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BASIC DIMENSIONS OF LEADERSHIP IN A
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DISSERTATION

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

By

David Robert Day, B.S., M.B.A.

* * * * * * * * * *

The Ohio State University
1961

Approved by

[Signature]
Advisor
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CHAPTER I
INTRODUCTION

Nature and Significance of the Problem

If specific organizations within society and the social system in its entirety are to function effectively they must have effective leadership. A necessary prerequisite, however, to the development of effective leaders is an adequate understanding of the phenomenon of leadership itself. If one accepts the opinions of informed writers in the field, it is clear that at present the state of understanding with respect to this vital force in society leaves much to be desired. As Ross and Hendry state,

Leadership is an extremely complex social phenomenon. Discussions of leadership, whether among laymen or among social scientists, reveal widespread confusion, not to say conflict in views. Misconceptions and misunderstanding persist in spite of the very considerable advances being made in basic and applied research and in technical and popular writings on the subject.¹

Adequate scientific understanding of the phenomenon of leadership depends, in turn, upon its being accurately described. The problem with which this study is concerned originates in the fact that present descriptions of

leadership are inadequate -- they do not afford a satisfactory understanding of the phenomenon. This is true, for example, in the case of the Ohio State Leadership Studies. In these studies intensive factor analysis of responses to items appearing on the Leader Behavior Description Questionnaire\(^2\) has consistently produced two strongly defined factors, or basic dimensions, of leadership -- i.e., Initiating Structure and Consideration. Although the usefulness of these factors for describing leadership is unquestioned, it is generally accepted by members of the Ohio State research staff, and by others, that they do not tell the full story. As Stogdill states,

> It does not seem likely that leadership, in all its complexity, can be described adequately in terms of [only] two factors. Recent theoretical and experimental work at Ohio State and elsewhere suggests that intensive research might reveal the presence of additional factors; the work also suggests something of the nature of the factors for which a search should be made.\(^3\)

If the descriptions of leadership derived by the Ohio State Leadership Studies are inadequate, it may be safely concluded that the problem exists generally, for these

\(^2\)This instrument, hereinafter referred to as the LBDQ, is used in these studies to obtain descriptions of leadership. The latest version of the questionnaire is presented in Appendix I and discussed in Chapter II of this report.

\(^3\)Ralph M. Stogdill, "Dimensions of Leader Behavior," Research proposal presented to The Ohio State University Development Fund, Columbus, Ohio, July 15, 1960.
studies are recognized as being among the more notable and complete research efforts dealing with leader behavior.

This problem possesses great significance because, as already noted, the degree to which organizations are effective is determined to an important extent by the quality of their leadership and the development of effective leadership is, in turn, dependent upon adequate description and understanding of the phenomenon.

**Scope and Objectives of the Study**

In recognition of the problem described in the foregoing and the fact that recent theoretical and experimental accomplishments suggested that an advance in understanding was possible, a new phase of the Ohio State Leadership Studies was undertaken in October of 1960. This research effort was designed to determine what the basic dimensions of leadership in American society, in addition to Initiating Structure and Consideration, actually are, and to compare leader behavior in various areas of society in terms of these dimensions. A concomitant purpose of the research is to further refine and improve the LBDQ.

The research described herein is conducted within the framework of this broader study; its scope is limited to the description of leadership in industry, one of the areas of society with which the broader study is concerned. The sample is taken from one industrial organization which
produces and distributes a single type of product. Data, however, are obtained from five functional areas -- i.e., engineering, manufacturing, marketing, finance, and personnel; thus the study encompasses what are generally held to be major functions of any manufacturing concern. Also, data are obtained on all of the managerial levels in the organization.

The general objective of the study is to contribute to the understanding of industrial leadership by providing, if possible, more adequate descriptions of such leadership than exist at present. Also, in view of the relationship of this research to the broader study mentioned above, it is intended that the results will contribute to the understanding of American leadership in general.

The study has four specific objectives. First, it is intended to discover what independent factors, if any, in addition to Initiating Structure and Consideration, emerge as basic dimensions of industrial leadership when a sample of diversified items is incorporated in the LBDQ. Second, it is intended to determine how industrial leaders at different organizational levels differ, if at all, in terms of these basic dimensions of behavior. Third, it is intended to determine how industrial leaders in the five functional areas of engineering, manufacturing, marketing, finance, and personnel differ, if at all, in terms of these basic
dimensions. And, finally, it is intended to discover what relationships, if any, exist between the basic types of behavior evidenced by the leaders being described and their effectiveness as leaders. Refinement of the items and subscales of the LBDQ is not a specific objective of this study as it is in the case of the broader project of which it is a part. It is intended, however, that the study will provide certain data which will be useful for this purpose at a later date.

In view of the above objectives, the research is designed to test the following hypotheses: (1) Industrial leader behavior will be found to involve more factors than Consideration and Initiating Structure; (2) the behavior of leaders at different organizational levels will vary in terms of these factors; and (3) the behavior of leaders in different functional areas will vary in terms of these factors. 4 No hypothesis was formulated with respect to relationships between leader behavior and effectiveness.

**Methodology**

The research is conducted within the tradition of the Ohio State Leadership Studies. In view of this the approach and methods used in previous studies of this

4These hypotheses are presented in more detail in Chapter III.
program are followed. Leadership is viewed as the behavior of a leader and such behavior is regarded as being determined by the personality of the leader, the group aspects of the situation, and these two in interaction. Description and evaluation of this behavior are separated procedurally, emphasis is upon how a leader behaves in regard to the former, and data are collected in quantitative terms.

Descriptions of leader behavior are collected by means of the questionnaire method. The Leader Behavior Description Questionnaire, the instrument used for this purpose, is composed of several subscales which represent hypothesized dimensions of behavior. This questionnaire is designed in such a way that the respondent reports his observations regarding the frequency with which the leader being described engages in specific acts or items of behavior related to these dimensions.

Evaluations of leader effectiveness are obtained by requesting the same person who describes a leader to rate him as to his over-all effectiveness as a leader. This type of evaluation is known as a "reputational rating."

As mentioned earlier, descriptions and effectiveness ratings are obtained on leaders at all organizational levels and in five different functional areas. Such data are obtained from immediate subordinates of leaders who are themselves leaders or professional operative employees.
Once collected, the data are scored. The total scores for each of the dimensions of behavior and the other variables (i.e., effectiveness rating, organizational level, and functional areas) are intercorrelated and these intercorrelations factor analyzed. The results of this factor analysis are then used to test the hypotheses mentioned above and to discover the relationships between leader behavior and effectiveness.

Although the approach and methods of previous Ohio State studies are followed in the present research, it does differ from these studies in one respect. Whereas the previous studies have been conducted mainly in terms of interaction theory, the present study is based to an important extent upon expectation theory as well as interaction theory. This difference will be discussed in more detail at a later point in this report.

**Limitations**

There are several important limitations of the study, some of which have to do with its scope and some of which pertain to that which was accomplished in the study. It has already been mentioned that only one industrial organization producing and selling one type of product is studied. Also, it has been pointed out that the present study does not have as one of its objectives the
refinement of the basic research instrument used as is to be accomplished in the broader project of which it is a part. These facts, of course, constitute limitations of scope.

One of the limitations pertaining to those things included within the scope of the study has to do with the approach used. Behavior is viewed in this study as being determined by the personality of the leader and the group aspects of the situation. Other aspects of the situation, such as external factors impinging upon the organization, are not systematically considered. This, of course, means that certain information which would be useful in interpreting the relationships found within the organization is not available.

Several limitations arise with respect to method. Some of these have to do with the Leader Behavior Description Questionnaire. One shortcoming of using the questionnaire method is that respondents might interpret items of behavior differently. This, of course, would reduce the objectivity of the reports or descriptions. In this study the extent of inter-rater agreement is not determined and, hence, the degree of objectivity of the descriptions cannot be known. Other limitations have to do with the format, degree of generality, and length of the LBDQ. The fact that the LBDQ utilizes a multiple-choice format, is
composed of subscales and items designed to be applicable to virtually all types of organizations, and is rather brief, tends to limit the objectivity and coverage of the data and the reliability of the instrument. Again, the degree of objectivity of the descriptions is not ascertained. The degree of subscale reliability is, however, determined. The reliability coefficients calculated in this connection suggest that, although the subscales are not as highly reliable as is generally desired for purposes of individual diagnosis and selection, they are reliable enough for purposes of exploratory research.

Another limitation with respect to method is related to the fact that reputational ratings of leader effectiveness are obtained from the same persons who provide descriptions of leader behavior. Thus, the "halo" effect is reflected in the relationships found between leader behavior and leader effectiveness. In spite of their shortcomings reputational ratings obtained in the manner mentioned above are, however, considered useful for purposes of exploratory research.

**Definition of Terms**

In this study the following terms are used as defined below:

1. Leader. Any individual who occupies a position to which higher authority has officially assigned
responsibility and delegated authority for exercising leadership in an organizational unit. The term, as used in this study, is synonymous with "executive," "manager," and "supervisor."

2. **Leadership.** The initiation and maintenance of structure in interaction and expectation within an organization by the leader of that organization. Thus the concept is defined in terms of the behavior of the leader. The above type of behavior, however, constitutes the unique aspect of leadership; it is believed that there are several other aspects of behavior by means of which this type is facilitated.

3. **Dimension of leader behavior.** A continuum by which one aspect of, or variable involved in, leader behavior is measured in quantitative terms. It is synonymous with the term "subscale" which is used in this study with reference to the LBDQ.

4. **Basic dimension.** A factor of leader behavior which has been derived from factor analysis of the interrelationships among the dimensions of leader behavior. Such a factor describes an independent, basic type of behavior. It represents a continuum by which this basic type of behavior may be measured in quantitative terms.

5. **Organizational level.** A major echelon or service level in the organization. Davis defines major service
levels as "... broad general gradations of service within the organization. They represent basic differences in the characteristics of and requirements for an effective exercise of authority in the discharge of responsibility."\(^5\)

In this research project only the top leader or manager of each service level is described; hence the term "organizational level" may be considered synonymous with "managerial level" for purposes of this study.

6. **Functional area.** A major area of an organization's operations which is composed of related types of work and which is assigned to a major organizational component or unit.

**Brief Outline of the Study**

In this chapter the nature and significance of the problem and the objectives and scope of the study have been presented, the methodology involved has been summarized, the limitations of the study have been set forth, and certain terms used in the project have been defined. An historical view of leader behavior description as conducted at The Ohio State University is presented in Chapter II. Although it is recognized that investigators at other institutions have been and are conducting

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significant research in the area of leadership, the discus-
sion in Chapter II is confined to a consideration of
research efforts at Ohio State in view of the fact that the
present study is carried on within the scope and tradition
of this institution's program and it was therefore con-
sidered essential to set forth certain of its features and
its development in detail. The research procedure by
means of which the present research effort was carried out
is set forth in Chapter III and the results of the study
are presented in Chapter IV. Finally, a summary of the
study and final conclusions are presented in Chapter V.
CHAPTER II
LEADER BEHAVIOR DESCRIPTION AT THE OHIO STATE UNIVERSITY: AN HISTORICAL VIEW

In order to view the development of leader behavior description at The Ohio State University in its proper perspective, it is necessary to consider briefly earlier leadership study. This is done in the first section of this chapter. In subsequent sections the essential features of the Ohio State research program as established at its inception are set forth, the results of the Ohio State research conducted prior to the current phase of the program are briefly discussed, and, finally, the present state of leader behavior description at Ohio State is considered. In connection with the latter, the major difference between the current phase of the program and past research is discussed, the present version of the LBDQ is described, and the areas of society studied to date are mentioned.

Earlier Leadership Study

Fleishman, Harris, and Burtt state that

...[an]... emphasis upon traits of leadership dominated the early work in this area. Thus, leadership was usually thought of in terms
of specific attributes of personality. This view led to research with the general aim of finding, by means of observation, rating scales, or psychological tests, those traits which are well developed in leaders but not in followers.¹

Shartle points out, however, that "the trait approach [as this orientation has been called] had reached an impasse before the beginning of World War II."² The following statement by Fleishman, Harris and Burtt supports this view:

... [In reviews of studies conducted under this approach] ... one is struck by the diversity of personal traits which distinguish leaders from non-leaders. Moreover, traits imputed to leaders in one study often characterize non-leaders in another study.

The general result of this one-sided approach to the investigation of leadership has been to demonstrate the absence of consistent general traits. Perhaps the major shortcoming of the method has been the failure to identify the various social situations in which leaders emerge and function, although the studies have been carried out in many different situations.³

Experience during the war also bore witness to the fact that this approach, at least as it was then being pursued, was unsatisfactory for, as Gibb points out, "Attempted


³Fleishman, Harris, and Burtt, p. 9.
leader selection during World War II . . . [revealed] . . . that selection on the basis of personality was hopelessly inadequate."4

Thus, at the end of the war the state of understanding concerning leadership was clearly unsatisfactory. It was because of this that Ohio State Leadership Studies were undertaken. As Stogdill and Shartle point out,

The . . . Studies were initiated in 1945 by the Personnel Research Board [of The Ohio State University]. They were designed as a ten-year program of basic research with the aims of developing research methods and of obtaining information which might lead to a better understanding [italics mine] of leadership.5

**Essential Features of Leadership Description at Ohio State: Initial Decisions**

At the time the Ohio State program was initiated certain decisions were made concerning the type of research to be conducted, the approach to be followed in conducting the research, and the ways in which the studies were to be carried on under this approach. These decisions, of course, set forth the essential features of the program. Since these features have remained basically unchanged

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throughout the course of the program, it is possible to present them here by discussing the decisions that were made initially. Wherever appropriate, however, important shifts in thinking or modifications are also related. In the discussion below, the initial decisions are discussed under the following headings: type of research, approach, and method.

It should be noted that leader behavior description is but one aspect of the Ohio State Leadership Studies. Since the description of leader behavior is the problem with which the present study is concerned, an effort is made in the following discussion to set forth the features of this aspect of the program. In certain instances however the discussion is conducted in terms of the total program for purposes of clarity.

**Type of Research**

It was decided at the outset that the Ohio State Leadership Studies were to be primarily a long-range program of *basic* research for it was felt that the crucial need, in view of the prevailing lack of understanding in the field, was for a broader foundation of basic concepts and methodology which would provide a basis for subsequent developments of an applied nature. Thus, it was decided, as was pointed out earlier, that the objectives of the
research were to be the development of research methods and the obtaining of information having long-range and basic, rather than more immediate and practical, value. For this reason the results of the studies possess certain limitations if used for purposes other than research. It should be noted, however, that "practical aims were also kept in mind as secondary objectives. For example, it was hoped that the research might produce data which would eventually be of value in the selection, training, and assignment of persons for leadership roles."  

Approach

Another decision reached at an early date had to do with the approach or theoretical orientation involved. As has been pointed out, prior to this time most of the work in the area of leadership had been dominated by a search for personality traits which characterized leaders, with little or no attention being given to the situations in which they exercised leadership. Concluding that this approach had reached an impasse, the Ohio State researchers proceeded along a different line of attack: they decided to place emphasis upon investigating the performance or behavior of the leader rather than his traits of personality and upon examination of the situational aspects of

6Ibid.
leadership. As will be seen, these two rather unique features of the studies are not unrelated.

At least two reasons were involved in the decision to focus attention upon the behavior, rather than the personal traits, of the leader. First of all, scientific investigation is concerned with observable events. By defining and studying leadership as behavior the phenomenon could be approached at the observable level, whereas it could not be if defined as characteristics inherent in an individual. Secondly, it was believed that leader behavior is a function of the personal characteristics of the leader, the characteristics of the social situation in which he exercises leadership, and of these two factors in interaction. By making the behavior of the leader the focal point of attention it would be possible to take into account both determinants of leadership -- the leader and the situation -- rather than just one as the trait approach had done.

The decision to place emphasis in the studies upon the characteristics of the situation was, of course, based upon the above mentioned belief that such characteristics are an important determinant of leadership and upon the fact that the trait approach which had not considered the situation systematically had failed to provide an adequate understanding of leadership.
It should be mentioned at this point that while some of the leadership studies have been concerned with situational factors external to the group, most have considered only the group aspect of the situation. This emphasis upon the group in the studies is a reflection of the fact that leadership is considered by the Ohio State investigators to be an aspect of group organization. In order for a group to establish and achieve its goals, and at the same time maintain itself, there must be a differentiation of responsibilities and roles within it. This differentiation results in group organization or structure. Since some of the roles which emerge in this differentiation are leadership roles, leadership can be thought of as an aspect of group organization.

It should be noted at this point that considering leadership as an aspect of group organization (that is, as an aspect of the situation) does not obviate the necessity of considering also characteristics or traits of the individual, for

As the situation changes the roles which are leadership roles change, and because of individual differences among group members [Italics mine], the likelihood is that different members will be perceived to fill these roles best.

It is known that the situation is especially liable to change through changes in goals, changes in syntality, changes in interpersonal relations, the entrance of new members and the departure of others, pressures from other groups, and so on. Since individual personality
characteristics are, by contrast, very stable, it is to be expected that group leadership, if unrestricted by the conscious hierarchical structuration of the group, will be fluid and will pass from one member to another along the line of those particular personality traits which by virtue of the situation and its demands, become, for the time being, traits of leadership. This is why the leader in one situation is not necessarily the leader, even of the same group, in another different situation. 7

The Ohio State researchers have given due consideration to the fact that characteristics of individuals are an important determinant of who becomes leaders in a particular situation while at the same time viewing leadership in the particular situation as being importantly determined by role differentiation with the group.

Because it asserts that "leadership resides in individuals, but only by virtue of their interaction with other persons," 8 the approach taken in The Ohio State Leadership Studies has been called the "interactional" approach. As Stogdill and Shartle state, "Leadership

7Gibb, p. 902.

arises and becomes structured as a result of the interactions among the members of the social group." This notion follows from the fact that group differentiation, which gives rise to leadership roles, is itself dependent upon the interaction among the members of the group.

It is evident from the above that interaction theory has greatly influenced the Ohio State researchers. Homans' presentation of this theory has been especially influential in shaping the thinking of the Ohio State investigators along these lines. In view of this influence Ohio State studies having to do with leader behavior description have been conducted largely in terms of interaction theory.

One final comment should be made with respect to the approach taken at Ohio State; this has to do with the definition of leadership and theory construction. As Shartle states, "When the Ohio State Leadership Studies were initiated in 1945, no satisfactory theory or definition

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10 For a brief but excellent summary of this theory, see Gibb, pp. 914-15.

11 The particular piece of this author's work which influenced the Ohio State group was his book The Human Group (New York: Harcourt, Brace and Company, 1950).
of leadership was available. In view of this a working definition of leadership was established in order to furnish a guide for the research. Leadership was tentatively defined as "... the behavior of an individual when he is directing the activities of a group toward a shared goal." It will be noted that this definition reflects the aspects of the approach decided upon, i.e., emphasis upon leader behavior and upon the group aspect of the situation.

Although the Ohio State investigators have drawn upon theoretical formulations advanced by others, most notably interaction theory as elaborated by Homans, they have purposely proceeded slowly and cautiously in their own efforts to construct a theory of leadership. One member of the group, Hemphill, now of Princeton University, however, has advanced such a theory in which he states "to lead is to engage in an act which initiates a structure in the interaction of others as part of the process of solving


a mutual problem." The influence of interaction theory in the formulation of Hemphill's theory is manifest in this definition.

Method

Several decisions were made at the beginning of the Ohio State program with respect to the way in which research was to be carried on under the basic approach described in the foregoing. Again, these decisions established many of the essential features of the research.

It was decided at the outset to focus attention upon persons occupying official positions of leadership because, in highly structured organizations at least, such positions possess high leadership potential and, also, are easily identifiable. Thus, one feature of the research has been that "... most of the studies have been concerned with subjects whose leadership status was already established." 15

It was believed that two approaches might prove useful in studying the behavior of leaders. "Framed as questions, they can be stated: (1) What does an individual do while he


operates as a leader, and (2) *How* does he go about what he does?" An early series of studies were conducted to determine what a leader does and the approximate amount of time he spends on each of his activities. Examples of the leader's activities are such things as supervising and coordinating the activity of others. The phase of the Ohio State program which has had to do with leader behavior description, however, has been concerned with describing *how* a leader carries out these activities. For instance, in supervising others does he exhibit a high or low degree of domination in his behavior.

Also at the beginning of the research program "it was decided (1) that description and evaluation [of leader behavior] should be conducted as separate research operations, and (2) that description should precede evaluation." Although in actual practice description and evaluation have often been conducted simultaneously, "... it was considered desirable to separate them both theoretically and procedurally." This decision, which constitutes a departure from tradition in the field, was made

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18 Ibid.
because it was believed that "if progress were to be made, it seemed necessary to learn something about the nature of leadership before trying to predict it."  

Another basic feature of the research is that it is quantitative in nature: data have been collected through the process of measuring certain dimensions of leader behavior considered to be essential in virtually any type of organization rather than through the case-study method. As Stogdill and Shartle have stated,

It was decided to collect data in quantitative rather than qualitative terms. This resulted in the development of measuring devices rather than case-study methods. The decision was based on extensive experience in the analysis of data collected by case-study methods, which were rejected for the following reasons: (1) different methods are likely to be used for the study of different types of cases; (2) data are likely to be collected on different variables for different cases; and (3) qualitative data, although collected systematically in every case, are difficult to categorize and analyze."  

Another set of decisions had to do with the technique and instrument to be used in collecting data. Mention has been made of the fact that a scientific investigation of leadership is concerned with observed leader behavior. There would seem to be two ways in which observations of such behavior might be obtained: direct observation and

19 Ibid.
retrospective reports furnished by organizational members. In large groups, or in groups which form parts of a large organization, the types most often studied by the Ohio State investigators, direct observation often is not feasible or desirable, hence the alternative method has been used extensively. As Campbell states,

[Direct] observation and recording of representative samples of group intra-action is . . . a very difficult and expensive process, and the apparatus needed may create a situation so artificial as to make the observations irrelevant. In lieu of this, retrospective reports of typical group intra-action [e.g., leader behavior] by members of the group may be used. This is typical . . . of some aspects of the series of studies conducted by The Ohio State University Personnel Research Board. 21

During the course of the program such reports have been obtained from subordinates, superiors, and peers of persons occupying official positions of leadership; in addition, leaders have been asked to furnish reports concerning their own behavior.

It was decided to obtain the reports of observed leader behavior by means of the questionnaire method since through the use of this method it would be possible to obtain a large amount of information from an organization

21 Donald T. Campbell, Leadership and Its Effects Upon the Group (Research Monograph No. 83, Columbus: The Ohio State University, Bureau of Business Research, 1956), p. 8.
with a relatively small investment of time on the part of both respondents and investigators.

Besides, in our present knowledge about leadership variables, more extensive observational studies [using questionnaires as well as other methods] still seem to be necessary. These studies can provide a framework and hypotheses within which more definitive experimental studies can be made on one or more factors at a time. 22

Several questions arose, however, with respect to the format, generality, and length of the particular instrument to be used; these questions were grounded in very fundamental considerations.

The question of format involved considerations of objectivity and how leader behavior was to be measured. Mention has been made of the fact that leadership was defined as leader behavior in order to approach it on the observable level; this was desirable because it would make possible factual and objective description of the phenomenon, one of the requirements of scientific investigation. The Ohio State studies were to be scientific in nature, hence "one of the goals set in the development of the questionnaire was that of obtaining objective description." 23 Hemphill and Coons explain what is meant by

22Fleishman, Harris, and Burtt, p. 13.

objective description in the following statement:

Variation in reports of observed leader behavior may be assigned to two major sources. First, there is variation due to "real" differences in the "actual" behavior of leaders. Second, there is variation due to differences in the processes of observation and reporting. This second area includes the biases and the limitations of the observation and reporting. . . . By objective description is meant a description that has no variation induced by the second of the two major sources described above. 24

In addition, it had been decided to secure measures of leader behavior by determining the frequency with which persons engage in certain acts specified as acts of leadership; therefore another goal in the development of the research instrument was to devise a format which would enable a respondent to report his observation of the frequency with which the person being described engages in leadership acts.

Two types of format were considered; neither of which could achieve both of the above objectives simultaneously. These were the "forced-choice" and the "multiple-choice" format. The former would assure the higher degree of objectivity in the descriptions because it would eliminate value considerations to a large extent by forcing respondents to choose between items (i.e., acts of behavior) in the questionnaire having equal value tone. On the other hand, it would not be possible to measure frequency of

24 Ibid.
leader behavior under such an arrangement. The multiple-choice format would make it possible for the respondent to indicate the frequency with which the person being described engages in the specified items of leader behavior, but would not entirely preclude value considerations from entering into his report. Requesting reports in terms of observed frequency would, however, provide a degree of objectivity since frequency is somewhat devoid of value considerations. In view of the above it was decided to use the multiple-choice format; hence two features of Ohio State leader behavior description are that reports are obtained in terms of the frequency with which acts of leadership are performed by persons described and the reports, while not entirely objective, are objective to a degree.

Another question which arose with respect to the questionnaire was the desired degree of generality of the instrument. Stogdill and Shartle point out that,

Since it was desired to compare leaders in various types of organizations, it was necessary to devise methods which would be equally applicable in the worlds of industry, government, education, and the like. It was believed that if general methods were designed to measure

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25 For a detailed exposition of the rationale underlying these assertions, see ibid., pp. 13-14.
critical and essential dimensions of organization, then comparatively few of the important factors in any particular organization would be overlooked. Thus, the dimensions measured by the questionnaire are those considered to be essential aspects of leader behavior in a wide variety of organizations. In addition, the specific items of behavior associated with these dimensions are stated in terms which are applicable in virtually all types of groups rather than having one type of situation as their referent.

A final question involved the length of the questionnaire. Here it should be pointed out that the questionnaire is only one of a battery of instruments used by the Ohio State group in many of its studies. It was decided to make each of the instruments in the battery briefer than would have been the case if the instruments were to be used individually in order that the respondent would not have to spend an unreasonable length of time in completing the entire set of forms. The brevity of the individual scales in the battery does, however, result in their possessing relatively low reliability. Still, the use of a battery of instruments, each having relatively low reliability, does possess merit. The reasoning involved here is set forth by Stogdill and Shartle when they state that "... the

26Stogdill and Shartle, Methods in the Study of Administrative Leadership, p. 2.
Leadership problem as conceived involves such a large complex of variables that it was decided to make maximum use of individual items of measurement, rather than rely upon a few highly reliable scores, each derived from a large battery of items.\textsuperscript{27} The point to be made here, however, is that the questionnaire used in obtaining leader behavior descriptions is rather brief and it possesses somewhat limited reliability.

A copy of the latest version of the questionnaire developed by the Ohio State investigators is presented in Appendix I in order that the reader may examine it in light of the comments made above with respect to format, generality, and length.

At this point the development of the initial Leader Behavior Description Questionnaire should be briefly discussed since its development involved decisions which established certain features of leader behavior description at Ohio State.\textsuperscript{28} As will be recalled it was decided that the instrument was to have general applicability since this would provide a research tool for describing leader behavior in different fields of activity yet make possible

\textsuperscript{27}Ibid.

\textsuperscript{28}For a detailed discussion of the development of the questionnaire, see Hemphill and Coons, "Development of the Leader Behavior Description Questionnaire," Leader Behavior: Its Description and Measurement, pp. 6-38.
comparison and integration of the findings of studies con-
ducted in diverse fields. Because "it was agreed that the
instrument should be adaptable to studies in widely dif-

erent frames of reference,"29 the development of the
instrument was interdisciplinary in character: a staff of
psychologists, sociologists, and economists developed the
questionnaire by means of a process of group discussion
and decision.

One of the first things that the staff did was to
classify several hypothesized areas or dimensions of
leader behavior; the classification included such areas as
integration, communication, production emphasis, and
representation.

Next, it developed, and asked others to develop, items
of behavior which seemed to apply to the nine dimensions
decided upon; approximately 1800 items were collected.30
The staff then reviewed each of these items and selected
those which were most free from overlap with items in other
dimensions and which met certain other criteria; approxi-
mately 200 items survived this selection procedure. In

29 Ibid., p. 7.

30 It should be noted that Hemphill had previously
developed items of leader behavior, many of which were used
in the construction of the LBDQ. See his Situation Factors
in Leadership (Monograph No. 32, Columbus: The Ohio State
University, Bureau of Educational Research, 1949),
pp. 60-62.
order to facilitate the processing of data on IBM equipment the number of items was further reduced to 150. These items appeared in the earliest forms of the LBDQ.

Results of Studies Prior to the Present Research

The preceding section set forth the essential features of leader behavior description as conducted at The Ohio State University. The present section briefly outlines the results of this aspect of the Ohio State program. Once the earliest version of the LBDQ was developed it was administered to 357 individuals, 207 of whom described a leader of a group in which they were or had been members and 152 of whom described themselves as leaders. When the responses were subjected to factor analysis it was found that the structure of intercorrelations among the nine hypothesized dimensions could be explained in terms of three relatively independent factors or basic dimensions of leader behavior.

Factor I was tentatively designated as Maintenance of Membership Character.

Factor II was identified as Objective Attainment Behavior

[and], Factor III was identified as Group Interaction Facilitation.\(^{31}\)

The following statement by Shartle indicates the nature of each of these factors:

. . . [Factor I] . . . behavior that increases a leader's acceptability to the group. It is heavily loaded with low domination and high membership dimension.
. . . [Factor II] . . . behavior high in the production and organization dimensions.
. . . [Factor III] . . . behavior or acts stressing the mechanics of effective interaction of group members. Loadings high were organization and communication.32

Since the time of this initial study the LBDQ has been used in many different research projects in the course of which the instrument has been progressively refined. In virtually all of these studies up to the present it has been found that two factors, rather than the original three, account for most of the intercorrelation among the leader behavior dimensions included in the LBDQ. These two factors, first isolated in a study of air crews conducted by Halpin and Winer in 1954,33 are Consideration and Initiating Structure.

High positive loadings on the Consideration factor are associated with behavior indicative of friendship, mutual trust, respect and a certain warmth in the relationship between the


administrator and his staff. High negative loadings appear on items which suggest that the executive is authoritarian and impersonal in his relations with members of the group. Consideration thus refers to the extent to which the executive, while carrying out his leadership functions, is considerate of the members of his staff.

High positive loadings on the Initiating Structure factor occur on items which imply that the executive organizes and defines the relationship between himself and the members of his staff. He tends to define the role which he expects each member of the staff to assume and endeavors to establish well-defined patterns of organization, channels of communication, and ways of getting jobs done.\(^{34}\)

It should be noted that these two basic dimensions are not antithetical; rather, they are complementary in that the leader evidences both types of behavior, usually in an integrated fashion. The Initiating Structure factor, however, "... probably represents a basic and unique function of leadership. It is possible that other factors (including Consideration) may represent only facilitating means for accomplishing this end."\(^{35}\) It should be noted further that this factor is conceived of as Initiating Structure in Interaction; here, again, the influence of interaction theory in the Ohio State research is evident.\(^{36}\)

\(^{34}\)Shartle, Executive Performance and Leadership, pp. 121-22.

Thus, at present, leader behavior is described in terms of two factors. It will be recalled, however, that it is generally accepted that leadership is such a complex phenomenon that it cannot be described adequately in terms of only two factors. Here then lies the problem with which the present research is concerned: in this study an attempt is made to solve the problem by discovering additional descriptive factors.

Present State of the Research

Development of the Present Leader Behavior Description Questionnaire

Mention has been made of the fact that relatively recent theoretical and experimental work at Ohio State and elsewhere suggests that intensive research might reveal the presence of additional descriptive factors and, in addition, indicates something of the nature of the factors for which a search should be made. On the basis of these developments, Stogdill, in October of 1960, initiated the current phase of the Ohio State Leadership Studies.

Prior to this date, however, he had performed a great deal of preliminary work. Several dimensions of leader behavior, which differed from those used previously at Ohio State, were hypothesized. Some of these were suggested by the theoretical developments referred to above, while
others grew directly out of empirical research conducted at various institutions, including Ohio State. In several instances the findings of empirical research merely afforded supporting evidence for theoretically derived dimensions.

It is important at this point to describe briefly the nature of the theoretical developments which led to the initiation of the current phase of the research program and to the formulation of some of the hypothesized dimensions involved. As has been mentioned on several occasions, previous leader behavior description at Ohio State had been based largely upon interaction theory. It had become apparent, however, that a different type of theory -- expectation theory -- could provide a fuller explanation of certain aspects of the leadership phenomenon than could the concept of interaction.

The value of positing expectation as a basic dimension of group organization was suggested . . . by the works of Mead, . . . Mayo, . . . and Roethlisberger and Dickson. . . . Although none of these authors developed a full-fledged expectation theory, their comments and interpretations of previously obscure group processes suggested the utility of the concept for descriptive and analytical purposes.36

Taking note of the works of these authors and basing much of his conceptualization upon formal expectation theory as set forth by such psychologists as Tolman and Mowrer,

Stogdill systematically elaborated expectation theory as related to group structure and operations. It is this theoretical work, then, that provided much of the impetus which resulted in the initiation of the present phase of the Ohio State research program.

It may be said that the major difference between the current phase of the program and previous leader behavior description at Ohio State is that the latter was carried out largely in terms of interaction theory, whereas the present phase of the research is based to an important extent upon expectation theory as well as upon interaction theory. Leadership is defined in the current phase of the program as "the initiation and maintenance of structure in expectation and interaction."

A version of the LBDQ comprised of the newly hypothesized dimensions, in addition to Consideration and Initiating Structure, was developed. The dimensions included were Representation of Group Interests, Tolerance of Uncertainty, Persuasion, Social Sensitivity, Freedom of Action, Enactment of the Leadership Role, Production Emphasis, Integration of the Group, Accuracy of Decision, Influence with Superiors, Consideration, and Initiating Structure. Items for the new dimensions were provided by graduate students, faculty, and businessmen (attending
management development courses at Ohio State) in accordance with certain instructions furnished by members of the research staff.

In the summer of 1960, Marder used this version of the LBDQ in studying leader behavior in state police and U.S. Army airborne units.\textsuperscript{37} When the data obtained in this study were factor analyzed, it was found that two of the dimensions -- Social Sensitivity and Integration -- regressed into the general factor.

At this point the LBDQ was revised by omitting the two dimensions mentioned above, inserting a variable entitled "Reconciliation of Conflicting Demands," and changing the dimension entitled "Representation of Group Interests" to "Representation." The result was the present version of the LBDQ. Each of the dimensions in this version of the instrument is defined below and the source or sources of each set forth.

1. **Representation.** This dimension is described by the frequency with which a leader represents, or acts as a spokesman for, the group with respect to outsiders. It might also be called **Public Relations.** This dimension

\textsuperscript{37}For an example of this version of the LBDQ used in this study and the results obtained, see Eugene Marder, "Leader Behavior as Perceived by Subordinates as a Function of Organizational Level" (unpublished Master's thesis, Department of Business Organization, The Ohio State University, 1960).
emerged as an independent factor in a study of naval offi-
cers aboard a cruiser and in a naval command staff.  

2. Reconciliation of Conflicting Demands. This dimen-
sion is described by the frequency with which a leader
evidences the ability to handle problems involving a large
number of conflicting requirements efficiently when such
problems arise. This is akin to, but not the same as,
reconciliation of role conflicts. The latter is explained
in terms of expectations; thus, in view of its similarity
to reconciliation of role conflict, reconciliation of
conflicting demands, as an hypothesized dimension, arises
from expectation theory.  

3. Tolerance of Uncertainty. In postulating this as
a dimension of leader behavior Stogdill drew upon the work
of Jaques who states that,

As the individual grows and develops, he
becomes capable of tolerating for increasingly
long periods of time the uncertainty arising
out of committing himself to a course of deci-
sions. There is no reason to believe that this
capacity develops to the same degree in everyone.
Individuals vary considerably in what we may
term their time-span capacity; that is to say,

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38 Ralph M. Stogdill, Ellis L. Scott, and William E.
Behavior: Its Description and Measurement, ed. Ralph M.
Stogdill and Alvin E. Coons (Research Monograph No. 88,
Columbus: The Ohio State University, Bureau of Business
Research, 1957), pp. 142-43.

39 For a discussion of the meaning of reconciliation
of role conflicts see Stogdill, Individual Behavior and
Group Achievement, p. 177.
the length of time for which they are able to tolerate the effects of exercising discretion on their own account in pursuit of a living.40

This notion as set forth by Jaques has much in common with Stogdill's views with respect to the relevancy of expectation in explaining leader behavior.

In terms of the items of behavior in the LBDQ it may be said that the dimension is measured by the frequency with which a leader evidences the capacity to "bear-up" under the uncertainty involved in awaiting the outcome of events, including his own decisions, and to tolerate postponement and delay. It should be noted that empirical research has confirmed Jaques' hypothesis that different levels of responsibility require varying degrees of tolerance of uncertainty. 41

4. Persuasion. Stogdill states that persuasion is "a kind of structuring of expectations: as such it should be independent of initiating structure in interaction." 42


42 Interview with Dr. Ralph M. Stogdill, Research Professor, Bureau of Business Research, The Ohio State University, March 30, 1961.
It is clear that this dimension is strongly related to expectation theory. It is enlightening, however, to review the comments of Bass, who writes essentially in terms of interaction theory. This author draws a distinction between persuasive and coercive leadership; the former is made possible through demonstrated ability to solve the group's problems, the latter through power. Bass states that "ability permits the leader to serve as an indirect or secondary reinforcer of the behavior of others. He cues the other members concerning how they may obtain their goals. This is persuasion.""43 "Cueing other members as to how they may achieve their goals" is, of course, not unrelated to the notion of "structuring expectations." Bass provides further insight into the matter of persuasion when he states that, Differences in ability to solve the group's problems may be due to individual differences in particular aptitudes, such as verbal facility; to more specific proficiencies, such as knowledge of parliamentary procedures; to personality differences, such as flexibility; and to the differences in knowledge supplied holders of different positions in a formal organization, regardless of who they are.44

In terms of the items appearing on the LBDQ it may be said that persuasion is measured by the frequency with which

44 Ibid., p. 164.
a leader engages in verbal behavior which guides the responses of group members by structuring their expectations.

5. **Initiating Structure.** This dimension is included in the present version of the LBDQ because it has been consistently demonstrated to be a basic factor involved in leader behavior. It is measured by the frequency with which a leader initiates structure in the interaction among group members, including himself.

6. **Tolerance of Freedom.** Stogdill states that "the group tends, when possible, to elevate to high status a member whose performances, values, and responses to interaction confirm the expectation that, in maintaining group structure and in exercising the authority defined for his role, he will respect the rights of other members to initiate action in accordance with the degrees of freedom defined for their roles." In discussing their study of an office situation, Katz, Maccoby, and Morse state that ". . . the heads of the low producing sections are more likely than the heads of high producing sections to . . .

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45 This dimension has been described earlier in detail. See page 35.

permit less freedom of conduct for their employees..."47

It appears, then, that tolerance of freedom on the part of subordinates is an important variable in the leadership situation.

Tolerance of freedom, of course, is related to delegation of authority. Jucius and Schlender state that

... authority expresses the degree of freedom that a superior grants to a subordinate in taking action in his organization unit or in a phase of a procedure. Such expressions may range from relatively complete freedom of action to almost complete restrictions of freedom.48

Authority, or expressed degree of freedom of action and decision, is granted by a superior to his subordinates through the process of delegation. The more tolerant of freedom a leader is, the more he might be expected to delegate.49

The Tolerance of Freedom dimension, in fact, was hypothesized partly as a result of "the emergence of delegation as a measure of group integrity and freedom of


49 For a discussion of the reasons why a manager may fail to delegate, see ibid., pp. 184-85.
action . . . [in an Ohio State study of naval officers]."

It was also hypothesized as a result of its relation to the expectations of group members; hence it arose out of expectation theory as well as empirical research.

In this study Tolerance of Freedom is measured by the frequency with which a leader permits subordinates to exercise a high degree of freedom in exercising their discretion and in initiating action in the discharge of their responsibilities.

7. Enactment of the Leadership Role. This dimension was suggested by the research findings of Katz et al. who state that,

In his relations with his work group the foreman can perform the role of an active leader and assume the important functions of leadership, or he can merely carry out routine supervisory functions and sometimes even operate as just another worker in the section. Findings from this study indicate that the foreman of the high production section is better able to differentiate between the functions of supervisor and worker and to fulfill a leadership role.

Somewhat similarly Jucius and Schlender state that

... delinquent executives do not know, or refuse to put into practice, the difference between management behavior and being-managed


behavior. The effective executive is one who is a manager in deed as well as in name. His proper role on the business team is to specialize in the functions of management and not those of his subordinates. He should be making managerial decisions concerning the technical work of his subordinates. . . . He should manage the technicians, not work along-side them.52

The hypothesis that role enactment is an important variable in leader behavior was also based upon expectation theory. As Stogdill, Scott, and Jaynes state:

> Associated with every position or status in an organization, as in the larger society, there is a set of socially-defined expectations concerning what is appropriate behavior for a person occupying that position. These expectations constitute a behavioral model for the occupant of the position, providing him with a pattern to which he may adjust his own behavior. In addition, to the extent that the occupant conforms to these expectations, he permits other persons with whom he interacts to anticipate his behavior in prescribed situations and thus enables the interacting individuals to function collectively as an integrated unit. The concept of role thus encompasses both role expectations and role behavior.53

It may be said, then, that enactment of the leadership role is measured by the extent to which a leader behaves in accordance with the way he is expected to behave in his role. In terms of the items appearing in the LBDQ, this


involves taking initiative when required and retaining the actual position of leadership in the group.

8. Production Emphasis. This dimension arose out of the study by Halpin and Winer cited earlier. In this study Production Emphasis emerged as a factor or basic dimension of leadership in military air crews. It should be noted however that it accounted for only 9.8 per cent of the total common variance in leader behavior in that study. As these investigators state, "This factor appears to measure a manner of motivating the crew [or group] to greater activity by emphasizing the mission or job to be done." This is somewhat similar to a factor entitled "Group Goal Facilitation" which has emerged in the research of Carter and his associates at the University of Rochester. Researchers at the University of Michigan also regard this dimension or continuum as a basic variable in their research. Katz et al., again describing the results of their study in an office situation, state that,

There is a tendency for the supervisors of the high production groups to describe as most important the "human relations" part of their jobs, -- that is, the motivating and training of employees; while the supervisors of the low


production groups stress the production and technical aspects of their jobs. Furthermore, more of the heads of the low sections make statements indicating that they consider their employees primarily as people to get the work done, -- that is, they consider them primarily in their role as producers rather than as "whole" people.56

Thus there is a tendency (in the study cited) for supervisors of high production groups to be "employee-centered," and for supervisors of low production groups to be "production-centered."

The Production Emphasis dimension is measured by the extent to which (i.e., the frequency with which) a leader exerts pressure on his employees for production and places emphasis upon the work to be done rather than upon the needs and desires of the workers.

9. Consideration.57 As in the case of Initiating Structure, this dimension has been included because it has consistently emerged as a factor in the studies conducted at Ohio State. It is measured by the extent to which the leader is considerate of his subordinates in carrying out his leadership function. It does not, however, imply laxity.


57 This variable has been described earlier in detail. See pages 34-35.
10. **Predictive Accuracy.** This dimension is related, of course, to the concept of expectation. The dimension was hypothesized largely on the basis of Stogdill's review of personal factors associated with leadership. As he states,

> In view of the positive correlations found between intelligence and leadership, it is not surprising to find a similar relationship between judgment and leadership. . . . Two of the factor analysis studies [reviewed], those of Cowley . . . and Dunkerly . . . , reveal soundness and finality of judgment as a factor common to leaders.58

Soundness of judgment is, of course, the same as predictive accuracy or, as it may otherwise be called, accuracy of decision. Hypothesizing this as a dimension of leader behavior also resulted from Shartle's discussion of decision-making in terms of prediction in his book *Executive Performance and Leadership.*59

In the present study this dimension is measured by the frequency with which a leader exercises foresight and in doing this makes predictions that turn out to be accurate, or, in other words, makes decisions which prove to be sound.

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59This discussion is presented in Chapter xi, "The Experimental Executive," in the work cited.
11. **Influence with superiors.** This variable was hypothesized as a result of research conducted at the University of Michigan. A researcher at this institution, in discussing the results of one of his studies, states that,

According to these findings, if an influential supervisor attempts to help employees achieve their goals, his efforts will tend to succeed. Concrete results will be achieved, and therefore, employee satisfaction will rise. But -- according to these data -- if a noninfluential supervisor tries to get the same results, his efforts may often fail. Employee expectations will be frustrated, and consequently their satisfactions will not rise and may even fall.

From this it is apparent that influence with superiors on the part of a leader is an important variable in the leadership situation.

Gibb, of Dartmouth, sheds further light upon the reasons why this variable is important. He states that,

Many researches, . . . indicate that group members prefer a leader who shows "consideration" for them, who "goes to bat" for them, and sides with them in any conflict with higher echelons of organization. But Pelz . . . suggests that this is so only in small work groups of ten or fewer. In large white-collar groups, he found employees were less satisfied with such a supervisor and revealed a preference for the supervisor who identified more closely with higher management. The general conclusion of this study [by Pelz] is that workers want their leaders to assist them in goal achievement. The extent to which a superior

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can do this is determined by his "influence" upon superior echelons of organization. The worker does not want less "consideration" behavior but, recognizing the organizational context, he knows that he must satisfy himself with less "membership" behavior from his supervisor in order that the supervisor, in turn, may interact more freely with higher levels of supervision and thus exercise greater influence upon them.  

This dimension is measured by the extent to which a leader interacts freely and cordially with his superiors and exercises influence upon their decisions and actions, especially as these pertain to developments within the group which he leads.

The items associated with each of the dimensions discussed above were developed in the same manner that such statements of specific acts of leader behavior have been obtained in the past. An examination of the LBDQ used in this study (see Appendix I) will acquaint the reader with the nature of these items of behavior. A key (not a part of the LBDQ) which relates the items with their respective dimensions is also presented in Appendix I.

**Areas Studied to Date**

As was mentioned earlier the current phase of the Ohio State Leadership Studies is concerned with determining what the basic dimensions of leadership in American Society actually are and with comparing leader behavior in

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61 Gibb, p. 896.
different segments of society in terms of these dimensions. At the same time it is concerned with improving the LBDQ as an instrument for measuring leader behavior. As of August 1, 1961, the version of the LBDQ discussed immediately above has been administered to leaders in the areas of religious activity, education, government, community affairs, labor, and industry. Since the present study is concerned only with the description of leader behavior in the latter area, the remainder of this research report is confined to a discussion of the procedure, findings, and conclusions pertinent to this segment of the broader study.
CHAPTER III
THE RESEARCH PROCEDURE

The research procedure involved in conducting the present study consisted of the following major steps: statement of the hypotheses, selection of the sample, development of the instruments, collection of the data, and analysis of the data. These steps are discussed in detail below.

Statement of Hypotheses

The following hypotheses, each of which is associated with one of the specific objectives enumerated in Chapter I, were set forth at the outset of the study. These hypotheses were formulated for industrial leader behavior in general rather than for behavior in the specific organization being studied. This was done because at the time the predictions were made it was not known what organization would be studied. The hypotheses were based upon general observations of the investigator with respect to industrial leader behavior as well as upon the writings of authorities and the results of empirical research in the areas of management and leadership.

Hypothesis A: When described in terms of a sample of diversified items, industrial leader behavior will be found
to involve more than the two factors, Consideration and Initiating Structure, which have emerged so strongly in previous studies.

Specifically it is anticipated that the following independent factors will emerge:

1. Consideration
2. Initiating Structure
3. Production Emphasis
4. Persuasion
5. Tolerance of Uncertainty -- Accuracy of Judgment
6. Representation -- Influence with Superiors
7. Reconciliation of Conflicting Demands

Hypothesis B: Leader behavior will vary with organizational level. Specifically, it is predicted that the higher the organizational level of leaders the more frequently they will evidence the following basic types of behavior.

1. Consideration
2. Tolerance of Uncertainty -- Accuracy of Judgment
3. Persuasion
4. Reconciliation of Conflicting Demands
5. Initiating Structure

Hypothesis C: Leader behavior will vary with functional area. Specifically, it is predicted that leaders in the following functional areas will receive highest scores on the basic dimensions indicated.
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<tr>
<th>Functional Area</th>
<th>Basic Dimensions of Behavior</th>
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<td>1. Production</td>
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<td>Production Emphasis</td>
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<td>Demands</td>
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<td>Representation -- Influence</td>
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<td>2. Marketing</td>
<td>Initiating Structure</td>
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<td>Production Emphasis</td>
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<td>3. Finance</td>
<td>Initiating Structure</td>
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<td>4. Personnel</td>
<td>Consideration</td>
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<td></td>
<td>Tolerance of Uncertainty</td>
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Although one of the specific objectives of the study is to discover the relationships, if any, which exist between the emergent factors of leader behavior and leader effectiveness, no hypothesis was formulated in this regard. The relationships found to exist are merely reported in Chapter IV.

**Selection of the Sample**

It was hoped that the participation of one major industrial organization performing all major functions of business (i.e., manufacturing, marketing, finance, and personnel) and composed of several organizational levels
might be obtained. Obtaining data from one organization having these characteristics would facilitate the collection of data, yet permit the testing of the hypotheses set forth in the preceding section. After considering several companies which met the organizational level and functional area criteria, it was decided to request participation from a large, nationally known industrial firm which has several operating departments in the Ohio area and which is known for its research work in the personnel field. This national firm operates on a decentralized basis, with each operating department functioning as an autonomous business organization and subject only to financial control. In other words, each department performs all major business functions with respect to its assigned type of product, has virtually complete freedom in how these functions are to be performed, but is expected to show a profit on its operations.

The investigator met with the personnel director of one of the Ohio operating departments to request the participation of the organization in the proposed research project. Approval of the project was obtained and a second meeting was arranged between the investigator and the company representative designated to assist in conducting the study.
In this second meeting the sampling plan and method of collecting data was agreed upon. It was agreed that an attempt would be made to obtain behavior descriptions and effectiveness ratings on at least twenty-five leaders from the following functional areas of the organization: manufacturing, marketing, finance, personnel, and engineering. In view of the large number of executives in each of these areas -- or "sections" as they are referred to in terms of organization structure -- it was decided to obtain descriptions of leaders of only line groups within each area. In addition to simplifying the collection of data this procedure would serve to focus attention upon the distinctive work of each function. The types of groups from which data were to be obtained in each area are as follows: marketing -- industrial sales groups; manufacturing -- those groups which actually perform work on the product or its components; engineering -- groups concerned

1This firm is somewhat unique in regarding engineering as a separate and distinct major function. At the time the proposal for the present study was submitted to the investigator's dissertation committee, it was not foreseen that an opportunity would be presented to study this function as a separate area; this accounts for the fact that no predictions were set forth in the preceding section with respect to the behavior of leaders in this function.

2Even though the finance and personnel sections, and possibly the engineering section, are staff groups in terms of the organization structure of the operating department as a whole, they have line groups within them. These are referred to as "secondary line organizations."
with the design of the product and its components; finance -- groups concerned with accounting operations and evaluation of manufacturing and engineering costs; and personnel -- groups concerned with compensation, communication, union relations, personnel development, placement, and development of personnel practices.

It was also agreed that an attempt would be made to obtain behavior descriptions of leaders at all organizational levels within each functional area with the exception of the top level. In the operating department as a whole there are five levels of management: general manager of the operating department, section or operation manager (the manager of a functional area), sub-section or sub-operation manager, unit manager, and sub-unit manager. It was decided not to obtain descriptions of section managers because there is, of course, only one such person in each section and his reported behavior could thus be identified. To the extent possible descriptions were to be obtained from the various levels in each section in accordance with the proportion of the total number of managers within the section which each of the levels possesses. In this way it was hoped that level proportionality would be achieved when the descriptions from all functional areas were combined.
It had been decided by the investigator prior to this meeting to obtain descriptions and effectiveness ratings from the immediate subordinates of leaders. Furthermore, it had been decided to obtain descriptions from subordinates who themselves were either supervisors or professional operative employees since such persons might be expected to be more sophisticated in their knowledge of leadership. In view of this it was decided in the meeting being described to request only persons classified as "exempt" employees under the Fair Labor Standards Act of 1938\(^3\) to describe their immediate superiors since this group would include only the types of individuals mentioned above.

Only one subordinate of each leader to be included in the sample was to be requested to describe his leader's behavior and rate his effectiveness. This decision was made in order to reduce to a minimum the amount of time required of company employees to furnish data. Although the firm, as well as the investigator, would have preferred several descriptions of each leader for purposes of establishing the reliability of the data, it was deemed desirable to limit the number of describers in view of the fact that

\(^3\)For a concise but comprehensive discussion of what groups of employees are considered to be exempt under this law see Michael J. Jucius, Personnel Management (4th ed.; Homewood: Richard D. Irwin, Inc., 1955), pp. 338-42.
an extensive opinion survey was to be undertaken throughout the plant shortly after the instruments for the present study were administered.

Finally, it was agreed that members of the operating department's personnel section would collect the data. The manner in which this was accomplished is described in a later section.

**Development of the Instruments**

The development of the LBDQ used in this study has been discussed in detail in Chapter II. The Leadership Effectiveness Rating Scale was developed by the investigator specifically for the present study prior to contacting representatives of the organization. During the second meeting discussed above the instructions for this scale were revised slightly in order that the terminology appearing therein would be consistent with the terms used in the organization. A sample of the revised form is presented in Appendix II. Also during the second meeting the Personal Data sheet, presented in Appendix III, was developed. As will be noted this form was designed in such a way that each respondent could indicate the organizational level and functional area of the leader whom he was describing and evaluating.
Collection of Data and the Final Sample

The collection of data was accomplished by company personnel under the direction of the operating department's manager of personnel development. This executive met individually with the managers of the administrative groups in the manufacturing, marketing, and finance sections and with the personnel development representative in the engineering section. In these meetings he explained the nature of the project and the specifications in the sampling plan and indicated, by name, those individuals to whom the sets of research instruments were to be sent for completion.

Subsequently his staff compiled the sets of forms, each of which consisted of a Personal Data Sheet, LBDQ, and Leadership Effectiveness Rating Scale, and sent them to the administrative managers mentioned above. These executives forwarded the sets of instruments to the appropriate individuals. Each set was accompanied by a letter which stated that the organization was cooperating with The Ohio State University in the study, explained the purpose of the project, and requested the respondent to return the completed set of forms, unsigned, to the personnel development manager. Furthermore, the letter assured the respondent that this executive would forward the completed forms directly to the university and that no one in the
organization had any way of identifying the leader being described or the person doing the describing.

In collecting data from the personnel section, the personnel development manager first explained the project to sub-section managers at a staff meeting and subsequently mailed the sets of forms directly to the persons who were selected to complete them. Again, a letter similar to the one described above accompanied each set of instruments.

The approximate number of sets sent out in each functional area is as follows: manufacturing - 50; marketing - 35; finance - 35; personnel - 33; and engineering - 50. These sets were distributed among the various levels of organization within each functional area in accordance with the specification of proportionality included in the sampling plan.

The usable returns, of course, constitute the final sample. The sample as it finally developed is presented in Table 1. The managerial, or organizational, levels represented by the numbers in the left hand column in this table are: general manager of the operating department - level 6; section manager - 5; sub-section manager - 4; unit manager - 3; and sub-unit managers - 2. There are no managers at level 1 in this organization; this level has been included due to the fact that it appeared on the
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personal data sheet completed by respondents. It will be noted that the final sample conforms rather well to the specifications of the sampling plan. At least twenty-five descriptions were obtained from each section and the specification of proportionality with respect to organizational level has been met at least roughly. With respect to the latter it is evident that in every functional area a progressively larger number of leader descriptions has been obtained from successively lower levels, with the exception of level 2. The small number of descriptions obtained from the latter is due to the fact that there are only a few organizational units in the department at this level. Viewing the total number of descriptions obtained from all functional areas combined, it is clear that some proportionality has been achieved. The fact that the number of descriptions obtained from level 4 is almost as large as that obtained from level 3 is due to the fact that no descriptions were secured from the latter in the marketing area while a large number was obtained from the former level in this area.

One other point should be mentioned with respect to the final sample. A number of descriptions have been obtained from level 5, the section manager level. This represents a deviation from the sampling plan since no descriptions of such persons were to be obtained.
Furthermore, although each section has only one manager, more than one description has been obtained from the marketing, manufacturing, and finance areas. It is presumed that several subordinates described the same person, the section manager, in each of these areas. At level 5, then, the number of leader behavior descriptions received does not correspond to the number of leaders described. Finally, it should be noted that one description has been obtained from level 6, the general manager level. Evidently, either a section manager described the general manager or one of the immediate subordinates of a section manager indicated the wrong level number in completing the personal data sheet accompanying his questionnaire. These occurrences at the fifth and sixth levels, of course, represent limitations of the data.

In conclusion it is interesting to note that the percentage of usable returns is quite high. Comparison of the final sample to the number of sets of forms sent out reveals the following approximate percentages: manufacturing - 84 per cent; marketing - 89 per cent; finance - 77 per cent; personnel - 82 per cent; and engineering - 76 per cent. The total number of usable returns was 81 per cent of the number of sets sent out.
Analysis of the Data

Once the completed forms were received from the company's manager of personnel development, they were processed at the university. First of all, responses on the LBDQ, effectiveness ratings, and organizational level and functional area designations were scored. LBDQ items (see Appendix I) were assigned scores of 5, 4, 3, 2, or 1 depending on whether the responses were Always, Often, Occasionally, Seldom, or Never, respectively. Exceptions to this rule are items 6, 12, 16, 19, 26, 36, 39, 42, 46, 56, 58, 61, 62, 66, 69, 71, 88, 91, 92, 96, and 98 which were scored in reverse of the above mentioned order since they are phrased as negative items. On the effectiveness scale (see Appendix II) numbers were assigned to each phrase and to each mid-point. These numbers ranged from 9 for "outstanding" to 1 for "poor." The rating for each leader was then assigned a score on the basis of which phrase or mid-point the respondent's check mark most closely approximated on the scale.

The scale on which a respondent indicated the organizational level of the leader whom he was describing (see Appendix III) was reversed in assigning scores on this criterion. Thus, if a respondent checked level 1, a score of 6 was assigned. Functional area designation (see
Appendix III) was scored by giving the area checked by the respondent a score of 1 and all other areas a score of 0.

The scores achieved by each subject were then punched on IBM cards. These cards were processed by the Numerical Computation Laboratory of The Ohio State University in accordance with a program already available. This program involved several operations or statistical procedures. First of all, a score was computed for each of the eleven behavior subscales (or variables) and each of the seven criteria variables (i.e., effectiveness, organizational level, and the five functional areas). These eighteen scores were then intercorrelated. The intercorrelations among the variables were then factor analyzed for the purpose of discovering the smallest number of independent factors which account for the intercorrelations. The specific type of factor analysis used was Hotelling's principal components method. The factors derived by means of this method were used in testing the hypotheses set forth in the first section of this chapter (and in determining the relationships which exist between leader behavior and leader effectiveness). The factor matrix was not further rotated for meaningfulness since it was found

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that rotation did not produce factor loadings which were materially different from the original loadings.

In addition to the computations discussed above, means and standard deviations for all variables were calculated and a modified Kuder-Richardson reliability coefficient was computed for each of the eleven behavior variables or subscales. Such a coefficient is an estimate of the extent to which the items in a given subscale measure the same thing as the total score of the subscale.

Once these statistical operations were completed the findings were interpreted in the following manner. First of all hypothesis A was tested. In order to accomplish this those factors on which at least one leader behavior variable exhibited a weighting of at least .20, positive or negative, were given an identifying title. These factors constitute the basic dimensions of behavior in this study. Although these factors were named on the basis of the loadings evidenced on them by the leader behavior variables, on occasion the weightings exhibited on them by the criteria variables (especially effectiveness) were considered to the extent that they were examined for clues with respect to behavioral patterns. In arriving at a name for each of the basic dimensions of behavior only those leader behavior variables which possessed a weighting of .20 or -.20, or higher, were
considered. In a few instances, however, behavior variables with smaller weighting were taken into account if it were necessary to do so in order to arrive at a meaningful factor designation or if they seemed to lend credence to a designation made on the basis of higher weightings. It should be mentioned again, however, that no factor was identified as a basic dimension of behavior unless at least one leader behavior variable exhibited a weighting of at least .20, positive or negative, on it. The absolute value of .20 was established rather arbitrarily in the study as the point at which a weighting became significant.

Once the basic dimensions of behavior were identified the extent of accuracy of the hypotheses that factors other than Consideration and Initiating Structure are involved in industrial leader behavior was apparent. The identified factors of behavior were compared with the several specific predictions which had been made in this connection at the outset of the study and differences noted.

Next, hypotheses B and C were tested by examining the significant weightings exhibited on the basic dimensions of behavior by the organizational level criterion variable and the various functional areas, respectively. In both cases certain interpretations were made as to the actual meaning of the weightings; in the case of the weightings evidenced by the functional areas particular attention
was given to the influence exerted on them by organizational level. Also, in both cases an evaluation was made concerning each specific finding with respect to whether or not it was contrary to what might have been expected.

The relationships existing between leader behavior and effectiveness were then determined by examining the significant weightings evidenced by the effectiveness criterion on the identified factors of behavior. Again, an evaluation was made concerning each finding with respect to whether or not it was contrary to what might have been expected.

Next, all emergent factors were re-examined in the light of the findings with respect to leadership effectiveness, organizational level, and functional area. These findings required renaming certain of those emergent factors which had been identified as basic dimensions of behavior. They also made possible the assignment of titles to those factors which had not been identified as basic dimensions of behavior.

Finally, the modified Kuder-Richardson reliability coefficients for the subscales included in the LBDQ were examined and a judgment made concerning the reliability of these subscales.
CHAPTER IV
RESULTS OF THE STUDY

The results of the statistical operations discussed in the last section of the previous chapter are set forth below and the findings interpreted in the order and manner outlined in that chapter. The intercorrelations among the leader behavior dimension, effectiveness rating, organizational level, and functional area scores are presented in Table 2. The means and standard deviations for all variables are presented in Table 3.

As has been mentioned previously, the intercorrelations among the scores of all variables were factor analyzed in order to test the hypotheses set forth in Chapter III. The results of this factor analysis are presented in Table 4. It will be noted that twelve orthogonal factors were extracted in this operation. Column $h^2$ in Table 4 sets forth the extent to which the emergent factors account for the variance in each of the variables. The fact that the twelve factors account for between 85 and 100 per cent of the variance in all variables indicates that the extraction of additional factors would not contribute materially to the analysis.
### Table 2

**Intercorrelations Among Leader Behavior Dimension Scores and Associated Measures**

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**Note:** Decimal points have been omitted.

**N = 165** Descriptions of leader behavior.

**r = .20** is significant at the .01 level.

**r = .15** is significant at the .05 level.
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<td>6. Role Enactment</td>
<td>40.90</td>
<td>5.58</td>
</tr>
<tr>
<td>7. Production Emphasis</td>
<td>36.09</td>
<td>5.59</td>
</tr>
<tr>
<td>8. Consideration</td>
<td>37.08</td>
<td>5.82</td>
</tr>
<tr>
<td>9. Predictive Accuracy</td>
<td>38.27</td>
<td>5.06</td>
</tr>
<tr>
<td>10. Influence with Superiors</td>
<td>38.61</td>
<td>4.20</td>
</tr>
<tr>
<td>11. Demand Reconciliation</td>
<td>19.22</td>
<td>2.84</td>
</tr>
<tr>
<td>12. Effectiveness</td>
<td>6.57</td>
<td>1.62</td>
</tr>
<tr>
<td>13. Organizational Level</td>
<td>3.45</td>
<td>0.77</td>
</tr>
<tr>
<td>14. Manufacturing</td>
<td>0.25</td>
<td>0.44</td>
</tr>
<tr>
<td>15. Marketing</td>
<td>0.19</td>
<td>0.39</td>
</tr>
<tr>
<td>16. Finance</td>
<td>0.16</td>
<td>0.37</td>
</tr>
<tr>
<td>17. Personnel</td>
<td>0.16</td>
<td>0.37</td>
</tr>
<tr>
<td>18. Engineering</td>
<td>0.23</td>
<td>0.42</td>
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<td>Variables</td>
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</tr>
<tr>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>1 Repres.</td>
<td>61</td>
<td>-17</td>
</tr>
<tr>
<td>2 T.U.</td>
<td>20</td>
<td>74</td>
</tr>
<tr>
<td>3 Persu.</td>
<td>85</td>
<td>-17</td>
</tr>
<tr>
<td>4 Init.</td>
<td>78</td>
<td>-12</td>
</tr>
<tr>
<td>5 T.F.</td>
<td>45</td>
<td>47</td>
</tr>
<tr>
<td>6 Role</td>
<td>81</td>
<td>-11</td>
</tr>
<tr>
<td>7 Prod.</td>
<td>54</td>
<td>-55</td>
</tr>
<tr>
<td>8 Consideration</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>9 Predictive Accuracy</td>
<td>90</td>
<td>09</td>
</tr>
<tr>
<td>10 Influence</td>
<td>79</td>
<td>03</td>
</tr>
<tr>
<td>11 Demand</td>
<td>81</td>
<td>23</td>
</tr>
<tr>
<td>12 Eff.</td>
<td>80</td>
<td>16</td>
</tr>
<tr>
<td>13 Organ.</td>
<td>21</td>
<td>-43</td>
</tr>
<tr>
<td>14 Manuf.</td>
<td>01</td>
<td>-24</td>
</tr>
<tr>
<td>15 Market.</td>
<td>-02</td>
<td>-18</td>
</tr>
<tr>
<td>16 Fin.</td>
<td>12</td>
<td>26</td>
</tr>
<tr>
<td>17 Per.</td>
<td>06</td>
<td>24</td>
</tr>
<tr>
<td>18 Eng.</td>
<td>-16</td>
<td>26</td>
</tr>
</tbody>
</table>

Note: Decimal points have been omitted.
The data presented in Table 5, which is derived from the residual matrix existing after the extraction of the twelfth factor, lends support to this belief. It will be noted that there are no loadings above the absolute value .17; furthermore, the loadings are heavily concentrated (308 out of 342) within the range of .05 to -.05.

**TABLE 5**

**DISTRIBUTION OF RESIDUAL CORRELATIONS**

<table>
<thead>
<tr>
<th>Residual Correlation</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>.15 .17</td>
<td>10</td>
</tr>
<tr>
<td>.12 .14</td>
<td>4</td>
</tr>
<tr>
<td>.09 .11</td>
<td>4</td>
</tr>
<tr>
<td>.06 .08</td>
<td>8</td>
</tr>
<tr>
<td>.03 .05</td>
<td>22</td>
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<tr>
<td>.00 .02</td>
<td>116</td>
</tr>
<tr>
<td>-.00 -.02</td>
<td>126</td>
</tr>
<tr>
<td>-.03 -.05</td>
<td>44</td>
</tr>
<tr>
<td>-.06 -.08</td>
<td>6</td>
</tr>
<tr>
<td>-.09 -.11</td>
<td>2</td>
</tr>
</tbody>
</table>

In interpreting the data presented in Table 4 only those factor loadings having at least an absolute value of .20, positive or negative, were considered to the extent possible. In a few instances smaller loadings were considered in order to arrive at a meaningful interpretation or to lend support to interpretations made on the basis of higher weightings.
Tests of Hypotheses

Hypothesis A

Factor I constitutes the general factor in this study since every leader behavior variable possesses a loading of at least .20 on it. A significant degree of dispersion does exist among the loadings however. Predictive accuracy, Persuasion, Role Enactment and Demand Reconciliation exhibit high weightings. Influence with Superiors, Initiating Structure, and Consideration evidence relatively high loadings, while Representation, Production Emphasis, and Tolerance of Freedom contribute only moderately to the factor. Tolerance of Uncertainty evidences the lowest weighting of all.

In examining this dispersion, a definite pattern is discernible. With one or two exceptions these loadings are in accord with the way in which an industrial leader might be expected to behave. Hence, factor I is designated Enactment of the Leadership Role or, more simply, Role Enactment. It should be noted that the term "role enactment" as used here has a broader connotation than when used in connection with the behavioral subscale bearing that title.

Tolerance of Uncertainty, Tolerance of Freedom, Consideration, and Demand Reconciliation have loadings above .20 on factor II, with the first two of these
possessing the highest loadings. Initiating Structure and Production Emphasis exhibit negative weightings in excess of -.20. The loadings evidenced by Tolerance of Freedom, Consideration, Initiating Structure, and Production Emphasis suggest the behavior of leaders who grant subordinates a great deal of freedom of action in the discharge of their responsibilities -- including permitting them to structure the interactions among themselves and to set their own pace. The weighting exhibited by Tolerance of Uncertainty is undoubtedly related to this pattern of behavior for when one permits subordinates a high degree of freedom of action there exists at least the possibility of postponement, delay, or inappropriate action on their part. Tolerance of uncertainty is, however, involved in aspects of leadership other than granting freedom of action and for this reason it is not entirely subsumed under Tolerance of Freedom in naming factor II. This factor may be tentatively designated Tolerance of Uncertainty and Member Freedom of Action.

Tolerance of Freedom exhibits the highest weighting of any subscale on factor III and Consideration evidences a positive loading of significance. Initiating Structure and Production Emphasis both evidence negative loadings in excess of the absolute value .20. It will be noted that this pattern of loading is similar to that exhibited by the
same subscales on factor II. Again, this constellation of weightings suggests the behavior of leaders who grant subordinates a great deal of freedom of action. In addition, it should be noted that Consideration possesses a relatively higher weighting on factor III. A positive loading on Consideration is quite consistent with granting freedom of action since the Consideration subscale encompasses such behaviors as trust in and respect for subordinates. The strength of the loading on factor III, however, suggests that leaders who receive high scores on this factor not only trust and respect their subordinates but are friendly and approachable in their relations with them and show concern for their personal welfare -- which constitute other aspects of Consideration. In view of the foregoing, factor III is tentatively designated Consideration and Tolerance of Member Freedom of Action.

No behavioral dimensions possess loadings on factor IV to the extent of .20, positive or negative; therefore, no attempt is made at this point to name the factor. The loading evidenced by Tolerance of Freedom approaches, but does not quite attain, the absolute value .20.

Tolerance of Uncertainty exhibits the highest positive weighting on factor V, while Demand Reconciliation evidences a positive loading of .21. Representation, it may be noted, exhibits a loading of -.20. The first two of these types of
behavior are related, for the reconciling of conflicting demands involves the making of decisions which, in turn, involves the ability to tolerate uncertainty. In view of these relationships, factor V may be identified as Tolerance of Uncertainty in Demand Reconciliation.

As in the case of factor IV no behavioral dimensions possess loadings to the extent of .20, positive or negative, on factor VI. Thus, no attempt is made to name this factor in terms of the behavioral subscales. Tolerance of freedom, again as in the case of factor IV, approaches the absolute value of .20 but does not attain it.

The highest positive loading on factor VII is exhibited by Tolerance of Freedom; in addition, Persuasion and Production Emphasis evidence positive loadings which are significant. Role Enactment possesses the highest negative loading and Demand Reconciliation possesses a weighting of -.24. The first four of these loadings suggest the behavior of a leader who seeks to motivate subordinates by permitting them to exercise a great deal of initiative and discretion in their work, by engaging in verbal behavior aimed at structuring their expectations, and by exerting a degree of pressure upon them for results. In view of this, factor VII is identified as Motivation of Group Members.
Representation is highly loaded on factor VIII and, except for the weighting of .17 evidenced by Tolerance of Freedom, all other positive loadings are quite small. Only one dimension, Production Emphasis, exhibits a negative loading of significance and this weighting is only slightly above the absolute value .20. Clearly, factor VIII may be identified as Representation.

The only dimension which possesses a significant loading on factor IX is Influence with Superiors and it is negatively weighted on the factor. Accordingly, this factor is tentatively designated Low Influence with Superiors. It will be recalled that this behavioral sub-scale was described earlier as a measure of the extent to which a leader interacts freely and cordially with his superiors and exercises influence upon their decisions and actions, especially as these pertain to developments within the group which he leads. Thus, there are several facets of Influence with Superiors.

The highest positive loading on factor X is exhibited by Tolerance of Uncertainty. Influence with Superiors evidences a weighting of .20 while Production Emphasis possesses a loading which approaches, but does not attain, the absolute value .20. In addition, Demand Reconciliation evidences a weighting of -.20, and Tolerance of Freedom exhibits a negative weighting which approaches quite closely
the absolute value .20. Further, it should be noted that effectiveness evidences a weighting of -.31.

The Tolerance of Uncertainty dimension contributes more to this factor than does any other subscale. The negative loadings evidenced by Demand Reconciliation and Predictive Accuracy suggest, however, that this tolerance of uncertainty is not the type associated with the making of decisions. Some of the items which measure Tolerance of Uncertainty have to do with the degree to which a leader can tolerate postponement and delay; it is believed that it is this kind of tolerance which the loading reflects in this instance. The negative weightings evidenced by the Tolerance of Freedom and Demand Reconciliation subscales indicate that leaders who possess a high weighting on this factor retain functions which should be delegated to subordinates and are unable to reconcile conflicting demands efficiently. Both of these types of behavior ordinarily result in postponement of decision-making. On the basis of these loadings and the evidenced tolerance of postponement and delay mentioned above, factor X is designated Postponement of Decision-Making. This interpretation is consistent with the negative weighting on effectiveness. It is also consistent with the weighting evidenced by Production Emphasis, for a leader who postpones the making of decisions is likely to exert
subsequent pressure upon subordinates to take prompt and vigorous action on his decision in order to meet deadlines established for the group.

Two dimensions possess weightings in excess of .20 on factor XI. These are Influence with Superiors, which exhibits a positive loading, and Consideration, which is negatively weighted on the factor. These loadings, together with that evidenced by Tolerance of Freedom (.18), suggest the behavior of a leader who is oriented more toward his superiors than toward the group which he leads. Factor XI may therefore be designated Superior-Oriented Interaction.

Several dimensions possess loadings at or in excess of the absolute value .20 on factor XII. Tolerance of Uncertainty evidences the highest positive weighting (.22), with Demand Reconciliation evidencing a loading of .20. Consideration exhibits the highest negative weighting (-.34), while Influence with Superiors possesses a loading of -.25. The weighting evidenced by Demand Reconciliation indicates that leaders who receive high scores on this factor evidence the ability to handle complex problems efficiently. The loadings on Consideration and Influence with Superiors suggest that they stay pretty much to themselves -- they do not maintain close relations with their subordinates nor do they interact freely with their
superiors. Such behavior in all likelihood carries over into their reconciliation of conflicting demands. Thus, factor XII is entitled **Unilateral Demand Reconciliation**. This interpretation and designation is consistent with the loading evidenced by the Tolerance of Uncertainty subscale, for the handling of complex problems without consulting other persons would require of one the ability to tolerate the uncertainty involved in awaiting the outcome of events.

Hypothesis A may be regarded as having been confirmed. Of the twelve independent factors which emerged in the factor analysis, ten were identified as factors, or basic dimensions of behavior. Thus, when described in terms of a sample of diversified items, the behavior of the leaders involved in this study was found to involve several factors other than Consideration and Initiating Structure. It should be noted that, of the latter two types of behavior which have emerged so strongly as basic dimensions in previous studies, only Consideration emerged as a factor and it did so in conjunction with Tolerance of Member Freedom of Action.

Of the specific predictions made at the outset of the study\(^1\) concerning what types of behavior would emerge as independent factors, those concerning Consideration,\

\(^1\)These predictions are set forth on page 54.
Tolerance of Uncertainty, Representation, Influence with Superiors, and Reconciliation of Conflicting Demands were confirmed in one form or another. As mentioned earlier, Consideration did emerge as a factor but in conjunction with Tolerance of Member Freedom of Action. Tolerance of Uncertainty was identified as a factor in several instances but in conjunction with Tolerance of Member Freedom of Action (in factor II) and Demand Reconciliation (in factors V, X, and XII) rather than with Predictive accuracy as predicted. Representation and Influence with Superiors appeared as factors but they did so separately rather than in conjunction with each other as anticipated. The latter emerged once as a negative factor (i.e., Low Influence with Superiors). And finally, Demand Reconciliation appeared as a basic dimension in three instances (i.e., factors V, X, and XII), but in one case as a negative factor (i.e., Postponement of Decision-Making).

Several factors did not emerge as predicted. In addition to Initiating Structure, these were Production Emphasis, Persuasion, and Predictive Accuracy. It should be noted, however, that all of the subscales bearing these titles did contribute to the general factor, that Production Emphasis was significantly weighted on several factors, and that Persuasion contributed materially to the Motivation of Group Members factor. Further, it should be noted
that several unanticipated factors of behavior emerged. These were Role Enactment, Postponement of Decision-Making, Low Influence with Superiors, Motivation of Group Members, and the tolerance of freedom aspect in the Tolerance of Uncertainty and Member Freedom of Action and the Consideration and Tolerance of Member Freedom of Action factors.

It is apparent from the above that there are differences between the factors which had been predicted as being involved in industrial leader behavior and the findings with respect to leader behavior in the organization studied. Most noteworthy among these differences were the failure of Initiating Structure to appear as a basic dimension of behavior in this study, the appearance of Role Enactment as a factor, the emergence of Demand Reconciliation and Influence with Superiors as negative factors in one instance each, and the extent to which the granting of freedom of action characterizes the behavior of leaders in the organization studied. (Again, the latter type of behavior was found to be involved in three factors -- Tolerance of Uncertainty and Member Freedom of Action, Consideration and Tolerance of Member Freedom of Action, and Motivation of Group members.)
Hypothesis B

Hypothesis B has also been confirmed. It was found that organizational level exhibits a weighting of significance (that is, at or above the absolute value .20) on five of the ten factors identified as basic dimensions of behavior, indicating that leader behavior in this organization does vary with organizational level -- at least in terms of five factors. However, it should be noted that certain of the findings in this regard are probably due in part to the nature of the sample. Examination of Table 1 in Chapter III indicates that there are only eleven cases at levels 5 and 6 combined, the higher levels, and only fifteen cases at level 2, the lowest level in this organization. In contrast there are sixty-seven and seventy-two cases at levels 4 and 3 respectively. Thus it is reasonable to assume that at least the strength, if not the direction, of some of the loadings evidenced by organizational level is due in part to differences among the number of cases at the various levels. In addition, it is reasonable to infer that the loadings evidenced by level are determined primarily by the behavior reported at levels 3 and 4. Further, it will be recalled that several descriptions were obtained for the same person in three instances at level 5, the section manager level. Thus, the behavioral pattern of each of these persons would be
reflected as the behavior of several persons in the results of the computations if the subordinates who described them were uniform in their observations and reporting. This, of course, might have some effect on the strength, and perhaps the direction, of the weightings evidenced by organizational level.

Level was found to evidence significant positive loadings on Consideration and Tolerance of Member Freedom of Action (a joint factor), Low Influence with Superiors, Superior-Oriented Interaction, and Role Enactment, in that order. It exhibits a significant negative loading only on Tolerance of Uncertainty and Member Freedom of Action (another joint factor). A positive weighting indicates that the higher the organizational level the more frequently the behavior involved in the factor is evidenced. A negative weighting, of course, indicates the reverse. Hence, Consideration and Tolerance of Member Freedom of Action, Low Influence with Superiors, Superior-Oriented Interaction, and Role Enactment appear to be exhibited more frequently by leaders at higher levels in this organization, while the behavior involved in the Tolerance of Uncertainty and Member of Freedom of Action factor is evidenced more by leaders at lower levels in the organization.
It will be noted that Tolerance of Member Freedom of Action seems to be evidenced more by leaders at lower levels when it is exhibited in conjunction with Tolerance of Uncertainty and more frequently at higher levels when it is exhibited in conjunction with Consideration. In both cases, Tolerance of Member Freedom of Action is distinct from the accompanying types of behavior (i.e., Consideration and Tolerance of Uncertainty). It may therefore be inferred that Tolerance of Member Freedom of Action as a distinct type of behavior is very possibly evidenced by leaders at both high and low organizational levels.

It is not surprising to find that leaders at higher organizational levels tend to enact the leadership role more frequently than do leaders at lower levels since an executive is generally not advanced to higher levels unless he evidences an awareness of what constitutes the leadership role and exhibits skill in playing this role. Also, it is not surprising to find that tolerance of freedom is exhibited frequently by leaders at both higher and lower organizational levels, that Consideration in factor III is exhibited more frequently by higher level executives, and that higher level executives evidence more Superior-Oriented Interaction than do those at lower levels. However, to find that Tolerance of Uncertainty is exhibited more frequently by leaders at lower levels than by those in
higher echelons in the case of factor II is somewhat contrary to what was expected at the outset of the research, for in at least one study it has been found that the higher the organizational level the more tolerance of uncertainty is required of a leader. Further, to find that Low Influence with Superiors is evidenced more by higher level leaders is somewhat unexpected. Again, however, these findings are probably influenced by the composition of the sample as well as by leader behavior actually exhibited.

Hypothesis C

Hypothesis C is confirmed, for the loadings evidenced by the various functional areas on five of the ten identified basic dimensions of behavior (i.e., factors II, III, V, VII, and IX) indicate that significant differences do exist with respect to the behavior of leaders in these areas. It must be noted that in certain instances (which are mentioned below) the loadings evidenced by the functional areas on these five factors reflect relationships with organizational level as much as, or possibly more than, they do relationships with basic dimensions of behavior. Nevertheless, it is quite clear that leader behavior does vary with functional area since the various specialties exhibit significant loadings on two factors.

2This is the study by Martin cited on page 41 of this report.
to which organizational level bears no significant relationship (i.e., factors V and VII). In the following discussion the pattern of behavior evidenced by leaders in each of the functional areas is set forth and briefly commented upon. Only those loadings which are significant are considered.

Leaders in the manufacturing area evidence a moderately high positive loading on Tolerance of Uncertainty in Demand Reconciliation and a low negative weighting on the Tolerance of Uncertainty and Member Freedom of Action factor. It should be noted that Tolerance of Uncertainty in Demand Reconciliation has no relationship to organizational level. The loading evidenced by the manufacturing area on this factor therefore suggests that manufacturing leaders at all levels evidence the ability to tolerate the uncertainty involved in reconciling demands. This is not surprising since these leaders are line executives and such executives are generally considered to be capable of reconciling conflicting requirements with dispatch, which requires of one the capacity to tolerate the outcome of events.

3 The term "line" as used here pertains to the distinction made between line and staff units in terms of the organization structure of the operating department as a whole. The manufacturing and marketing sections in this organization are line units, whereas the finance, personnel, and engineering sections are staff units. (Although the engineering section is regarded in this study as essentially a staff unit, it is to some extent "line" in character since
Marketing leaders exhibit a moderately high positive loading on Consideration and Tolerance of Member Freedom of Action, a low positive weighting on Tolerance of Uncertainty in Demand Reconciliation, a moderately high negative weighting on Tolerance of Uncertainty and Member Freedom of Action, and a low negative weighting on Low Influence with Superiors. It will be recalled that the behavior involved in the Tolerance of Uncertainty and Member Freedom of Action factor is evidenced more frequently by leaders at lower levels in this organization. Examination of Table 1 in Chapter III, however, indicates that, compared with other functional areas, the sample of marketing executives was drawn from higher organizational levels. It is believed that the negative weighting evidenced by the marketing area on Tolerance of Uncertainty and Member Freedom of Action reflects these facts rather than a definite lack of such behavior on the part of marketing executives in the organization. This belief is confirmed to some extent by the finding that such

in some instances the manufacturing and marketing sections are ancillary to it rather than the reverse.) The fact that some of the sections included in this study are staff units in the above sense is not in conflict with the statement in Chapter III that only leaders of line units in each function or section were described. As pointed out earlier, within each of the staff units mentioned above there are many sub-units, some of which are line and some of which are staff with respect to operations within each of the sections. The former may be called "secondary line units" and the latter "secondary staff units."
executives evidence positive weightings on factors III and V which involve Tolerance of Member Freedom of Action and Tolerance of Uncertainty respectively. The positive loading evidenced by leaders in this area on the first of these two factors (Consideration and Tolerance of Member Freedom of Action) undoubtedly is again a reflection of the fact that the sample of such leaders was drawn from comparatively higher organizational levels. It is believed safe to conclude, however, that the loading indicates also that these leaders do evidence the behavior involved in this factor, for such behavior tends to be evidenced at higher organizational levels. To find that leaders in this area exhibit a significant degree of this kind of behavior is not contrary to what might have been expected. Nor is it unexpected that they evidence a significant degree of the behavior involved in the Tolerance of Uncertainty in Demand Reconciliation factor for they, too, are line executives. Further, it is not surprising to see that they exhibit a negative weighting on Low Influence with Superiors for one might expect that marketing executives would interact freely and cordially with their superiors and/or exercise some influence upon their decisions.

Financial executives evidence low positive weightings on the Tolerance of Uncertainty and Member Freedom of Action and the Consideration and Tolerance of Member
Freedom of Action factors. These weightings suggest that financial leaders at both higher and lower levels grant subordinates a significant amount of freedom of action in their work. It is believed that this degree of permissiveness may be explained by the fact that the sample in this functional area was drawn from accounting units and included a large number of (if not exclusively) professional accountants. It would seem reasonable that such persons would grant other members of their profession subordinate to them a degree of freedom since they presumably could be relied upon to exercise sound professional judgment. The fact that Consideration behavior is found to be evidenced by leaders in this area, especially at higher levels, is perhaps a reflection of the trust in and respect for subordinates which they have professionally. It might also indicate, however, that accountants are more friendly and approachable personality-wise than the popular conception would lead one to believe.

The personnel area evidences low positive weightings on the Tolerance of Uncertainty and Member Freedom of Action and the Consideration and Tolerance of Member Freedom of Action factors. In addition it exhibits a very high negative loading on Tolerance of Uncertainty in Demand Reconciliation and a low negative weighting on Motivation of Group Members. The positive weighting
evidenced by this specialty on Tolerance of Uncertainty and Member Freedom of Action is probably due in part to the fact that this type of behavior tends to be evidenced at lower organizational levels and the sample of executives in this area was drawn substantially from a lower level of organization. The weighting, however, probably also indicates that personnel executives do in fact evidence some of the behavior involved in this factor -- probably the Tolerance of Freedom aspect of the factor. It will be noted that such executives evidence this type of behavior in conjunction with Consideration in factor III even in spite of the fact that the behavior in factor III tends to be exhibited at levels where the preponderance of personnel executives in this study are not found.

To find that personnel executives exhibit a significant degree of tolerance of freedom and Consideration behavior is not contrary to what might have been expected for such executives tend to be permissive and friendly individuals who show a concern for the welfare of others. In addition, to find that these executives exhibit a lack of the behavior involved in the Tolerance of Uncertainty in Demand Reconciliation factor is not contrary to what might have been expected, for such leaders are not required to reconcile demands nor to tolerate the uncertainty involved as much as leaders in other functional
areas are required to do so -- at least in some organizations; further, as a group, personnel executives are not generally thought of as being as decisive as leaders in certain other areas, such as manufacturing. It is however, interesting to note that Personnel is the only specialty which evidences a negative loading on Motivation of Group Members.

Leaders in the engineering function exhibit low positive weightings on Tolerance of Uncertainty and Member Freedom of Action and Low Influence with Superiors. Further, they exhibit a very high negative weighting on Consideration and Tolerance of Member Freedom of Action. It is believed that the positive weighting evidenced on factor II, Tolerance of Uncertainty and Member Freedom of Action, is due as much to the fact that the sample of engineers in this study was drawn predominately from the lower levels of the organization, which also evidence a heavy loading on the factor, as to a manifestation of the behavior involved in this factor on the part of engineering executives. Further, it is believed that the high negative weighting evidenced by leaders in this area on factor III, Consideration and Member Freedom of Action, is due primarily to the fact that the sample was drawn from low organizational levels, whereas the behavior involved in the factor is evidenced more frequently at high levels. It is
possible, however, that this negative weighting also does indicate a lack of the type of behavior involved in this factor on the part of engineering executives. If so this would be in contrast to the tolerance of freedom possibly evidenced by such executives in the case of factor II. It is not entirely surprising to find that engineers evidence a significant degree of the behavior involved in the Low Influence with Superiors factor for there is some experimental evidence available to indicate that engineers tend to be self sufficient as individuals. Such persons, when in a subordinate capacity, would tend not to interact freely with superiors, and, when in the capacity of a superior, might not be highly susceptible to being influenced by subordinates in their decisions.

Relationships Between Leader Behavior and Leadership Effectiveness

Leadership effectiveness evidences its highest positive loading in factor I, the general factor. The magnitude of this weighting, when compared with the loadings exhibited by effectiveness on the other factors, indicates that subordinates evaluate the effectiveness of their leaders almost entirely on the basis of this factor, which, as it will be recalled, has been identified as Role Enactment. It is not too surprising to find that those leaders who are viewed as enacting the leadership role are also
viewed as being effective and that this type of behavior is most strongly associated with effectiveness in the eyes of subordinates.

The fact that all leader behavior variables, as well as effectiveness, exhibit significantly high positive loadings on factor I suggests that the descriptions of leader behavior are heavily influenced by the describers' over-all evaluation of the effectiveness of the leaders described. This is consistent with the findings of studies conducted in the past.

It should be noted that effectiveness does, however, evidence significant loadings on two factors other than Role Enactment -- these are Representation and Postponement of Decision-Making. It will be noted that these are negative weighting, however, indicating that subordinates view those leaders who evidence these factors in their behavior as ineffective. To find a negative relationship between effectiveness and the latter factor is not contrary to what might have been expected. To find such a relationship between effectiveness and Representation, however, is somewhat surprising. Perhaps leaders who possess high loadings on this factor spend so much time representing their groups that they do not give them a sufficient amount of supervision. This interpretation is at least suggested by the loadings evidenced by the Tolerance
of Freedom and Production Emphasis subscales on this factor.

**Renaming of Factors**

As has been pointed out, ten of the factors which emerged in this study were identified as basic dimensions of leader behavior by virtue of the loadings evidenced on them by the leader behavior subscales. Two of the factors could not be so identified. Examination of the weightings evidenced by the seven criteria variables on the twelve emergent factors, however, makes possible, and indeed in some cases requires, redesignation of certain of those factors identified as basic dimensions of behavior and the assignment of descriptive titles to the two factors which remained unnamed.

In view of the fact that subordinates view Role Enactment as the factor of behavior most strongly related to effectiveness, it seems appropriate to call this the **Role Enactment-Effectiveness** factor.

Casual examination of the weightings evidenced by the functional areas on factor II, Tolerance of Uncertainty and Member Freedom of Action, reveals that those sections which are line units in terms of the operating department as a whole exhibit negative weightings on the factor while those sections which are staff units evidence positive weightings on the factor. It will be recalled, however,
that some of these loadings were adjudged to be as much, or more, a result of the relationship between the levels at which the samples for the functional areas were drawn and the loading evidenced by the organizational level criteria on this factor than behavior actually exhibited by leaders in these functions. In view of this it seems prudent in this case to redesignate the factor on the basis of the loading evidenced by the organizational level criterion variable rather than on the basis of differences among the loadings exhibited by functional area. Accordingly, this factor is redesignated as Lower Organizational Level Tolerance of Uncertainty and Member Freedom of Action.

For the same reasons as in the case of the previous factor, factor III (Consideration and Tolerance of Member Freedom of Action) is renamed on the basis of the loading evidenced by the organizational level criterion variable. It is redesignated Higher Organizational Level Consideration and Tolerance of Member Freedom of Action.

It will be recalled that line units evidence positive weightings on factor V while staff units either evidence a negative weighting on the factor or fail to evidence a positive weighting of significance. In view of this, factor V is renamed Line Tolerance of Uncertainty in Demand Reconciliation.
In view of the fact that the organizational level criterion variable evidences a very significant loading of factor IX, this factor is redesignated Higher Organizational Level Low Influence with Superiors. Similarly, factor XI is renamed Higher Organizational Level Superior-Oriented Interaction.

The loadings evidenced by the seven criteria variables on the Motivation of Group Members, Representation, Postponement of Decision-Making, and Unilateral Demand Reconciliation factors do not necessitate or suggest a change in the original titles of these basic dimensions of behavior.

It should be noted that virtually all of the functional area criteria variables exhibit significant weightings, or weightings which approach significance, on the two factors which were not identified as basic dimensions of behavior. Evidently, in the case of these factors respondents were describing their leaders only in terms of the functional areas in which they held positions of leadership. In view of this, both of these factors are now named Functional Differentiation.

Reliability of the Leader Behavior Subscales

The modified Kuder-Richardson reliability coefficients computed for each of the leader behavior subscales included
in the LBDQ are presented in Table 6. These coefficients represent estimates of the extent to which the items in each of the subscales measure the same things as the total scores of their respective subscales or, in other words, the extent to which the subscales are internally consistent. It can be seen that these coefficients range from .73 for the Demand Reconciliation variable to .91 for Predictive Accuracy. The magnitude of these coefficients is sufficiently great that the subscales can be regarded as satisfactorily reliable for purposes of this research.

**Table 6**

<table>
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<th>Subscale</th>
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<tr>
<td>Influence with Superiors</td>
<td>.81</td>
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<tr>
<td>Demand Reconciliation</td>
<td>.73</td>
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</table>
CHAPTER V

SUMMARY OF THE STUDY AND FINAL CONCLUSIONS

Summary of the Study

The problem with which the present study was concerned is that present descriptions of leader behavior do not afford an adequate understanding of the leadership phenomenon. The general objective of the study was to contribute to the understanding of industrial leadership by providing a more adequate description of such behavior. The specific objectives were to determine what factors or basic dimensions, other than Consideration and Initiating Structure, are involved in industrial leader behavior, if any; to discover how the behavior of leaders at different organizational levels and in different functional areas varies in terms of these factors, if at all; and, to discover what relationships, if any, exist between these factors and leader effectiveness.

In view of these objectives the following hypotheses were formulated: (1) Industrial leader behavior will be found to involve more factors than Consideration and Initiating Structure when described in terms of a sample of diversified items; (2) leader behavior will vary with
organizational level in terms of these factors; and (3) leader behavior will vary with functional area in terms of these factors. The study was designed to test these hypotheses and to determine what relationships exist between leader behavior and leader effectiveness, if any.

One hundred and sixty-five descriptions of leader behavior and evaluations of leader effectiveness were obtained from one industrial organization through the use of the Ohio State Leader Behavior Description Questionnaire and a leadership effectiveness rating scale which were distributed and collected by company personnel in accordance with an established sampling plan. Data were obtained on leaders at all levels in the organization and in five functional areas -- i.e., manufacturing, marketing, finance, personnel, and engineering. Respondents were supervisors or professional operative employees who described and rated their immediate superiors. The distribution of the responses met the specifications of the sampling plan satisfactorily, although there were some slight deviations with respect to organizational level.

After being scored the data were factor analyzed and the results of this operation used to test the hypotheses set forth above. The hypothesis that more factors than Consideration and Initiating Structure are involved in industrial leader behavior was confirmed. Twelve
independent factors emerged in the factor analysis, ten of which were identified as basic dimensions of behavior by virtue of the loadings evidenced on them by the leader behavior variables. Two factors could not be so identified. The identified factors were tentatively designated Role Enactment, Tolerance of Uncertainty and Member Freedom of Action, Consideration and Tolerance of Member Freedom of Action, Tolerance of Uncertainty in Demand Reconciliation, Motivation of Group Members, Representation, Low Influence with Superiors, Postponement of Decision-Making, Superior-Oriented Interaction, and Unilateral Demand Reconciliation. Initiating Structure was not identified as a basic dimension of behavior in this study.

The hypothesis that leader behavior would vary with organizational level also was confirmed, for loadings which indicate significant variance with level were exhibited on five of the identified factors of behavior. It was found that Consideration and Tolerance of Member Freedom of Action, Low Influence with Superiors, Superior-Oriented Interaction, and Role Enactment appear to be exhibited more frequently by leaders at higher levels in this organization, while the behavior involved in the Tolerance of Uncertainty and Member Freedom of Action factor appears to be evidenced more frequently by leaders at lower levels. Tolerance of Member Freedom of Action
as a distinct type of behavior evidently is exhibited frequently by leaders at both higher and lower organizational echelons. Certain of these findings are probably due in some measure to the composition of the sample rather than entirely to actual manifestations of such behavior at the various levels.

Finally, the hypothesis that leader behavior would vary with functional area was confirmed. The loadings evidenced by the various functional areas on five of the ten basic dimensions of behavior indicate that significant differences do exist with respect to the behavior of leaders in these areas.

The pattern of significant loadings exhibited by leaders in the various functions on these five factors are as follows: manufacturing -- a moderately high positive loading on Tolerance of Uncertainty in Demand Reconciliation and a low negative weighting on the Tolerance of Uncertainty and Member Freedom of Action factor; marketing -- a moderately high positive loading on the Consideration and Tolerance of Member Freedom of Action factor, a low positive weighting on Tolerance of Uncertainty in Demand Reconciliation, a moderately high negative weighting on Tolerance of Uncertainty and Member Freedom of Action, and a low negative weighting on Low Influence with Superiors; finance -- low positive weightings
on the Tolerance of Uncertainty and Member Freedom of Action and the Consideration and Tolerance of Member Freedom of Action factors; personnel -- low positive weightings on the Tolerance of Uncertainty and Member Freedom of Action and the Consideration and Tolerance of Member Freedom of Action factors, a very high negative loading on Tolerance of Uncertainty in Demand Reconciliation, and a low negative weighting on Motivation of Group Members, and finally; engineering -- low positive weightings on Tolerance of Uncertainty and Member Freedom of Action and Low Influence with Superiors, and a very high negative weighting on Consideration and Tolerance of Member Freedom of Action.

It must be noted, however, that in certain instances the above loadings evidenced by the functional areas reflect relationships with organizational level as much as, or possibly more than, they do relationships with the basic dimensions of behavior. (These instances include the weightings evidenced by marketing, personnel, and engineering leaders on Tolerance of Uncertainty and Member Freedom of Action and by marketing and engineering leaders on Consideration and Tolerance of Member Freedom of Action.) Nevertheless, it is quite clear that leader behavior does vary with functional area since the various specialties
exhibit significant loadings on two basic dimensions of behavior to which the organizational level criterion variable bears no significant relationship.

Leadership effectiveness was found to be significantly related to three basic dimensions of behavior. It exhibited a very high positive weighting on Role Enactment, the general factor, and much smaller but significant negative weightings on the Representation and Postponement of Decision-Making factors. The magnitude of the weighting exhibited on Role Enactment is of particular importance for, when compared to the weightings evidenced by effectiveness on the other factors, it indicates that subordinates evaluate the effectiveness of their leaders almost entirely on the basis of this factor. The fact that all behavior dimensions, as well as effectiveness, possess significant loadings on this factor indicates that the descriptions of leader behavior are heavily influenced by the describers' over-all evaluation of the leaders being described.

The weightings evidenced by the seven criteria variables (i.e., effectiveness, organizational level, and functional areas) made possible, and in some cases required, the assignment of more descriptive titles to those emergent factors which were identified as basic dimensions of behavior on the basis of the loadings
evidenced on them by the leader behavior variables. They also made possible the naming of the two factors which could not be identified as basic dimensions of behavior. Factor redesignations resulting from an examination of the criteria variables were Role Enactment-Effectiveness, Lower Organizational Level Tolerance of Uncertainty and Member Freedom of Action, Higher Organizational Level Consideration and Tolerance of Member Freedom of Action, Line Tolerance of Uncertainty in Demand Reconciliation, Higher Organizational Level Low Influence with Superiors, and Higher Organizational Level Superior-Oriented Interaction. The two previously unnamed factors were both given the title Functional Differentiation in view of the fact that virtually all functional areas evidenced significant weightings, or weightings which approached significance, on them.

Finally, the modified Kuder-Richardson reliability coefficients computed for the leader behavior subscales indicate that the subscales are satisfactorily reliable for purposes of exploratory research.

Final Conclusions

In view of the fact that all of the hypotheses were confirmed, that a determination was made regarding what factors other than Consideration and Initiating Structure are involved in industrial leader behavior and how the
behavior of industrial leaders varies with organizational level and functional area in terms of these factors, and that the relationships existing between these basic dimensions of behavior and leader effectiveness were discovered, it may be concluded that the specific objectives of the study have been attained. It may also be concluded, therefore, that the general objective of the study -- improvement of the understanding of industrial leadership by providing a more adequate description of such behavior -- has also been in part achieved.

It must be recalled, however, that certain limitations exist with respect to the study. First of all, its scope was limited to a consideration of leader behavior and effectiveness in one industrial organization engaged in the manufacture and distribution of one type of product. Caution must be exercised, therefore, in drawing generalizations concerning the behavior of all industrial leaders from the results of this research. Other limitations of the study are that no measure of inter-rater agreement could be derived for purposes of determining the objectivity of the data, ratings of effectiveness were obtained from the same persons who provided descriptions of leader behavior, thus making it possible for the "halo effect" to operate, and only a relatively few cases could be obtained from the highest and lowest organizational
levels, which to some extent influenced the findings concerning the relationship of leader behavior and organizational level. In view of these limitations it is concluded that caution must be exercised if the findings and interpretations are used for purposes other than research. The present study, however, is meant to constitute a form of basic research and as such is intended to obtain results which will contribute to and further other research efforts. In terms of this purpose, it can be concluded that the results of the study are useful.

Although refinement of the LBDQ was not an objective of this research, it may be concluded that the prospects for a future effort in this regard are encouraging in light of some of the findings. Four of the leader behavior dimensions exhibit their highest weightings on factors other than the general factor, indicating that they are independent of the general factor and with refinement would become quite useful for purposes of leader behavior description. These subscales are Representation, Tolerance of Freedom, Tolerance of Uncertainty, and Production Emphasis. In view of the fact that two of these were derived primarily from expectation theory it may be concluded that the usefulness of this type of theory for
leader behavior description has been demonstrated. It should be noted, however, that Predictive Accuracy, also a subscale derived from this body of theory, regressed into the general factor.
APPENDIXES
APPENDIX I

LEADER BEHAVIOR DESCRIPTIONS

Bureau of Business Research
The Ohio State University

On the following pages are items that may be used to describe the behavior of your manager or supervisor. Each item describes a specific kind of behavior, but does not ask you to judge whether the behavior is desirable or undesirable. This is not a test of ability. It simply asks you to describe, as accurately as you can, the behavior of your manager or supervisor.

Note: The term "group" as used in the following items refers to an organization or to a department, division, or other unit of organization that is supervised or managed 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.
DIRECTIONS:

a. READ each item carefully.

b. THINK about how frequently the leader engages in the behavior described by the item.

c. DECIDE whether he (A) always, (B) often, (C) occasionally, (D) seldom, or (E) never acts as described by the item.

d. DRAW A CIRCLE around one of the five letters (A B C D E) following the item to show the answer you have selected.

A = Always  
B = Often  
C = Occasionally  
D = Seldom  
E = Never

e. MARK your answers as shown in the examples below.

Example: He often acts as described . . . . . A B C D E
Example: He never acts as described . . . . . A B C D E
Example: He occasionally acts as described . . A B C D E

1. He acts as the spokesman of the group . . A B C D E

2. He waits patiently for the results of a decision . . . . . . . . . . . A B C D E

3. He makes pep talks to stimulate the group . . . . . . . . . . . A B C D E

4. He lets group members know what is expected of them . . . . . . . . . . . A B C D E

5. He allows the members complete freedom in their work . . . . . . . . . . . A B C D E

6. He is hesitant about taking initiative in the group . . . . . . . . . . . A B C D E
A = Always
B = Often
C = Occasionally
D = Seldom
E = Never

7. He encourages overtime work ........ A B C D E
8. He is friendly and approachable ........ A B C D E
9. He makes accurate decisions ........ A B C D E
10. He gets along well with the people above him ........ A B C D E
11. He speaks as the representative of the group ........ A B C D E
12. He becomes anxious when he cannot find out what is coming next ........ A B C D E
13. His arguments are convincing ........ A B C D E
14. He rules with an iron hand ........ A B C D E
15. He permits the members to use their own judgment in solving problems ........ A B C D E
16. He fails to take necessary action ........ A B C D E
17. He stresses being ahead of competing groups ........ A B C D E
18. He does little things to make it pleasant to be a member of the group ........ A B C D E
19. He lacks foresight ........ A B C D E
20. He keeps the group in good standing with higher authority ........ A B C D E
21. He makes outside contacts for the group ........ A B C D E
22. He accepts defeat in stride ........ A B C D E
23. He asks for the personal support of the members ........ A B C D E
A = Always
B = Often
C = Occasionally
D = Seldom
E = Never

24. He criticizes poor work
25. He makes suggestions only when a member asks for help
26. He lets other persons take away his leadership in the group
27. He needles members for greater effort
28. He puts suggestions made by the group into operation
29. He seems able to predict what is coming next
30. He gets what he asks for from his superiors
31. He speaks for the group when visitors are present
32. He accepts delays without becoming upset
33. He is a very persuasive talker
34. He makes his attitudes clear to the group
35. He lets the members do their work the way they think best
36. He lets some members take advantage of him
37. He keeps the work moving at a rapid pace
38. He treats all group members as his equals
A = Always
B = Often
C = Occasionally
D = Seldom
E = Never

39. He makes decisions that backfire .... A B C D E
40. His superiors act favorably on most of his suggestions .... A B C D E
41. He represents the group at outside meetings .......... A B C D E
42. He becomes anxious when waiting for new developments .......... A B C D E
43. He is very skillful in an argument .... A B C D E
44. He speaks in a manner not to be questioned .......... A B C D E
45. He assigns a task, then lets the members handle it .......... A B C D E
46. He is the leader of the group in name only .......... A B C D E
47. He gets a full day's work out of the group .......... A B C D E
48. He gives advance notice of changes .... A B C D E
49. Things usually turn out as he predicts .......... A B C D E
50. He interprets group problems to those in authority .......... A B C D E
51. He handles complex problems efficiently . A B C D E
52. He is able to tolerate postponement and uncertainty .......... A B C D E
53. He promises better things to come .... A B C D E
54. He assigns group members to particular tasks .......... A B C D E
A = Always
B = Often
C = Occasionally
D = Seldom
E = Never

55. He turns the members loose on a job, and lets them go to it. .......... A B C D E

56. He backs down when he ought to stand firm . .............. A B C D E

57. He asks the members to work harder . . A B C D E

58. He keeps to himself . .............. A B C D E

59. He is accurate in predicting the trend of events . .............. A B C D E

60. He gets his superiors to act for the welfare of the group members . ........ A B C D E

61. He gets swamped by details . .............. A B C D E

62. He can wait just so long, then blows up . A B C D E

63. He speaks from a strong inner conviction . .............. A B C D E

64. He makes sure that his part in the group is understood by the group members . ........ A B C D E

65. He makes suggestions only when necessary to correct mistakes . .............. A B C D E

66. He lets some members have authority that he should keep . .............. A B C D E

67. He judges the group on the amount of work it does . .............. A B C D E

68. He looks out for the personal welfare of group members . .............. A B C D E

69. He is the last to know . .............. A B C D E

70. His word carries weight with his superiors . .............. A B C D E
A = Always  
B = Often  
C = Occasionally  
D = Seldom  
E = Never

71. He seems unable to reconcile conflicting requirements . . . . . . . . . . . . . A B C D E
72. He remains calm when uncertain about coming events . . . . . . . . . . . . . A B C D E
73. He is an inspiring talker . . . . . . . . . . . . . A B C D E
74. He schedules the work to be done . . . . A B C D E
75. He allows the group a high degree of initiative . . . . . . . . . . . . . . A B C D E
76. He takes full charge when emergencies arise . . . . . . . . . . . . . A B C D E
77. He drives hard when there is a job to be done . . . . . . . . . . . . . A B C D E
78. He is willing to make changes . . . . . . . . . . . . . A B C D E
79. He is able to size up a situation accurately . . . . . . . . . . . . . . A B C D E
80. He accepts the limits set by higher authority . . . . . . . . . . . . . . A B C D E
81. He can reduce a madhouse to system and order . . . . . . . . . . . . . . A B C D E
82. He is able to delay action until the proper time occurs . . . . . . . . . . . . . A B C D E
83. He persuades others that his ideas are to their advantage . . . . . . . . . . . . . A B C D E
84. He maintains definite standards of performance . . . . . . . . . . . . . . . A B C D E
85. He trusts the members to exercise good judgment . . . . . . . . . . . . . . A B C D E
A = Always
B = Often
C = Occasionally
D = Seldom
E = Never

86. He defends the group from unjust criticism . . . . . . . . . . . A B C D E
87. He urges the group to beat its previous record . . . . . . . . . . A B C D E
88. He refuses to explain his actions . . . A B C D E
89. He anticipates problems and plans for them . . . . . . . . . A B C D E
90. He prefers the company of his superiors. A B C D E
91. He gets confused when too many demands are made on him . . . . . . A B C D E
92. He wants an immediate solution to every problem . . . . . . . . . A B C D E
93. He can inspire enthusiasm for a project. A B C D E
94. He asks that group members follow standard rules and regulations . . . . . A B C D E
95. He permits the group to set its own pace . . . . . . . . . . . A B C D E
96. He avoids speaking on behalf of the group . . . . . . . . . . . A B C D E
97. He values the members for what they can produce . . . . . . . . . A B C D E
98. He acts without consulting the group . . A B C D E
99. He knows what is coming before others are aware of it . . . . . . . . . A B C D E
100. He maintains cordial relations with superiors . . . . . . . . . . A B C D E
### Dimension-Item Key, 1961

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Items</th>
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<td>Influence with Supervisors</td>
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APPENDIX II

LEADERSHIP EFFECTIVENESS RATING

Instructions: Here you are asked to indicate, on the scale below, how effective -- that is, how good or poor -- your immediate manager or supervisor is as a leader. In making the rating, think of him in his capacity as leader of your work group; then place an "X" at that point on the vertical line which, in your opinion, best describes how good a leader he is. You may place the "X" at any point on the scale -- just opposite one of the phrases or somewhere in between two of the phrases. Remember that this rating is being made for research purposes only; it will not affect your supervisor or yourself in any way.

An outstanding leader

A good leader

An average leader

A somewhat below average leader

A poor leader
APPENDIX III

PERSONAL DATA SHEET

Check the major organizational (functional) group to which the manager/supervisor you are describing belongs.

_______ Manufacturing
_______ Marketing
_______ Finance
_______ E & CR
_______ Engineering

Check the organizational level at which the manager/supervisor you are describing belongs. Consider the General Manager of the Department as the first level.

_______ (1) Department General Manager
_______ (2) Section/Operation Manager
_______ (3) Etc.
_______ (4)
_______ (5)
_______ (6)
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Stogdill, Ralph M. "Dimensions of Leader Behavior." Research proposal presented to The Ohio State University Development Fund, Columbus, Ohio, July 15, 1960.
I, David Robert Day, was born in Bloomington, Indiana, September 17, 1930. I received my secondary-school education in the public schools of that city and my undergraduate training at Indiana University, which granted me the Bachelor of Science degree in 1952. I received the Master of Business Administration degree from the same institution in 1956 and, during the following two years, held an appointment as Assistant Professor at the College of Business Administration, University of Georgia. From October 1958 to the present I have been completing the requirements for the Doctor of Philosophy degree at The Ohio State University. During this period I have held appointments as Graduate Assistant and Assistant Instructor in the Department of Business Organization and as Research Associate in the Bureau of Business Research.