.50	10.00
15	58	5.25	8.50
16	67	8.50	11.25
17	67	5.75	8.25
18	60	7.25	10.50
19	58	7.00	10.75
20	61	7.50	8.25
21	64	9.50	10.75
22	62	6.75	7.75
23	64	8.25	9.50
24	67	7.50	11.00
25	64	8.00	11.25
26	62	7.25	10.50
27	70	8.50	10.00
28	74	6.25	11.75
29	66	5.75	8.25
30	73	7.00	7.75
31	62	6.75	11.50
32	71	7.50	10.75
33	59	7.25	9.75
34	67	7.50	10.50

TABLE 5
SITUATIONAL FAVORABLENESS SCORES
FOR OCTANT 4 (N = 31)

<u>Leader I.D. Number</u>	<u>Group Atmosphere Score</u>	<u>Task Structure Score</u>	<u>Position Power Score</u>
35	64	4.50	5.75
36	58	4.00	6.25
37	67	3.75	4.50
38	58	4.25	6.00
39	79	4.25	6.25
40	74	3.75	5.75
41	62	4.75	6.00
42	64	2.75	5.25
43	67	4.00	6.00
44	74	3.50	4.75
45	70	3.25	6.25
46	62	4.25	4.50
47	61	4.75	5.75
48	60	2.75	5.75
49	67	4.00	6.25
50	59	3.50	6.00
51	71	3.50	4.75
52	67	4.25	5.00
53	64	4.50	6.25
54	67	3.75	6.00
55	79	4.25	5.25
56	62	4.75	5.75
57	67	4.00	4.75
58	70	3.25	6.25
59	61	4.75	5.50
60	67	4.00	6.00
61	71	3.50	4.75
62	64	4.50	6.25
63	79	4.25	5.50
64	67	4.00	5.75
65	70	4.75	6.25

EFFECTIVENESS MEASURES

Each of the four raters independently scored each of the 65 groups on six dimension of performance which were then summed to provide a total performance score for each group by each rater. Scores were first obtained from each rater for those groups in octant 1 and

summed for each group. Thus, each group had four separate scores which were then added to obtain a total performance score. The groups in octant 1 were then ranked according to their total performance score.

Interrater agreement for octant 1 was calculated by first ranking the scores for each rater and then computing the Kendall Coefficient of Concordance (W). This procedure resulted in a very good level of interrater agreement ($W = .748$) which was significant at the .001 level. A test of intrarater halo was also carried out by calculating the split-half reliabilities for each rater based on the order in which the ratings were made. It is desirable to obtain low intrarater halo coefficients which should be at least lower than the coefficient of concordance. Split-half reliabilities for the four raters were .454, .527, .535, and .629 which were all less than W (.748). Identical procedures were carried out for octant 4 with the following results: $W = .596$ (significant at the .001 level) and intrarater halo coefficients of .424, .515, .528, and .539.

Thus, the criteria for interrater agreement and intrarater halo were acceptable for both octants 1 and 4. The maximum performance score any one group could receive is 168 (excellent) while the minimum total score is 24 (poor). Although a wide range of performance scores is reported, the distribution is skewed on the positive side: the average performance score in octant 1 is 103.9 and in octant 4 is 109.7. Table 6 shows the performance results for octant 1 and Table 7 shows the performance results for octant 4.

TABLE 6

EFFECTIVENESS MEASURES
FOR OCTANT 1 (N = 34)

Leader I.D. Number	Total Rank	Total Score	Rater #1 Score Rank	Rater #2 Score Rank	Rater #3 Score Rank	Rater #4 Score Rank
15	1	154	40 1	36 4	39 2	39 2
27	2	151	39 2	39 2	35 6	38 4
21	3	145	35 5	31 8	40 1	39 3
18	4	141	33 9	40 1	33 8	35 7
28	5	138	38 3	32 7	31 9	37 5
24	6	134	29 14	33 6	38 3	34 8
31	7	134	34 8	34 5	36 5	30 10
32	8	127	33 10	25 16	29 11	40 1
17	9	126	35 6	30 10	35 7	26 15
29	10	121	31 12	37 3	25 19	28 13
26	11	117	36 4	29 11	22 22	30 11
20	12	115	32 11	24 19	30 10	29 12
34	13	112	22 20	27 13	37 4	26 16
23	14	109	25 18	21 22	27 14	36 6
33	15	107	30 13	27 14	29 12	21 24
30	16	102	35 7	25 17	21 24	21 25
1	17	102	26 17	20 25	25 20	31 9
25	18	100	29 15	22 20	26 16	23 21
3	19	97	20 24	31 9	27 15	19 29
14	20	94	28 16	20 26	26 17	20 26
9	21	91	19 27	27 15	20 27	25 18
6	22	89	25 19	29 12	17 31	18 30
2	23	87	18 29	22 21	25 21	22 22
12	24	86	20 25	20 27	18 28	28 14
8	25	84	17 31	25 18	22 23	20 27
19	26	84	10 34	21 23	29 13	24 20
22	27	81	15 32	19 29	21 25	26 17
16	28	79	21 22	18 30	18 29	22 23
4	29	77	11 33	15 34	26 18	25 19
7	20	76	18 30	20 28	21 26	17 31
10	31	72	22 21	16 33	14 33	20 28
11	32	70	21 23	18 31	18 30	13 33
13	33	67	19 28	21 24	11 34	16 32
5	34	64	20 26	17 32	15 32	12 34

TABLE 7
EFFECTIVENESS MEASURES
FOR OCTANT 4 (N = 31)

Leader I.D. Number	Total Rank	Total Score	Rater #1 Score	Rater #1 Rank	Rater #2 Score	Rater #2 Rank	Rater #3 Score	Rater #3 Rank	Rater #4 Score	Rater #4 Rank
38	1	149	37	4	36	3	40	1	36	7
44	2	143	39	2	34	6	31	9	39	2
50	3	141	40	1	38	2	33	6	30	15
47	4	137	31	9	36	4	35	4	35	8
49	5	137	33	7	35	5	32	8	37	6
35	6	133	30	11	29	13	40	2	34	9
55	7	130	34	3	28	15	25	16	39	3
51	8	128	28	15	31	9	29	10	40	1
36	9	125	26	18	39	1	22	21	38	4
41	10	122	20	26	25	21	39	3	38	5
53	11	122	32	8	30	11	27	13	33	11
59	12	117	34	6	31	10	26	15	26	20
42	13	116	35	5	27	17	33	7	21	25
40	14	114	29	13	26	19	35	5	24	22
37	15	111	23	21	32	8	25	17	31	13
54	16	110	25	19	33	7	20	26	32	12
43	17	107	22	23	30	12	21	23	34	10
45	18	101	25	20	26	20	25	18	25	21
46	19	98	30	12	28	16	21	24	19	27
39	20	98	31	10	22	24	24	19	21	26
63	21	95	29	14	23	23	19	28	24	23
48	22	92	18	28	16	30	28	11	30	16
58	23	91	15	30	25	22	22	22	29	18
52	24	90	27	17	18	28	17	29	23	19
62	25	90	19	27	29	14	24	20	18	29
56	26	88	22	24	21	26	21	25	24	24
65	27	87	28	16	27	18	15	30	17	30
61	28	85	13	31	14	31	27	14	31	14
57	29	83	21	25	20	27	12	31	30	17
60	30	82	23	22	18	29	28	12	13	31
64	31	79	18	29	22	25	20	27	19	28

LEADER BEHAVIOR MEASURES

The Leader Behavior Description Questionnaire (LBDQ) was administered to 388 subordinates who supplied scores for "Consideration" and "Initiating Structure" on 65 leaders. The span of control for these leaders ranged from 4 to 10 with an average of 6 subordinates per leader. The average span of control in octant 1 was 7 while the average span in octant 4 was 5. Every subordinate of every leader in the final sample participated.

The consideration and initiating structure scores for each leader were obtained by averaging the individual scores across the leader's span of control. The entire sample (N = 65 leaders) had an average of 37.5 and a standard deviation of 5.6 for initiating structure and an average of 35.7 and a standard deviation of 5.7 for consideration which is similar to the aircraft sample reported by Stogdill. Tables 8 and 9 show the complete raw leader behavior scores for octants 1 and 4 respectively along with their spans of control.

SUMMARY

The sample for the present study was obtained from a large government organization whose major mission is engineering-related service and research. A total of 65 leaders and 388 subordinates voluntarily participated as subjects along with four higher level employees who served as raters. Cooperation was excellent at all levels in the hierarchy and no major problems were encountered in collecting the data. Members of the organization were assured that individual anonymity would be preserved and that no external references would be made about the

TABLE 8
LEADER BEHAVIOR MEASURES
FOR OCTANT 1 (N = 34)

<u>Leader I.D. Number</u>	<u>Span of Control</u>	<u>LBDQ Consideration</u>	<u>LBDQ Structure</u>
1	6	36.2	29.5
2	9	33.0	42.6
3	5	45.4	45.8
4	8	35.4	43.1
5	6	42.4	37.6
6	6	33.6	44.2
7	5	32.4	33.4
8	8	39.6	34.0
9	7	29.9	32.0
10	4	36.3	36.3
11	6	35.5	36.4
12	6	35.5	36.4
13	10	44.3	37.5
14	5	36.5	37.7
15	6	35.2	39.7
16	8	34.2	34.5
17	4	36.9	36.9
18	9	34.5	37.0
19	7	41.1	39.0
20	6	34.5	38.7
21	5	42.6	43.2
22	9	40.1	42.6
23	8	34.2	40.1
24	6	32.4	42.4
25	8	41.1	39.1
26	4	42.3	38.2
27	10	42.0	43.4
28	5	34.2	40.5
29	8	31.2	38.6
30	9	40.3	47.6
31	6	37.7	35.6
32	9	37.4	44.5
33	6	47.2	41.7
34	5	41.8	37.3

TABLE 9
LEADER BEHAVIOR MEASURES
FOR OCTANT 4 (N = 31)

<u>Leader I.D. Number</u>	<u>Span of Control</u>	<u>LBDQ Consideration</u>	<u>LBDQ Structure</u>
35	6	42.3	38.4
36	5	34.1	40.2
37	4	40.0	36.0
38	4	31.4	29.4
39	4	33.2	35.1
40	9	32.3	35.2
41	4	33.4	36.4
42	5	29.3	27.4
43	6	31.7	36.6
44	6	32.1	37.3
45	4	33.3	36.3
46	7	34.7	29.5
47	5	32.6	35.2
48	5	37.7	35.5
49	5	37.4	44.5
50	4	26.2	44.1
51	5	38.0	42.4
52	4	37.1	33.3
53	6	47.2	41.2
54	4	33.1	40.3
55	4	25.4	34.4
56	5	24.6	30.8
57	6	27.1	31.2
58	7	37.7	34.0
59	5	28.8	36.3
60	4	33.7	42.7
61	4	37.5	32.7
62	6	33.7	36.5
63	5	41.8	37.8
64	7	32.7	31.1
65	4	26.2	27.9

organization. The ranking executive and three of his assistants were provided with general feedback information on the level of group atmosphere scores provided by the leaders and the degree of interrater agreement on performance ratings.

The majority of data collection took place during four scheduled meetings--two meetings each for both leaders and subordinates. The researcher made individual followups with those who could not attend the meetings. The size of the sample was progressively reduced in order to strengthen the tests of research hypotheses and to conform with the organization's desire to limit the sample size. In addition to LPC scores, measures were initially obtained for group atmosphere, task structure, and position power so that assignment of groups to octants on the situational favorableness dimension could be made. The final sample consisted of 34 groups in octant 1 and 31 groups in octant 4.

LPC scores were typical with approximately one-third of the distribution falling into each of the low, medium, and high LPC categories. However, when the sample was divided into octants, a predominance of low LPC leaders emerged in octant 1 while a predominance of high LPC leaders emerged in octant 4. The average LPC for the entire sample was 3.47, but the average LPC in octant 1 was only 2.76 whereas the average LPC in octant 4 was 4.18.

In the final phases of data collection, performance measures were obtained from the four raters and descriptions of leader behavior were obtained from the 388 subordinates. Performance scores for the sample were high and leader behavior scores were typical for an engineering population. Very few leaders in octant 1 had low structure while very few leaders in octant 4 had high consideration.

CHAPTER IV

EVALUATION OF RESEARCH FINDINGS

The analysis of data involves developing an objective procedure for determining whether a particular hypothesis has or has not been supported. The selection of statistical tests to carry out these analyses depends in part on the assumptions of the research design. In some instances in the present study, the assumptions underlying the hypotheses were met and the planned methodology was executed. In other instances, post-hoc comparisons were made based on the nature of the data. The research hypotheses are therefore evaluated in this chapter according to the characteristics of the sample data. The discussion of these analyses is pursued in the following sequence of topics:

Research Hypotheses

Assumptions of the Hypotheses

Nature of the Quantitative Findings

Evaluation of Hypotheses: Planned and Post-Hoc Comparisons

Discussion of Hypotheses and Results

Summary

RESEARCH HYPOTHESES I AND II

Hypothesis I. The correlation between leader LPC and group performance will be negative in octant 1.

Hypothesis II. The correlation between leader LPC and group performance will be positive in octant 4.

Assumptions of Hypotheses I and II

The research design assumes that a range of LPC leaders from low through medium to high will be examined in each octant and that no one category will be overrepresented in the sample. Ideally, the full range of LPC leaders should be evenly distributed and equally represented. Likewise, it is ideally assumed that a range of group performances will be represented in each octant without central clustering of scores. However, the probability of encountering such unique distributions in natural field settings is low especially if a small number of groups is examined. The probability of obtaining wider and more evenly distributed samples in the present study was higher because a sample in excess of 30 was obtained for each octant.

Quantitative Findings
for Hypotheses I and II

The entire sample of 65 groups was fairly evenly distributed through low, medium, and high LPC scores. However, in octant 1 there was a predominance of low LPC leaders ($N = 18$) while in octant 4 there was a predominance of high LPC leaders ($N = 18$). The proportion of medium LPC leaders in each octant was approximately the same. Group performance scores were widely distributed from a low of 64 to a high of 154. However, the average group performance for the entire sample

(N = 65) was 106.6 which indicates an overrepresentation of better performing groups. For example, low performing groups (less than "average" performance) were a rarity (N = 3) whereas high performing groups (better than "good" performance) were commonplace (N = 21). Thus, the criteria of obtaining a wide and even distribution of performance was not obtained in the sample.

Evaluation of Hypotheses I and II

The original plan of statistical analysis called for the computation of rank-order correlations (Spearman rho) between LPC and group performance for each octant. The following results (see Table 10) were obtained:

<u>Octant</u>	<u>Spearman rho</u>	<u>Level of Significance</u>	<u>Fiedler Prediction</u>
1	-.466	.01	-.52
4	.615	.001	.47

Thus, the contingency model has been strongly supported in both octants. This is especially true since support for the model is usually claimed if nonsignificant correlations are obtained in the predicted direction. In addition, the correlation between LPC and performance was calculated for the entire sample and no correlation was obtained (rho = .028).

However, since low LPC leaders were overrepresented in octant 1 and high LPC leaders were overrepresented in octant 4, what secondary analysis might be used to increase the meaningfulness of the data? The logic of the contingency model suggests the following rationale:

(1) if high (or low) performing groups are predominant in octant 1, then low (or high) LPC leaders should predominate and should significantly

TABLE 10

LPC AND GROUP PERFORMANCE BY RANK AND OCTANT

<u>OCTANT 1</u> (N = 34)			<u>OCTANT 4</u> (N = 31)		
<u>Leader I.D. Number</u>	<u>LPC Rank</u>	<u>Group Performance Rank</u>	<u>Leader I.D. Number</u>	<u>LPC Rank</u>	<u>Group Performance Rank</u>
1	1	17	35	1	6
2	2	23	36	2	9
3	3	19	37	3	15
4	4	29	38	4	1
5	5	34	39	5	20
6	6	22	40	6	14
7	7	30	41	7	10
8	8	25	42	8	13
9	9	21	43	9	17
10	10	31	44	10	2
11	11	32	45	11	18
12	12	24	46	12	19
13	13	33	47	13	4
14	14	20	48	14	22
15	15	1	49	15	5
16	16	28	50	16	3
17	17	9	51	17	8
18	18	4	52	18	24
19	19	26	53	19	11
20	20	12	54	20	16
21	21	3	55	21	7
22	22	27	56	22	26
23	23	14	57	23	29
24	24	6	58	24	23
25	25	18	59	25	12
26	26	11	60	26	30
27	27	2	61	27	28
28	28	5	62	28	25
29	29	10	63	29	21
30	30	16	64	30	31
31	31	7	65	31	27
32	32	8			
33	33	15			
34	34	13			

outperform all other LPC leaders, and similarly, (2) if high (or low) performing groups are predominant in octant 4, then high-(or low) LPC leaders should predominate and should significantly outperform all other LPC leaders. This rationale led to the following secondary hypotheses for the present sample.

Hypothesis IA. The average LPC for octant 1 will be lower than the average LPC for octant 4.

Hypothesis IB. The average performance of low LPC leaders in octant 1 will be greater than the average performance of all other LPC leaders in octant 1.

Hypothesis IC. The average performance of high LPC leaders in octant 4 will be greater than the average performance of all other LPC leaders in octant 4.

Evaluation of Hypothesis IA

Since no significant difference (t, two-tailed) was found between the average performance in octant 1 ($\bar{X} = 103.9$) and octant 4 ($\bar{X} = 109.7$), both octants were considered to be overrepresented with higher performing groups. Therefore, a tendency for low LPC leaders to predominate in octant 1 and high LPC leaders to predominate in octant 4 should be found. Tests of significance (t, one-tailed) were carried out on the average LPC scores with the following results: (1) the average LPC for octant 1 ($\bar{X} = 2.76$) was significantly lower (.01 level) than the average LPC for octant 4 ($\bar{X} = 4.18$). Thus, hypothesis IA is strongly supported.

Evaluation of Hypotheses IB and IC

Octant 1 (N = 34) had a total of 18 low LPC leaders and a residual of 16 medium and high LPC leaders. The average performance of these low LPC leaders ($\bar{X} = 119.1$) was significantly higher (t, one-tailed, .01 level) than the average performance of the medium and high LPC leaders ($\bar{X} = 86.8$). In octant 4 (N = 31) there were 18 high LPC leaders and a residual of 13 medium and low LPC leaders. The average performance of these high LPC leaders ($\bar{X} = 119.0$) was significantly higher (t, one-tailed, .01 level) than the average performance of the medium and low LPC leaders ($\bar{X} = 96.8$). Thus, hypotheses IB and IC are strongly supported.

Discussion of Hypotheses IA, IB, and IC

The confirmation of the secondary hypotheses lends strong support for the congruency predictions of the contingency model. However, since the sample contains mostly high performing groups, there is little evidence to test that an incongruence of LPC leaders will result in poor performance. For example, if octant 1 were comprised of mostly ineffective groups, then a predominance of high LPC leaders would be suggested by the rationale of the contingency model.

In general, the results of the present study have a greater evidential impact than other validation studies because of the large sample in each octant and the more rigorous treatment of situational variables. The fact that the confirmed secondary hypotheses provide strong backup for the obtained rank-order correlations lends substantial support to the contingency model. Since high levels of significance were obtained for all statistical tests, it is extremely unlikely that these results could have been obtained by chance alone.

RESEARCH HYPOTHESES III AND IV

Hypothesis III. A greater number of low LPC leaders in octant 1 will be high in consideration and high in initiating structure than in octant 4.

Hypothesis IV. A greater number of high LPC leaders in octant 4 will be medium in consideration and medium in initiating structure than in octant 1.

These hypotheses attend to the actual leader behaviors that are associated with effective group performance and were derived from Fiedler's general proposition concerning the personal goal structure of high and low LPC leaders. These hypotheses are also consistent with the research evidence on the great man (high on initiating structure and high on consideration) approach to leadership. For example, in octant 1 it is assumed "easier" to be a great man because of the extreme favorableness of the situation and it is also "easier" for the leader to achieve both primary and secondary goals. In octant 4, however, the decrease in favorability makes it less likely for great man behaviors to fully emerge and, likewise, it is more difficult for the leader to achieve both his primary and secondary goals. However, the fact that the situation in octant 4 is intermediate in favorableness suggests that sufficient latitude is still available so that the leader may approach great man behavior patterns and adequately (but not fully) attend to both primary and secondary goals. Thus, the prediction is for medium levels of initiating structure and consideration in octant 4.

Quantitative Findings
for Hypotheses III and IV

Leader behavior descriptions are itemized in Table 11 according to Stogdill's classification of high, medium and low. The original plan of statistical analysis called for a sign test of medians between octants. Since the nature of the sample prevented the use of this test (octants 1 and 4 were overrepresented with low and high LPC leaders respectively), a secondary method of tapping the essence of these hypotheses was developed according to the following rationale: (1) since low LPC leaders have been strongly associated with high performing groups in octant 1, there should be a greater incidence of great man behaviors (high consideration and high structure) for low LPC leaders than for all other LPC leaders in octant 1, and (2) since high LPC leaders have been strongly associated with high performing groups in octant 4, there should be a greater incidence of intermediate great man behaviors (medium consideration and medium structure) than for all other LPC leaders in octant 4.

This rationale led to the following secondary hypotheses for the present sample:

Hypothesis IIIA. A greater number of low LPC leaders in octant 1 will be high in consideration and high in initiating structure than all other LPC leaders in octant 1.

Hypothesis IVA. A greater number of high LPC leaders in octant 4 will be medium in consideration and medium in initiating structure than all other LPC leaders in octant 4.

TABLE 11

LPC AND LEADER BEHAVIOR CLASSIFICATIONS BY OCTANT

<u>Octant 1</u> (N = 34)				<u>Octant 4</u> (N = 31)			
<u>Leader</u> <u>I.D. Number</u>	<u>LPC</u>	<u>LBDQ</u> <u>Consid-</u> <u>eration</u>	<u>LBDQ</u> <u>Struc-</u> <u>ture</u>	<u>Leader</u> <u>I.D. Number</u>	<u>LPC</u>	<u>LBDQ</u> <u>Consid-</u> <u>eration</u>	<u>LBDQ</u> <u>Struc-</u> <u>ture</u>
1	HI	ME	HI	35	HI	HI	ME
2	HI	LO	HI	36	HI	LO	HI
3	HI	HI	HI	37	HI	HI	ME
4	HI	ME	HI	38	HI	LO	LO
5	ME	HI	ME	39	HI	LO	ME
6	ME	LO	HI	40	HI	LO	ME
7	ME	LO	LO	41	HI	LO	ME
8	ME	ME	LO	42	HI	LO	LO
9	ME	LO	LO	43	HI	LO	ME
10	ME	ME	ME	44	HI	LO	ME
11	ME	ME	ME	45	HI	LO	ME
12	ME	HI	ME	46	HI	ME	LO
13	ME	HI	LO	47	HI	LO	ME
14	ME	ME	ME	48	HI	ME	ME
15	ME	ME	HI	49	HI	ME	HI
16	ME	LO	ME	50	HI	LO	HI
17	LO	ME	ME	51	HI	ME	HI
18	LO	LO	ME	52	HI	ME	LO
19	LO	HI	HI	53	ME	HI	HI
20	LO	LO	ME	54	ME	LO	HI
21	LO	HI	HI	55	ME	LO	HI
22	LO	HI	HI	56	ME	LO	LO
23	LO	LO	HI	57	ME	LO	LO
24	LO	LO	HI	58	ME	ME	LO
25	LO	HI	HI	59	ME	LO	ME
26	LO	HI	ME	60	ME	LO	HI
27	LO	HI	HI	61	ME	ME	LO
28	LO	LO	HI	62	ME	LO	ME
29	LO	LO	ME	63	ME	HI	ME
30	LO	HI	HI	64	LO	LO	LO
31	LO	ME	ME	65	LO	LO	LO
32	LO	ME	HI				
33	LO	HI	HI				
34	LO	HI	ME				

Evaluation of Hypotheses IIIA and IVA

A test of proportions was used to examine the differences between the two groups of LPC leaders in each octant. In octant 1, there was a significantly greater proportion (Z , .05 level, one-tailed) of great man leaders for the low LPC group where 7 of 18 leaders were great men than there was for all other LPC leaders where only 1 of 16 leaders was a great man. Thus, Hypothesis IIIA is supported. In octant 4, only 1 of 18 high LPC leaders had medium-medium levels of initiating structure and consideration while none of the 13 medium and low LPC leaders had an intermediate great man leadership style. Since no significantly greater proportion (Z , one-tailed) existed between these two groups, Hypothesis IVA is not supported. The average leader behavior scores for the low LPC leaders in octant 1 and the high LPC leaders in octant 4 is as follows:

<u>Octant</u>	<u>LPC</u>	<u>n</u>	<u>Initiating Structure</u>	<u>Consideration</u>
1	Low	18	40.4 (High)	39.7 (High)
4	High	18	36.4 (Medium)	34.3 (Low)

Discussion of Hypotheses IIIA and IVA

Contingency theory does not provide a functional explanation of leader behavior with respect to the group or its task. Fiedler hypothesizes about leader behavior only with respect to the servicing of personal leader goals through the motivational profile of the leader himself. In answering questions such as "why is high initiating structure and high consideration leader behavior associated with effective group performance in octant 1?" the behavioral and situational approaches to leadership have more to offer than does contingency theory. For example, since the task

is highly structured in octant 1, high initiating structure on the part of the leader may serve to protect the group from arbitrary outside control (Oaklander and Fleishman, 1964). The contingency model lacks explanatory power and needs to be enriched and integrated with research evidence from all other approaches.

The failure of Hypothesis IVA to receive support shows that a pattern of intermediate great man behaviors did not emerge among the more successful high LPC leaders in octant 4. Table 11 shows that ten out of 18 leaders (55 percent) were medium on initiating structure; however, 11 out of 18 leaders (61 percent) were low on consideration. This unexpected incidence of low consideration behavior among successful leaders who are high in LPC is not explained or predicted by contingency theory. In fact, this evidence is contrary to a large body of evidence in the supportive approach to leadership (see, for example, Likert, 1961) which shows that high consideration leader behavior is positively associated with high performance. It would appear that factors are operating which have yet to be specified in the contingency or supportive approaches.

One possible explanation of the obtained results may be offered in a different interpretation of the leader behavior scales. For example, it may be that a low consideration score and a medium initiating structure score reflect a leader who is less active with his group. In fact, he may have delegated a good deal of decision-making discretion to his group. Assuming the group is competent and motivated to accept more discretion in their work, the result may be high performance. Since position power and task structure are low in octant 4, it would appear that this possibility is more likely than in octant 1.

The present results clearly indicate that original assertions about low LPC leaders behaving in an instrumental manner and high LPC leaders behaving in a considerate manner is oversimplified. The present data further suggest that emergent behavior for successful leaders can vary widely and that unspecified situational factors may account for this variance. Fiedler's assertion that primary and secondary leader goals can be expressed by low LPC leaders through great man behavior in octant 1 received support but the extension of this logic to octant 4 was not supported in the present study.

RESEARCH HYPOTHESES V AND VI

Hypothesis V. The average scores for all leaders in octant 1 on consideration and initiating structure will be significantly greater than the average scores for all leaders in octant 4.

Hypothesis VI. The low LPC leaders in octants 7 and 8 will be low in consideration and high in initiating structure.

Hypothesis V is a general extension of Hypothesis III and IV in that it tests the overall ability of octant 1 to allow both primary and secondary goals for all leaders to be expressed in higher degrees of great man behavior than will the more constraining octant 4. Hypothesis VI treats the unfavorable octants 7 and 8 as most constraining to the leader which motivates him to behave with respect to primary goals to the virtual exclusion of secondary goals.

It is interesting to note that it is in Hypothesis VI that Fiedler predicts the success of instrumental leader behavior. In effect, Fiedler's contingency theory is segmenting the applicability of various leadership theories along the favorableness dimension. For example, great man theory is seen as most applicable in octant 1 while instrumental theory is most applicable in octant 8. Although Fiedler does not state it in exactly these words, it is implicit in his contingency model. However, since no sample was obtained in the present study for octants 7 and 8, Hypothesis VI was not tested.

Quantitative Findings for Hypothesis V

As previously indicated, the sample was comprised of predominantly high performing groups with low LPC leaders concentrated in octant 1 and high LPC leaders concentrated in octant 4. The fact that Hypotheses I, II and III were supported raises the probability that Hypothesis V will be supported. This is especially so in view of the predominance of low consideration scores in octant 4 and the high incidence of great man leaders in octant 1. The original plan of statistical analysis called for a test of means between the behavioral data of octants 1 and 4 consisting of (1) the combined average of consideration and initiating structure scores, (2) the average consideration scores, and (3) the average initiating structure scores.

Evaluation of Hypothesis V

Tables 8 and 9 show the raw initiating structure and consideration scores for all leaders. The averages of these scores are as follows:

	<u>Octant 1</u> (N = 34)	<u>Octant 4</u> (N = 31)
Average Consideration	37.7 (Medium)	33.7 (Low)
Average Initiating Structure	<u>39.2</u> (High)	<u>35.8</u> (Medium)
Combined Average of Consideration and Initiating Structure	79.9	69.5

Tests of significance (t, one-tailed) were carried out on each of these averages and in all cases octant 1 was significantly greater (.01 level) than octant 4. Thus, Hypothesis V is strongly supported.

Discussion of Hypothesis V

Confirmation of Hypothesis V suggests that all leaders tend to increase both initiating structure and consideration behaviors as the situation becomes more favorable. Confirmation of Hypothesis IIIA further suggests that the most effective leaders tend to display the highest levels of great man behavior. Based on these data alone, it would appear that as the favorableness of the situation decreases, leaders would display less and less initiating structure and consideration behaviors. This suggests that in the most unfavorable situations (octants 7 and 8) one possibility is that no leader behavior would emerge (laissez-faire leadership).

However, failure to find support for Hypothesis IVA suggests that the decrease in initiating structure and consideration for situations intermediate in favorableness is monotonic, but not proportional. That is, the more successful high LPC leaders in octant 4 did not display medium-medium levels of initiating structure and consideration behavior. In effect, the assertion that great man leader behaviors decrease proportionately for the most effective leaders as the situation becomes less

favorable is not supported at an intermediate level of favorableness. However, it should be noted that the behaviors of all leaders in the present study did tend to decrease proportionately. Thus, the average behavioral configuration for all leaders in octant 1 was high-medium (on initiating structure and consideration respectively) whereas the average behavioral configuration for octant 4 was medium-low.

The association of great man behaviors with effectiveness in octant 1 is consistent with research evidence on great man theory and supports Fiedler's assertion of leader motivational profiles. However, the association of low consideration behavior with effectiveness in octant 4 is contrary to great man predictions and not supportive of Fiedler's leader motivation theory or supportive theory. The absence of data for the unfavorable pole of the situational dimension precludes an examination of trends along the entire favorableness dimension. Future research along these lines at the unfavorable pole should yield useful data which could be integrated into the present results.

SUMMARY

The obtained sample (N = 65) did not meet fundamental requirements of the research design in that low performing groups were under-represented (N = 3) and the entire sample was skewed toward high performance. As a result, several post-hoc comparisons were performed to extract additional information from the data. However, the entire sample was typical with respect to the range and distribution of both LPC scores and leader behavior scores. Thus, the rationale of contingency theory was extended to allow only for the lack of obtained variance in performance.

Hypotheses I and II attend to basic predictions of contingency theory--low LPC leaders will tend to be associated with high performing groups in favorable situations whereas high LPC leaders will be more effective in situations of intermediate favorableness. These hypotheses are ordinarily tested by comparing evidential rank-order correlations (Spearman rho) between LPC and performance with antecedent predictions. The present sample yielded significant correlations of $-.466$ for octant 1 and $.615$ for octant 4 which strongly supports predictions of the contingency model.

Actually, in considering a high performing sample, the rationale of contingency theory would predict a concentration of low LPC leaders in octant 1 and high LPC leaders in octant 4. Further, it would be expected that these concentrated LPC leaders should outperform all other LPC leaders in their respective octants. Post-hoc comparisons strongly supported these assertions and, consequently, the logic of contingency theory. Additionally, medium LPC leaders appear to be consistently associated with lower (but not necessarily inadequate or poor) performing groups. In general, the results of the present study have a greater evidential impact than other studies in this line of research because of the large sample in each octant and the more rigorous treatment of situational variables.

Hypotheses III, IV, and V attend to the basic predictions of great man behavioral theory and Fiedler's general proposition concerning the personal goal and motivational structure of high and low LPC leaders. These hypotheses assert that great man leadership styles (high in initiating structure and high in consideration) will be displayed by more effective leaders in octant 1, but to a lesser extent (medium in initiating structure and medium in consideration) for effective leaders in octant 4.

These assertions were generally supported except that low consideration behavior was found to be associated with high performance in octant 4. This unexpected finding: (1) is not explained or predicted by contingency, supportive, or great man theories of leadership, (2) supports instrumental theory, (3) may be the result of situational factors which have yet to be specified, and (4) may be explained through a different interpretation of leader behavior scales.

Hypothesis VI extends the assertions of previous hypotheses to the unfavorable pole of the situational dimension. Since no sample was obtained for this region in the present study, the hypothesis was not tested. Future research in this region can be usefully integrated into the present results especially in view of the fact that here is where Fiedler predicts the success of instrumental leader behavior. Both contingency theory and the results of the present study support a situational approach to leadership in that the applicability of various leadership theories appears to be moderated by a construct which is tapped by Fiedler's favorableness dimension.

CHAPTER V

SUMMARY AND CONCLUSIONS

The specific hypotheses tested were derived from Fiedler's original contingency model and his new assertions about the relationship between leader motivation and actual behavior. The fact that more than 40 studies, taken as a group, show some indication of systematic relationships between LPC and situational characteristics suggested that progress had been made toward understanding, predicting and influencing the leadership process. In a parallel development, the behavioral approach to leadership also appeared to provide a meaningful guide to research. The present study sought to combine the contingency model with leader behavior measures so that an integrated systems approach to the study of leadership is fostered.

SUMMARY

Scope of the Study

A sample from a large government organization was available which provided an N of 34 for octant 1 and an N of 31 for octant 4. This sample is much higher than the number of groups typically reported in similar field studies. The scope of the present study therefore involves a total N of 65 groups which are cast into a two-point test of Fiedler's curve. In addition, all 388 subordinates provided LBDQ descriptions of

their leaders' behavior. Four higher level employees also volunteered to participate as raters. All participants in the study were assured that individual and organizational anonymity would be preserved. Cooperation was excellent at all levels and no major problems were encountered in collecting the data.

Limitations of the Study

The contingency model has both conceptual and methodological limitations. Included in the conceptual area are concerns that important aspects of the situation may be neglected by the theory and that the contributions of the behavioral approach have not been adequately integrated into the model. A richer and more interactive approach therefore seems desirable along with improved identification and classification of variables. Methodological problems encompass concerns over the precision of instruments for measuring variables and the procedures for casting them into dichotomized classifications. These problems have led to fragmented research efforts and controversies, especially with regard to experimental studies and relaxed criteria for claiming support for the model.

An obvious limitation in any field study of the contingency model is the unlikely prospect of testing more than two or three octants which, of course, reduces the evidential impact of any one study. Furthermore, unless large samples are obtained in each octant, it is unlikely that significant evidential correlations will be obtained. Although Fiedler supplies guidelines for dichotomizing the variables in the favorableness dimensions, they are not solidly supported and additional steps must be taken to more rigorously treat these variables. In the present study, these problems were countered by obtaining a large sample in each octant, providing a buffer zone of inadmissible scores for each favorableness dimension, and maintaining high levels of interrater agreement.

Evaluation of Contingency Hypotheses

An underlying assumption of the research design proposed by Fiedler for testing the contingency model is that a wide and evenly distributed range of scores will be obtained in the sample for both LPC and performance measures. Although the present sample (N = 65) was suitably distributed with respect to LPC scores, the performance measures were overrepresented by a predominance of very effective groups. Thus, when the sample was divided according to their scores on the favorableness dimension, there was a predominance of low LPC leaders in octant 1 and a predominance of high LPC leaders in octant 4.

Although the sample yielded significant correlations of $-.466$ for octant 1 and $.615$ for octant 4 which strongly supports contingency predictions, these data can be more adequately analyzed by deducing additional hypotheses from contingency theory which allow for the lack of appropriate variance.

The rationale of contingency theory suggests that if high performing groups are predominant in octants 1 and 4, then these octants should be predominated by low and high LPC leaders respectively. In addition, low LPC leaders should significantly outperform all other LPC leaders in octant 1 and high LPC leaders should significantly outperform all other LPC leaders in octant 4. Post-hoc comparisons of the present data yielded statistically significant differences which strongly supported these assertions and, consequently, the logic of contingency theory. Of course, these results are limited to the octants sampled, but they offer substantial evidential support for the contingency model because of the large sample size and the rigorous treatment of situational variables.

The present study also supports the ability of the situational favorableness dimension to make meaningful distinctions among leadership situations. In a qualitative examination of the obtained sample, it was clear that obvious differences existed between the groups cast into octant 1 as opposed to those in octant 4. The former were comprised of routine engineering groups while the latter were comprised of engineering R&D groups. In addition, when the sample is considered in its entirety; that is, no distinctions made as to octants, there is no correlation between LPC and performance. Thus, it appears that the favorableness dimension is tapping a construct that significantly moderates the relationship between leader attitudes and group performance.

Evaluation of Leader Behavior Hypotheses

In general, these hypotheses assert that great man leadership styles will be displayed by more effective leaders in octant 1 and that intermediate great man styles (medium in initiating structure and medium in consideration) will be displayed by more effective leaders in octant 4. These assertions were generally supported through post-hoc comparisons except that low consideration behavior was found to be associated with high performance in octant 4. In addition, inspection of the data shows that various other combinations of leader behavior can also be associated with high group performance. This suggests that other complexities may be involved in group processes that are not specified in the contingency model.

The findings in octant 1 clearly support both great man theory of leadership and Fiedler's motivational theory of the leader. However, the unexpected finding of low consideration being associated with high performance in octant 4 is not explained or predicted by contingency,

supportive, or great man theories of leadership. Yet, these results are explained and predicted by instrumental theory which suggests that the various theories of leadership may not be mutually incompatible, but rather that they are appropriate at different points on the favorableness dimension.

Fiedler hypothesizes that instrumental leader behavior will be more effective at the unfavorable pole of the situational dimension. Since no sample was obtained for this region in the present study, the hypothesis was not tested. Based on the data of the present study, it would appear that as the favorableness of the situation decreases, leaders would exhibit less and less initiating structure and consideration behaviors; and, that in the most favorable situations, one possibility is that no leader behavior would emerge (free-rein leadership style). Research relating to the unfavorable pole would provide useful evidence which could be integrated into the findings of the present study.

CONCLUSIONS

A good deal of the controversy surrounding the antecedent and evidential evidence of the contingency model is directed at the conceptualization and operationalization of the situational favorableness dimension. Since this study utilized stringent criteria for operationalizing the dimension, strong support is provided for the assertion that the dimension (as it is presently defined) is tapping an important construct that moderates between LPC, leader behavior, and group effectiveness. However, these procedures for operationalization are inefficient in that they severely curtail the sample size. Future research should be undertaken to conceptually and operationally enrich the moderating

construct. The work of O'Brien (1969) in which the favorableness dimension is treated in terms of leader influence is an important step in this direction.

The integration of behavioral data into the model not only helps to dispel some of the mysteries surrounding the concept of the LPC, but also assists in aligning the various theories of leadership behavior to their situations of appropriateness. The results of this study clearly demonstrate that there is no one pattern of leadership style which is appropriate for all situations. Fiedler's favorableness dimension can serve as a starting point for integrating and organizing all the complexities of situationality into a systematic framework.

This study also suggests that the popular LBDQ measurement of leader behavior also is in need of conceptual enrichment. It is not clear that the dimensions of initiating structure and consideration are providing a comprehensive index of leader behavior. These questions are also raised elsewhere in the management literature. For example, Yukl (1971) calls for the integration of participative indices into the measure and Wofford (1971) calls for the enlargement of managerial behavior dimensions to include factors such as goal-setting and uses of authority. As these improvements are carried out, the integration of the behavioral and contingency approaches should be greatly facilitated.

Attitudinal concomitants to LPC also should be further investigated. The work of Mitchell (1970), for example, suggests that high LPC leaders are cognitively more complex than low LPC leaders. Studies along these lines should help to explain why high and low LPC leaders are situationally effective. For instance, an illustrative hypothesis for

future research could be that low LPC leaders are more effective in favorable and unfavorable situations because these situations are less uncertain and more amenable to structured (less sensitive) approaches.

Further research is also needed to establish the reliability and validity of the LPC measure. It is not certain that the LPC is stable over time nor is it clear what the LPC means. Longitudinal studies are also needed to test the causality of relationships--for example, does the situation cause the LPC score? The contingency model has contributed to the study of leadership primarily through its development of a more comprehensive model of the leadership process. Yet, after more than 15 years of research by a wide variety of investigators, many unanswered questions and methodological limitations remain in the contingency model. Although these may serve as stimuli for further investigation, more comprehensive frameworks and methods such as those recently proposed by House (1971), Wofford (1971), and Yukl (1971) also should be considered as promising alternatives to guide future research in leadership.

APPENDICES

5

APPENDIX A

LEAST PREFERRED COWORKER (LPC)

The following are pairs of words which are opposite in meaning, such as Very Neat and Not Neat. You are asked to describe someone with whom you have worked by placing an "X" in one of the eight spaces on the line between the two words. Each space represents how well the adjective fits the person you are describing. For example: If you were to describe the person with whom you are able to work least well, and you ordinarily think of him as being quite neat, you would put an "X" in the second space from the words Very Neat, like this:

<u>Very</u> <u>Neat</u>	_____	X	_____	_____	_____	_____	_____	_____	<u>Not</u> <u>Neat</u>
Very Neat	Quite Neat	Some- what Neat	Slightly Neat	Slightly Untidy	Some- what Untidy	Quite Untidy	Very Untidy		

Look at the words at both ends of the line before you put in your "X". Please remember that there are no right or wrong answers. Work rapidly; your first answer is likely to be the best. Please do not omit any items, and mark each item only once. Think of the person with whom you can work least well. He may be someone you work with now, or he may be someone you knew in the past. He does not have to be the person you like least well, but should be the person with whom you had the most difficulty in getting a job done. Describe this person as he appears to you.

Pleasant	_____	Unpleasant
Friendly	_____	Unfriendly
Rejecting	_____	Accepting
Helpful	_____	Frustrating
Unenthusiastic	_____	Enthusiastic
Tense	_____	Relaxed
Distant	_____	Close
Cold	_____	Warm
Cooperative	_____	Uncooperative
Supportive	_____	Hostile
Boring	_____	Interesting
Quarrelsome	_____	Harmonious
Self-Assured	_____	Hesitant
Efficient	_____	Inefficient
Gloomy	_____	Cheerful
Open	_____	Guarded

APPENDIX C

TASK STRUCTURE

- I. Please rate according to the instructions in the following sections those jobs which you and the researcher have agreed are a representative cross section of jobs in your division.
- II. You will note that there are four dimensions on which each job is to be rated. Please rate all jobs on a given dimension before going to the next dimension. In other words, jobs are to be rated on each dimension independently of the way they are rated on other dimensions.
- III. (A) In order to help you in your rating, you will note that there is a graphic scale (ranging from 1 to 11) for each dimension with job titles arranged so as to cover most of the points on the scale. These are called "anchor jobs."

(B) All anchor jobs, with the exception of two, have been evaluated by a panel of judges, and general agreement has been reached that the jobs belong where they are shown on the scale. These jobs were selected from among one hundred because of the high interjudge agreement.

(C) Please refer to the short description of each anchor job which we discussed in our meeting with the other raters. This is the same description that the judges used in rating the jobs.
- IV. When rating the selected jobs in your company, please keep the description of the anchor jobs in mind and rate your jobs in relation to these anchor jobs.
- V. Remember that in many cases there are different anchor jobs as job dimensions change.
- VI. (A) In order to simplify your rating work, it is suggested that you list (by code number) your company jobs to be rated. Then it is suggested that you familiarize yourself with the dimension you are going to rate and the anchor-job descriptions.

(B) After doing this, place the code number corresponding to the job you are rating above the anchor job which most nearly corresponds to it for the dimension you are rating.

(C) After you have done this for each job, check to see that you have placed them where you think they belong. This may mean you will rearrange some of your earlier placements. After you are satisfied that you have rated the jobs the way you want them in relation to each other and in relation to the anchor jobs, do the same thing for the next dimension. Please do not refer to job ratings on earlier dimensions when rating on later dimensions, however.

VII. Do not worry if you have not covered every number on the scale. It may be that you are dealing with a narrow range of jobs. Also, you will note that there are parts of some of the scales which have no anchor jobs, because none were found to fall consistently on those parts of the scale. If you believe some of your jobs should lie at these points, it is all right to place them there. Please make sure, however, you have placed your jobs above one of the eleven points on the scale and not in between these points.

Dimension I

Goal clarity. This is the degree to which the requirements of a job (the tasks or duties which typically make up the job) are clearly stated or known to people performing the job.

Refer to the job descriptions for Dimension I. Then think of yourself as the person assigned the job and ask yourself how clear what you are to do is to you. Do not include how you are to do the job. There is another dimension.

To rank this dimension, assume that the lower the scale number, the lower the goal clarity (the less clear the goals of the job).

- | | |
|----|-----------------------------------|
| 1 | I. Idle millionaire |
| 2 | II. Hobo |
| 3 | |
| 4 | |
| 5 | III. Train director |
| | IV. Private detective |
| | V. Receiving stores supervisor |
| 6 | VI. Educational director |
| 7 | VII. Notary public |
| 8 | VIII. Canvas cover repair foreman |
| 9 | IX. Bench carpenter |
| 10 | X. Chili maker |
| 11 | XI. Axle assembler |

Place the code numbers of jobs corresponding in structure to the anchor jobs shown on the scale directly above those anchor jobs. If there is no anchor job above the number on the scale, you can still place your job there if desired.

Dimension II

Goal-path multiplicity. This is the degree to which the problems encountered in the job can be solved by a variety of procedures (number of different paths to the goal--number of alternatives in performing the job--number of different ways the problems typically encountered in the job can be solved).

Refer to the job descriptions for Dimension II. Then think of yourself as the person assigned the job, and remembering that you have already evaluated the job in terms of what is expected, now shift and think of how you are to do the job. How many ways are there to accomplish the goal? To what extent is planning necessary to decide how to do the job?

To rank this dimension, assume that the lower the scale number, the lower the goal-path multiplicity (the less paths there are to the goal).

- | | | |
|----|-------|---------------------------------|
| 1 | I. | Date puller |
| 2 | II. | Off-line assembler |
| 3 | III. | Billing clerk |
| 4 | IV. | Form builder |
| 5 | V. | Drafting clerk |
| 6 | VI. | Receiving and stores supervisor |
| 7 | VII. | Dance hall inspector |
| | VIII. | Chief clerk |
| 8 | IX. | Buyer |
| 9 | X. | Broadcast director |
| 10 | XI. | Research engineer |
| 11 | | |

Place code numbers of jobs corresponding in structure to anchor jobs shown on the scale directly above anchor jobs. If there are no anchor jobs above the number on the scale, you can still place your job there if desired.

Dimension III

Decision verifiability. This is the degree to which the "correctness" of the solutions or decisions typically encountered in a job can generally be demonstrated by appeal to authority or authoritative source (e.g., the census of 1960), by logical procedures (e.g., mathematical demonstration), or by feedback (e.g., examination of consequences of decision, as in action tasks).

Refer to the job descriptions for Dimension III. Then think of yourself as the person assigned the job and ask yourself to what extent it is possible for you or others evaluating your work to know whether the job has been done "correctly" or not. A time sequence is implied here. For some jobs it is never possible to know the correctness of the decision. For other jobs it is possible to know but only after a long period of time, say, one year or more. For others it is possible to know immediately or within a one-year period.

To rank this dimension, assume that the lower the scale number, the lower the decision verifiability (the less ways there are to verify job decisions).

- 1
- 2 I. Social welfare research worker
- 3
- 4 II. Design engineer
- 5 III. Service director
- 6 IV. Buyer
- 7 V. Cameraman
- 8 VI. Account analyst
- 9 VII. Cabinet assembler
- VIII. File clerk
- 10 IX. Off-line assembler
- 11 X. Nut and bolt sorter

Place code numbers of jobs corresponding in structure to anchor jobs shown on the scale directly above anchor jobs. If there is no anchor job above the number on the scale, you can still place your job there if desired.

Dimension IV

Solution specificity. This is the degree to which there is generally more than one "correct solution" involved in tasks which typically make up a job. Some tasks, e.g., arithmetic problems, have only one solution that is acceptable; others have two or more, e.g., a sorting task where items to be sorted have several dimensions; and still others have an almost infinite number of possible solutions, each of which may be equally as good as others. For example, consider human relations problems or many problems managers must make decisions about.

Refer to the job descriptions for Dimension IV. Then think of yourself as the person who must decide whether tasks typically falling within a given job have been performed correctly or not. Ask yourself how difficult it would be to decide the relative correctness of the task solution of two people who have been assigned a given task as a part of their job and have come up with quite different answers.

Where there are a number of solutions which might be equally acceptable, you are dealing with a job low in solution specificity.

To rank this dimension, assume that the lower the scale number, the lower the solution specificity (the more correct solutions there are).

- 1 I. Social welfare research worker
- 2 II. Research engineer
- 3 III. Dancer
- 4 IV. Broadcast news analyst
- 5 V. Service manager
- 6 VI. Warehouse manager

- 7 VII. Cane cutter
- 8 VIII. Electrical assembler
- 9 IX. Candy-cutting machine girl
- 10 X. Dairy maid
- 11 XI. Barrel drainer

Place code numbers of jobs corresponding in structure to anchor jobs shown on the scale directly above anchor jobs.

APPENDIX D

POSITION POWER

Indicate the position power for each leader in the study by answering yes or no to the following questions:

1. Can the supervisor recommend subordinate rewards and punishment to his boss?
2. Can the supervisor punish or reward subordinates on his own?
3. Can the supervisor recommend promotion or demotion of subordinates?
4. Can the supervisor promote or demote subordinates on his own?
5. Does the supervisor's special knowledge allow him to decide how subordinates are to proceed on their jobs?
6. Can the supervisor give subordinates a general idea of what they are to do?
7. Can the supervisor specifically instruct subordinates concerning what they are to do?
8. Is an important part of the supervisor's job to motivate his subordinates?
9. Is an important part of the supervisor's job to evaluate subordinate performance?
10. Does the supervisor have a great deal of knowledge about the jobs under him but require his subordinates to do them?
11. Can the supervisor supervise and evaluate subordinate jobs?
12. Does the supervisor know both his own and his subordinates' jobs so that he could finish subordinate work himself if it were necessary and he had enough time?
13. Has the supervisor been given an official title by the company which differentiates him from his subordinates?

APPENDIX E

GROUP PERFORMANCE

Rate the performance of each group in the study. Circle the one response which best answers each of the following six questions:

- A - Excellent
- B - Very good
- C - Good
- D - Average
- E - Fair
- F - Poor
- G - Inadequate

- | | |
|--|---------------|
| 1. Rate the quality of their performance | A B C D E F G |
| 2. Rate their ability to perform the job | A B C D E F G |
| 3. Rate their effort put forth on the job | A B C D E F G |
| 4. Rate their initiative in performing the job | A B C D E F G |
| 5. Rate their ability to perform the job
without guidance | A B C D E F G |
| 6. Rate the quantity of work they perform on
the job | A B C D E F G |

APPENDIX F

LEADER BEHAVIOR DESCRIPTION (LBDQ)

Purpose of the Questionnaire

On the following page is a list of items that may be used to describe the behavior of your supervisor. Each item describes a specific kind of behavior, but does not ask you to judge whether the behavior is desirable or undesirable. Although some items may appear similar, they express differences that are important in the description of leadership. Each item should be considered as a separate description. This is not a test of ability or consistency in making answers. Its only purpose is to make it possible for you to describe, as accurately as you can, the behavior of your supervisor.

Note: The term "group" as employed in the following items, refers to a department, division, or other unit of organization that is supervised by the person being described.

The term "members" refers to all the people in the unit of organization that is supervised by the person being described.

Draw a circle around one of the five numbers (1 2 3 4 5) following each item to show the answer you have selected.

- 1 = Always
- 2 = Often
- 3 = Occasionally
- 4 = Seldom
- 5 = Never

- | | | |
|----|--|-----------|
| 1 | He acts as the spokesman of the group | 1 2 3 4 5 |
| 2 | He waits patiently for the results of a decision | 1 2 3 4 5 |
| 3 | He lets group members know what is expected of them | 1 2 3 4 5 |
| 4 | He is hesitant about taking initiative in the group | 1 2 3 4 5 |
| 5 | He is friendly and approachable | 1 2 3 4 5 |
| 6 | He makes accurate decisions | 1 2 3 4 5 |
| 7 | He gets along well with the people above him | 1 2 3 4 5 |
| 8 | He publicizes the activities of the group | 1 2 3 4 5 |
| 9 | He becomes anxious when he cannot find out what is coming next | 1 2 3 4 5 |
| 10 | His arguments are convincing | 1 2 3 4 5 |
| 11 | He encourages the use of uniform procedures | 1 2 3 4 5 |
| 12 | He permits the members to use their own judgment in solving problems | 1 2 3 4 5 |

13	He fails to take necessary action	1 2 3 4 5
14	He does little things to make it pleasant to be a member of the group	1 2 3 4 5
15	He stresses being ahead of competing groups	1 2 3 4 5
16	He keeps the group working together as a team	1 2 3 4 5
17	He keeps the group in good standing with higher authority	1 2 3 4 5
18	He speaks as the representative of the group	1 2 3 4 5
19	He argues persuasively for his point of view	1 2 3 4 5
20	He tries out his ideas in the group	1 2 3 4 5
21	He lets other persons take away his leadership in the group	1 2 3 4 5
22	He puts suggestions made by the group into operation	1 2 3 4 5
23	He seems able to predict what is coming next	1 2 3 4 5
24	He is working hard for a promotion	1 2 3 4 5
25	He speaks for the group when visitors are present	1 2 3 4 5
26	He accepts delays without becoming upset	1 2 3 4 5
27	He makes his attitudes clear to the group	1 2 3 4 5
28	He lets the members do their work the way they think best	1 2 3 4 5
29	He lets some members take advantage of him	1 2 3 4 5
30	He treats all group members as his equals	1 2 3 4 5
31	He keeps the work moving at a rapid pace	1 2 3 4 5
32	He settles conflicts when they occur in the group	1 2 3 4 5
33	His superiors act favorably on most of his suggestions	1 2 3 4 5
34	He represents the group at outside meetings	1 2 3 4 5
35	He decides what shall be done and how it shall be done	1 2 3 4 5
36	He assigns a task, then lets the members handle it	1 2 3 4 5
37	He gives advance notice of changes	1 2 3 4 5
38	He pushes for increased production	1 2 3 4 5
39	Things usually turn out as he predicts	1 2 3 4 5
40	He enjoys the privileges of his position	1 2 3 4 5
41	He handles complex problems efficiently	1 2 3 4 5
42	He assigns group members to particular tasks	1 2 3 4 5
43	He backs down when he ought to stand firm	1 2 3 4 5
44	He keeps to himself	1 2 3 4 5

45	He is accurate in predicting the trend of events	1 2 3 4 5
46	He gets his superiors to act for the welfare of the group members	1 2 3 4 5
47	He gets swamped by details	1 2 3 4 5
48	He can wait just so long, then blows up	1 2 3 4 5
49	He makes sure that his part in the group is understood by the group members	1 2 3 4 5
50	He is reluctant to allow the members any freedom of action	1 2 3 4 5
51	He looks out for the personal welfare of group members	1 2 3 4 5
52	He permits the members to take it easy in their work	1 2 3 4 5
53	He sees to it that the work of the group is coordinated	1 2 3 4 5
54	His word carries weight with his superiors	1 2 3 4 5
55	He gets things all tangled up	1 2 3 4 5
56	He is an inspiring talker	1 2 3 4 5
57	He schedules the work to be done	1 2 3 4 5
58	He is willing to make changes	1 2 3 4 5
59	He helps group members settle their differences	1 2 3 4 5
60	He gets what he asks for from his superiors	1 2 3 4 5
61	He can reduce a madhouse to system and order	1 2 3 4 5
62	He persuades others that his ideas are to their advantage	1 2 3 4 5
63	He maintains definite standards of performance	1 2 3 4 5
64	He refuses to explain his actions	1 2 3 4 5
65	He anticipates problems and plans for them	1 2 3 4 5
66	He is working his way to the top	1 2 3 4 5
67	He gets confused when too many demands are made of him	1 2 3 4 5
68	He worries about the outcome of any new procedure	1 2 3 4 5
69	He can inspire enthusiasm for a project	1 2 3 4 5
70	He asks that group members follow standard rules and regulations	1 2 3 4 5
71	He permits the group to set its own pace	1 2 3 4 5
72	He acts without consulting the group	1 2 3 4 5
73	He keeps the group working up to capacity	1 2 3 4 5
74	He maintains a closely knit group	1 2 3 4 5
75	He maintains cordial relations with superiors	1 2 3 4 5

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