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Relationships in Organizations Between Leaders' Personality Characteristics and Their Hierarchical Levels and Role Foci

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The purpose of this study was to determine whether leaders' personality characteristics were related to the hierarchical level and the focus of their roles in organizations. Leaders from two industrial plants of two Fortune 500 corporations were selected for the investigation. They comprised a total population of persons responsible for making decisions concerning the use of data, people, or things within the organizations.

Data were collected employing the Myers-Briggs Type Indicator (MBTI) and the Functional Job Analysis Self-Report (FJASR). The MBTI instrument identified personality characteristics in terms of two paired and opposite preferences for (1) sensing or intuition, and (2) feeling or thinking. The FJASR inventory identified job roles in terms of (1) hierarchical level (middle-level or upper-level), and (2) role focus (data-focus or people-focus). The MBTI personality characteristics were crosstabulated with those of job role. Chi-square tests at an alpha level of .05 were then applied to determine whether the leaders' personality characteristics were related to their job roles.

Findings of this study identified relationships which
suggest that leaders' personality characteristics are related to the hierarchical levels and the foci of their roles in the organizations. Sensing, described here as the preference to rely on one or more of the five senses for information-gathering, appeared to be the predominant personality preference of leaders in middle-level and/or data-focused roles. Intuition, described in this study as the preference to rely on ideas, possibilities, and associations for information-gathering, appeared to be the predominant preference of upper-level leaders. There appeared no distinct personality preference among leaders in people-focused roles.

Supportive literature warrants the conclusion that until the present study, there has been a lack of workable approaches to leadership studies of this type. Previous studies have not been able to identify and group leaders in similar roles, regardless of job title or other specifically applied role designation in organizations. Additional studies following the approach of this study are needed to determine conclusively whether leaders' personality characteristics are generally associated with the hierarchical level and focus of their roles in organizations.
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RELATIONSHIPS IN ORGANIZATIONS BETWEEN LEADERS' PERSONALITY CHARACTERISTICS AND THEIR HIERARCHICAL LEVELS AND ROLE FOCI
A study of this scope requires the encouragement and assistance of many interested people. Special gratitude is given to my advisor, Dr. Carol Sheffer, for her wise counsel and particular attention to bringing this work to meaningful and timely completion. In this effort there were profound memories of the late Dr. William Viall, former advisor, instructor, and most of all, friend.

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Thanks to my husband, Tony, and to my children, Tonya and Todd. I wish to express my gratitude for their patience, their understanding, and their assistance during the past two years.

Loretta Church
# TABLE OF CONTENTS

ACKNOWLEDGEMENTS................................................................. ii
LIST OF TABLES..................................................................... vi
LIST OF FIGURES...................................................................... v

Chapter

I INTRODUCTION ................................................................. 1
The Problem................................................................. 3
The Purpose................................................................. 6
Study Limitations......................................................... 9
Definitions................................................................. 10
Summary..................................................................................15

II REVIEW OF SELECTED RELATED LITERATURE.............16
Historical Overview..........................................................16
The Problem in Context of the Literature ................ 21
The Development of This Study's Approach ........ 28
Summary...................................................................................37

III METHODOLOGY................................................................. 41
Study Design................................................................. 41
The Population................................................................. 42
Instrumentation............................................................. 43
Data Collection Procedures............................................ 50
Hypothesis Testing.......................................................... 54
Summary...................................................................................56
# LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:1</td>
<td>FJASR-Identified Job Roles, By Level and Focus, and Self-Reported Job Titles</td>
</tr>
<tr>
<td>4:2</td>
<td>Frequencies: Hierarchical Level and Sex</td>
</tr>
<tr>
<td>4:3</td>
<td>Hierarchical Level and Age</td>
</tr>
<tr>
<td>4:4</td>
<td>Frequency Distribution of Paired and Opposite Personality Characteristics</td>
</tr>
<tr>
<td>4:5</td>
<td>Frequency Distribution of the Hierarchical Level and the Focus of the Job Role</td>
</tr>
<tr>
<td>4:6</td>
<td>Frequency Distribution of Personality Characteristics and the Hierarchical Level and the Focus of the Job Role</td>
</tr>
<tr>
<td>4:7</td>
<td>Differences Between the Proportion of Middle-Level and Upper-Level Persons in the MBTI Personality Categories</td>
</tr>
<tr>
<td>4:8</td>
<td>Differences in the MBTI Personality Characteristics of Leaders in Data-Focused and People-Focused Roles</td>
</tr>
<tr>
<td>B-1</td>
<td>Effects of Particular MBTI Characteristics in Organizations</td>
</tr>
<tr>
<td>B-2</td>
<td>Mutual Usefulness of MBTI Opposites in Organizations</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>32</td>
</tr>
<tr>
<td>A-1</td>
<td>98</td>
</tr>
<tr>
<td>A-2</td>
<td>101</td>
</tr>
</tbody>
</table>

Model of Problem-Solving Approaches Based on Selected Personality Characteristics. 1

The FJASR Instrument. 1

Measure of Prescription/Discretion in Role Assignments.
Numerous studies have focused on the personality characteristics of persons in leadership roles. Leadership studies completed in the 1940's and 1950's enumerated traits of leaders but failed to arrive at any definitive classification of personality characteristics common to all leaders. Leader traits identified in one study were seldom found in duplicative studies. In reviewing more than one hundred leadership studies, Lippit (1955) found that of all traits identified only 5% appeared in four studies or more. Jenkins (1947) further concluded that no single trait could be found that would distinguish a person in a leadership role from followers. In examining one hundred and twenty-four studies on the relationship of traits to leadership, Stogdill (1948) concluded that on the basis of the studies reviewed, the traits and characteristics of the leader were determined to a large extent by the demands of the situation and not by the traits of the leader per se.

Studies of the leader shifted in the middle-to-late 1950's from examinations of traits to examinations of complex relations. Scholars began to include in their studies variables such as those suggested by Stogdill, et al. (1956) and later, Gibb (1969). Stogdill pointed out that differences among persons in leader roles could best be analyzed with an understanding of (1) cultural
and environmental variables, (2) differences between leaders and followers, and (3) differences between the jobs and types of organizations. Gibb listed the variables that needed consideration as: (1) the situation, (2) the leader, (3) the follower, and (4) the task. By the 1980's many combinations of these variables appeared in the literature on leadership.

There are many different ways these later studies could be categorized. The studies drew from the developing frameworks of the behavioral sciences, that is, psychology, sociology, economics, and anthropology. The behavioral sciences represented multiple approaches pertaining to why and how people behave as they do (Hellriegel and Slocum, 1979). Further, this study recognized that there is no single-cause explanation which is adequate in describing the complex relations, or contingencies, affecting leaders' behaviors. A systematic body of knowledge is needed from combined studies. This study's focus was on the relationship between leaders' personalities and their roles in organizations.

Immegart (1973) observed that despite the number and variety of studies, and increased sophistication in study design, leadership studies tended to be limited by their lack of "systematic and workable" definitions (p. 223). This lack of consistency among definitions has posed particular problems for studies of relations between leaders' personality characteristics and their roles. There have been no standard definitions for the roles of responsibility investigated. Studies have identified leaders' personality
characteristics, that is, their traits, qualities, or types. However, they grouped these characteristics according to the subjects' role designations in particular types of organizations. Examples are found in the studies of "managers," "executives," "supervisors," and "professionals" (Beneditti, 1970; Blunt, 1978; Crawford, 1977; Robbins, 1978). With few exceptions, the studies have not been replicated or linked with standard definitions of the roles investigated. Groups of persons with similar role designations have not been identified in dissimilar types of organizations for the comparison of results. Consequently, current approaches do not enable us to associate personality characteristics with roles on a level beyond that of small groups of leaders in a particular type of organization, such as a state university, a social welfare agency, or a company of heavy or light industry with a given number of employees.

The Problem

It is not known at present whether or not leaders in similar roles of responsibility have similar personality characteristics, regardless of the type of organization. For instance, there is no evidence to indicate whether persons in middle-level roles differ in personality from persons in upper-level roles across organizational types. This study explored this question of whether leaders' personality characteristics are related to the hierarchical levels of their roles within organizations.
Further, the first theoretical hypothesis was that leaders in middle-level roles have different personality characteristics than leaders in upper-level roles.

Holland's theory lends support to this hypothesis. Holland (1973) postulated that an individual's personality is related to the hierarchical level the person achieves within the organization. In other words, similar personalities tend to hold similar hierarchical job role responsibilities. Hackman and Oldham (1975) and Hellriegel and Slocum (1979) independently contended that personality characteristics are associated with the acquisition of leader roles. The authors reasoned that to acquire the roles, both motivation and occupational success are usually present and further, both of these indicators of leaders' levels have been associated with personality characteristics. If this is so, there is the need to investigate what the personality characteristics are and how they might vary according to the hierarchical levels of the roles.

In addition, leadership studies do not reveal whether the primary focus of leaders' roles within organizations are associated with their personality characteristics. Do leaders with similar role foci have similar personalities? Do leaders who give most of their time and attention to ideas, facts, and/or statistics differ in personality from those who give most of their time and attention to working directly with people? This study explored the question of a relationship between leaders'
personality characteristics and the focus of their roles in organizations. The theoretical hypothesis in this case was that leaders in data-focused roles have different personality characteristics than leaders in people-focused roles.

The support for this hypothesis was in the review of the literature. It appears that other roles, identified by the primary focus of time and attention, have been associated with personality characteristics. The role foci in these cases have been conveyed with titles such as Science Student, Artist, Laboratory Technician, Mathematics Teacher, and Protestant Minister (Blunt, 1978; Dunning, 1970; Hill, 1974; McCaulley, 1973; Stone, 1978; and Yura, 1971). The role of the science student is generally known to be focused on studying and applying the ideas of science. This message is relayed with the title of the role and, correspondingly, the persons in this role have been found to have similar personality characteristics. The role of the artist is focused on conveying ideas graphically and artists' personalities have been found to be similar. Similar statements can be made concerning laboratory technicians, mathematics teachers, and Protestant ministers, based on the connotations of their role titles and the results of the studies of their personality characteristics. The same might be said of persons in leadership roles. Campbell (1970), Stogdill et al. (1956), and others speculated that there are personality differences among leaders of different role foci (Blunt, 1978; Hellriegel and Slocum, 1976; and
Henney, 1975). If leaders' role foci and personality characteristics can be shown to be related, it is necessary to identify exactly what the distinctive features are.

This study explored hypotheses which postulated that the hierarchical level of the role as well as the focus of leaders' time and attention would be related to their personality characteristics. No attempts were made to identify cause-effect relations. Whether particular roles are assumed by persons with particular personalities remains an open question.

The Purpose

The purpose of this study was to discover whether leaders' personality characteristics were associated with the responsibilities of their roles. To accomplish this purpose, it was necessary not only to identify and categorize the personalities of leaders but to identify their respective hierarchical levels and role foci.

Leaders from two industrial plants of two Fortune 500 corporations were selected for this study. They were selected in terms of whether, as leaders, they were responsible for making decisions concerning the use of data, of people, or of things. The leaders selected for this study self-administered the Functional Job Analysis Self-Report (FJASR). The FJASR results were used for the determinations of the hierarchical level of the role and the primary focus of the role. The personality and role
dimensions resulting from the analyses were cross-tabulated for evidence of associations.

Specifically, the first objective of this study was to determine whether leaders in middle-level roles differ in personality characteristics from the leaders in upper-level roles. The leaders who indicated on the FJASR inventory that they received most of their work instructions from assignments prepared by another person or persons, and that discretion was required of them concerning methods of completing the assignments, were classed as being in middle-level roles. The leaders classed as being in upper-level roles indicated on the FJASR inventory that a considerable amount of discretion was required of them in making decisions. Unlike the leaders in middle-level roles, the leaders considered to be in upper-level roles indicated that they did not receive most of their instructions from others' directives. Most of their instructions were based on their own decisions and judgements.

The second objective was to determine whether leaders' personality characteristics vary according to the focus of their roles of responsibility within the organization. The leaders who reported that they gave a greater proportion of their time and attention to ideas, facts, and/or statistics were classed as being in data-focused roles. Those who reported that they gave a greater proportion of their time and attention to working directly with people were classed as being in people-focused roles.
The two groups of individuals were analyzed to determine whether there were common differences in personality characteristics, based on the role focus.

It was anticipated that this study could contribute to leadership studies for the following reasons:

1. The study can contribute information regarding associations between the personalities of leaders and the hierarchical levels of their roles.
2. The study can contribute information regarding associations between leaders' personalities and the focus of their roles.
3. The study design can be replicated in dissimilar types of organizations, regardless of job titles or other role designations.
4. The study extends Holland's theory to studies of leaders.

The standard measures of this study, the MBTI and the FJASR, have been successfully applied in dissimilar types of organizations. It is important to note that the FJASR inventory has never before been used for formal research purposes. It is presented and applied in the present study and it is believed that it will be of considerable value in further research of leaders' personality characteristics. Questions of quality indicators for these instruments are addressed in Chapter III.
Study Limitations

This study was intended to be an initial study in a series of studies needed to determine whether leaders in similar roles of responsibility have similar personality characteristics. The study was limited in the following ways:

1. A limited number of leaders in middle- and upper-level roles were sampled. There were 82 persons in middle-level roles and 28 in upper-level roles.
2. The geographic setting was restricted to Southwestern Michigan.
3. The study was conducted between March and June, 1981.
4. The types of organizations represented were industrial plants.
5. The effectiveness of the leaders is not known. It was assumed that leaders of Fortune 500 companies are generally effective.
6. There is no knowledge of the education, experience, or racial/ethnic differences of the leaders studied. Such studies may demonstrate a relationship between these variables and personality differences.

This study was intended to explore whether leaders' personality characteristics were related to their roles of responsibility within organizations. It was argued that if personality
characteristics were identified, future studies could extend the results to a wide range of organizations having a hierarchical leveling of leadership roles.

Definitions

There is considerable variation in the terms used to describe "leaders," "personality characteristics," and "roles," among leadership studies. Further, the terms employed in the studies represent a variety of theoretical and conceptual frameworks concerning leaders and their personalities. Hall and Lindsey (1957) contended that whatever the theory employed, "... the theory should be evaluated in terms of its capacity to generate new research" (p. 550). Related to this is the need for increased sophistication in operationalizing the terms needed for new research. In this study, Holland's theory is tested with the operational terms which follow. The terms are applicable to the extension of Holland's theory and can be consistently applied in further studies.

**Leader**

A leader, for the purpose of this study, is defined as a person responsible for making decisions about the use of data, people, or things within the organization. The definition is consistent with the controlled language of the FJASR inventory, which has had over thirty years of use in organizations of
dissimilar types. The FJASR provided this study with the measure of whether the persons investigated were leaders. Items 2 through 5 of the FJASR Assignment Framework, shown in Appendix A, describe leaders as defined here.

**Personality**

The discussion of personality was limited to specific constructs presented in theory by Carl Jung and measured with the Myers-Briggs Type Indicator (MBTI). The constructs stem from Jung's four psychological functions that go into individuals' problem-solving approaches: sensing, intuition, thinking, and feeling. The sensing and intuition functions represent the extreme and opposite orientations preferred by individuals for gathering or perceiving information. The thinking-feeling functions represent the extreme and opposite orientations preferred by individuals for evaluating information, or, decision-making. According to Jung, one of the four functions is dominant in each individual and this is supported by one of the functions from the other set of paired opposites. The remaining two least preferred functions are viewed as being disregarded, underdeveloped, or repressed by the individual. Jung emphasized that the functions are not simply externally determined, but are also personally determined and conditioned. Thus, the personality characteristics referred to in this study are the individuals' preferences between the MBTI measured constructs of (1) sensing
or intuition, and (2) thinking or feeling.

Role, Leadership

A leadership role is defined here as assigned responsibility within an organization requiring that decisions be made about the use of data, people, or things. Fine (1973) concluded that all assignments involve the workers, to some extent, with information or ideas (data), with clients or co-workers (people), and with machines or equipment (things). Leadership roles require that discretion be exercised regarding these.

Role, Middle-level

Workers in middle-level roles are defined as persons who receive most of their work instructions from assignments. The worker still must seek the methods of getting the assignments done and may need to know and employ theory in order to complete the assignments. However, unlike the persons in the upper-level roles, the persons in middle-level roles receive assignments prepared by another person or persons. Middle-level roles are portrayed with the statements of items 2 and 3 of the FJASR Assignment Framework, shown in Appendix A.

Role, Upper-level

Workers in upper-level roles are those who receive most of their worker instructions from any one of three sources of
information. These are (1) tactical, organizational, strategic, or financial needs, (2) results from self-devised investigations, surveys, data analysis studies, or largely unspecified sources of information, or (3) results from self-conducted investigation and evaluation of possible production-related demands but without the use of specified inputs, methods, sequences, or the like.

Upper-level roles are portrayed with the statements of items 4 and 5 of the FJASR Assignment Framework, shown in Appendix A.

**Role, Focus**

The role focus is defined as the relative involvement required of the worker with data, people, and things. Fine (1973) assumed that the worker is not equally involved with data, people, and things and that the relative involvement with any of the three varies with the assignment. In this study, the primary role focus is measured with the FJASR Performance Requirements, shown in Appendix A.

**Role, Data-focused**

This refers to a role which requires the worker to give time and attention primarily to information, ideas, facts, and/or statistics. Fine (1973) stated that all job assignments involve data, even though the primary emphasis of the assignment may involve working with people or things. It is only when persons give the greatest percentage of their work time synthesizing,
coordinating, charting, gathering, and/or analyzing data that their roles are defined here as being data-focused. The percentage of time spent with data is always considered in relation to the time spent with people and things.

**Role, People-focused**

This refers to a role which requires the worker to give time and attention primarily to mentoring, negotiating, supervising, consulting, coaching, exchanging information, etc. directly with clients or co-workers (people). When workers reported spending the greatest percentage of their combined work time dealing directly with people, their job positions were considered people-focused.

**Role, Things-focused**

Workers who spend the greatest percentage of their time interacting with tangible objects are in things-focused roles. While all workers spend some time with physical things, such as desktop equipment, it is unlikely that persons with leadership roles spend the greatest proportion of their time dealing with things. At the point that workers are making decisions or taking actions concerning the disposition of things, the activities are defined here as data-focused and not things-focused.
Summary

This study explores relationships between leaders' personality characteristics and their roles within organizations. To accomplish this purpose it was necessary not only to identify and categorize the personalities of leaders but to identify their respective hierarchical levels and role foci.

Prior to this study, approaches to the studies of leaders' personalities have not enabled us to extend Holland's theory to persons in leadership roles. Further, it has not been known whether their personalities vary according to the primary focus of their time and attention in organizations. Previous approaches have relied on identifying and grouping leaders on the basis of their job titles, or other role designations, in particular types of organizations. These approaches have not enabled us to find similar groups of persons, in dissimilar types of organizations, for broad implications. Consequently, it has not been known whether leaders' personalities and roles are related on a broad scale.

This study grouped leaders in similar roles, regardless of their role designations in particular organizations. With this approach, it was anticipated that Holland's theory would be extended to include leaders, regardless of the organization. Further, it was anticipated that future studies of leadership could use this approach in dissimilar types of organizations.
CHAPTER II

REVIEW OF SELECTED RELATED LITERATURE

This study explored relationships between leaders' personality characteristics and the hierarchical levels and focus of their job roles. This chapter provides an historical overview of the literature as it is related to the progression of approaches to this study. The literature influencing this study's approach is then presented.

Historical Overview

Plato (see Meachem, 1975) wrote: "I am myself reminded that we are not all alike; there are diversities of natures among us which are adapted to different occupations." Investigators have expended much time and effort in seeking empirical proof for what Plato describes. The focus of this study is the nature of persons who are in leadership roles.

Considerable attention has been given to identifying commonalities in the personalities of executives, supervisors, managers, administrators, and others considered to be in leadership roles. Early studies revealed few personality traits to distinguish the leader from followers. Campbell (1956), Fiedler (1967), Fleishman (1969), Gibb (1969), Hemphill (1961), Myers (1954), and Stogdill (1948) were only a few among many who concluded that no single characteristic could be found common to all leaders. As a

16

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result, they suggested that leaders' characteristics be studied in the context of their situations, that is, in terms of their different types of involvements and settings.

Stogdill, Wherry, and Jaynes (1956) suggested that situational factors could be divided into four categories for use in the study of leader characteristics. He listed the categories as (1) cultural and environmental, (2) differences between individuals, (3) differences between jobs, and (4) differences between organizations. This list differed only slightly from a list provided later by Gibb (1969) which included (1) the leader, (2) the follower, (3) the situation, and (4) the task. Further, a list of Hellriegel and Slocum (1979) showed few variations from Stogdill's list. These authors listed five major considerations in understanding leaders' characteristics. These were listed as (1) environmental factors, (2) organizational design, (3) individual differences, (4) group properties, and (5) organizational change. Stogdill and the others postulated that leaders' personalities and their related behaviors are contingent on the situational factors listed.

Investigators have incorporated various combinations of variables from Stogdill's classification into the study of leaders' characteristics. The variables most often used for studies of personality-related characteristics appear to be those which categorize leaders on the basis of age, sex, and reported job effectiveness.
Beneditti (1970) for instance, studied differences in the personality styles of executives using sex as the independent variable. She had male and female executives self-administer the Fleishman (1969) Leadership Opinion Questionnaire. Beneditti concluded that women executives in business play a relatively less active role in directing group activities through planning, supplying information, trying out new ideas, and criticizing than their male counterparts. Her study suggests that sex is a characteristic affecting leader styles.

Hennig (1970) identified differences in the personality characteristics of leaders by using age as the independent variable. He reported differences between managers younger than and older than the age of fifty. The younger managers were found to be more task-oriented than the managers who were in their late forties and early fifties. His study suggests that age is another characteristic affecting leaders' expressions of personality.

Blake and Mouton (1964) studied characteristics of effective managers and concluded that effective managers have high concern for both the people for whom they are responsible and the accomplishments of the organization. The results of the studies of Blake and Mouton were not unlike those of McGregor (1960) who postulated that effective leaders have high concern for production but achieve production goals in cooperation with the workers.

Studies of effective managers are more plentiful than those employing age or sex as independent variables. In a much cited...
study, Fleishman and Harris (1955) investigated relationships between the behavior of foremen in response to labor grievances. They reported that foremen with high consideration for their workers can increase the amount of production-centered behaviors they exhibit, with no adverse effect on grievances or employee turnover rates, by actively directing the group activities. Fleishman (1969) concluded that effectiveness is characterized by behaviors which demonstrate both high consideration for workers and high concern for production. He had evidence to suggest that leaders characterized as being effective have behaviors in common.

More recent studies have attempted to incorporate variables descriptive of the type of organization in which the leader functions. Fleishman (1969), Hennig (1970), and Beneditti (1970) reported differences among executives and managers within varying employment settings. The results of the studies were, however, conflicting. To account for this, Beneditti suggested that the differences in results could be attributed to the fact that her sample was of women and the others were of men. Sex apparently affects leaders' personalities to a greater extent than the type of organization in which the leader functions.

Stogdill, Wherry, and Jaynes (1956) went a step further in their study. They contended that the type of organization to which a leader belongs may not be as closely related to behavioral differences among leaders as to the type of position, or role the leader occupies. Their premise was that an important
personality attribute for one role may not be important for a
different role in the same organization. A study by Harrell
(1971) provided support for this premise. Harrell reported that
the focus of the job role is associated with personality differ-
ences. He based his conclusion on his finding that successful
sales managers are optimistic, enthusiastic, masculine, and dom-
inant, whereas successful production managers are progressive,
have a genuine respect for people, are introverts, and are
cooperative.

Other investigators concluded that the level of the individ-
ual in the organization is associated with personality-related
differences. Campbell et al. (1970) considered it likely that
different cognitive qualities are necessary for effective decision-
making at higher and lower levels of management. Korman (1968)
had studied this possibility and found intelligence to be an
increasingly important factor in performance at higher managerial
levels. Intelligence was found only moderately important to
performance among managers in lower level positions.

The review of the literature shows that attempts have been
made to refine studies of leadership and to take into considera-
tion the variables suggested by Gibb (1969) and Stogdill (1948).
Nevertheless, as was pointed out by Campbell et al. (1970), the
need continues for the discovery of fundamental dimensions which
may be of use in describing differences among various managerial
job roles.
The Problem in Context of the Literature

It was the purpose of this investigation to determine whether persons in well-defined roles of leadership have particular personality characteristics in common. However, it remained unclear exactly how to define job-related roles. Previous attempts have been made to define job roles but for practical and theoretical reasons no clear measure of job role was available.

Ponder (1958) observed twenty-four foremen during a sixteen hour period of time in an attempt to define their job roles. This method is described by Kay and Meyer (1962), however, as being prohibitive both in terms of cost and time. Rather than recording all job behavior episodes, McNaughton (1956) argued that activity sampling could be employed usefully for learning what managers do on the job. Kelley (1964) employed this technique by making eighteen thousand momentary observations of four manufacturing section managers at randomly selected times over a three-week period. Although Campbell, et al. (1970) stated that there is feasibility in using this type of time sampling procedure, Kay and Meyer (1962) observed that it too was extremely costly and time consuming.

Attempts to use job titles as indicators of job roles have been even more futile. As Campbell, et al. (1970) pointed out, job titles often fail to reflect the true nature of the job. Job titles change from time to time, from person to person, and from situation to situation. Castetter, et al. (1974) agreed, stating
that personnel often have job titles which are not descriptive of the job role.

Kay and Meyer (1962) suggested that the least expensive and time-consuming method for defining job roles was to use task inventories. Differences can be found, however, in the length of time it takes to administer any given task inventory. Schroeder (1975) stated that according to Meacham (1975), the Position Analysis Questionnaire (PAQ) requires three experienced analysts or supervisors to observe and question the worker on the job. By design, inventories requiring direct observations are valid. However, they are more expensive and time-consuming to administer than inventories which are self-administered.

Among the task inventories which have been developed, Campbell (1970) lamented the lack of any way of identifying fundamental differences among various managerial jobs. Campbell cited the Executive Position Questionnaire, developed by Hemphill, as a major contribution to the study of managerial job roles but added that further work needed to be done to define the dimensions of management in more behaviorally relevant ways.

Hackman and Oldham (1975) developed the Job Diagnostic Survey but the intent of the inventory was not directed as much to the definition of job roles as it was to the definition of job requirements which may affect the meaningfulness of work. Other inventories have been developed by some businesses and industries for specific short-term purposes. Schroeder pointed out that
according to Taylor (1975), these have not generally been made available to outside investigators.

Prior to this study, there was no practical method for describing personality characteristics of leaders in the context of the job situation. The reason for this stems from the difficulties in defining job roles. For this reason the present study does not rely on a definition of job roles per se.

Job roles were identified by the hierarchical level of the role within the organization and by the determination of whether the job was focused primarily toward working with data, or with people. The theoretical hypotheses explored were:

1. Leaders in middle-level roles have different personality characteristics than leaders in upper-level roles.
2. Leaders in data-focused roles have different personality characteristics than leaders in people-focused roles.

The underlying assumption in the present study was that personality differences are related to differences in the characteristics of the job.

The conceptual basis for the above assumption and related hypotheses was the theory set forth by Holland (1973). Holland postulated that there is congruence between an individual's personality and the job to which the individual aspires. By way of illustration, Holland contended that persons who prefer activities that entail logical and ordered thinking will seek jobs
characterized by the dominance of these activities. Persons who prefer ambiguous, free, unsystematized activities will tend to avoid the activities of logic and order. It is implicit in the theory that persons with similar personality characteristics engage in job activities with similar foci.

Holland further suggested that personality factors are reflected not only in the job or role focus but in the hierarchical level to which an individual aspires within the organization. Nevertheless, the level of the role was not assumed to be independent from a congruence between the individual's personality and the focus of the role. Holland assumed that congruence between the personality and the focus of the role interact to increase the individual's achievement and aspirations, and thus, the individual's hierarchical level within the organization.

Using Holland's theory as a base, personality and job characteristics have been the focus of a number of studies. Among the findings identified, there was support for Holland's theory in the studies by Burt (1968), Dunning (1970), Greenfield (1968), Hill (1974), McCaulley (1973), Stone (1978), Story (1972), and Yura (1971). However, the job characteristics described in the studies were derived from less than objective and systematic analyses of the job roles presented. For example, by conducting explorations in the higher education academic setting, several studies avoided the process of systematically defining job roles. In these studies, certain academic programs of study were named with
the underlying assumption that if students with similar personality characteristics cluster in similar programs of study, then persons with similar characteristics cluster in similar job roles. Examples of this approach to Holland's theory were found in the studies of McCaulley (1973), Yura (1971), Dunning (1970), and Stone (1978). The investigators found that there were predominant personality characteristics among students enrolled in similar programs of study but no attempt was made to relate the findings to the employment setting, which serves as the basis for Holland's theory.

Other studies on personality-related factors have made use of specific job titles to connote job roles. Greenfield (1968) selected Protestant ministers for the purpose of testing Holland's theory. The job title, Protestant Minister, provided an alternative to describing the job role. In a similar manner, other investigators have selected persons for study with titles such as Artist (Burt, 1978), Mathematics teacher (Story, 1972), and Laboratory Technician (Hill, 1974). Predominating characteristics were found in each of these investigations but in the examples given, the job titles may have corresponded closely to the job role. For example, the role of the mathematics teacher is generally known to be focused on instructing mathematics and the hierarchical level of the role is usually thought to be below the level of a school principal, or college department chairperson, and above the level of a student. The role foci and the
hierarchical levels of the roles within the organization may be implied in the job titles themselves.

Difficulties have been experienced among investigators who have explored personality characteristics of persons in roles not readily discernable from job titles. In a 1978 study, Robbins tested Holland's theory, using job title codes to define the job characteristics of sixty-two men of managerial and professional level. Analyzing the career redirection of these men, Robbins compared Holland's personality codes, as measured by the Strong-Campbell Interest Inventory (SCII), with job codes from the Dictionary of Occupational Titles (DOT), as printed by the United States Department of Labor in 1965. The results of the study did not lend support to Holland's theory, a fact that Robbins attributed to the imprecision of DOT job title codes for research purposes. Robbins concluded that there was a need for a more reliable means for coding work environments, if Holland's theory was to be adequately tested.

Blunt (1978) studied the personality characteristics of Caucasian managers of South African companies by holding the level of the job role within the organizational structure constant and by distinguishing between jobs as either routine or non-routine in nature. The results of the study supported his hypothesis that managers who perform jobs of a less routine nature are more extroverted than managers involved in more routine work. In the study, the characteristics of the job were defined and congruence
was established between the personality characteristics and the job role. Further, the study was limited to leaders in certain types of organizations, that is, organizations with department heads, supervisors, and a third hierarchical level between that of department head and supervisor.

Researchers have repeatedly stated the need to define job roles for the study of personality differences. In the attempts to find supporting evidence for Holland's theory, Robbins (1978) stated that much less attention has been paid to the assessment of work environments than has been given to the assessment of the personalities of individuals. Henney (1975) implicitly agreed. Henney studied the personality characteristics of industrial managers with results unlike those of Eysenck (1967). He found the manager to be more extroverted than the general population whereas Eysenck reported that managers tend to be more introverted. Henney speculated that the conflicting results might be attributed to differences among managers of different functions, such as production, sales, and personnel. The focus of the job roles had not been assessed to the extent necessary for a comparison of results between managers of similar functions.

Viernstein (1972) observed that a readily useable technique to assess components of the job would be of considerable importance in stimulating further research of interactions between personality and job roles. The capability of assessment would provide a needed component for testing the Holland theory. In
The Development of This Study's Approach

The purpose of this study was to explore the question of whether persons in similar leadership roles have similar personality characteristics. The subjects investigated were in roles requiring responsibility for making decisions about the use of data, people, or things within the organization. The personality characteristics of the persons were expected to vary according to the hierarchical level and focus of the job role. Personality characteristics comprise the dependent variable. Two independent variables were studied, namely, the hierarchical level of the job role and the focus of the job role.

Personality Characteristics

The theoretical and empirical work that served as the primary basis for the selection of personality characteristics as the dependent variable was undertaken by Carl Jung. Jung maintained that an individual's behavior is influenced not only by the person's history or past, but by the person's goals and aspirations for the future. In Jung's view, the personality is receptive to inputs and interactions with the external environment, particularly from other individuals. However, individuals tend to prefer one expression of the personality over others.

Jungian theory presented personality as a number of
differentiated but interacting subsystems including the ego, personal unconscious, emotional orientations (extroversion and introversion), and the psychological functions (sensing, intuition, thinking, and feeling). The subsystem considered in this investigation is the psychological function. The investigation draws upon a limited body of personality theory, consistent with the recommendations of Hall and Lindsey (1970) and Hellriegel and Slocum (1979) who concluded that no substantive definition of personality can be applied with any generality. The authors recommended that personality should be defined by the particular empirical concepts which are a part of the theory of personality employed by the observer. Thus, it is recognized that other personality concepts and theories could be used to examine some of the same issues and concerns presented here. However, Jungian constructs were selected for the present study because they are especially measureable and they lend themselves to the exploration of Holland's theory.

The measurement of Jungian constructs used in this study was developed by Myers (1962) and is referred to as the Myers-Briggs Type Indicator (MBTI). Jungian traits as utilized by the MBTI correlate with Holland's descriptions of personality type. In 1975, Hockert provided evidence of this correlation. She compared MBTI results with results from the Kuder Occupational Interest Survey (KOIS). The KOIS groupings selected for her comparison were similar to those groupings of Holland's.
personality types measured with the Strong-Campbell Interest Inventory (SCII). All but one of the six KOIS groupings of male and female outcomes were the same as the predicted Jungian types. Further, the MBTI has been widely used as a basic component in research since the Educational Testing Service made it available in 1962 (Stone, 1978). However, since 1962 the instrument has established an empirical base for personality theory which was not hitherto available. For this reason, Osipow's 1973 review of career theories excluded the MBTI from approaches listed as routinely lacking in significance. In addition, other theorists with other constructs for measuring personality dimensions have been unsuccessful in devising instrumentation for validating theories and consequently establishing an empirical base (Ginsberg, Ginsburg, Axilrod, and Herms, 1951; Holland, 1973; Stone, 1978; Super and Crites, 1962).

The MBTI measurement yields data relating to four paired and opposite personality constructs. One set of paired opposites used for the analysis was that of sensing and intuition. Sensing and intuition are indices developed by Myers for the purpose of describing individuals' preferences between two opposite processes for gathering or perceiving information. Sensing individuals are described by Myers as persons who rely primarily on one or more of the five senses for information-gathering. Intuitive individuals are described as persons who rely on gathering information primarily through the process of associating
previously gained information and ideas with new information and ideas. Further, Hellriegel and Slocum (1979) concluded that unlike sensing individuals, intuitives are "suffocated" by stable conditions and seek out and create new possibilities. On the other hand, sensing individuals may experience "considerable anxiety" when dealing with unstructured problems "because these contain considerable uncertainty" (p. 227).

The second set of paired opposites chosen for the analysis was the preference for either thinking or feeling. Thinking and feeling are indices Myers developed for the purpose of describing individuals' preferences between two methods of making decisions. Thinking individuals are described by Myers as persons who prefer making decisions which are based on unemotional logic. Feeling individuals are described as persons preferring to make decisions based on their own and other persons' likes and wishes. Mason and Mitroff (1973) summarized the difference between thinking and feeling types in this way:

A thinking individual is the type who relies on the cognitive process. His evaluations tend to run along the lines of abstract true-false judgements and are based on formal systems of reasoning. A preference for feeling, on the other hand, implies the type of individual who relies primarily on affective processes. His evaluations tend to run along personalistic lines of good/bad, pleasant/unpleasant, and like/dislike. Thinking types systematize; feeling types take moral stands and are interested and concerned with moral judgements (pp. 475-487).

Myers' constructs stem from Jung's four psychological functions that comprise problem-solving: sensation, intuition,
thinking, and feeling. In this study, the two opposite perceptual preferences (sensing and intuition) and opposite decision-making preferences (thinking and feeling) are combined in a model adapted from Hellriegel and Slocum (1976 and 1979), in the first and second editions of their text entitled Organizational Behavior. The authors presented the preferences in the model as: (1) sensing-thinking, (2) intuitive-thinking, (3) sensing-feeling, and (4) intuitive-feeling. The model (shown in Figure 1) is intended to portray four approaches individuals might take in problem-solving, based on their particular personality characteristics. Descriptions of the Hellriegel and Slocum model are summarized in the sections which follow.

![Figure 1](image)

Model of Problem-Solving Approaches Based on Selected Personality Characteristics

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**Sensing-Thinking Preferences.** Hellriegel and Slocum describe sensing-thinking persons (Figure 1, Section A) as those preferring to base their perceptions, or information-gathering, on short-term goals and logic. They prefer to make decisions which are practical, matter-of-fact, and based on rules and regulations, a well-defined hierarchy, and other forms of specificity and certainty. These types often accept the organization as it exists. The problem-solving style of sensing-thinkers tends to be practical and matter-of-fact (1979, p. 232).

**Intuitive-Thinking Preferences.** Persons with intuitive-thinking preferences (Figure 1, Section B) are described by Hellriegel and Slocum as persons preferring to focus on possibilities through impersonal analysis. Rather than approaching decisions with a human element, they prefer to consider long-range goals in the context of theoretical or technical information. These types enjoy being the "architects" of ideas. But, once the "castle" is designed or changed, they are apt to let others take over to keep things running. Thus, they tend to be more interested in solving problems than in putting solutions into practice. In organizations, they are likely to enjoy roles that are unstructured and are likely to prefer an organization which is conceptual and impersonal (1979, p. 234).

**Sensing-Feeling Preferences.** Persons with sensing-feeling preferences (Figure 1, Section C) are described by Hellriegel and
Slocum as persons preferring to rely primarily on sensing for purposes of gathering information, and on feeling for purposes of evaluating information (decision-making). They prefer to approach facts with personal and human concern and to verify the facts directly by the senses. Sensing-feeling types often describe an ideal organization as an organization with a well-defined hierarchy and a set of rules that exist to maximize motivation (1979, p. 230).

**Intuitive-Feeling Preferences.** Persons with intuitive-feeling preferences (Figure 1, Section D) are described by the authors as persons preferring to rely primarily on intuition for purposes of gathering information and on feeling for purposes of decision-making. These persons tend to focus on changing possibilities such as new methods, new "truths," and on events that might happen. Further, they tend to avoid specifics and focus on broad themes centered on human concerns, such as serving humanity or the organization's clientele. An ideal organization for intuitive-feeling types is an organization that is adaptive and run in a relatively democratic manner (Hellriegel and Slocum, 1979, p. 231).

**Overview of Preferences.** The four problem-solving approaches discussed here are "worthy of recognition, discussion, and further research" (Hellriegel and Slocum, 1979, p. 236). Hellriegel and Slocum have cited investigations of the constructs among 1,000
college students and 300 managers. The findings are incorporated in the descriptions they provided for the four preferences which comprise problem-solving approaches. This study further explored the personality preferences among persons in similar roles of leadership. For the purposes of this study it was assumed that these personality characteristics would vary according to the hierarchical level and focus of the job role. Holland's theory is the base for the assumption.

**Leadership Roles**

The personality factors investigated in this study were those of persons in leadership roles, or roles which require the persons to make decisions about the use of data, of people, or of things. For this research, standard measures were used to group each person's role according to the hierarchical level and the focus of the role within the organization. Holland's theory suggests that personality will vary with the hierarchical level to which the individual aspires, as well as with the focus of the job. However, researchers have experienced difficulty in defining job roles for the study of personality differences.

The standard measures selected for this study were originally developed under the direction of Sidney A. Fine at the U.S. Employment Service between the years 1950 and 1955. By 1965, the measures had become the basis for the occupational classification system incorporated in the Third Edition of the Dictionary of
Occupational Titles (DOT). Later, in the years 1968-1972, the measures became the basis for training provided by the W. E. Upjohn Institute for Employment Research for almost 1,000 persons concerned with personnel management and job development (Fine, 1974).

The scope of the measures extends beyond the purpose of DOT categories and beyond the purpose of this study. The measures provide a standardized controlled language to describe what workers do in their involvements with data, with people, and with things. Further, the measures provide a means of assessing and measuring the level and focus of the workers' roles. For the purpose of this study, the measures of the job level and job focus were selected from five of those identified by Fine and Wiley (1971).

The standard measures, as applied in this study, provide a method for distinguishing among job roles for the investigation of whether persons in similar leadership roles have similar personality characteristics. The hierarchical level of the role was measured and described in this study as being upper-level or middle-level. The primary basis for the distinction is a measure of the relative amount of discretion to make decisions which is assigned to the person's role. The investigator used this measure, in Appendix A, to define upper-level and middle-level for this study. The definitions are given in Chapter I.

The focus of the job role was determined from a measure of
the relative amount of time the worker spends in the job with data, with people, and with things. The focus of the greatest percentage of time spent in the role was reported on a standard instrument, shown in Appendix A. The leaders' job role foci were described as being data-focused or people-focused, based on the results of this measure. As pointed out earlier, Henney (1975) speculated that managers of different functions, such as production, sales, and personnel, may have correspondingly different personality characteristics. This study explored the possibility with the role foci measurement. The definitions of the role foci constructs, in Chapter I, show that by definition, it is unlikely that leaders would be in things-focused roles. Leaders are not likely to give their time and attention primarily to working directly with tangible things. For this reason, the leaders' role foci are described in this study as being either data-focused or people-focused.

Summary

This study investigated personality characteristics of persons in particular leadership roles. Early studies of leadership focused on personality traits as variables that distinguish leaders from followers. However, no single characteristic was found true of all leaders. Scholars concluded that additional factors needed to be considered to distinguish among leaders on the basis of such differences as in the focus of their activities,
differences among organizations, cultural and environmental differences, and differences among individuals. It was anticipated that when situational factors were identified and grouped, similarities in personality characteristics could be determined.

More recent investigators followed earlier suggestions and studied leaders' personalities in view of differences among leaders, such as in age, sex, job effectiveness, and job settings. Some common characteristics were found in this review. For example, leaders in non-routine job roles were reported to be more extroverted than leaders with routine jobs. Leaders described as being effective in their jobs were reported as being concerned with both the people in the organization and the accomplishments of the organization. However, the review showed several conflicting results concerning leaders' characteristics. Explanations for the discrepancies varied, but the predominant opinion was that increased attention needed to be directed to the description of the job roles represented. Reasons for the recommendation were given. First, an identification of job roles was considered necessary for grouping persons with similar roles for the purpose of research. The review showed that prevailing approaches for grouping subjects did not clearly characterize the subjects of the studies. The approaches could not be used to identify similar groups in other locations. This study employed other measures which are new to formal research, for the purpose of describing the job roles of the persons investigated. With
these measures, this study can be replicated in alternate locations for a comparison of results. Secondly, the hierarchical level and focus of the job role were cited as important to the study of leaders' characteristics because popular theory persisted that a person's job role is an expression of the person's personality. Holland's theory specifically suggests that the level of the person's role within the organization and the focus of the job role are variables associated with personality characteristics. The review of literature identified support for Holland's theory but the studies gave more attention to the identification of personality characteristics than to the job to which the personality was presumed to be associated. This study further investigated Holland's theory. Job roles were identified and served as the basis for associations with personality characteristics.

The instrument selected for this study of personality characteristics was the Myers-Briggs Type Indicator (MBTI). The literature confirmed that the MBTI established an empirical base for a personality theory not accomplished before. The MBTI is an instrument which measures Jungian constructs which, in turn, serve as the theoretical and empirical basis for this investigation of personality characteristics. The model chosen for the classification of personality characteristics utilizes four of the eight dimensions measured by the MBTI. The model was first developed to facilitate an understanding of differences in the ways
problems might be approached, based on individual's personality characteristics. For the purpose of the investigation, the model presented two paired and opposite personality preferences. The preferences are for gathering information through sensing or intuition, and for decision-making through thinking or feeling. The literature review showed the preferences as components that comprise four different approaches to problem solving. The approaches are sensing-thinking, intuitive-thinking, sensing-feeling, and intuitive-feeling. The need for further research was indicated in this review.

It was anticipated that with the use of the MBTI and measures to define job roles, personality characteristics of persons in selected leadership roles could be determined. This study sought to explore this application of Holland's theory. Chapter III presents the methods used. Chapter IV is a presentation of the analysis of the data. Chapter V is the summary and discussion of the results and implications of the investigation.
This study investigated relationships between leaders' personality characteristics and the hierarchical levels and the foci of their roles in organizations. A new approach to such investigations is introduced in this study. The approach can be used in further studies of this type and in dissimilar organizations having a hierarchical leveling of job roles. This chapter describes the study design and instrumentation. In addition, it describes the population sampled and the data collection procedures.

Study Design

This study employs ex post facto research. This methodology is widely used in psychology, sociology, and education because many research problems in the social sciences and education do not lend themselves to experimental inquiry (Kerlinger, 1967, p. 372). It is a search for causes "after the fact," which Mouley (1970) described as experimentation in reverse. Instead of taking groups that are equivalent and exposing them to different treatment with a view to promoting differences to be measured, the ex post facto experiment begins with a given effect and seeks the experimental factor that brought it about (p. 340).

The investigation contains discrete categories of personality
characteristics and job role variables. Tests of the hypotheses were applied to determine whether there were personality differences in the proportion of workers who were in each of the job role categories.

The Population

This study investigated a total population of all leaders employed in two private profit-making industrial plants employing between fifteen hundred and three thousand persons. The subjects were selected with the criterion that they be in roles which require them to make decisions about the use of data, of people, or of things. All plant employees meeting this criterion were asked to participate in this study.

The industrial plants in which the subjects were employed were located in Southwestern Michigan. Both were plants of Fortune 500 corporations. The plants were distinct by differences in the number of persons employed, the product produced, and the corporations to which they reported. Specifically, one plant engaged in heavy industry while the other engaged in light, more diversified industry. The latter plant employed fewer managers per employee and had some managers, in addition to the plant manager, reporting directly to the corporate office. These distinctions in the subjects' places of employment point out factors which could influence the amount of discretion required in the role concerning decisions to be made (the hierarchical
level), and factors which could influence the role foci, regardless of their similar job titles. However, this study did not rely on job titles to group subjects with similar roles of responsibility.

Instrumentation

For this study, it was necessary to identify leaders' personality characteristics. Further, information was needed concerning the hierarchical levels and the foci of the leaders' job roles. The following sections describe the data-gathering devices utilized for this purpose.

The Myers-Briggs Type Indicator (MBTI)

The MBTI instrument was used in this study to measure particular personality characteristics of persons in leadership roles. The MBTI is a 166 item forced-choice and self-administering inventory designed for normal adults. The short form of the inventory usually can be completed within a twenty-five minute period and yields four indices of paired and opposite personality characteristics. Satisfactory reliability and validity studies have been done on the MBTI.

The MBTI manual describes the personality characteristics measured with this instrument. The manual describes the Extroversion-Introversion (E-I) index as reflecting an orientation toward either the outer world of people and objects (E) or
toward the inner world of concepts and ideas (I). The Sensing-Intuition (S-N) index is designed to distinguish between a preference to become aware of things directly through one or another of the five senses (S) or a preference to rely primarily on ideas or associations for these perceptions (N). The Thinking-Feeling (T-F) index is designed to reflect the preference for formulating judgements based on either impersonal logic (T) or on a discrimination between that which is valued and that which is non-valued (F). The fourth index, that of Judging-Perception (J-P), is designed to indicate preferences between attitudes for dealing with the outer world. A person may prefer and rely upon judging attitudes (J) or perceptive attitudes (P) in dealing with the environment (Myers, 1962).

On each of the four indices the scores are distributed in both directions from a zero at the center. Responses on either side of zero are separately summed. The difference in the sums indicates the prevailing orientation or preference of the respondent. For example, persons with more points for T than for F are classed among those with a preference for thinking processes. Persons with more points for S than for N are classified among those with a preference for thinking processes. Persons with more points for S than for N are classified among those preferring to base perceptions on sensing. This study utilized two of the four paired and opposite indices. The prevailing preferences of the respondents were classed as sensing (S) or
intuition (N), and thinking (T) or feeling (F), depending on the preference which received the most points in each pair.

Reliability and validity studies have been done on the MBTI and the results were satisfactory. Split-half reliability studies conducted under the auspices of the Educational Testing Service showed correlations in most cases to be above .75. Levy, et al. (1972) confirmed the correlations with test-retest reliability studies conducted within a two-month interval.

Validity studies have been conducted with a questionnaire similar to the MBTI. The Gray-Wheelwright Psychological Type Questionnaire (GPTQ) was developed by two Jungian analysts about the same time as the MBTI was being constructed. Although the GPTQ was developed entirely independently from the MBTI, the correlations with that test were .79, .58, and .60 on the first three indices. The GPTQ did not measure the fourth index of judgement versus perception.

The Functional Job Analysis Self Report (FJASR)

The FJASR was used in this study to measure the hierarchical level and focus of the job role. The inventory also was used as a basis for this study's definition of middle-level and upper-level, and data-focused and people-focused roles. Permission to use selected items was granted to the investigator by Fine, July 22, 1980.

The FJASR inventory was compiled by Fine and his associates.
for the purpose of collecting information from workers about the activities, or fundamental units of work, the workers actually perform on the job. The inventory can be completed within two hours and is self-administering. The portion of the inventory selected for this study can be self-administered within ten minutes.

The process of testing the reliability of inventory items is based on the experience of the W. E. Upjohn Institute for Employment Research and has been described by Fine in his unpublished reports (1971 and 1974). Persons with experience in a broad range of organizational operations and trained in the FJASR are selected as evaluators. The trained evaluators read critically and evaluate each inventory item and try to reach a consensus. When agreement has been reached among the evaluators that the inventory item does communicate and that it does describe an approximate reality, the item is considered a reliable item.

The FJASR inventory items have been tested and revised during thirty years of use in private, as well as public enterprises, primarily under the supervision of Fine. Fine's (1974) stated criteria are that the validity of the inventory has been demonstrated when one can organize the FJASR results into personnel assignments and when decisions made on the basis of such assignments have resulted in predictable outputs, in terms of productivity and worker growth. He concluded that "this (productivity and worker growth) is the ultimate payoff. This is validity"
(p. 7). Fine's evaluation of the FJASR, in terms of reliability and validity, was careful and rigorous and has been accepted for the purpose of the present study.

The items of the FJASR inventory provided this study with the measures of the hierarchical level and the role foci, but there were no FJASR classifications of middle-level and upper-level per se. Further, there were no definitive classifications to distinguish leaders from non-leaders. For this reason, the investigator met with Fine in July, 1980, and discussed the separations between middle-level and upper-level, and leadership and non-leadership, in terms of the FJASR inventory items and Fine's thirty years experience in dissimilar types of organizations. The results of the discussion formed the basis for the hierarchical level classifications of this study.

The general procedures for interpreting the FJASR results have been described in Fine's reports (1971 and 1974). Results from the first section of the FJASR inventory can be interpreted with the use of an ordinal scale referred to as the Scale of Worker Instructions. The reliability and validity of the scale has been tested in a manner similar to that described for the reliability and validity testing of FJASR items. The Scale of Worker Instructions, shown in Appendix A, is one of six scales which serve as the basis for the third edition of the Dictionary of Occupational Titles issued in 1965 (Fine, 1973).

The Scale of Worker Instructions provides a standard measure
of the proportion of work activity which is prescribed, and work activity which is at the worker's own discretion. Worker activities which entail a great amount of prescribed activity are assigned values at the lower levels of the scale. Activities which entail the least amount of prescribed activity are assigned values at the highest levels of the scale. The levels are in rank order extending from level one through level eight. Each level is described in terms of the types of activities included.

FJASR Assignment Framework items, shown in Appendix A, correspond to the eight levels on the Scale of Worker Instructions. Item one of the Assignment Framework represents activities which were considered in this study as being associated with non-leadership roles. The activities of item one do not require the worker to make decisions about the use of data, of people, or of things. Items two and three of the Assignment Framework represent middle-level activities. The activities originate with an assignment but require that the worker develop ways of getting the job done, including selecting tools and equipment, determining the sequence of operations, and obtaining important information from professional and/or trade literature. The middle-level worker may be expected to know and employ theory and may or may not be responsible for others. The investigator selected this definition of middle-level roles, based on her discussions with Fine. Workers who engage in activities of items four and five of the FJASR Assignment Framework were considered by the investigator
to be in upper-level roles. This decision was also based on the experience of Fine and his associates. The items represent work activities which originate without an assignment. The activities of upper-level workers originate from the worker's own investigations, evaluations, and subsequent decisions. The FJASR Assignment Framework items and corresponding descriptions are shown in Appendix A.

In addition to providing a standard measure of the hierarchical level of the job, in terms of the relative amount of responsibility required for decisions, Fine (1974) provided a measure of the worker's role focus. The measure of role focus indicates the relative degree of involvement of the worker with data, with people, and with things and is referred to in Appendix A as Performance Requirements. FJASR Performance Requirement items elicit responses from workers which provide an estimate of the proportionate amount of time and attention they give to working with data, people, and things. The cumulative amount of time spent is expected to be 100%, but it is assumed by Fine that workers will give the greater proportion of their time and attention to one of the three areas of data, people, or things. Further, in the investigator's discussions with Fine, it was projected that workers in leadership roles will give the greater proportion of their time and attention to either data or people. In Fine's experience, it is not likely that leaders will give their time and attention primarily to working with tangible things. Thus, in
this study it was anticipated that the subjects would be in either data-focused or people-focused roles.

Data Collection Procedures

This study employed data collected from industrial leaders in two organizations. Permission was obtained from plant managers to conduct the survey in their respective plants.

The Functional Job Analysis Self Report (FJASR) was shown to the personnel managers of each plant, independently. The investigator discussed the items of that instrument with each manager to the point that their understandings were consistent with the definitions and terms provided in the instrument. The items of the FJASR Assignment Framework section, in Appendix A, were then used by the personnel managers to guide them in determining who, within their respective divisions, were to be included in the study. Each personnel manager was asked to include all those persons in their plant who were in leadership positions, as defined by the descriptions contained in items two through five of the FJASR Assignment Framework.

Before distributing the survey packets, the personnel managers sent a letter to each person to be surveyed. The letter assured the employees that (1) participation in the survey had appropriate corporation approval, (2) the results of the survey were for their own self-development and statistical purposes only, (3) the results were to be tabulated by the investigator.
and returned to the Personnel Offices for subsequent distribution to the respondents, and (4) the respondents would receive interpretive materials based on their individual MBTI results.

The personnel managers subsequently distributed survey packets to persons identified within their respective plants. The survey packets had been coded by the investigator. The personnel managers were the only persons to have access to the employees' names. Further, the survey packets had been prepared by the investigator and included (1) a letter of assurance from the investigator reiterating the assurances given, (2) the Myers-Briggs Personality Type Indicator (MBTI), and (3) the Functional Job Analysis Self Report (FJASR). Additionally, the survey materials had been commercially printed.

Persons in the study received survey packets through the plant mailing systems and independently self-administered the MBTI instrument (Form G). The investigator tabulated the results according to instructions provided by Myers (1962). The persons also responded to the two sections of the FJASR inventory, as they appear in Appendix A. The first section of the inventory, the FJASR Assignment Framework, contained descriptions of five ways workers might receive their work assignments or instructions. The respondents were asked to rank the five descriptions in the order of their applicability to the assignment framework in which the respondent functioned. The respondents were asked to assign a rank of 1 to the description which applied most directly.
to their functions and a rank of 5 to the description which least described their functions. They were asked to subsequently assign ranks 2, 3, and 4 in order of importance to the assignment framework in which they functioned. The respondents were asked to give examples to lend support to their choices of rankings. They were next asked to estimate the relative percentage of time each spent with data, with people, and with things on the FJASR Performance Requirements section, shown in Appendix A. Each category of data, people, and things was described for the respondents, and they were directed to assign a percentile figure indicating how their time and attention were divided, while considering how they tended to focus their efforts physically, mentally, and interpersonally while on the job. Each section of the inventory was self-administered.

Responses to the FJASR Assignment Framework were reviewed and evaluated by two industrial managers employed in industrial divisions for more than ten years. The persons were from separate companies and neither was affiliated with the organizations investigated. This precaution was taken to avoid possible bias in the evaluations and to protect the respondents' anonymity.

The managers, individually and in the presence of the investigator, reviewed the descriptions, read the responses to the inventory descriptions, and evaluated whether the responses were descriptive of upper-level, middle-level, or non-leadership job roles. The investigator made certain the evaluators were

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consistently aware of the definitions intended and evaluated responses herself in cases where there was disagreement.

The investigator evaluated responses reported on the FJASR Performance Requirements, shown in Appendix A. The purpose was to determine whether the respondents reported spending most of their time with data, people, or things. In the cases where respondents reported equal amounts of time given to data and people, the investigator considered the examples the respondents gave concerning the nature of their jobs, as requested on the FJASR Assignment Framework. There were no other cases where the primary focus could not be determined directly. The primary focus was reported to be that of giving time and attention to either data or people.

The information collected from the MBTI and from both sections of the FJASR inventory were assembled in two discrete classifications of personality preferences, two discrete classifications of job level, and two discrete categories of job focus. Personality preferences, as determined from the MBTI, were classified as (1) sensing-thinking, and (2) intuitive-thinking. The MBTI personality categories of sensing-feeling and intuitive-feeling were omitted from consideration due to low frequencies in these categories (see Chapter IV). Job roles, as determined from the questionnaire results, were classified as upper-level or middle-level and data-focused or people-focused.
Hypothesis Testing

The first theoretical hypothesis was that leaders in middle-level roles have different personality characteristics than leaders in upper-level roles. The null hypothesis tested was that of no difference between the proportion of middle-level and upper-level leaders who were in the personality categories of sensing-thinking and intuitive-thinking. This null hypothesis (H₀) was tested against the alternate hypothesis (H₁) that there is a difference in the two groups (middle-level and upper-level) in the proportion who were in the two personality categories. The .05 significance level was used as a basis for rejecting or accepting the null hypothesis tested.

The chi-square (χ²) test for two independent samples was chosen for the test of the hypothesis because the two groups of leaders (middle-level and upper-level) were in discrete categories. Further, the personality characteristics (preferences between sensing-thinking and intuitive-thinking) were in discrete categories. No assumptions needed to be made concerning the distribution of the population. The chi-square formula programmed and computer processed was

\[ x^2 = \frac{N (|AD - BC| - \frac{N}{2})^2}{(A+B)(C+D)(A+C)(B+D)} \]

where:
- A represents middle-level persons in the sensing-thinking category
- B represents upper-level persons in the sensing-thinking category
C represents middle-level persons in the intuitive-thinking category

D represents upper-level persons in the intuitive-thinking category

The second theoretical hypothesis was that leaders in data-focused roles have different personality characteristics than leaders in people-focused roles. The null hypothesis tested was that of no difference between the proportion of leaders in data-focused and people-focused roles who were in the personality categories of sensing-thinking and intuitive-thinking. This null hypothesis ($H_0$) was tested against the alternate hypothesis ($H_1$) that the proportion of leaders in the two groups (data-focused and people-focused) was different in the two personality categories. The .05 significance level was used as a basis for rejecting or accepting the null hypothesis tested.

The chi-square test for independent samples was again chosen for the test of the hypothesis. The criteria for use of the chi-square were met. Further, the same chi-square formula was programmed and computer processed but, in this case, where:

A represents persons in the data-focused, sensing-thinking categories

B represents persons in the people-focused, sensing-thinking categories

C represents persons in the data-focused, intuitive-thinking categories

D represents persons in the people-focused, intuitive-thinking categories

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Computations were done at the Western Michigan University computer center using the Statistical Package for the Social Sciences (SPSS) program. The results of the computations are presented in Chapter IV.

Summary

This research sought to examine whether leaders' personality characteristics were related to the hierarchical level and the focus of their job roles. The individuals selected for this study included a total population of one hundred twenty-seven persons. The persons were leaders within two industrial plants of two separate Fortune 500 corporations. The subjects comprised the total population of persons in roles requiring responsibility for decisions concerning the use of data, people, or things.

The subjects self-administered the MBTI and the FJASR. These instruments were used for the measures of the personality characteristics and the job roles. The MBTI yielded four personality preferences classified as (1) sensing-feeling, (2) intuitive-feeling, (3) sensing-thinking, and (4) intuitive-thinking. The latter two preferences were considered in the tests of the hypotheses. The FJASR yielded two discrete classifications of job level classed as (1) middle-level and (2) upper-level. Further, the FJASR yielded two discrete categories of the job role focus, classed as (1) data-focused and (2) people-focused. The four FJASR categories were also used in the tests.
of the hypotheses. The MBTI and FJASR were each shown to have satisfactory reliability and validity.

The data obtained were statistically analyzed by means of the chi-square test. An alpha level of .05 was used for the determination of whether the personality characteristics differed according to the hierarchical level and the focus of the job role. Chapter IV presents the results of this statistical analysis.
CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

The basic problem which the study proposed to investigate is whether persons in similar leadership roles have similar personality characteristics. Persons responsible for making decisions about the use of data, people, or things were identified from industrial plants of two corporations. The persons were asked to self-administer the Myers-Briggs Type Indicator (MBTI) and selected portions of the Functional Job Analysis Self-Report (FJASR). The measures were used to identify personality characteristics and the hierarchical levels and the foci of the leaders' roles.

This chapter contains a description of the respondents, a description of the data actually included in the statistical computations, and a description of specific hypotheses and the results of the tests made on them. A summary is given.

Characteristics of the Population

Profiles of the persons investigated are included in Tables 4:1, 4:2, 4:3, 4:4, 4:5, and 4:6. The demographics concerning job titles, age, and sex were gained from information requested on the answer sheets of the Myers-Briggs Type Indicator (MBTI).

Table 4:1 contains a description of the persons' job titles as self reported and their job roles as measured with selected portions of the FJASR. The table shows that the distribution of

58
job titles within the job role matrixes is irregular. Similar job titles do not necessarily fall within the same job role matrixes. Table 4:1 illustrates that the FJASR measures do not necessarily correspond to reported job titles.

Table 4:1
FJASR-Identified Job Roles, By Level and Focus, and Self-Reported Job Titles

<table>
<thead>
<tr>
<th>FJASR-Identified Job Roles</th>
<th>Self-Reported Job Titles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper-Level, People-Focused</td>
<td>Manager (3)</td>
</tr>
<tr>
<td></td>
<td>Manager, Engineering (3)</td>
</tr>
<tr>
<td></td>
<td>Manager, Employee Relations</td>
</tr>
<tr>
<td></td>
<td>Manager, Facility</td>
</tr>
<tr>
<td></td>
<td>Manager, Finance</td>
</tr>
<tr>
<td></td>
<td>Manager, General</td>
</tr>
<tr>
<td></td>
<td>Manager, General Overseas</td>
</tr>
<tr>
<td></td>
<td>Manager, General Production Marketing</td>
</tr>
<tr>
<td></td>
<td>Manager, General Sales</td>
</tr>
<tr>
<td></td>
<td>Manager, Industrial</td>
</tr>
<tr>
<td></td>
<td>Manager, Labor Relations</td>
</tr>
<tr>
<td></td>
<td>Manager, Product Development</td>
</tr>
<tr>
<td></td>
<td>Manager, Production</td>
</tr>
<tr>
<td></td>
<td>Manager, Product Marketing</td>
</tr>
<tr>
<td></td>
<td>Manager, Manufacturing Systems</td>
</tr>
<tr>
<td></td>
<td>Manager, Quality</td>
</tr>
<tr>
<td></td>
<td>Manager, Sales</td>
</tr>
<tr>
<td></td>
<td>Vice President, Marketing</td>
</tr>
<tr>
<td>Upper-Level, Data-Focused</td>
<td>International Executive</td>
</tr>
<tr>
<td></td>
<td>Manager, Employee Relations</td>
</tr>
<tr>
<td>Middle-Level, People-Focused</td>
<td>Administrative Staff Services</td>
</tr>
<tr>
<td></td>
<td>Auditor</td>
</tr>
<tr>
<td></td>
<td>Engineer (5)</td>
</tr>
<tr>
<td></td>
<td>Executive</td>
</tr>
</tbody>
</table>

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Table 4:1 (continued)

<table>
<thead>
<tr>
<th>FJASR-Identified Job Roles</th>
<th>Self-Reported Job Titles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Middle-Level,</strong></td>
<td></td>
</tr>
<tr>
<td><strong>People-Focused</strong></td>
<td></td>
</tr>
<tr>
<td>Cost Analyst</td>
<td></td>
</tr>
<tr>
<td>Manager</td>
<td></td>
</tr>
<tr>
<td>Manager, Accounting</td>
<td></td>
</tr>
<tr>
<td>Manager, Benefit Plans</td>
<td></td>
</tr>
<tr>
<td>Manager, Department</td>
<td></td>
</tr>
<tr>
<td>Manager, Data Base</td>
<td></td>
</tr>
<tr>
<td>Manager, Engineering</td>
<td></td>
</tr>
<tr>
<td>Manager, Engineering Data Control</td>
<td></td>
</tr>
<tr>
<td>Manager, Engineering Staff</td>
<td></td>
</tr>
<tr>
<td>Manager, General Parts Service</td>
<td></td>
</tr>
<tr>
<td>Manager, Inventory</td>
<td></td>
</tr>
<tr>
<td>Manager, Product Engineering (2)</td>
<td></td>
</tr>
<tr>
<td>Manager, Production Planning</td>
<td></td>
</tr>
<tr>
<td>Manager, Project (2)</td>
<td></td>
</tr>
<tr>
<td>Manager, Supplier Control</td>
<td></td>
</tr>
<tr>
<td>Manager, Systems Planning and Implementation</td>
<td></td>
</tr>
<tr>
<td>Superintendent</td>
<td></td>
</tr>
<tr>
<td>Superintendent, Construction</td>
<td></td>
</tr>
<tr>
<td>Superintendent, Materials Handling</td>
<td></td>
</tr>
<tr>
<td>Superintendent, Manufacturing</td>
<td></td>
</tr>
<tr>
<td>Superintendent, Production (3)</td>
<td></td>
</tr>
<tr>
<td>Superintendent, Warehouse</td>
<td></td>
</tr>
<tr>
<td>Supervisor, Graphics</td>
<td></td>
</tr>
<tr>
<td>Supervisor, Engineering (2)</td>
<td></td>
</tr>
<tr>
<td>Supervisor, Production Planning</td>
<td></td>
</tr>
<tr>
<td>Supervisor, Maintenance (3)</td>
<td></td>
</tr>
<tr>
<td>Technical Specialist, Hydraulics</td>
<td></td>
</tr>
</tbody>
</table>

| **Middle-Level,**          |                          |
| **Data-Focused**           |                          |
| Accountant                 |                          |
| Computer Analyst           |                          |
| Customs Specialist         |                          |
| Data Processing            |                          |
| Design Engineer (3)        |                          |
| Drawback Specialist        |                          |
| Budget Administration      |                          |
| Employee Relations         |                          |
| Financial Analyst          |                          |
| Industrial Engineer        |                          |
| International Marketing    |                          |
Table 4:1 (continued)

<table>
<thead>
<tr>
<th>FJASR-Identified Job Roles</th>
<th>Self-Reported Job Titles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Middle-Level,</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Data-Focused</strong></td>
<td></td>
</tr>
<tr>
<td>Personnel</td>
<td>Personnel Professional</td>
</tr>
<tr>
<td>Manager, Business</td>
<td></td>
</tr>
<tr>
<td>Manager, Cost Accounting</td>
<td></td>
</tr>
<tr>
<td>Manager, Materials</td>
<td></td>
</tr>
<tr>
<td>Manager, Process Audit</td>
<td></td>
</tr>
<tr>
<td>Manager, Accounting</td>
<td></td>
</tr>
<tr>
<td>Manager, Production</td>
<td></td>
</tr>
<tr>
<td>Manager, Quality Control</td>
<td></td>
</tr>
<tr>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>Manager, Systems and Programming</td>
<td></td>
</tr>
<tr>
<td>Manager, Systems Engineering</td>
<td></td>
</tr>
<tr>
<td>Supervisor, Compensation</td>
<td></td>
</tr>
<tr>
<td>Supervisor, Production Planners</td>
<td></td>
</tr>
<tr>
<td>Supervisor</td>
<td></td>
</tr>
<tr>
<td>Systems Analyst</td>
<td></td>
</tr>
<tr>
<td>Test Engineer</td>
<td></td>
</tr>
</tbody>
</table>

Table 4:2 presents the hierarchical level of the job role and the distribution according to sex of 102 males and 8 females. The table shows that the middle-level category contains the female respondents. Table 4:3 shows the mean and median ages of the respondents to be between 42 and 43 years. There is little difference in the ages of the persons in each category. Further, the ranges of the ages were similar. In the middle-level category the ages ranged from 28 to 65 years. The range in the upper-level category was from 32 to 57 years. A few respondents chose not to answer certain demographic questions on the MBTI answer sheet. This accounted for some variations in the data reported in the tables.
Table 4:2
Frequencies: Hierarchical Level and Sex
N = 110

<table>
<thead>
<tr>
<th>Job Level</th>
<th>Males</th>
<th>Females</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper</td>
<td>28</td>
<td>0</td>
<td>28</td>
</tr>
<tr>
<td>Middle</td>
<td>74</td>
<td>8</td>
<td>82</td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
<td>8</td>
<td>110</td>
</tr>
</tbody>
</table>

Table 4:3
Hierarchical Level and Age
N = 88

<table>
<thead>
<tr>
<th>Job Level</th>
<th>Mean Age</th>
<th>Median Age</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper</td>
<td>42</td>
<td>42</td>
<td>21</td>
</tr>
<tr>
<td>Middle</td>
<td>43</td>
<td>42</td>
<td>67</td>
</tr>
<tr>
<td>Cumulative</td>
<td>42.5</td>
<td>42</td>
<td>88</td>
</tr>
</tbody>
</table>

The MBTI personality characteristics of respondents are shown in Table 4:4. The table is divided by pairs of opposite preferences for sensing or intuition and, thinking or feeling. The table shows that most people in the population indicated preferences for sensing and thinking. The category of feeling contained the smallest proportion of the responses.
Table 4:4
Frequency Distribution of Paired and Opposite Personality Characteristics

<table>
<thead>
<tr>
<th>Preference for Sensing or Intuition</th>
<th>Total Sample</th>
<th>Sensing</th>
<th>Intuition</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>67</td>
<td>43</td>
<td></td>
<td>110</td>
</tr>
<tr>
<td>Percent</td>
<td>61</td>
<td>39</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preference for Feeling or Thinking</th>
<th>Total Sample</th>
<th>Feeling</th>
<th>Thinking</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>13</td>
<td>97</td>
<td></td>
<td>110</td>
</tr>
<tr>
<td>Percent</td>
<td>11.8</td>
<td>88.2</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

The importance of each personality preference to organizations is described in Appendix B. Table B-1 shows the effectiveness of opposite personality preferences within the work group. Each personality preference is presented in the tables as positive and contributory to groups within an organizational setting.

The categories of job roles, the hierarchical level and job focus, as identified with the FJASR instrument, are shown in Table 4:5. In the table, the population was divided by these job role categories. The middle-level category of Table 4:5 contains
almost three quarters of the population, divided by hierarchical level. When the population was divided by the focus of the job role, most were in the category of people-focused roles. The responses clustered in the middle-level, people-focused categories. The categories of upper-level and data-focused roles contained the smaller proportions of the population.

Table 4:5
Frequency Distribution of the Hierarchical Level and Focus of the Job Role

<table>
<thead>
<tr>
<th>Hierarchical Level</th>
<th>Total Population</th>
<th>Upper</th>
<th>Middle</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>28</td>
<td>82</td>
<td></td>
<td>110</td>
</tr>
<tr>
<td>Percent</td>
<td>25.4</td>
<td>74.6</td>
<td></td>
<td>110</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Role Focus</th>
<th>Total Population</th>
<th>Data</th>
<th>People</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>41</td>
<td>69</td>
<td></td>
<td>110</td>
</tr>
<tr>
<td>Percent</td>
<td>37.3</td>
<td>62.7</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Number of Cases in the Tests of the Hypotheses

Initially, 127 packets were distributed among the leaders in the two industrial plants. Ninety-two percent of the persons responded to the survey. This was considered to be a high response.
rate. Babbie (1973) considered a rate of 70 percent or more to be very good. Further, Good (1973) contended that studies with a high percentage of returns yield a "net total which will be a reasonable approximation of the truth." He reasoned that "errors of judgement and of statement had an opportunity to correct and to balance one another" (p. 283).

Five factors reduce the number of cases used in the testing of the hypotheses. Thirteen were either incomplete or not returned. Ten persons did not return their survey packets. Two persons did not complete the FJASR. One person returned the packet without completing the MBTI or the FJASR. Data for four persons were eliminated from the study because their FJASR results indicated that they were not in roles of leadership. These persons indicated their primary instruction or assignment framework to be that described in item one of the FJASR Assignment Framework, shown in Appendix A. Item one of the inventory indicated a non-leadership role in the organization.

The MBTI and FJASR were completed and returned by 110 persons in identifiable roles of leadership. However, 13 of the 110 were eliminated from the tests of the hypotheses because their MBTI results in the categories of feeling were of such low frequencies that the tests risked contamination. Table 4:5 lists the distribution of the population in the categories. Only 8 persons were in the category of sensing-feeling and only 5 persons were in the category of intuitive-feeling. Chi-square tests of
significance tend to be inaccurate with low cell frequencies and fail to evaluate the information sought. To avoid the possible distortions of the results, the cases categorized as sensing-feeling or intuitive-feeling were ignored for the purpose of the analyses. Hence, only data for persons in the personality categories containing the thinking index were included. All data for persons in the categories containing the feeling index were omitted from consideration.

The factors reduce the population size to 97 persons. This is a reduction from a population size of 127 persons in leadership roles.

Table 4:6
Frequency Distribution of Personality Characteristics and the Hierarchical Level and Focus of the Job Role

<table>
<thead>
<tr>
<th>Personality Preferences</th>
<th>Middle-Level</th>
<th>Upper-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data-Focus</td>
<td>People-Focus</td>
</tr>
<tr>
<td>Sensing-Thinking</td>
<td>26 66.7</td>
<td>25 58.1</td>
</tr>
<tr>
<td>Sensing-Feeling</td>
<td>3 7.7</td>
<td>1 2.3</td>
</tr>
<tr>
<td>Intuitive-Thinking</td>
<td>9 23.1</td>
<td>14 32.6</td>
</tr>
<tr>
<td>Intuitive-Feeling</td>
<td>1 2.6</td>
<td>3 7.0</td>
</tr>
<tr>
<td>Total</td>
<td>39 100.1</td>
<td>43 100.0</td>
</tr>
</tbody>
</table>

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Findings With Respect to the Hypotheses

The first question explored was whether leaders' personality characteristics are related to the hierarchical levels of their roles. The null hypothesis tested was that of no difference between the proportion of middle-level and upper-level leaders in the two personality categories. The chi-square test of the hypothesis (in Table 4:7) utilizing 97 persons showed significance at the .05 level. The null hypothesis of no relationship was therefore rejected. Chi-square results led to the acceptance of the alternate hypothesis, namely, that there is a difference in the two groups (middle-level and upper-level) in the proportion who were in the two personality categories (sensing-thinking and intuitive-thinking).

Table 4:7 shows differences in the divided population's personality characteristics. The greatest proportion of the persons in the middle-level group clustered in the personality preference category which contains sensing. The inverse is found among persons in the upper-level group where the predominant preference is shown to be in the intuitive-thinking preference category. This difference was found to be significant at the .05 level.
Table 4:7
Differences Between the Proportion of Middle-Level and Upper-Level Persons in the MBTI Personality Categories

<table>
<thead>
<tr>
<th>Personality Preferences</th>
<th>Middle-Level</th>
<th>Upper-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Sensing-Thinking</td>
<td>51</td>
<td>68.92</td>
</tr>
<tr>
<td>Intuitive-Thinking</td>
<td>23</td>
<td>31.08</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Note: $x^2 = 8.58*$; df - 1; $p = .0033$

The second research question was whether leaders' personality characteristics are related to the primary focus of their roles within organizations. The null hypothesis tested was that of no difference between the proportion of leaders in data-focused and people-focused roles who are in the personality categories of sensing-thinking and intuitive-thinking. The chi-square test of the hypothesis (in Table 4:8) showed significance at the .05 level. The null hypothesis of no relationship was therefore rejected in favor of the alternate hypothesis, that is, that the proportion of leaders in the two groups (data-focused and people-focused) was different in the two personality categories.

*The null hypothesis can be rejected using $\alpha = .05$. 

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Table 4:8

Differences in the MBTI Personality Characteristics of Leaders in Data-Focused and People-Focused Roles

<table>
<thead>
<tr>
<th>Personality Preferences</th>
<th>Data-Focused</th>
<th></th>
<th>People-Focused</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensing-Thinking</td>
<td>27</td>
<td>77.00</td>
<td>32</td>
<td>52.46</td>
<td>59</td>
</tr>
<tr>
<td>Intuitive-Thinking</td>
<td>9</td>
<td>25.00</td>
<td>29</td>
<td>47.54</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>100.00</td>
<td>61</td>
<td>100.00</td>
<td>97</td>
</tr>
</tbody>
</table>

Note: $x^2 = 4.83*$; df = 1; p = .0200

Table 4:8 shows 75 percent of the persons in the data-focused group are in the personality category of sensing-thinking. Persons who reported spending most of their time with people are almost evenly distributed between the categories of sensing-thinking and intuitive-thinking. The difference which appears to account for significance shown in the chi-square test, is the predominant preference of the data-focused group for sensing. A smaller proportion of the people-focused group was in this category.

*The null hypothesis can be rejected using $\alpha = .05$. 

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Data collected from ninety-seven persons from two industrial plants, representing two corporations, were included in the tests of the hypotheses. The ninety-seven persons constitutes a reduction of 23.6% in the original population of one hundred twenty-seven persons. The reduction was caused by non-returned survey packets, missing information, FJASR results indicating non-leadership responsibilities, and the elimination of subjects due to low cell frequencies in MBTI categories containing the feeling index.

The research questions generated two hypotheses which were tested by crosstabulating MBTI personality characteristics with job role factors. Significant chi-squares at the .05 level were obtained in each instance. The hierarchical level of the job role and the role focus were found to be related to personality characteristics. Chapter V presents the discussion of these results.
CHAPTER V

DISCUSSION AND IMPLICATIONS

This chapter is a summary of an investigation of relationships between leaders' personality characteristics and their roles in organizations. Conclusions drawn from the findings are presented. Previous studies which relate to these conclusions and the implications of the findings are then discussed.

Summary of Procedures and Findings

This study investigated job level and job focus as they relate to the personality characteristics of persons in middle-level and upper-level leadership roles. The subjects were leaders in two industrial plants representing two Fortune 500 corporations. Leaders identified from a total population of persons responsible for making decisions about the use of data, people, or things were investigated. Data were collected employing the Myers-Briggs Type Indicator (MBTI) and the Functional Job Analysis Self-Report (FJASR). The MBTI instrument identified personality characteristics in terms of two paired and opposite personality preferences, that is, the preferences for (1) sensing or intuition, and (2) feeling or thinking. The FJASR inventory identified job roles as (1) level (middle-level or upper-level) and (2) focus (data-focus or people-focus). The MBTI
personality characteristics were crosstabulated with those of job role. Chi-square tests were applied to determine whether the leaders' personality characteristics were related to their job roles.

The focus of this study was on two theoretical hypotheses. These were:

1. Leaders in middle-level roles have different personality characteristics than leaders in upper-level roles.
2. Leaders in data-focused roles have different personality characteristics than leaders in people-focused roles.

The test of the first hypothesis indicated that the leaders' personality characteristics varied with the hierarchical level. Personality characteristics of persons in middle-level roles were found to be different from those of persons in upper-level roles. Persons in middle-level roles indicated a predominant personality preference for sensing, which was described in this study as a preference to rely primarily on one or more of the five senses for gathering information concerning facts and ideas. Persons in upper-level roles indicated a predominant personality preference for intuition, which was described in this study as the preference to rely primarily on ideas or associations for information-gathering. It appears that the personality characteristics of sensing and intuition distinguished the leaders in the two hierarchical levels.
The test of the second hypothesis indicated that the leaders' personality characteristics varied with the role focus. Leaders in data-focused roles indicated a predominant personality preference for sensing. Those in people-focused roles indicated divided preferences between sensing and intuition. It appears that the relationship between personality and job role was in the sensing category.

The data showed additional tendencies about which no hypotheses were posited. First, a distinct profile appeared which describes an overall personality characteristic of the composite population. Few persons in the original population of 127 indicated preferences in the feeling category. Most persons indicated preferences in the thinking category. This observation suggests that the persons prefer to make decisions based on unemotional logic (thinking) rather than on their own and other persons' likes and wishes (feeling). Secondly, the average ages of the persons in middle- and upper-level roles were 43 and 42 years, respectively. Further, the ranges of the ages were similar in each hierarchical level. In the middle-level category the ages ranged from 28 to 65 years. The range in the upper-level category was from 32 to 57 years. It appears that in this study, differences in job level and hence personality characteristics cannot be attributed to differences in age.

Interpretation of the Findings

This study identified two kinds of relationships between
leaders' personality characteristics and their job roles. The hierarchical level of the role as well as the focus of the role were found to be related to particular personality characteristics. This relationship has not been confirmed in previous studies of leaders. As such, this finding should be of considerable interest in further studies of leadership. This study also provided needed extension to Holland's theory, which served as a basis for this study.

Holland postulated that there was congruence between a person's personality and the job to which the individual aspired, and presumably achieved. To date, there has been no evidence of this postulated relation between personality and job role in leaders, regardless of job title or other role designation. Prior to this study, evidence for Holland's theory was restricted primarily to studies of college students, as is seen in the studies of McCaulley (1973), Yura (1971), Dunning (1970), and Stone (1978). In a few instances, evidence was obtained among persons in particular employment settings. However, in these studies the personality characteristics identified were those of persons with particular, highly descriptive and specific job titles. Examples were illustrated in the studies of Protestant ministers (Greenfield, 1968), artists (Burt, 1968), mathematics teachers (Story, 1972), and laboratory technicians (Hill, 1975). The roles of the persons were implied by job title and it is perhaps not surprising that the investigators found personalities and
roles related.

The problem in previous studies has been that of identifying leaders' roles at a less specific level than leaders' titles in particular organizations, for determining whether leaders' personalities and roles are related. Unlike the roles of Protestant ministers, artists, mathematics teachers, and laboratory technicians, most leaders' roles are not implied by job title. Nor are they implied by other role designations such as manager, executive, supervisor, or administrator. Leaders' role designations tend to vary among organizations, and in many cases, among departments within the same organization. A broad based test of Holland's theory would require that persons in similar less specific roles be identified and grouped for the determination of whether their personalities and roles were related. As was pointed out, this is the first known study to approach this requirement for generalization.

Previous studies lacked workable approaches to identify and group leaders in similar roles, regardless of job title or other specifically applied role designation in the organization. Investigators have recognized this limitation in reporting that it was for this reason that results of their studies appear to conflict with those of other studies or to be of no significance in terms of finding generalizable associations between leaders' personalities and their roles (Beneditti, 1970; Crawford, 1977; Henney, 1968; Robbins, 1978; and Schlack, 1976). This study was
designed to overcome previous limitations and to test whether Holland's theory applied to persons in leadership roles, regardless of their narrowly defined job role designations such as test engineer, technical specialist, and training communications manager (in Table 4:1). It was found that leaders' hierarchical levels (middle-level and upper-level) and role foci (data-focus and people-focus) were related to particular personality characteristics. These relationships are discussed in the sections which follow.

**Personality and the Hierarchical Level**

In this study, hierarchical levels were defined in very broad terms. Middle-level was presented as the hierarchical level at which most of the worker's assignments are prepared by another person or persons, but the methods of completing the assignments are left to the worker's discretion. Upper-level was defined as the hierarchical level at which most instructions are based on the worker's own decisions or judgements. Using these broad definitions, and criteria, the FJASR inventory identified middle-level and upper-level leaders. These distinctions in hierarchical levels enabled identification of differences between middle-level and upper-level leaders' personality characteristics.

The first item of the FJASR Assignment Framework, in Appendix A, is descriptive of roles considered in this study to be non-leadership roles. There is no evidence in item one that the role
requires responsibility for making decisions about the use of data, people, or things. Rather, the item is descriptive of roles where most of the instructions are detailed in assignments prepared by another person or persons and that the work required is repetitive rather than discretionary. Use of item one in identifying subjects in non-leadership roles was considered effective. There were 4 persons initially presumed to be leaders who were identified in non-leadership roles. The personality characteristics of these persons were not tabulated in the results of leaders' personality and role relationships.

The second and third items of the FJASR Assignment Framework identify roles which correspond to this study's description of middle-level. These items are descriptive of roles whereby work assignments are primarily prepared by another person or persons. However, middle-level indicated on the FJASR that they must identify methods of completing assignments, by referring to reference materials such as catalogs, and handbooks, or by employing theory. There were 82 persons of the 110 person population who were identified as middle-level. Middle-level leaders constituted nearly 75% of the population, as might be expected from the pyramidal structure of organizational hierarchies. It can be further observed that since the middle-level leaders were shown to have similarities in their personality characteristics, and that these characteristics differed from those of the remainder of the population, it appears that the middle-level leaders were
Unlike the leaders identified to be in upper-level roles, middle-level leaders indicated the predominant personality preference for sensing, on the MBTI instrument. This preference was described by Myers (1962) as the preference to rely on one or more of the five senses for gathering information about the world of facts and ideas. Hellriegel and Slocum (1979) described sensing individuals as those preferring to approach problems which are structured, involve short-term planning, and contain few uncertainties. Further research is needed in organizations to test the Hellriegel and Slocum postulates concerning sensing individuals. This study identified sensing as the predominant preference of the middle-level leaders. The manner in which this preference might affect approaches these leaders take in problem-solving is unknown at present. The same can be said regarding interpretations of the observation that the middle-level leaders, like the upper-level leaders, indicated the predominant MBTI preference for thinking. Myers (1962) described thinking as the preference to approach problems with unemotional detachment. Further, the middle-level leaders' combined personality preferences were indicated to be sensing-thinking. Hellriegel and Slocum (1979) described sensing-thinking individuals as those preferring to make decisions which are practical, matter-of-fact, and based on rules and regulations, a well-defined hierarchy, and other forms of specificity and certainty. Further research is needed.
to determine whether the indicated personality characteristics of the middle-level leaders are associated with their approaches to problem-solving in the organizations. Additionally, it is not known whether the middle-level leaders of this study would approach problems in a manner different from upper-level leaders, as a result of differences in their personality characteristics.

The fourth and fifth items of the FJASR Assignment Framework, in Appendix A, correspond with this study's description of upper-level. These items are descriptive of roles where the worker is required to exercise considerable discretion concerning the directions, or courses of action, which should be pursued in the role. With this description of upper-level, 28 leaders from a population of 110 were identified. This relatively small number might be expected, based on the pyramidal structure of roles in organizational hierarchies. Additionally, the upper-level leaders were found to have similarities in their personality characteristics which were unlike those predominantly found among middle-level leaders. It appears that the FJASR inventory identified leaders from the same population. In this study, the population was referred to as upper-level.

Unlike the middle-level leaders' predominant preference for sensing, the upper-level leaders indicated the predominant preference for intuition. Intuitives were presented in Myers (1962) as those preferring to rely primarily on ideas or associations for their perceptions regarding information they are likely to attend.
to in information-gathering. Hellriegel and Slocum (1979) expanded this description by adding that intuitives are "suffocated" by stable conditions and seek out and create new possibilities. The Hellriegel and Slocum description of intuitives may also be descriptive of the requirements of persons in upper-level roles. In this study there appears to be an association between upper-level and intuitive personalities.

Hellriegel and Slocum (1979) presented additional observations which merit further research in view of this study's findings of middle-level and upper-level leaders' personality characteristics. The upper-level leaders, like the middle-level leaders, indicated the predominant preference for thinking, which was described as the preference to make decisions which are based on unemotional logic. Unlike the middle-level leaders, however, their predominant combined preferences were for intuitive-thinking. Intuitive-thinking persons were described by Hellriegel and Slocum as those preferring to consider problems which are conceptual and non-routine. In their view, these persons prefer to focus on possibilities and long-term goals, and to approach these through impersonal analysis. Further studies can determine whether or not the MBTI preferences leaders indicate are associated with the approaches they take in problem-solving. Additionally, the research might determine to what extent intuitive-thinkers in middle-level roles are more likely to gain and/or be promoted to upper-level roles than middle-level sensing-thinkers.
Due to this study's small N of 28 persons in upper-level roles, the exploration of their personalities was limited. Specifically, there were 4 upper-level persons who indicated the preference for sensing-feeling. The 4 persons were slightly more than fifteen percent of the upper-level persons. Further studies are needed to determine whether the 4 cases might have occurred by chance.

Additional studies following the approach of this study are needed to determine conclusively whether leaders' personality characteristics are generally associated with the hierarchical levels of their roles. This study provided a basis for such tests of a general interpretation of leaders' personality and role relations. The following section presents the discussion of personality and role focus relationships as identified in this study.

Personality and the Role Focus

This study defined hierarchical levels in very broad terms. The same principle was followed in categorizing role focus. Based on Fine, et al., (1971 and 1974), this study assumed that regardless of workers' specific role designations in particular organizations, workers' particular role assignments will require that they give most of their time and attention to working with either data, people, or things. This study utilized these three broad categories to identify leaders with similar role
responsibilities, regardless of their specific titles in organizations such as Chief Engineer, Production Manager, Manufacturing Superintendent, and Financial Analyst. The role foci were described in this study as (1) data-focused, (2) people-focused, or (3) things-focused. The distinctions in role focus enabled this study to identify relationships between leaders' personality characteristics and the focus of their roles in organizations.

The FJASR Performance Requirements, in Appendix A, identified the primary role focus of the leaders with clearly defined criteria. Data-focused roles were defined as roles which require the worker to give most of their time and attention to such tasks as handling, tending, operating, testing, tangible things such as tools, equipment, and machines. With these definitions, highly specific role designations and/or job titles in particular organizations were disregarded. For example, one leader designated as an employee relations manager, in Table 4:1, was identified in this study as being in a data-focused role. Another leader with the same role designation in another organization was identified as being in a people-focused role. Many similar examples can be cited from Table 4:1 in Chapter IV. This points out that leaders with similar role designations do not necessarily have similar foci in their role responsibilities. Studies of leaders' personality and role relationships cannot rely on leaders' job titles or other role designations for any consistent investigation of role focus.
This study utilized leaders' self-reported role foci for the investigation of their personalities. In 103 out of 110 cases, the leaders indicated that they were not equally involved with data, people, and things. Most indicated that there was one primary focus of their involvement. Further, in the 7 cases where the primary focus was not directly indicated, the investigator was able to determine the predominant focus from the leaders' own descriptions of their work, as reported on the FJASR Assignment Framework. This amenability to classification confirmed this study's assumption that roles can be grouped in one of the three broad categories of role foci. Further, the assumption that the leaders would not hold things-focused roles was confirmed. In no cases did the leaders report that they gave their time and attention primarily to working directly with tangible things. The leaders indicated either data-focused or people-focused roles. Thus, their personality characteristics were grouped in these two role foci categories.

Leaders in data-focused roles indicated predominant preferences for sensing and thinking. These combined preferences were described by Hellriegel and Slocum (1979) as preferences to make decisions which are practical, matter-of-fact, and based on rules and regulations. Considering the Hellriegel and Slocum description, it is perhaps not surprising that most leaders who gave their time and attention primarily to such tasks as comparing, compiling, analyzing, organizing, developing, ideas and data,
indicated preferences for sensing-thinking. Further, it appeared to be this predominant preference for sensing-thinking among leaders in data-focused roles which accounted for the relationship found between personality and role focus. It may be that leaders' personalities and role focus are related primarily among leaders in data-focused roles. Also, it may be that additional personality characteristics need to be considered among leaders who are not in data-focused roles. In this study, there appeared to be no predominant preference among the leaders in people-focused roles. The leaders were divided in their preferences for sensing-thinking and intuitive thinking. The relationship between personality and role focus appears to have been established with the predominant preferences of data-focused leaders for sensing-thinking.

Further studies following the approach of this study are needed to investigate leaders' personality and role focus relationships. In this study, there were 13 observations in the personality category of feeling. Table 4:5 shows that 8 of the observations were from 69 leaders in people-focused roles, and 5 were from the 41 leaders in data-focused roles. Additionally, in this study there were 2 upper-level leaders in data-focused roles and 39 middle-level leaders. Further studies may identify additional trends which were not identified here due to the small population of 127 leaders. This study has provided a research approach for future studies of leaders' personality and role relations.
Future Research

The present study demonstrated the utility of a research approach which can be used to further the investigation of whether leaders' personalities are associated with their job roles, regardless of the type of organization. The need for a workable approach has been shown in the studies of leadership appearing as early as the 1940's and as late as the late 1970's. Until the present study, leadership studies have not been replicable with similar groups of leaders in dissimilar types of organizations. Future studies can use and further refine this study's approach. The approach of this study or variations of this approach should be useful for further exploration of relationships between leaders' personality characteristics and their roles in general. Suggestions for this use and refinement follow.

The MBTI Instrument

This instrument is suggested for future studies of leaders' personalities. The instrument provided this study with a strong empirical base for a personality inventory. Further, the instrument had appeal among the leaders investigated. The personnel managers of the two companies indicated that the high response rate of 92 percent could be partly attributed to this appeal. Also, the MBTI identified definitive classifications of personality characteristics which can be tested in dissimilar types of
organizations.

This study found that both middle-level and upper-level leaders indicated the MBTI personality preference for thinking, without consideration of the degree. It may be that the groups varied additionally in accordance to the relative strengths of their average thinking scores. Further studies of leaders' personalities might take the numerical values obtainable from MBTI results into consideration. Myers (1962) cautioned against the use of this numerical approach, based on her interpretation of Jungian concepts. At the same time, she provided research suggestions for studies which incorporate numerical values for MBTI results. According to Myers, Jung's view was that persons either have a particular preference or they do not. Nevertheless, leadership studies may require a more definitive approach than other types of MBTI uses previously considered. A scalar approach as opposed to the bipolar approach taken here is certainly open for testing.

The FJASR Assignment Framework

This inventory provided this study with a standard method for identifying leaders in similar hierarchical levels, regardless of their particular role designations in the organizations. Further, in this study the results of the completed inventories were independently interpreted by two evaluators with highly consistent results. In addition, each inventory took no more
than 4 minutes to interpret. Consequently, the FJASR Assignment Framework is considered an effective, as well as, an efficient inventory for leadership studies. It is strongly recommended that this inventory be employed in further studies of this kind.

The FJASR Performance Requirements

This inventory provided the present study with a method for determining the role foci of the leaders, regardless of the leaders' particular role designations. In most cases, the inventories were easily interpreted by noting the focus with the highest percentage response.

However, there were 7 cases where the subjects indicated that their time and attention was equally divided between the focus of data and the focus of people. For interpreting these results, the investigator of this study utilized information provided by the subjects on the FJASR Assignment Framework. This type of interpretation was possible in this study because the subjects had provided written examples of their jobs as instructed. In future studies this may not be the case. Further studies can refine the method of identifying the primary focus of the role by instructing the subjects to indicate the one primary focus of their time and attention. An additional statement might be added to the instructions, reiterating the need for respondents to indicate no more than one primary focus. This adjustment to the inventory would be consistent with the assumption of Fine
(1973) that one focus is primary in any given job.

It is desired that the above suggested refinements will be of use in further studies on the relation of personality and role in middle-level and upper-level leaders. The results of the present study will need to be considered in further studies, in dissimilar types of organizations, before we know how far the implications can be extended. Whatever the results, studies employing the instruments and method introduced here should be invaluable in providing information not heretofore available, regarding leaders' personalities in relation to job role and job level broadly defined.
FUNCTIONAL JOB ANALYSIS (FJA)

SELF REPORT

GENERAL INFORMATION

The attached self-report is a tool extracted from self-reports developed primarily by Sidney A. Fine, former senior staff member of the W. E. Upjohn Institute for Employment Research and current principal Research Specialist at the Advanced Research Resources Organization in Bethesda, Maryland. Permission to reproduce necessary portions of the self-report was granted to the investigator by Dr. Fine in private conversation on July 22, 1980. The purpose of the information obtained is to systematically determine the differential job tasks of workers.

GENERAL INSTRUCTIONS

Read the specific instructions for each page carefully. However, the following general instructions apply to the entire self report.

In responding to the items, stress what you do. Needed, is information pertaining to what *you actually do* to accomplish the specific actions or sequence of actions you engage in to get the job done. *Examples and illustrations* are an important part of the self report. Please emphasize *what you do* by using pertinent examples of job procedures, problem areas, etc...

Each category on the following pages refers to your total job as you perform it. That is, you should consider everything you do in performing your work when formulating your responses to any item. This is true even though you might use a specific, typical example to illustrate your reply.

Figure A-1

The FJASR Instrument

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Specific Instructions for: ASSIGNMENT FRAMEWORK

The "instruction" or assignment framework in which I function is as noted below:
(Rank 1, 2, 3, in order of importance those that apply.)

_____ (1) Most of what I need to know is contained in the details of assignment or instruction. I've done the same or similar work many times before. The instructions come to me orally, by memo, or schematic (e.g., sketch or blueprint).

_____ (2) Assignment comes to me in terms of what is wanted (end product or service). However, I must work out my own ways of getting the job done. This includes referring to (one or more) handbooks, manufacturers' catalogs, standard tables and formulas, reference books, or APL Administrative information. I may either carry out the work myself or set up standards and/or procedures for others.

_____ (3) Same as (2) above but in addition I must know and employ theory beyond finding out solutions and values from sources indicated. I may have to draw on professional journal articles and related sources. I may either carry out work myself or set up standards and/or procedures for others.

_____ (4) There is some question as to how to state the problem or what directions should be pursued in solving it. In order to define it, control and explore the behavior or the variables, and formulate performance requirements, I must consult largely unspecified sources of information, and devise investigations, surveys, or data analysis studies.

_____ (5) Information comes to me in terms of needs (tactical, organizational) and staff reports and suggestions. I coordinate both organizational and technical data in order to make decisions and determinations regarding courses of action for major portions of the APL (e.g., group or division).
Specific Instructions for: PERFORMANCE REQUIREMENTS

All jobs involve us with THINGS, DATA, and PEOPLE in varying degrees and more or less at the same time. However, we tend to focus our efforts physically, mentally, interpersonally according to the way we see the demands made by our jobs.

In the listing below, please indicate in percentages how your time and attention is divided, making sure that the total adds up to 100%.

_____ % 1. Handling, tending, operating, testing, etc. THINGS (tools, equipment, machines).

_____ % 2. Comparing, copying, compiling, analyzing, organizing, developing, etc., ideas and DATA.

_____ % 3. Dealing (communicating, bargaining, instructing, consulting, assigning, (etc.) directly with PEOPLE.
## Scale of Worker Instructions

<table>
<thead>
<tr>
<th>Level</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inputs, outputs, tools, equipment, and procedures are all specified. Almost everything the worker needs to know is contained in his assignment. He is supposed to turn out a specified amount of work or a standard number of units per hour or day.</td>
</tr>
<tr>
<td>2</td>
<td>Inputs, outputs, tools, and equipment are all specified, but the worker has some leeway in the procedures and methods he can use to get the job done. Almost all the information he needs is in his assignment. His production is measured on a daily or weekly basis.</td>
</tr>
<tr>
<td>3</td>
<td>Inputs and outputs are specified, but the worker has considerable freedom as to procedures and timing, including the use of tools and equipment. He has to refer to several standard sources for information (handbooks, catalogs, wall charts). Time to complete a particular product or service is specified, but this varies up to several hours.</td>
</tr>
<tr>
<td>4</td>
<td>Output (product or service) is specified in the assignment, which may be in the form of a memorandum or of a schematic (sketch or blueprint). The worker must work out his own ways of getting the job done, including selection of tools and equipment, sequence of operations (tasks), and obtaining important information (handbooks, etc.). He may either carry out work himself or set up standards and procedures for others.</td>
</tr>
<tr>
<td>5</td>
<td>Same as (4) above, but in addition the worker is expected to know and employ theory so that he understands the whys and wherefores of the various options that are available for dealing with a problem and can independently select from among them. He may have to do some reading in the professional and/or trade literature in order to gain this understanding.</td>
</tr>
</tbody>
</table>

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Scale of Worker Instructions (continued)

<table>
<thead>
<tr>
<th>Level</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Various possible outputs are described that can meet stated technical or administrative needs. The worker must investigate the various possible outputs and evaluate them in regard to performance characteristics and input demands. This usually requires his creative use of theory well beyond referring to standard sources. There is no specification of inputs, methods, sequences, sources, or the like.</td>
</tr>
<tr>
<td>7</td>
<td>There is some question as to what the need or problem really is or what directions should be pursued in dealing with it. In order to define it, to control and explore the behavior of the variables, and to formulate possible outputs and their performance characteristics, the worker must consult largely unspecified sources of information and devise investigations, surveys, or data analysis studies.</td>
</tr>
<tr>
<td>8</td>
<td>Information and/or direction comes to the worker in terms of needs (tactical, organizational, strategic, financial). He must call for staff reports and recommendations concerning methods of dealing with them. He coordinates both organizational and technical data in order to make decisions and determinations regarding courses of action (outputs) for major sections (divisions, groups) of his organization.</td>
</tr>
</tbody>
</table>

Note: Taken from Fine, 1973.
Table B-1

Effects of Each Personality Preference in Work Situations

**Intuitive Types**

Like solving new problems  
Dislike doing the same thing over and over again  
Enjoy learning a new skill more than using it  
Work in bursts of energy powered by enthusiasm, with slack periods in between  
Frequently jump to conclusions  
Are patient with complicated situations  
Are impatient with routine details  
Follow their inspirations, good or bad  
Often tend to make errors of fact  
Dislike taking time for precisions.

**Feeling Types**

Tend to be very aware of other people and their feelings  
Enjoy pleasing people, even in unimportant things  
Like harmony. Efficiency may be badly disturbed by office feuds  
Often let decisions be influenced by their own or other people's personal likes and dislikes  
Need occasional praise  
Dislike telling people unpleasant things  
Tend to be sympathetic.

**Sensing Types**

Dislike new problems unless there are standard ways to solve them  
Like an established routine  
Enjoy using skills already learned more than learning new ones  
Work more steadily, with realistic idea of how long it will take  
Must usually work all the way through to reach a conclusion  
Are impatient when the details get complicated  
Are patient with routine details  
Rarely trust inspirations, and don't usually get inspired  
Seldom make errors of fact  
Tend to be good at precise work.
Table B-1 (continued)

**Thinking Types**

Are relatively unemotional and uninterested in people's feelings
May hurt people's feelings without knowing it
Like analysis and putting things into logical order. Can get along without harmony
Tend to decide impersonally, sometimes ignoring people's wishes
Need to be treated fairly
Are able to reprimand people or fire them when necessary
Tend to relate well only to other thinking types
May seem hard-hearted.

Table B-2

Mutual Usefulness of the Opposite Personality Preference

Intuitive Needs A Sensing Type:
- To bring up pertinent facts
- To remember things that weren't relevant at the time they happened
- To read over a contract
- To check records, read, proof, score tests
- To notice what ought to be attended to
- To inspect
- To keep track of detail
- To have patience.

Sensing Type Needs An Intuitive:
- To see the possibilities
- To supply ingenuity on programs
- To deal with a complexity having too many imponderables
- To explain what another intuitive is talking about
- To look far ahead
- To finish new ideas
- To "spark" things that seem impossible.

Thinker Needs A Feeling Type:
- To persuade
- To conciliate
- To forecast how others will feel
- To arouse enthusiasm
- To teach
- To sell
- To advertise
- To appreciate the thinker himself.

Feeling Type Needs A Thinker:
- To analyze
- To organize
- To find the flaws in advance
- To reform what needs reforming
- To weigh "the law and the evidence"
- To hold consistently to a policy
- To stand firm against opposition.

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