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THE UNIVERSITY OF OKLAHOMA
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AN ANALYSIS OF FACTORS CONTRIBUTING TO THE INTRAGROUP
COMMUNICATION EFFECTIVENESS OF SMALL WORK GROUP
SUPERVISORS IN SELECTED OKLAHOMA BUSINESS,
MANUFACTURING, AND GOVERNMENT
SERVICE SITUATIONS

A DISSERTATION
SUBMITTED TO THE GRADUATE FACULTY
in partial fulfillment of the requirements for the
degree of
DOCTOR OF PHILOSOPHY

BY
MARY JANE BENNETT NELSON
Norman, Oklahoma

1972

AN ANALYSIS OF FACTORS CONTRIBUTING TO THE INTRAGROUP
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AN ANALYSIS OF FACTORS CONTRIBUTING TO THE INTRAGROUP
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CHAPTER I

THE PROBLEM

Introduction

The science of human behavior, in relation to other sciences is an infant science, so new that it is barely recognized and so young that a precise language of its own is still in the making. The newness of an area of knowledge tends to result in many diversified theories and the behavioral area is no exception. There is a multiplicity of theories, depending on one's theoretical orientation. The areas of major interest in this study are communication, psychology, and personality. Pragmatics and semantics as they are related to human communication are also relevant to this study.

In the area of personality for example, one might study in one of three fields: social, biophysical, or

phenomenological.¹ The social aspect of personality is most applicable in this study. More specifically, the personality theory derived by Cattell, along with his Sixteen Personality Factor Questionnaire, has served as a base point in this area.

The quantity of personality research has increased so rapidly during the last ten years that there is considerable overlapping of theories and methods of research. Although gains have been small, in relation to the level of technical competence being sought, the quality of research in personality measurement has improved.² Researchers tend to use broader samples and interpret their results with more precision. Researchers are now working with operational definitions of a variety of the more consistent personality variables, such as ability, trait, referent, motive, behavior, and empathy.

Behavioral science research has not kept pace with research in the physical sciences. Two of the types of difficulties that exist are: (a) the lack of adequate and exact quantitative measurements, and (b) the need for more carefully controlled variables.

Fiske and Pearson contend that the limit has been reached as to what can be achieved with current assumptions

¹Meridith Munns, "The Nature of Personality Theory," Psychological Reports, XXVII (August, 1970), p. 11.

²Donald W. Fiske and Pamela H. Pearson, "Theory and Techniques of Personality Measurement," Annual Review of Psychology, XXI (1970), p. 75.

and orientations has been reached. They call for bold reorganization of thinking and for creative innovations in research that get away from naturalistic observation in favor of the study of individualistic human traits and dimensions.¹

In communication, the main media are speech and writing. Communication of all types, whether written, oral, or non-verbal, is thought to contribute heavily to group unification and development. Watzlawick differentiates among three areas of communication study:²

1. Syntactics - the transmission of information using math and logic.
2. Semantics - the underlying meanings and philosophy of word symbols.
3. Pragmatics - the behavioral and psychological areas of human communication.

Watzlawick claims that all behavior is communication and that all communication affects human behavior.

An example of the interpersonal approach to communication is noted in this quote from Birdwhistell.³

. . . an individual does not communicate, he engages in or becomes part of communication. . . . He does not originate, he participates in communication. . . . Individual positions are variables with an infinity of possible values whose meaning is not absolute but rather emerges only in relation to others.

Numerous research reports support the theory that interpersonal behavior is characterized by such terms as

¹Ibid., p. 77.

²Paul Watzlawick, Janet H. Beavin, and Don D. Jackson, Pragmatics of Human Communication (New York: W. W. Norton & Company, Inc., 1967), p. 21.

³Ibid., p. 70.

consistent, repetitive, redundant, stereotyped, and structured. (Cattell, Sanford, Newcomb, and Watzlawick). A researcher should be able to identify interpersonal behavior patterns in intragroup communication research using standardized terminology because of the variety of characteristics available for defining behavior.

A significant amount of research supports the theory that similar individuals tend to be characteristically more effective communicators than dissimilar individuals. Triandis found that, the more effectively pairs communicate, the more they like one another.¹ Nagle's study indicates that a supervisor's effectiveness is a factor in his acceptability by his staff.

Although encouraging gains are being made, problems in intragroup communication research remain evident. Inconsistent types of data have resulted in problems with measurement, analysis of data, and interpretation of results. Because of these apparent shortcomings, researchers have tended to neglect intragroup communication problems, in favor of areas in which results will yield more useful and encouraging results. Some of the neglect may be attributed to

¹Harry C. Triandis, "Cognitive Similarity and Interpersonal Communication in Industry," Journal of Applied Psychology, XLIII (1959), p. 325.

²Bryant F. Nagle, "Productivity, Employee Attitude and Supervisor Sensitivity," The American Psychologist, VIII (1953), p. 408.

discouraging reports of research that has yielded either negative or "no difference" findings, according to evaluations of the current situation by such authors as Fiske, Murray, and Wylie.¹

The theory that a broad variable called "environmental press" affects human behavior has been supported with new evidence in recent research.² Human organisms are classified as "open systems" and, as a result, must engage in constant exchange of both energy and information with their environment to maintain a steady state.

Osgood, Suci, and Tannenbaum have studied semantic meanings for years in the process of developing a tool to measure individual connotations of word concepts. They have found that a person's behavior in a situation is related to what that situation means to him. The semantic differential technique to measure semantic meanings has been one of the most significant aspects of the Osgood et al. research.³

The semantic differential (referred to as the SD) technique presents the subject with a "concept" and an

¹Fisk and Pearson, "Personality Measurement," p. 76; Elwood Murray, "Human Intercommunication as a Unified Area for Research," Journal of Communication, II, No. 1, (1952), p. 34; Ruth C. Wylie, The Self Concept (Lincoln, Nebraska: University of Nebraska Press, 1961), p. 317.

²James R. Barclay, Controversial Issues in Testing (Boston: Houghton Mifflin, 1968), p. 39.

³Charles Osgood, George J. Suci, and Percy H. Tannenbaum, The Measurement of Meaning (Urbana, Ill.: University of Illinois Press, 1957).

accompanying set of bipolar scales with which the subject is to judge the concept. For example, the concept LEADER might be judged with the semantic differential using these scales:

Fair	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Unfair
Weak	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Strong
Wise	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	Foolish

William E. Scott's factor analytic studies using the semantic differential to measure morale have shown that there are discriminable aspects of the work situation to which individuals respond differently.¹ Outward behavior, therefore, seems to result from internal, as well as environmental, stimuli interacting with the individual personality. More recent research with the semantic differential points to the attitudes of the perceiver's toward stimuli, rather than the stimuli themselves as determinants of how the object is perceived. The perceiver's bias and personality will significantly affect his attitudes.

Schroder and Sudefeld recommend that studies using factorial designs to investigate the relationship of a communication stimuli to a number of other variables, including personality.² As recently as 1967, the relation between scores or attitude scales (like the SD) and other personality

¹William E. Scott, Jr., "The Development of Semantic Differential Scales as Measures of 'morale'," Personnel Psychology, XX (Summer, 1967), p. 180.

²Harold M. Schroder and Peter Sudefeld, eds., Personality Theory and Information Processing (New York: Ronald Press Company, 1971), p. 39.

and environmental variables was not clearly demonstrated.

A combination of personality and situational variables, along with attitudes toward an object, are reported to influence an individual's behavior toward that object however, research in this area specifically related to interpersonal communication in small work groups has been inadequate.

One can find considerable evidence in current literature to support the need for new approaches to the study of intragroup communication problems. However, problems associated with methods, techniques, measuring instruments, personality theories, and statistical procedures for quantifying research data remain the subjects for much controversy. Evidence is insufficient to provide adequate strength and theoretical relevance for many recent approaches to intragroup communication.

In a list of areas recommended for research, French¹ indicates the need for a comparison of an individual's ability to communicate with either success or lack of success as a supervisor/manager. Other authors suggest similar comparisons with variables such as educational background, birth order, and childhood supervision by parents.

¹Wendell L. French, The Personnel Management Process (Boston: Houghton Mifflin Co., 1964), p. 556.

In a recent article, Almaney concludes that¹

No adequate empirical data are now available concerning the characteristics of an effective business communicator. Little is known about how his attitudes, language, perception, education, age, sex, social and cultural role affect the way he communicates.

To this problem, alluded to by Almaney, this research project was addressed. The investigation was limited to the aspects of intragroup managerial communications.

Statement of Purpose

The present investigation was undertaken to identify some of the significant characteristics of supervisors who appeared to be more effective intragroup communicators. Specifically, an attempt was made to determine any significant correlation among several factors reported in earlier studies related to leadership effectiveness and communicability. The earlier studies are reviewed in further detail in Chapter II of this research study. The factors analyzed were:

1. Communication knowledge and attitudes
2. Human relations knowledge and attitudes
3. Personality traits
4. Self-rating
5. Ratings by subordinates and immediate superior
6. Predictions about rating outcomes mentioned in 5
7. Birth order
8. Length of supervisory experience
9. Type of parental discipline as a child
10. Educational background
11. Size of group (span of control)
12. Size of organization

¹Adnan Almaney, "Predicting Message Effect in Written Business Communications," Journal of Business Communication, VIII (Winter, 1971), p. 27.

Identification of factors that differentiate between more effective and less effective supervisors of small work groups may provide techniques useful either for selecting of more cohesive groups or for evaluating a supervisor's compatibility and effectiveness with his work group.

The questions this study was designed to answer are:

1. Is there a relationship between a supervisor's personality and his communicative behavior as perceived by his staff?
2. Does a supervisor who demonstrates knowledge of human relations and communications facts, principles, and approaches seem to use such knowledge in his work?
3. Does a supervisor's attitudes toward on-the-job situational variables have measurable effects on his communicative performance as perceived and rated by his subordinate staff and his immediate superior?
4. Is there a relationship between the personality of a supervisor and his demonstrated knowledge of facts, principles, and approaches in the field of communication or human relations?
5. Do ratings of the supervisor's human relations performance as perceived by his staff and immediate superior seem correlated?
6. Will a supervisor's predictions about rating outcomes be consistent with those ratings by his staff?
7. Do demographic factors such as age, educational

background, birth order, type of parental discipline in childhood, number of years management experience, and years with the company, relate to a supervisor's effectiveness in interpersonal group communication?

8. Are there significant differences in effectiveness and/or supervisor performance among business, manufacturing or government service situations?

9. Will the correlation of three personality measures a) self concept; b) superior ratings; and c) adequacy of performance, yield sufficient evidence to enhance understandings of the functioning of supervisors at work in various situations?

10. Will this study find, as did earlier studies, that span of control and size of organization are related to leader effectiveness?

These questions are not independent of one another. They are closely related to the general area of interpersonal supervisor behavior in small work groups and the effects of that behavior on the attitudes and the morale of the work group.

Delimitations

In this study, phenomenon in personality (e.g., the supervisor's behavior) was observed and processed by an observer who had a particular "role" or perspective, (e.g., the immediate superior or the staff). The use of the semantic differential as a behavior observation tool provided a

conceptualization of the supervisor's behavior. Each subordinate's subjective semantic differential rating is considered a separate domain and is studied with statistical procedures in the same manner as a test score.

Conceptualizations of a personality might have been analyzed from a variety of sources:

1. The subject's self-concept
2. Reports by others who observe the subject
3. Psychodynamic measurement
4. Comparisons of actual with normative behavior
5. Psychophysical measurement¹

The assumption was made that personality study might be accomplished by coordinating conceptualizations from two or more of these sources. An additional assumption was that the relationships among these domains could be measured and determined statistically.

Based on the above theoretical orientation, this study has been delimited to small work groups with two to eight workers in Oklahoma business, manufacturing, and government service situations. The nature of the data was delimited to the first three personality observation sources mentioned on page 11. The number of observations utilized was delimited to one visit with each group; however, the subject's test responses will reflect his unique background and experience related to personality and attitude formation.

¹Fisk and Pearson, op. cit., p. 77.

The bodies of evidence compiled for this investigation were taken from current literature and research in the following areas:

1. Personality theory and measurement
2. Interpersonal communication
3. Small work group research
4. Semantic differential research
5. Group dynamics
6. Leadership in small groups and human relations
7. Statistical methods in behavioral science

Primary data has been compiled from testing results and facts collected in the investigation process.

Definitions

To help the reader develop a better understanding of the investigation, key terms were defined as follows:

1. A priori ratings. Subjective judgments of an observer based on his perception of behavior after the fact. The semantic differential involves this type of rating.
2. Immediate superior. In the organizational hierarchy, this refers to the person immediately above another in status. In this study, this term will refer to the supervisor's immediate superior.
3. Personality traits. A continuum: a line with an infinite number of possible points that describe a person. In this study, traits will be identified and measured by the Cattell Sixteen Personality Factor Questionnaire. (16 PF) The traits of major interest will be those identified by Cattell's research to predict leadership. Specifically, traits identified as C, E, G, H, N, and Q₃ will be used as major variables.

4. Semantic Differential. (SD) This measuring tool is a restricted association test. The subject rates "concepts" with bipolar scales based on his perception of the meaning of the "concept."
5. Subordinate staff. For the purpose of this study, this term refers to the subject supervisor's work group that functions directly under his supervision.
6. Supervisor. The subject of this study serves as a link between his work group and management and is directly responsible for his work group's functioning in line with organizational goals.
7. Supervisory Inventory on Communications. (SIC) This is an inventory of facts, principles and approaches in business communication pertinent to the job of the supervisor.¹
8. Supervisory Inventory on Human Relations. (SIHR) The SIHR is an inventory of principles, facts, and techniques of supervisory human relations.²

Limitations

This study is limited to small work groups in business, manufacturing, and government as diagrammed in Figure 1.

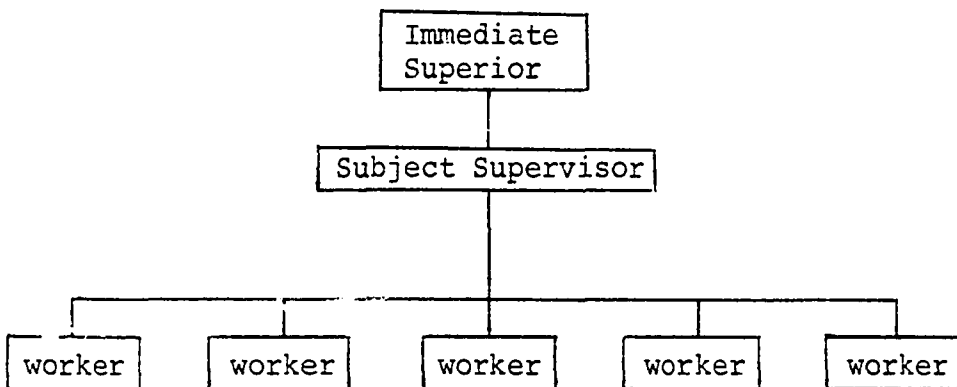


Fig. 1.--Organizational Structure of the Small Work Group

¹Donald Kirkpatrick, "Development and Validation of Communication Inventory Supervisors," Journal of Communication, XVIII (December, 1968), pp. 404-11.

²Ibid.

The fact that behavior varies from situation to situation will be a limiting factor. Other inherent limitations of the study are the lack of uniformity in work group size and the situational aspects of the organizational level from which the sample is drawn.

Because the sample was drawn from work groups in three Oklahoma cities, implications and conclusions may not be generalized to small work groups in other geographic locations. Every type of work group could not be included in the study; therefore, the conclusions may be applicable only to the types of work groups studied.

The eighteen groups used in the study were chosen on a non-random basis. A convenience sample was used based on the supervisor's accessibility and willingness to participate. Another group of supervisors could have returned different results. However, the researcher did not intend to generalize these results beyond the present sample of supervisors and the non-random group was sufficient for studying the problems stated.

Many of the limitations mentioned are inherent to empirical studies of this type in which the time and the resources of the researcher are restricted. The conclusions should merit consideration, however, by those interested in measuring supervisory effectiveness in intragroup communication.

Research Methodology

As a preliminary to the actual investigation procedure, related literature was reviewed in the personality, communication, and management fields. Materials related to testing instruments and statistical procedures were also investigated. The results of this search are summarized in Chapter II.

A nine-part experimental design was employed in the acquisition of data for the analysis. Data for the personality trait factors were taken from the results of Cattell's Sixteen Personality Factor Questionnaire. The 16 PF, a widely used and reliable personality test, was given to the eighteen subject supervisors in the study. Three semantic differential rating scales were used to obtain the semantic reactions of the supervisor, the staff, and the immediate superior to the work related scales: Me at Work, My Job, and My Supervisor. A communications inventory and a human relations inventory were administered to the supervisor to determine his knowledge and attitudes in these two areas. Questionnaires were used to acquire biographical information from each of the three levels in the group. The workers and the immediate superior used a rating scale developed for use with the human relations inventory to rate the performance of the subject's supervisor in this area.

Eighteen small work groups in Oklahoma City, Midwest City, and Perry, Oklahoma, involved in government service,

private business, and manufacturing comprised the sample for this investigation. Data were collected from eighteen supervisors, eighteen immediate superiors, and one hundred and seventeen workers. A more detailed explanation of the method and the procedures used in completion of this investigation is found in Chapter III.

Preview of the Dissertation

At this point, a brief review of the Chapters that follow should help the reader to understand the order of progression.

Chapter II reviews and discusses related literature and research in the personality, communications, and management areas as well as the measuring instruments used in the study.

Chapter III includes a comprehensive explanation of the method and procedures employed for data collection and analysis along with a discussion of the statistical procedures used in the analysis.

Chapter IV contains a detailed report of testing results and findings, in conjunction with a careful study of relationships, correlations and trends discovered by inspection procedures and statistical analysis.

Chapter V includes a summary of the research findings, the answers to the ten questions, and the conclusions. The findings of this study are compared with those of related

studies. The Chapter then concludes with implications for further research.

CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

This chapter is designed to acquaint and familiarize the reader with interdisciplinary theories and research related to this investigation in the fields of personality, communication, and organizational behavior and with experimental techniques for measuring attitudes, morale, personality, human relations/communication capabilities and interpersonal sensitivity. A review of theory and measurement techniques should provide the reader with a greater understanding of leadership effectiveness and methods for measuring the factors that appear to be related to a supervisor's interpersonal effectiveness.

Interdisciplinary inquiries of this sort cut across boundaries that are not easily classifiable according to particular fields. The discussion that follows reflects the present state of specialized knowledge from the various disciplines, and will be presented as follows:

1. Orientation to the field of personality
2. Personality measurement
3. Leadership personality
4. The trait approach to leadership personality

5. Leadership behavior and the small work group
6. Communication skills in the small work group
7. Situational variables related to leadership
8. The origin of the semantic differential
9. A summary of Scott's research with work related semantic differential scales
10. A summary of Kirkpatrick's work with supervisory measures of communication and human relations
11. Cattell's Sixteen Personality Factor Questionnaire

An Orientation to the Field of Personality

The amount of literature in the field of personality is quite extensive. A considerable portion of this material has been written within the last ten years. The subject of personality has received a variety of treatments over the years. At this time, theorists seem to agree that the process of defining an individual personality involves isolating various factors or traits. The unique combination of factors which describe an individual's personality can provide information that may be used to understand and predict his future behavior.¹

A personality trait is measured and evaluated on the basis of its strength or weakness as measured either by objective testing or through observation of actual behavior. For example, dominance is a strong trait that is usually discussed

¹Irwin G. Sarason, ed., Contemporary Research in Personality (Princeton, NJ: D. Van Nostrand Company, Inc., 1962), p. vii.

in comparison with the weaker trait of submissiveness. A similar comparison might be made with the extroversion and introversion traits. Therefore, individual personality and related behavior patterns may be predicted on the basis of testing to determine which characteristics appear to be either stronger or weaker.¹

No precise, consistent definition of personality was found. However, there seems to be a multiplicity of theories and viewpoints concerning the definition of personality. Guilford, for example, describes personality as "a person's unique pattern of traits."² Fisk and Pearson contend that personality exists "as a loose collective of traits and behavior."³ Raymond Cattell defines personality as "that which tells what a man will do when placed in a given situation."⁴

Many theorists hold that personality is the "cause" and that behavior is the "effect" with environment and situational variables acting as "stimuli." Gage and Cronbach

¹Julian B. Rotter, "Some Implications of a Social Learning Theory for the Prediction of Goal Directed Behavior from Testing Procedures," Contemporary Research in Personality, ed. by I. G. Sarason (Princeton, NJ: D. Van Nostrand Company, Inc., 1962), p. 113.

²J. P. Guildord, Personality (New York: McGraw-Hill Book Company, Inc., 1959), p. 8.

³Fiske and Pearson, op. cit., p. 76.

⁴Raymond B. Cattell, The Scientific Analysis of Personality (Baltimore: Penguin Books, Inc., 1965), p. 25.

suggest that "the perceiver's bias and personality, rather than the stimulus, determine personality."¹

Ruth Wylie expressed concern because "theories are vague, incomplete, and overlapping. . . . Total accumulated findings are dissapointing despite large amounts of effort that is expended."² She contends that an individual's background and experience are inadequate predictors for human behavior. As a solution, she suggests, predictions of behavior could be more accurate if one found out what the subject perceives, knows, and feels about himself and the objective situation."³

Since 1937, when skepticism arose concerning the applicability of "rat laws" to human behavior, there has been a search for consistent elements and traits of human personality. From that time until the sixties, there was a lag in personality theory due to a lack of research that was human-oriented. "Man's purposive behavior was generally ignored by researchers."⁴

As with most fields of study, the beginning of personality research was characterized by a variety of conflicting, as well as complementary theories. Subsequently, the

¹N. L. Gage and Lee J. Cronbach, "Conceptual and Methodological Problems in Interpersonal Perception," Contemporary Research in Personality, ed. by I. G. Sarason (Princeton, NJ: D. Van Nostrand Company, Inc., 1962), p. 253.

²Wylie, op. cit., p.318.

³Ibid.

⁴Munns, op. cit., p. 12.

number of identifiable personality variables increased in number and complexity and the quality of research improved.¹

During the 1960's the personality field experienced rapid expansion to such an extent that there is considerable overlapping of theories. More recently, researchers have tied many of these theories together through investigation and replication studies. The personality areas benefiting most from this increased knowledge are those that focus upon:²

1. Common traits - standard types of behavior which most people possess,
2. Unique, dynamic traits - which account for individual differences in personality and behavior patterns, and
3. Acquisition of behavior, other than through the natural process of maturation.

In recent years, the emphasis in research has been upon environment and the cognition variables as major determinants of behavior. Cognition describes an attempt to find meaning, consistency, and structure in the world as one perceives it. Many psychologists feel that individual human needs operate in the service of cognition--that one's need recognition is related to the manner in which he views himself and the world. This theory is reinforced by self-concept

¹Nevitt Sanford, Issues in Personality Theory (San Francisco: Jossey-Bass, Inc., Publishers, 1970), p. 18.

²Irwin G. Sarason and Ronald E. Smith, "Personality," Annual Review of Psychology, XX (1971), p. 410.

theorists who believe that one cannot understand and predict human behavior without knowledge of the subject's conscious perceptions of himself and his environment.

In his research, Cattell found that factual reports about the background experiences from an individual's life produced more accurate prediction of future behavior than experimentation.¹ For example, personality characteristics can be traced to parental attitudes and early group experiences away from the family. "One tends to act as his parents did but to see himself as not having the same faults his parents had."²

Determinants of past behavior will likely determine future behavior also. "Individuals carry determinants with them in the form of learned and inherited predispositions."³

According to Cattell, personality is made up of two types of "source traits," unique and common. Traits are elements used in measurement of personality. Traits help describe the tendencies of an individual to react in a particular way. The knowledge of one's personality traits can help predict the type of behavior responses that he will make because reaction tendencies are relatively permanent

¹Raymond B. Cattell, An Introduction to Personality Study (Great Britain: Mayflower Press, 1950), p. 203.

²I. E. Farber, "A Framework for the Study of Personality as a Behavioral Science," Theories of Personality, ed. by G. Linzey and C. S. Hall (New York: John Wiley & Sons, Inc., 1965), p. 434.

³Ibid.

and predictable. Cattell has classified personality traits into these three categories:¹

1. Abilities - such as a response to complexity or a situation where the individual plans or defines a goal or outcome he is seeking.
2. Temperament traits - such as a specific response or pattern of behavior.
3. Dynamic traits - such as motivation or interest to repeatedly behave in certain stereotyped ways.

Kelley has taken another approach to the study of traits. His method of describing traits can be referred to as the "properties concept." Therefore, a trait may be said to have the following properties:²

1. A trait is a continuum . . . a line with infinite number of possible descriptive points which a person may fit. Traits have upper and lower limits within which all persons fall.
2. Most traits are scalable. It is possible to derive scale units representing distances on trait continuum.
3. Traits may be either unipolar or bipolar. Unipolar traits are measured from the least amount to the greatest amount of only one trait. Bipolar traits, which are more typical, extend from one extreme through a neutral point and on to the opposite extreme, as does the semantic differential.

Source traits affect a wide range of behaviors. (i. e., they serve as sources or stimuli to produce behavior patterns.) Each source trait interacts with other source traits in the development of behavior patterns.³

¹Cattell, Scientific Analysis, p. 28.

²E. Lowell Kelly, Assessment of Human Characteristics (Belmont, CA: Brooks/Cole Publishing Co., 1967), p. 88.

³Cattell, An Introduction to Personality, p. 165.

The term "source trait" is a central concept in personality theory. Source traits have been identified in each of the interdisciplinary fields related to the present study. A full description of the traits in any of the fields however, could not be found.

In the area of leadership personality, for example, a complete list of the traits that affect a leader's behavior was not found. A search of current literature, however, indicates that many traits have been tested as predictors of leadership effectiveness. Several traits have been shown to correlate positively while others have been proved to be unrelated. The subject of leadership personality is discussed further in the next section of this chapter.

The fact that many traits remain without a consistent operational definition has been a concern of Cattell. He feels that a great deal remains to be done in this field.

The preceding discussion has included a summary of major theoretical framework in the field of personality and human behavior that is relevant to this investigation. Although a complete review of personality theory is beyond the scope of this report, the areas selected for discussion represent those most closely related to the present study. The reader interested in a fuller treatment should refer to the writings of Cattell, Kelly, Guilford, Linzey and Hall, and others.¹

¹Cattell, Scientific Analysis of Personality; Kelly, Assessment of Human Characteristics; Guilford, Personality; and Linzey and Hall, eds., Theories of Personality.

Personality Measurement

Methods of personality assessment, like personality theories, are numerous and diverse. Several different groups have studied personality measurement, and each regards its own technique as superior. Apparently, no assessment procedures yield measures that are generally agreed upon as valid measures of key personality variables. Kelly reports there are¹

. . . many theories of personality and hundreds of posited variables, but remarkably little consensus among theorists regarding the definition of and/or the measurement of most personality variables.

"Although gains are small and obtained correlations are frequently low, the quality of research with personality is improving."²

In the process of investigating personality, the researcher has six classes of observation available for his use: (a) inventories, (b) capability tests, (c) peer ratings, (d) projective tests, (e) psychophysical measures, and (f) current experience reports.³ The present investigation has utilized the first three of these six observation methods. The Sixteen Personality Factor test is an inventory; the semantic differential MY SUPERVISOR rating scale is a peer rating; and the Supervisory Inventories on Communication

¹Kelly, Human Characteristics, p. 89.

²Fiske and Pearson, op. cit., p. 76.

³Donald W. Fiske, Measuring the Concepts of Personality (Chicago: Aldine Publishing Company, 1971), p. 89.

and Human Relations are capabilities tests. All of these tests are discussed in more complete detail later in this Chapter.

According to Fiske and Pearson, several personalities may be identified, depending upon who is doing the observing. One viewpoint is called the "self-concept." This viewpoint is based upon the "how I think I am" aspect of personality.¹ The 16 PF and the ME AT WORK semantic differential scale used in the present study are self-concept measures.

Another viewpoint, based upon the observations and judgments of one's lay associates, represents the "how others think I am" personality.² The MY SUPERVISOR semantic differential rating scale used by a worker to rate his group leader in the present study is an example of this aspect of personality.

The other personality viewpoint utilized in this study is based on "adequacy of performance."³ The human relations performance ratings correlated with the actual test scores on the Supervisory Inventory on Human Relations will provide this type measure of personality. Further details about each of these measures is presented later in this Chapter.

In summary, personality measurement is primarily concerned with isolating variables relevant to the understanding

¹Fiske and Pearson, op. cit., p. 77.

²Ibid.

³Ibid.

prediction and control of individual human behavior patterns. Personality characteristics have been found to change and vary in individuals depending upon the situation in which they find themselves. The next part of this chapter discusses the personality characteristics that affect one who finds himself in the role of "work group leader."

Summary of Theories and Research With Leadership Personality

Material reviewed for this section was located in a variety of interdisciplinary books and journals. A number of researchers have studied the characteristics of effective leaders. The material selected for review in this section has been limited to the leadership personality as it pertains to an organized work group setting.

The Trait Approach to Leadership Personality

The comparison of human characteristics is not an easy task, especially those of effective group leadership. Countless studies have been made in an attempt to identify the traits that explain why some supervisors are more successful than others. The way in which a leader relates and deals with others, (i. e., his human relations capabilities), must be taken into consideration. Success appears to vary with the type of personality, the task, and the situational variables.¹

¹Edwin B. Flippo, Management: A Behavioral Approach (2nd ed.; Boston: Allyn and Bacon, 1970), pp. 280-81.

In a review of 100 studies of leadership traits, Lippit found that only 5 per cent appeared in more than four studies. He reported some interesting trends and concluded that despite some agreement, there is still no standard or universal pattern of traits.¹

Leadership success seems to be a product of not only an individual's life experiences but also his hereditary characteristics. Dunnette has suggested that successful leadership is apparently the culmination of a total life pattern of successful endeavors.² Blake and Mouton similarly report that the types of experiences an individual has in childhood will likely predispose a supervisor to adopt and cling to one style of behavior rather than another.³

During the late fifties, researchers at Ohio State reported that the task of developing a sensitive leadership scale to measure effective performance was more difficult than they had anticipated. Although the measuring instrument that they developed seemed to be a remarkably valid measuring instrument (the Leadership Behavior Descriptive

¹Gordon Lippit, "What Do We Know About Leadership?" Leadership in Action (Washington, DC: National Training Laboratories, National Education Association, 1961), p. 17.

²Marvin Dunnette, "Predictions of Executive Success," Measurement of Executive Effectiveness, ed. by F. R. Wickert and D. E. McFarland (New York: Appleton-Century-Crofts, (1967), p. 7.

³Robert Blake and Jane S. Mouton, The Managerial Grid (Houston, TX: Gulf Publishing Company, 1964), pp. 43-44.

Questionnaire), their results showed "no reliable differences" among the nine leaders studied.¹

From the preceding discussion, one could conclude that a purely "trait" approach to the study of leadership personality is not appropriate. One should not assume, however, that the trait approach has been completely unsuccessful. On the contrary, many valuable trends have been discovered through the study of leadership traits. An example of the type of model one might devise from examining trends is described by Phillips and Erickson.²

In the typical American city the representative leader possesses the following characteristics: he is wealthy, educated, older than average, Anglo-Saxon (usually), white, middle-class, and Protestant. This should not be construed as a denigrative statement. The norms of our society are essentially middle-class, Anglo-Saxon and Protestant. To a large extent people born into this culture, or those with other characteristics who participate in it, have learned over the years to adjust their behavior so that they too conform to the model. It might be said that we have developed, since the closing of unlimited immigration, a uniform middle-class American model for leadership. For example, a leader is usually taller than any of his followers. A leader is neither too fat nor too thin. Nor does he have distinguishing peculiarities such as scars, beards, long hair, and so on. Cynically, the leader is the gray flannel man dressed according to the temper of the times--neat, handsome, not bald, smiling yet intense, aggressive but understanding. He is intelligent but not intellectual, and he is somewhat humble about his leadership

¹Ralph M. Stogdill and Alvin E. Coons, Leadership Behavior: Its Description and Measurement (Columbus, OH: Ohio State University Bureau of Business Research, Monograph No. 88, 1957), p. 101.

²Gerald M. Phillips and E. C. Erickson, Interpersonal Dynamics and the Small Group (New York: Random House, Inc., 1970), pp. 63-64.

aspirations, feeling more that the task has been pushed upon him than that he has sought it out. Even leaders that do not conform to this image tend in their behavior to approximate it once they have attained either a formal or informal position of leadership.

Some factors that have shown positive relationship to leadership effectiveness are listed, by author, on Table 1, page 32.

Leadership Behavior and the Small Work Group

Business organizations are systems of overlapping and interdependent groups. Within an organization, each work group represents a different subculture. In the present study for example, the subcultures represented are personnel workers, assembly line workers, accounting workers, insurance underwriters, warehouse workers, welders, and forklift operators. Jackson explains variations in group structure in this way:¹

Each occupational group has its own value system and idealized image based on its traditions. Personnel (within an organization) are structured into different systems of relationships. . . In a work structure for example, persons are expected to perform tasks with other persons. . . In a friendship structure, however, behavior is based on feelings of interpersonal trust.

Person-to-person communication within a small work group is referred to as a metacomplimentary situation, in which the workers let the supervisor be in charge. "Organizational communication problems are intensified by the fact that relationships among persons are in a continual state

¹Jay M. Jackson, "The Organization and Its Communication Problems," Journal of Communication, IX (1959), p. 158.

TABLE 1
SOME FACTORS WHICH HAVE SHOWN POSITIVE
RELATIONSHIP TO LEADERSHIP

Author	Summary of Factors
John Benz (Sears studies) ^a	Intelligence, dominance, self confidence, sociability, power need, desire for independence, better educated, less restrictive parents, consistent habit patterns, purposeful approach to education, successful life patterns, organization ability, communication ability, training and teaching ability. In addition to these, an effective leader had needs for achievement, autonomy, recognition, political manipulation, and money.
Keith Davis ^b	Intelligence, social maturity, breadth, inner motivation, human relations oriented attitudes.
Marvin Dunnette ^a	Total life patterns of successful endeavor. Environmental development and training. Hereditary traits and characteristics.
Thomas Harrell ^c	Strong will, extroversion, power need, achievement need, and situational variables.
Thomas Hilton ^d	Intelligence, self-confidence, sociability, persistence, initiative, ambition, dominance.
Gordon Lippit (review of 100 studies) ^e	Intelligence, self-confidence, sociability, strong will, perseverance, reality orientation, dominance, human relations oriented attitudes.
Richard D. Mann (review of studies from 1900-57) ^f	Verbal intelligence, intellectual adjustment, extroversion, dominance, interpersonal sensitivity.
Ralph Stogdill and Alvin Coons, (Ohio State Studies) ^g	Consideration, friendliness, respect and trust in dealings with work group. Initiation of structure: the extent to which he organizes and defines work methods and defines his own "role" in the group.

^aDunnette, pp. 7-41.

^bKeith Davis, Human Relations at Work (3rd ed.; New York: McGraw-Hill Book Company, Inc., 1967), p. 99.

^cThomas W. Harrell, Manager's Performance and Personality (Cincinnati: South-Western Publishing Co., 1961), p. 71.

^dThomas L. Hilton, "Executive Leadership and Development," Industrial Psychology, ed. by V. Von Haller Gilmer, et al. (New York: McGraw-Hill Book Company, Inc., 1966), pp. 228-53.

^eLippit, p. 17.

^fRichard D. Mann, "A Review of the Relationships between Personality and Performance in Small Groups," Psychological Bulletin, LVI (July, 1959), pp. 263-65.

^gStogdill and Coons, p. 113.

of flux."¹ If, for example, one additional worker were introduced into one of the work groups studied here, the way in which persons in that group behave toward one another would be affected. Because of the unique effects of group structure upon the interaction within a group, the relationships reported in this study are applicable only to the specific circumstances, at the particular point in time at which the data were gathered.

"In formal subgroups, (i.e. work groups) the people most valued are those who can give the best information and advice. Others seek them out."² Each individual in a group constructs a "picture" which represents his unique perception of the group. This picture is based on the way he sees himself in relation to others in the group. (i.e., his status, his role, his acceptance by the group, and so forth).³

In a study to investigate cooperative behavior in two small work groups, Miller found that a person is more likely to make better responses to evaluations of his work when the members of his group are working as a team. He found that teamwork and improved evaluations of one's experience are independent. He also found that an individual's capacity to make effective and improved discriminations of the world

¹Ibid., p. 160.

²Ibid., p. 161.

³Robert F. Bales, Personality and Interpersonal Behavior (New York: Holt, Rinehart and Winston, 1970), p. 172.

about him goes hand in hand with the adequacy of his relationship with others.¹

Robert Bales has been studying the reaction process in small groups for twenty years. He suggests that²

For the purpose of understanding the behavior of an individual in a group, it is helpful to make a distinction between two broad classes of determinants: those pertaining to permanent personality traits; and those pertaining to his group role or situation. . . .

The group role of a given person is determined in part by all the other group members, the way they behave, and the way they evaluate the acting person. Their evaluations, expectations, and behavior profoundly affect him, in most cases. To change a person's group role, it may be necessary to change others in the group, not the personality of the acting person. . . . The leader of a group may be forced into a certain kind of interpersonal behavior by the perceptions, evaluations, expectations and behavior of other group members, but they may be reacting mainly to special features of his personality.

The nature of the group task also has an effect on the role of the group leader. The more specific the group task, the more important it is that the leader possess the knowledge, information, and skill necessary to perform the task. "A leader's capacity to lead is reinforced by his ability to do things that group members do, as well as any and better than most."³

The kind of leader who can best achieve group goals is one who is not overly directive or authoritarian,

¹Thomas Miller, "Communication in Two Small Work Groups" (unpublished Ph.D. dissertation, Northwestern University, 1957).

²Bales, op. cit., p. 16.

³Phillips and Erickson, op. cit., p. 66.

especially with a small group whose members interact constantly. In small groups, authoritative leaders have been found less effective in maintaining group cohesion. For this reason, democratic leadership is more effective in achieving productivity.

Long-term leadership within a group often results in communication that is less open and free among the group members. A group may also become less effective in its ability either to solve new problems or to achieve new goals as a result of long-term leadership.¹

Interaction within a small group may be looked upon as a set of impacts on personality. Each person comes to the group as a distinct individual with a fund of traits, beliefs, values, and goals. Research indicates that²

Each member of the group will display his personality through his talk and his responses. As the group becomes more synthesized and as consensus is reached, talk within the group will sound more and more alike; members will become more and more compatible. . . . Personality will alter distinctly to accomodate others in the group.

When a member leaves the group, he carries with him some of the change that came about through his participation.

Communication Skills in the Small Group

The leadership activity in a small group is much greater when the group is allowed to set its own goals. The

¹Phillips and Erickson, op. cit., pp. 69-75.

²Ibid., p. 163.

leadership process does not take place in a static situation, but in a dynamic one. Over a period of time, changes may occur in a leader's relationship to the group process. A group which has the same leader for a long period of time becomes less effective in its communication and less able to solve new problems. In Miller's study, the older, more experienced workers tended to become more individualistic and to work less as a team.¹ Jackson found that experienced employees resented close supervision because they felt that closeness implied that their power and prestige were less than they wished them to be.² New leaders seem to have the greatest difficulty communicating with new groups that are very cohesive. The difficulty develops because clearly established standards of action have already been in operation.³

People in organized work groups seem to be more inclined to communicate with those who will help achieve their aims. On the other hand, they are less likely to communicate with those who either will not assist or may retard their accomplishment. Jackson theorizes that⁴

people have powerful forces (need systems) acting upon them to direct their communicating toward those who can make them feel more secure and gratify their needs. . . and away from those who threaten and make them feel anxious and provide unrewarding experiences.

¹Miller, "Communication in Two Small Work Groups."

²Jackson, op. cit., p. 166

³Phillips and Erickson, op. cit., pp. 75-76.

⁴Jackson, op. cit., pp. 161-62.

Barriers to communication have been described as those elements that cause misunderstanding, distortion, and so forth. Barriers to communication within organized work groups have been identified as emotion, reading deficiency, lack of communication channels, poor human relations, and inept handling of people.¹

Research tends to indicate that the "effect of a superior's communication with a subordinate depends upon the relationship between them and upon how adequately this relationship satisfies the subordinate's needs."² Findings from laboratory and field research point unequivocally to the supervisor-subordinate relationship as one of the crucial factors determining the effect of a supervisor's communication to subordinates.³ Therefore, the interaction within a small group has considerable influence over the behavior of its individual members.

A major problem of leadership is the creation of a situation in which followers willingly accept the leader as their agent in cooperative endeavor. The accomplishment of this goal is evidently not so easy as it may seem. In a study of 3,620 top and middle managers, middle managers felt

¹George L. Hinds, "The Communication Behavior of the Executive," Journal of Communication, VII (March, 1957), p. 29.

²Jackson, op. cit., pp. 165-66.

³Ibid., p. 166.

that their greatest need was the knowledge of how to work with individuals on an interpersonal level.¹

The process of interpersonal perception has often been called empathy, insight, and sensitivity. Interpersonal sensitivity is described as the ability of a person either to guess his own status in the group or to predict the pooled attitudes of the other group members. In a review of 1,400 research results, Mann found that in 74 per cent of the cases, leaders were more accurate in predicting group opinions. Leaders with interpersonal sensitivity had greater insight. Interpersonal sensitivity is measured in terms of a leader's accuracy in predicting how his peers will rate him on leadership. Mann reports that the correlation between interpersonal sensitivity and leadership effectiveness is positive, but low.²

Research in different studies by Triandis³ and Hillis⁴ provides evidence that communicators who are most similar to their receivers are more effective in the communication

¹Samuel S. Dubin, Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania (University Park, PA: Pennsylvania State University Press, 1967).

²Richard D. Mann, "A Review of the Relationships Between Personality and Performance in Small Groups," Psychological Bulletin, LVI (July, 1959), pp. 250-51.

³Triandis, "Cognitive Similarity," p. 325.

⁴R. E. Hillis, "Some effects of Socio-economic-Educational Similarity on the Interpersonal Communication Process" (unpublished Ph.D. dissertation, University of California, Los Angeles, 1968).

process. Triandis found that communication effectiveness and liking for the supervisor can be predicted from the knowledge of the categoric similarity, based on people ratings. He found that differences in perception were not important to communication with the supervisor in manual jobs. In professional jobs, however, (i.e. engineers/managers) differences in perception about the nature of the job between the supervisor and subordinate appeared crucial.¹

The communicator in a small group is not a performer. Each member plays a role. To be effective, he must vary his role to meet the expectations of others. A leader must understand how groups operate in order to be able to influence the group.² People who are capable leaders are hard to find.³ Successful interaction in a group implies successful personality. One's personality is a representation of his total life experience.

Situational Variables Related to Leadership

"One of the most significant results of recent research with leadership is the development of the situational viewpoint."⁴ The assumption made in this approach is that

¹Triandis, op. cit., p. 325.

²Phillips and Erickson, op. cit., p. 220.

³Gerald M. Phillips, Communication and the Small Group (Indianapolis: Bobbs-Merrill Company, Inc., 1966), p. 5.

⁴Edwin B. Flippo, Management: A Behavioral Approach (Boston: Allyn and Bacon, 1970), p. 280.

the situation, the problem, and the environment will structure the type of leadership called for. Some suggest Herzberg's hygienic factors may provide new clues.

"Environmental press" is a term used extensively in personality research which represents the sum total of environmental influences which shape, mold and interact with the individual's perception of his world. Environmental press is very likely the uncontrolled variable that accounts for a large percentage of individual differences on standardized tests, including personality tests.¹

Major experiments with organizations appear to be rare. The majority of organizational research consists of single-organization surveys and case studies. Variables studied have been factors such as supervision, participation, and leadership. Scientifically, these categories of variables are difficult to work with. Most research has de-emphasized interpersonal relations in order to stress variables at the organizational level.

In a review of 31 studies, Thomas and Fink² found that group size has a noticeable effect on the overall interaction patterns. Larger groups seem to be less cohesive and more conforming and have lower levels of member satisfaction than small groups. Total size may also be negatively

¹Barclay, op. cit., p. 39.

²E. J. Thomas and C. F. Fink, "Effects of Group Size," Psychological Bulletin, LX (1963), pp. 371-84.

associated with member participation. Difficulty in communicating however, is not directly proportionate to size of the organization. Adequate communication is so dependent on capabilities and support of the individuals responsible for communication that size becomes just another variable.

Sarason's research suggested the importance of simultaneously examining personality, birth order, and situational variables. He recommends that the situation selected for human behavior study should be one in which the degree of acquaintance among group members is close, so that very little extrapolation is required.¹

Research with work-related factors that interact to make one an effective leader has been inadequate. Researchers still question whether or not factors leading to effective supervisory behavior differ for different positions. Literature pertaining to the situational aspects of leadership effectiveness was found in all interdisciplinary areas mentioned earlier. Other situational variables have been tested. However, the results were inconclusive and do not merit discussion in this report.

The Origin of the Semantic Differential

In 1952, Charles Osgood introduced the semantic differential, a unique instrument for the measurement of meaning.

¹Sarason, op. cit., p. 171.

Osgood felt that "how a person behaves in a situation depends on what that situation means or signifies to him."¹ The instrument was designed to measure connotative meaning, and to evaluate a concept in either positive or negative terms, as perceived by the individual rater. The semantic differential is classified as a restricted association test. The subject is given a concept and asked whether he feels the concept is more closely related to A or B (A and B are paired opposites). The subject must indicate on a seven-point standard scale the meaning he associates with the concept. For example, the concept MY TEACHER might be rated with the semantic differential as illustrated in Figure 2.

MY TEACHER

	Extremely		Quite		Slightly		Neither One Nor the Other		Slightly		Quite		Extremely	
Weak	_____	:	_____	:	_____	:	_____	:	X	:	_____	:	_____	Strong
Kind	_____	:	X	:	_____	:	_____	:	_____	:	_____	:	_____	Unkind
Dull	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	X	Bright

Fig. 2.--An example of the Semantic Differential

In 1957, after five years of research with the semantic differential, Osgood, Suci, and Tannebaum published

¹Osgood, Suci, and Tannenbaum, op. cit., p. 1.

The Measurement of Meaning, a book that describes in detail the development and research conducted up to that point. This first book and another by Osgood and James Snider¹ have proved to be valuable aids to the researcher.

The following discussion includes a summary of the research and literature specifically related to the present study that has to do with the semantic differential technique. A large volume of material has been published about the semantic differential in several of the interdisciplinary areas. A good deal of this research describes the use of the SD in work and job related studies.

In 1958, Jenkins, Russell and Suci² conducted a normative study designed to facilitate the use of the SD technique. They also wanted to relate the SD to other associative techniques and to provide raw material for use in experiments to test the validity of assertions concerning the SD. In their study, 360 words were rated with 20 scales by 18 groups of 30 subjects each. The resulting reliability coefficient of the scale values was found to be +0.97. The concepts in the semantic profiles developed in this study have since been used by scores of researchers.

¹James G. Snider and Charles E. Osgood, Semantic Differential Technique (Chicago: Aldine Publishing Company, 1969.)

²James Jenkins, W. A. Russell, and G. J. Suci, "An Atlas of Semantic Profiles for 360 Words," The American Journal of Psychology, LXXI, No. 4 (December, 1958).

In 1959, Melvin Manis conducted a study assessing communication with the semantic differential. He compared the predictions of a group of communicators. Each recipient's predictions were correlated with each communicator's ratings using Kendall's tau to measure the strength of relationship. Manis used the resulting taus as a "measure of communication efficiency. He concluded that the SD can be a successful technique for assessing the communication of evaluative attitudes (i.e., good vs. bad). However, he suggested that, rather than sampling the concepts from Osgood and Suci's list, the researcher should devise his own scales to include the most important and relevant descriptive terms available in determining the meaning of his specific research concepts.¹

In 1958, Harry Triandis determined that pairs of communicators who are high in cognitive similarity will communicate more effectively. He also discovered that the more effectively pairs communicate, the more they will like each other. Similar results were achieved comparing communication effectiveness with two different samples (students and industrial employees). He determined that when individuals have

¹Melvin Manis, "Assessing Communication with the Semantic Differential," Journal of American Psychology, LXXII (March, 1959), pp. 112-113.

similar semantic meanings about people and jobs, communication effectiveness and liking for the supervisor can be predicted.¹

In a follow-up study, Triandis found that, the greater the difference in semantic structure between the supervisor and subordinates, the less effective is the communication between the two and the smaller is the interpersonal attraction between the two subjects.²

In another investigation of the job semantic structures of managers and workers, Triandis found that the factor structures were surprisingly similar. This correlation suggests that managers and workers have essentially the same way of looking at the job domain. The only differences that could be identified were the more specific details of emphasis in marking the semantic differential form. (i.e., One group may have been more or less positive/negative than the other in rating the meaning of a job related concept.) Triandis found that managers seem to evaluate jobs in terms of job complexity and job level. Workers also evaluate jobs in terms of job complexity. However, subjective evaluations

¹Harry C. Triandis, "Some Cognitive Factors Affecting Communication" (unpublished Ph.D. dissertation, Cornell University, 1958).

²Triandis, "Cognitive Similarity," p. 321.

about the desirability, the importance, and the challenge involved in the job, influence worker attitudes, also.¹

In 1961, Kelly and Levy conducted a validity study of the semantic differential instrument. Although the concepts rated with the semantic differential were not work related concepts, the results of the study can be taken as supporting the validity of the semantic differential technique. They indicated however, that there were limitations in the sensitivity of the instrument that should be studied further.²

In 1962, M. N. Danoff used the semantic differential to measure job attitudes (i.e., morale) among hospital employees.³ He isolated eight factors from a 37-item questionnaire which seemed to identify differences in attitudes. In 1965, Danoff's study was followed up by Will and King.⁴ Seven of Danoff's eight original factors were studied to determine the construct and content validity of the factors. They

¹Harry C. Triandis, "A Comparative Factor Analysis of Job Semantic Structures of Managers and Workers," Journal of Applied Psychology, XLIV, No. 5 (October, 1960), pp. 297-302.

²Jane A. Kelly and Leon H. Levy, "The Discriminability of Concepts Differentiated by Means of the Semantic Differential," Educational and Psychological Measurement, XXI (1961), pp. 56-67.

³M. N. Danoff, "A Factorial Approach to the Study of Job Satisfaction in Hospital Personnel" (unpublished Ph.D. dissertation, Purdue University, 1962).

⁴Fred E. Will and Donald D. King, "A Factor Analytic Approach to the Construct and Content Validation of a Job Attitude Questionnaire," Personnel Psychology, XVIII, (1965).

concluded that morale is comprised of a number of dimensions, each of which can be subject to construct validation. Further study to determine the nature and number of morale components was recommended.

The Will and King study demonstrated the feasibility of employing factorial methodology in the construct validation of morale factors when a single SD instrument is used. Will and King determined that an instrument that more adequately sampled the universe of job attitude items among various organizational settings might well serve to isolate the component structure of employee morale as a generalized construct.

A Summary of Scott's Research With Work Related SD Scales

The studies most closely related to this investigation have been those by William E. Scott, Jr., and his associates. Scott was interested in the development of work related morale measures. His research has been based on three assumptions about morale. First, "morale is a multi-dimensional process within the individual, comprised of evaluative attitudes towards 'things.' The attitudes may vary in sign (+/-) and intensity, as a result of variations in the external stimulus." The second assumption is that "there are discriminable aspects of the work surroundings to which individuals respond differently." The nature of the reaction was postulated to be an "underlying predisposition to act based

on one's perception of a stimulus." The final assumption is that "morale may be a complex function of the predispositions toward discriminable aspects of the environment but it is not an additive function."¹

The semantic differential was chosen for Scott's work because he felt that this rating instrument could be a reliable and sensitive measure if properly developed. He believed the SD could provide a method for assessing intra-personal processes and attitudes toward work related concepts. Nine concepts related to the work environment were used in his research.² They were: My Opportunities for Growth, My Job, My Supervisor, Top Management, Company Benefits, My Fellow Workers, My Pay, My Working Conditions, and Me at Work. Each of the concepts was followed by 25 to 35 bipolar scales.

Ninety-two engineers with varying amounts of education and tenure, from five organizational levels, volunteered to participate in the study. An intercorrelation matrix was generated for each concept by correlating the subjects responses to each bipolar scale with their responses to every other bipolar scale under the concept. After a principal components extraction, eight factors emerged which accounted for most of the total communality.

¹Scott, op. cit., p. 181. ²Ibid., pp. 182-83.

The three most important of the eight factors were:¹

- I. Affective dimension - describes whether the individual feels satisfied/dissatisfied, limited/unlimited, rewarded/penalized.
- II. General Vigor - describes an individual's perception of the degree to which he is generally invigorated.
- III. General Emotionality - describes the chaos feelings of consistency/inconsistency.

Factor I accounted for the greatest proportion of common variance for each concept and reflects an affective/evaluative orientation toward the thing signified by the concept. The three concepts used in the present study are My Job, My Supervisor, and Me at Work. Table 2 presents the common variance results on Factors I, II, and III for these concepts.

TABLE 2

PERCENTAGE OF COMMON VARIANCE ON FACTORS I, II, AND III OF ME AT WORK, MY JOB, AND MY SUPERVISOR RATING SCALES²

Concept	I (%)	II (%)	III (%)
Me at Work	18	14	12
My Job	38	19	17
My Supervisor	38	22	12

The factor structure for MY JOB was interesting, taking into consideration the recent emphasis on the motivational

¹Ibid., pp. 185-86.

²Ibid., pp. 187-90.

significance of the task itself. The heavy loadings on Factor I signify the individual's perception of the variety, difficulty, and novelty of the particular job he was rating. Scott called this "Perceived Job Complexity." The results of the MY SUPERVISOR factor analysis yielded similar factor loadings as the MY JOB analysis. The scores on the MY SUPERVISOR concept seemed to describe the worker's feelings about how vigorous and effective his supervisor appeared to him.

In summary, the results of Scott's original study, suggested that morale is a multidimensional process which occurs within the individual (i.e., intrapersonal). Scott determined that some combination of the factors in the ME AT WORK solution could be considered as measures of morale with those scales measuring the first three factors being of primary importance. Inasmuch as Osgood had previously determined that the composition of scales remains stable across different groups of subjects, Scott believed that these findings would hold consistent in replication studies.¹

In 1970, Scott and Rowland² continued this line of research with an investigation of the generality of the factors across samples from different organizations. The same nine work related concepts that were factor analyzed in the

¹Ibid., pp. 192-96.

²William E. Scott, Jr. and Kendrith M. Rowland, "The Generality and Significance of Semantic Differential Scales as Measures of 'Morale'," Organizational Behavior and Human Performances, V, No. 6 (November, 1970), pp. 576-91.

original study were used in this follow-up; however, the sample included 262 male civil service employees. The sample had varying amounts of education and was below the first level of supervision organizationally. Their number of years with the company ranged from three months to twenty-six years. The scales were administered in booklet form to groups of about forty each.¹

The responses to the scales were statistically analyzed in the same manner as the original study. The results were compared to the original study using a factorial congruence measure. The results indicated that the major factors which accounted for most of the variance in each of the nine solutions were reasonably invariant over both samples.² Another finding related to the present study was that subordinates' attitudes toward their supervisors were correlated (.05 level) with managerial ratings of the supervisor's ability and effectiveness. Scores on Factor I, MY SUPERVISOR, were correlated .53 with scores on Factor I, ME AT WORK. Based on the findings, they speculated that a supervisor with a work group having a high positive rating with little variation "would either have had to discharge all workers requiring punishments (an unlikely case) . . . or he has seen to it that most of his subordinates are rewarded regardless of their behavior, in which case satisfaction and productivity may be

¹Ibid., p. 578.

²Ibid., p. 579.

independent."¹ Their assumption here was based on the premise that "a supervisor will find it necessary to discipline some members at least some of the time and, for those workers a negative (i.e., lower) rating would become conditioned to the supervisor and other aspects of the work situation."²

Scott and Rowland assumed that the nature of the job can contain varying degrees of arousal potential. If, for example, a job was repetitious and the performance of the job did not lead to a reward, (i.e., a meaningless task) dissatisfaction would result if other sources of motivation were also at a minimum level. Conversely, if the task is varied and contains opportunities for feelings of achievement, higher levels of satisfaction would result. On Scott's work related scales, one would expect high ratings when attitudes were more positive and lower ratings when attitudes (i.e., morale) were less positive. The MY JOB scores were correlated with the ME AT WORK scores and achieved a +.52 on Factor I, and a +.37 on Factor II.³

This summary of Scott's research has excluded the comments about the other six of the nine work related scales because they were not used in the present study.

A Summary of Kirkpatrick's Work With Supervisory Measures of Communications and Human Relations

The capability to communicate with and to relate to other individuals on a personal level is a skill which

¹Ibid., p. 587. ²Ibid. ³Ibid., pp. 585-86.

supervisors seem to have in varying degrees. Some have developed these skills naturalistically through experiences and opportunities available to them throughout their lifetimes. Others learned on-the-job through observation of their superiors, the "role" which a supervisor is expected to fulfill. Still others aspire to be leaders and seek out education and training to provide the necessary knowledge and skill. Regardless of the manner in which a supervisor becomes a leader, his performance and behavior in a leadership role will be evaluated on the basis of his ability to organize people to work toward the organization's goals.

Organizations have been interviewing and testing men for decades in an attempt to identify potential supervisors. Hundreds of research studies have been conducted seeking the unique traits that a leader must have. Still the question is asked and a precise answer has not been found. One thing research has indicated repeatedly is the leader's need for communication and human relations skills.¹

Donald L. Kirkpatrick has developed two inventories for supervisors covering facts, principles, and techniques of supervisory communication and human relations. Both tests may be used to help an organization determine their needs for training, to evaluate the effectiveness of a training program, to provide information for on-the-job coaching, and to assist in the selection of supervisors.

¹Jackson, op. cit., pp. 158-67.

The Supervisory Inventory on Communications¹ (SIC) is an 80 item, self-grading test covering four communication subject areas: a) Definition, b) Philosophy and Principles, c) Oral and Written, and d) Listening. (Appendix A, Exhibit 9.) The author developed the test by first making a list of 160 items for possible inclusion. The first draft was sent to 500 members of the National Society for the Study of Communication (NSSC). They were asked wither a) to agree or to disagree with each item, or b) to indicate that the question was not a good one and should be either rewritten or eliminated.

Responses were received from 25 per cent of the NSSC members. Based on these responses, the SIC was reduced from 160 to 80 items pertinent to the positions of supervisor, foreman, and manager in business, industry and government. The final draft of the SIC was mailed to 600 members of the NSSC who were asked to a) complete the inventory and score it themselves b) analyze their responses that were different from the scoring key and indicate those items where they felt the scoring key was incorrect.

Responses were received from 136 of the NSSC members. Eighty-three persons were from academic institutions and 53 others were from business and industry. The mean score for those responding was 74.9 correct items out of the 80. There were only 7 items where more than 20 per cent of the

¹Kirkpatrick, "Development of Communication Inventory," p. 404.

respondents disagreed with the scoring key answer. A disagreement of 34 per cent with the scoring key response was the highest for any item of the SIC.

The SIC is easy to administer and takes about twenty minutes to complete. The manual for the test includes norms developed from more than 100 companies representing all types of organizations. The tables indicate that the scores for Management personnel have been as follows:¹

<u>Type of Group</u>	<u>Average Score</u>
Foremen	60.3%
Office Supervisors	62.7
Training & Personnel Directors	66.4
Accounting Supervisors	64.3

The author is continuing to collect information on norms, validity, and other research with the test. He suggests that companies using the test to screen candidates should first validate the test with their own personnel to "prove" that the test discriminates between "good" and "bad" supervisors and managers.

The Supervisory Inventory on Human Relations (SIHR) was developed by six instructors at the University of Wisconsin who were active in the teaching of Human Relations. They agreed unanimously on 87 per cent of the items, and

¹Donald L. Kirkpatrick, Manual: Supervisory Inventory on Communication (Brookfield, WI: Dr. Donald L. Kirkpatrick, 1968). p. 6.

five of the six agreed on the remaining items except for item 61 where 3 voted for each response. (Appendix A, Exhibit 8.)

The SIHR has been tested for reliability with the split-half method and the Spearman-Brown formula. The coefficient was found to be .94. Validity tests have also been conducted with the SIHR. One study reported in the Manual for the SIHR¹ used the rank-difference method of correlation (rho) to compare total scores on the SIHR with job performance. The resulting correlation was +.35, significant at the .06 level of confidence.

Further research with the SIHR conducted by Gerald Behling² has resulted in the development of a "performance rating form," which may be correlated with the SIHR for selection purposes. (Appendix B, Exhibit 7.) Two or more raters who are familiar with the supervisor being evaluated should be used in order to avoid problems such as different standards and so forth. The Performance Rating was used by work group members in this study to validate the scores on the SIHR. The result of the correlation here was .1734.

¹Ibid., p. 5.

²Gerald L. Behling, "A Study of the Validation of the Supervisory Inventory on Human Relations" (unpublished Master's thesis, University of Wisconsin, January, 1959).

The SIHR measures a supervisor's knowledge of facts, principles and techniques in five Human Relations areas:

1. The Supervisor's Role in Management
2. Understanding and Motivating Employees
3. Developing Positive Employee Attitudes
4. Problem Solving Techniques
5. Principles of Learning and Training

The author suggests that an organization administer the test to determine the areas where supervisors are in need of help and instruction. The test is available with a list of "reasons for scoring responses" useful for training on-the-job, for classroom use, and for self-study.

The SIC and SIHR were selected for use in the present study although a great deal of validity and reliability data is unavailable due to the newness of the tests. The SIC was chosen primarily because no other test of communication facts, principles, and techniques related to business supervision has been published.

Cattell's Sixteen Personality Factor Questionnaire

For almost 40 years, Raymond Cattell, the author of the Sixteen Personality Factor Questionnaire (16 PF), has conducted research focused upon the human personality. Today, after 40 years, Cattell has defined 30 or so personality

factors.¹ The 16 PF is a self-report; a multidimensional set of 16 questionnaire scales. Development of the 16 PF began with responses to a wide range of stimuli and by factor analysis Cattell determined which stimuli covary. He then established clusters of items that seemed to measure the same variable. The results of the 16 PF leads to elements similar to an "a priori" approach.² (i.e., judgment after the fact.)

The 16 PF is designed to make available in a practical testing period, information about an individual's standing on a majority of primary personality factors.³ Cattell and his associates have developed many personality tests for adults and children of all ages. The 16 PF is published in three parallel forms (A,B, and C). Form A and B are long forms of the test and form C is a parallel short form. Form C, developed through extensive factor analysis, was originally based on many hundreds of new questions. The purpose of the test is to give the maximum reliability and validity of measurement possible with only six items per factor. The results of the Form C factor analysis showed that the test has validity and that the same factors are being measured on this form as on Form A and B. Thus, Form C tests as much of

¹Raymond B. Cattell, Herbert W. Eber, and Maurice M. Tatsuoaka, Handbook for the 16 PF (Champaign, IL: Institute for Personality and Ability Testing, 1970), p. 1.

²Fiske, op. cit., p. 109. ³Cattell, Handbook, p. 1.

the total personality as can be covered by questionnaire, according to the most up-to-date psychological research.¹

The 16 PF measures such basic independent personality factors as emotional stability, dominance, timidity, shrewdness, intelligence, enthusiasm, conservatism, nervous tension, etc., and the factors involved in neuroticism, morale, leadership, social adjustment, and vocational preference and success. The factors measured by the 16 PF have been established as unitary, psychologically-meaningful entities in many researches in various life situations and enter into general psychological theory. Although many questionnaires have been published to date, very few are established on the amount of research that has gone into the 16 PF.²

In the Handbook for the 16 PF Cattell contends that the scales for the test are essentially independent; that the correlation between one and another is usually negligible. However, Allen Edwards³ indicates that the 16 PF was developed by factor analytic techniques that result in correlated factors rather than uncorrelated factors. He contends that the scores are not independent but instead are correlated.

One characteristic of Form C that provides an advantage for the researcher is the Motivational Distortion

¹Raymond B. Cattell, Handbook Supplement for Form C of the Sixteen Personality Factor Questionnaire (2nd ed.; Champaign, IL: Institute for Personality and Ability Testing, 1962), p. 1.

²Ibid., pp. 5-6. ³Edwards, op. cit., p. 57.

experimental factor. This measure consists of seven questions which have been selected by special study to show the maximum change of score with the same persons when they are switched from a non-motivated to a motivated situation. The scores on these seven questions (which indicate one's need and willingness to distort) show correlation with only two of the 16 factors and the scores on these two factors can be corrected according to instructions in the manual.¹

The 16 PF has internal validity. The items chosen are purported to be good measures of the factors tested. The mean correlation of all single items with the factors they represent is +.37. The mean correlation of each group of 6 items with the factors they represent is about +.71, which is high for such a brief test.²

Reliability has been worked out through a test-retest correlation with a one week interval in between. The manual presents individual figures for each of the individual factors. Overall reliabilities are predicted to range in the area of +.75 to +.90 for each of the sixteen factor scales.³

The time required to administer the Form C version of the 16 PF is about forty minutes. Administration and scoring of the test is easy through use of scoring keys. The scores may be converted to stens or stanines. Norm tables

¹Cattell, Supplement, p. 7.

²Ibid.

³Ibid.

are available for high school, college, and general population samples, both males and females. In the handbook, profiles have been provided for 28 occupational groups and 6 behavioral disorders. There is a wealth of interpretive data available with suggestions for predictive significance.

Although Form C is suggested as a valid, short form, personality test, Buros suggests that to achieve highest validity and reliability levels one should use all three forms of the 16 PF if time permits.¹

Summary of Related Studies With the 16 PF

In a review of the relationships between personality and performance in small groups, Richard Mann² studied 1,400 research results, attempting to provide stability to trends. His review focused on seven personality factors and their relationship to group behavior variables such as leadership, popularity, and so forth. Although most of the studies that he reviewed yielded low positive correlations, intelligence seemed to be the best predictor of individual behavior in the group. He noted that the 16 PF test was one of the most commonly used personality measures in the small group studies. The 16 PF scale on extroversion proved to be the best

¹Oscar K. Buros, ed., Sixth Mental Measurement Year-book (Highland Park, NJ: Gryphon Press, 1965), pp. 367.

²Mann, op. cit., pp. 241-54.

predictor of popularity. The popular persons scored high in surgence, sociability, and emotional stability (i.e., maturity).

In one experimental study of mental ability and personality factors in listening, 28 supervisors were given a surprise listening test, considered a test of "normal listening performance," after a 30-minute talk. In the next two weeks, the same group took two listening tests, an IQ test, and the 16 PF test. Intercorrelations of the test scores indicated that general mental ability played a greater role in listening comprehension under typical test conditions than it did under normal audience conditions. The results of the personality testing indicated that good listeners tend to be more participating, adventurous, more emotionally stable and free from nervous symptoms. All of these personality results were significant at the .01 level.¹

In another study, 34 groups of ten men each were given the 16 PF test. Then they were permitted to interact with each other in 22 different experimental situations over a period of nine hours. During this nine hour period, 90 different leaders were chosen using four independent criteria of leadership: a) problem solvers: members most frequently

¹Charles M. Kelly, "Mental Ability and Personality Factors in Listening," Quarterly Journal of Speech, XLIX, (April, 1963), pp. 152-56.

influencing group achievement; b) effective leaders: the ones members agreed upon as having been most influential on at least one of the 22 possible occasions; c) sociometrically remembered leaders: designated by their peers as having shown most leadership during the nine hours; and d) elected leaders: elected at least once.

The results of the study indicated that¹

. . . by all four criteria mentioned in the preceding paragraph, leaders were higher than non-leaders in emotional maturity, dominance, character integration, adventurousness, polished fastidiousness, and will control and lower on both free somatic anxiety.

In comparing differences between leaders, those selected as problem solvers were significantly more intelligent, while elected leaders were very significantly more surgent and tended to be more gregariously oriented than those selected by other devices.

Summary

Chapter II has contained a summary of the theory and research from the interdisciplinary areas most closely related to leadership behavior in small work groups. Specifically noted have been the skills and abilities which have been found to be significantly related to effective leadership in the organizational work situation. Situational variables related to leadership have also been reviewed. The chapter has concluded with a review of the four tests used

¹Glen F. Stice and Raymond B. Cattell, "Personality Differences Found in Small Group Leaders Selected by Four Independent Criteria of Leadership," American Psychologist, III (August, 1953), p. 443.

in the present study: Scott's work related SD scales; Kirkpatrick's SIC and SIHR measures of supervisory communicative and human relations capabilities; and Cattell's 16 PF test.

The amount of material in each of the interdisciplinary areas is quite extensive. Therefore, those items selected for mention in this review of literature and research represent only those most closely related to the present study.

CHAPTER III

METHOD AND PROCEDURE

The primary purpose of this study was to identify some of the significant characteristics of supervisors who were rated as more effective supervisors by their work group, and immediate superior. Data was collected about the supervisors' personality, morale, background and experience, and knowledge of communication and human relations, to determine the kinds of relationships that might exist.

The purpose of this chapter is to provide a comprehensive explanation of the method and the procedures employed for data collection and analysis. The chapter will also review the statistical procedures used in the data analysis.

Population

The subjects in this investigation were the supervisors of 18 small work groups. The sample included 17 males and one female; 17 Caucasians and one Negro. Research theorists recommended the utilization of samples with varied backgrounds and experiences who have been exposed to different socialization processes. In this study, a situational comparison was made between the samples drawn from manufacturing,

government service and private business. A comparison was also made between two task categories: office and factory.

Group size was varied because there were a variable number of subordinates reporting to each supervisor. However, groups with more than 10 members were not acceptable. The generally accepted limit for "small groups" is 10 members.

The initial contact involved a personal visit to each company. An appointment was made with either the employer or the immediate superior to explain the project and request permission to solicit volunteers for the investigation. Only one of the six companies contacted denied the researcher's request.

The supervisors of work groups with less than 10 members were first approached by the employer. The employer introduced the researcher to the supervisor(s). The general nature and purpose of the study was explained to the supervisor(s) by the researcher. They were invited to participate voluntarily.

After a supervisor had volunteered to participate, the work group was assembled to explain its part in the study. Individuals were asked to participate voluntarily. No one was required to participate by his company.

Procedure

The procedural steps required to obtain and process the data for this study involved distribution of testing

materials, scoring, arithmetical and statistical treatment, and interpretation.

Participation of subjects in the investigation was entirely voluntary. To be acceptable a group had to be totally or almost totally represented (not more than one or two members refusing to participate). One hundred and sixty-two packets of material were distributed to 126 workers, 18 supervisors, and 18 immediate superiors. One hundred and fifty-three of these packets were returned in the mail. All of the supervisors and immediate superiors returned their packets. (100% return.) One hundred and seventeen workers returned their packets. (92.8% return.)

The packets distributed to the subject supervisors contained the following instruments:

1. Biographic Questionnaire
2. Work Related Semantic Differential Scales
 - a. ME AT WORK
 - b. MY JOB
 - c. MY SUPERVISOR
3. Supervisory Inventory on Communication
4. Supervisory Inventory on Human Relations
5. Sixteen Personality Factor Questionnaire
6. Subordinate Rating Prediction Form

Three additional sheets were included in the supervisor's packet to introduce the study and to provide instructions for the semantic differential scales.

The work group was assembled in a private meeting place, e.g. an office, conference room or company classroom. The workers were given packets containing the following instruments:

1. Biographic Questionnaire
2. Work Related Semantic Differential Scales
 - a. ME AT WORK
 - b. MY JOB
 - c. MY SUPERVISOR (Effectiveness Rating)
3. Human Relations Performance Rating of their Supervisor

The workers were invited to look through the material in the packet, while the method for completing the forms was explained. They were encouraged to ask questions about the rating scales.

The immediate superior of the supervisor was given a packet containing the following instruments:

1. Biographic Questionnaire
2. Semantic Differential Rating for MY SUBORDINATE SUPERVISOR (Effectiveness Rating)
3. Human Relations Performance Rating of the Subject Supervisor

Each packet was stamped and returned addressed. No request for names or addresses was included. Each packet was identified with a special code, devised to help separate the packets by group, as they were returned. Special notice was made of which worker received each coded number. The supervisor placed these special code numbers on his Subordinate Rating Prediction form so that his predictions could be

correlated with the worker's ratings on the MY SUPERVISOR scale. (Hypothesis 6, Chapter IV.) The subjects were asked to take the instruments home to complete them and return them in the stamped envelopes provided by the researcher.

When a worker was absent from work, a packet was left with his supervisor. Workers who for some reason could not meet with their group were interviewed individually by the researcher.

Nature and Uses of Data-Gathering Instruments

The instruments used for testing and data collection in this study included a personality test, two similarly constructed inventories on communication and human relations, three semantic differential rating scales, and biographical questionnaires. Some of the testing instruments were used by two or three levels within each group. The data collection was carried out on three organizational levels.

Semantic Differential Rating Scales

Three semantic differential rating scales were used in this study to measure group attitudes toward (a) self at work, (b) the job, and (c) the supervisor. The work related scales were developed through factor analysis and validated by replication study with different samples by William E. Scott, Jr., et al. The details of this research are reported in Chapter II. Sample copies of the instruments are included as Appendices A, B, and C of this report.

The titles of the rating scales and their test-retest reliability and validity scores are reported in Table 3.

TABLE 3

RELIABILITY AND VALIDITY SCORES FOR THREE SD SCALES^a

Title	Reliability	Validity
Me At Work	.865	.795
My Job	.840	.772
My Supervisor	.920	.846

^aScott and Rowland, pp. 579-87.

Scoring the semantic differential is simple. Two alternative methods may be used. Each line is scored separately, then the line scores are totaled for each concept.

In the example that follows, there are seven points along the scale that might be marked by the subject. The scoring methods that could be used to assign a value for each point on the scale are:

- a. good +3 : +2 : +1 : 0 : -1 : -2 : -3 bad
 b. bad 1 : 2 : 3 : 4 : 5 : 6 : 7 good

With method a. the scores are devised from positive and negative points. The total scores are much lower values than those derived with method b. With method b. all the values are positive. The researcher selected method a. for scoring the semantic differentials in this study. Method a. yielded smaller values that were easier to work with.

A supervisor's acceptability by his staff was measured with the MY SUPERVISOR semantic differential scale. Scoring provided a statistic that was used as a "measure of effectiveness." According to research findings by Nagle,¹ a supervisor's effectiveness is a factor in his acceptability by his staff.

The scores from the semantic differentials were utilized in the same manner as standardized test scores. The scores from the worker's ratings on the ME AT WORK and MY JOB scales were averaged and used as measures of group morale.

Group Ranking Procedures with the SD Ratings

The MY SUPERVISOR and MY SUBORDINATE supervisor scores were ranked and served as "Measures of Supervisor Effectiveness". The ratings for each group were averaged and these mean ratings were ranked. The complete list of ranked ratings is reported in Appendix D, Exhibit 4.

The ranks for the work group and immediate superior ratings of the supervisor were summed and the sums placed in rank order. When two groups received the same sum, the Group Morale measure (Appendix D, Exhibit 4), was used to break the tie. The group having the higher morale measure was assigned the higher rank. The groups were placed in rank order for the remainder of the study based on these ranked ratings. Based on the ranks assigned through this

¹Nagle, op. cit., p. 408.

procedure, supervisors ranked 1-9 were designated "more effective" and the supervisors ranked 10-18 were designated "less effective" for the purposes of comparison during the remainder of this study.

The SD measures of group morale and supervisor effectiveness were correlated with other scores obtained from the supervisor and the immediate superior and with other variables in the study to determine the strength of the relationships.

The Sixteen Personality Factor Questionnaire

The 16 PF was selected for this study because the scores were similar to the a priori ratings in significance, and would be compatible with the semantic differential. The 16 PF is a self-concept test which induces or infers multidimensional concepts from the test data. The test was developed by Raymond B. Cattell over a 40-year period of research and factor analysis. (The details of his research are reviewed in Chapter II.) The Form C, short version, with the Motivational Distortion experimental factor was selected because of possible time limitations with the work groups. The test has 120 multiple choice questions which are stated in simplified language.

The reusable 16 PF test booklet includes easy to understand directions and takes approximately 40 minutes to complete. Scoring is done with an overlay key that is provided with the test forms. Norms are provided for general

population adults, high school and college students, males and females.

The Manual includes 28 occupational profiles and "grid" forms for computing a weighted score. The weighted scores indicate an individual's personality qualifications for a particular task area.

The grids entitled "Office Supervisor" and "Factory Supervisor" were used to compute supervisors' scores in this study. The supervisors were classified into two categories rather than the original three because the government workers were office workers also. The two categories are correlated with supervisor effectiveness in the Ancillary section of Chapter IV, with results reported on Table 17.

The weighted grid scores were used as the measure of personality in testing hypotheses one and four. Results of these correlations appear on Table 18, Chapter IV. The individual 16 PF scores, and samples of the grid forms are included in Appendix D.

The 16 PF, as the name implies, provides 16 separate factor scores that were not used in this study. They would be useful in a factor analysis, but this procedure was not planned in the scope of the present investigation. The individual trait scores are recorded in Appendix D, Exhibit 4, along with Cattell's effective leader profile, for the readers' benefit. The mean values for each factor were computed

on the total sample, the more effective and less effective supervisors. A summary of the comparative values appears on Table 19, Chapter IV.

The Supervisory Inventory on Communications

The Supervisory Inventory on Communications (SIC), is an 80-item, self-grading test of facts, principles and techniques specifically related to the supervisor's job in business and industry. The test appears to be the only communications inventory for business supervisors that has been published to date. Although extensive data related to reliability and validity has not yet been published, due to the relative newness of the test, preliminary norms listed in the manual are encouraging. The norms were developed with data from more than 100 companies, representing a variety of organizational types.

The SIC is easy to administer and score. The test can be completed in about 20 minutes. Scores are computed by counting incorrect responses and determining a percentage. The SIC provides a composite measure of communication knowledge that may be subdivided into four communication subject area scores. This test feature helps to identify areas where training might be needed and provides more precise information for research.

The SIC composite scores were correlated with the Supervisor's effectiveness ratings to test hypothesis two,

and with the 16 PF scores to test hypothesis four. Results of the correlations are reported in Chapter IV. The four subject area scores were not used in the hypothesis testing. However, mean values for the area scores were computed in order to compare the more effective with the less effective group. The results are listed on Table 19 in Chapter IV.

The Supervisory Inventory on Human Relations

The Supervisory Inventory on Human Relations (SIHR), provides a measure of the supervisor's knowledge of facts, principles and techniques specifically related to the supervisor's job in business and industry.

The test-retest reliability of the SIHR was computed using the Spearman-Brown split-half method. The correlation coefficient was reported to be .94. In a rank-difference correlation, the relationship between scores on the SIHR and performance ratings was reported to be +0.35, which was significant at the .06 level of confidence.

The SIHR is a self-grading test. Scores are computed by counting the number of incorrect responses and figuring a percentage. The SIHR tests a supervisor's knowledge of human relations in five subject areas. The subject area scores may be used to identify areas where training may be needed, or to compare differences between supervisors for research purposes.

In this study the SIHR composite scores were correlated with the group ratings of the supervisor to test

hypothesis two, and with the 16 PF test scores to test hypothesis four. The scores were also correlated with the Human Relations Performance Rating to determine if a supervisor's knowledge was related to his interpersonal behavior as perceived by his work group and immediate superior. The results of this correlation is reported with hypothesis two in Chapter IV.

The Human Relations Performance Rating was devised for use with the SIHR by Gerald Behling in a graduate research study with four companies. A correlation between the performance ratings and the SIHR scores was recommended as a validity test for the SIHR scores.

The separate area scores were not used in the statistical analysis of this study. However, mean values were computed to compare the scores of the more effective supervisors with those of the less effective supervisors. (Table 19, Chapter IV.)

Biographical Questionnaires

The questionnaires used to collect biographical data about the subjects were prepared by the researcher. Questions were asked that would provide information about the supervisor's age, sex, education, work experience, and family background. These variables were correlated with effectiveness ratings of the supervisor to determine the strength of relationship. A sample of each questionnaire appears in the

Appendices. The results of the correlations achieved are reported on Summary Table 18 in Chapter IV.

Statistical Procedures

Data for the analysis of supervisory effectiveness were collected from 18 work groups. Primary data were collected from the supervisors. Supporting data were collected from the individual workers and the supervisor's immediate superior.

Initial treatment of the data involved scoring and summarizing the results for each group. After the group data had been received, the scores for the groups were posted on the data tables, totaled, averaged and summarized. The group's ratings were averaged on the following instruments:

1. MY SUPERVISOR = Effectiveness Rating
2. ME AT WORK)
)--Mean of these two = Morale Factor
3. MY JOB)
4. Human Relations Performance Rating

The ratings by the immediate superior on the MY SUBORDINATE SUPERVISOR scale were used as Effectiveness Ratings. The human relations ratings by the immediate superior were used in the validation tests of the SIHR scores.

The objective test scores earned by each supervisor were used as composite measures rather than being subdivided as was possible with all three tests. The semantic differential ratings by the supervisor on ME AT WORK and MY JOB

were used as measure of his morale. The MY SUPERVISOR rating that the supervisor completed was not used in this study, although it was scored and recorded for possible use in future comparisons. A good deal of data collected from the supervisor was not used in the statistical analysis. All raw data are included in Appendix D.

The primary statistical procedure employed for the analyses of the 10 research questions was Pearson product-moment correlation for interval scores, represented by "r". The analysis of data required the computation of 47 correlations between 30 different variables. In one instance, a student's t-test was utilized to test the difference between the "r's" of two groups. In another case, a one-way analysis of variance (F test) was used to identify differences among three groups.

A summary of the variables and the statistical procedures utilized in testing the ten hypotheses appears on Table 4, Chapter IV. A summary of the complete statistical results appears on Tables 18 and 19 at the conclusion of Chapter IV.

Summary

This chapter has provided an explanation of the methods for collecting the data and an outline of the analytical procedures employed. The nature and the uses of the data collecting instruments have been defined. The method used to

ascertain the effectiveness rankings was outlined. The chapter concludes with a description of the statistical procedures employed to treat the research data, and test the ten hypotheses.

CHAPTER IV

ANALYSIS OF DATA

In this study, the investigator analyzed the responses given by 18 supervisors, their immediate superiors, and 117 workers in 18 small work groups. (3 to 10 members of each).

The primary purpose of the analysis was to determine the relationship among certain biographical, personality, human relations, and communication variables. Ten questions had been posed (Chapter 1, pp. 9-10) concerning the relationship of the variables. Measures were taken from three perspectives--from the supervisor, from his immediate superior, and from his subordinates (i.e., employees under his direct supervision). The results of testing these ten hypotheses are presented in the following section. The three groups of subjects used in the study, supervisors, immediate superiors, and workers, as well as the measures recorded for each are shown in Figure 3.

Analysis Procedures

To test the hypotheses stated in Chapter I, the researcher computed several correlations and a one-way

Group	Instruments*
Subject Supervisors N = 18	1. Biographical Information 2. Work related semantic differentials: a. Me at Work b. My Job c. My Supervisor 3. Supervisory Inventory on Communications (SIC) 4. Supervisory Inventory on Human Relations 5. Sixteen Personality Factor Test (16 PF) 6. Prediction of Group Ratings
Immediate Superiors N = 18	1. Biographical Data 2. My Subordinate Supervisor semantic differential rating scale 3. Human Relations Performance Rating of the Supervisor
Subordinates N = 117	1. Biographical Information 2. Work related semantic differentials: a. Me at Work b. My Job c. My Supervisor 3. Human Relations Performance Rating of the Supervisor

Fig. 3.--Groups used in the conduct of the study
and the measures recorded for each

*Data collected from the experimental subjects are
presented in Appendix D.

analysis of variance (i.e., F test). The correlations were computed by the Pearson product-moment method using interval scores. "The correlation coefficient is a precise measure of the way in which two variables correlate. Its value is such as to indicate both the direction (positive or negative) and the strength of the correlation between two variables."¹ A perfect correlation would reflect itself in a +1.0 correlation coefficient. No correlation would be reflected when the coefficient reached zero (0.00). Perfect opposites, or a negative correlation is represented by -1.0. The correlation coefficient is computed by taking a "mean of the cross products of the z scores of the two variables."² The statistical symbol for Pearson product-moment correlation is r .

The F test (analysis of variance) is used in testing hypothesis eight and will be discussed in further detail at that point. Two other correlation procedures, point-biserial (r_{pb}) and biserial (r_b), will be discussed with hypothesis 7. A single application of the students t-test will be discussed with hypothesis 6.

Table 4 on the following page is designed to give the reader a complete picture of the measures used for

¹George H. Weinberg and John A. Schumaker, Statistics: An Intuitive Approach (Belmont, CA: Wadsworth Publishing Company, Inc., 1967), p. 259.

²Ibid., pp. 260-61.

TABLE 4
MEASURES AND STATISTICAL PROCEDURES
USED IN TESTING HYPOTHESES

Table	H ₀ No.	Measures Used For Analysis	Statistic
5	1	16 PF Weighted Scores Group $\bar{X}$ - MY SUPERVISOR (SD)	r
6	2	a. Supervisors' SIHR (%) Group $\bar{X}$ - HR Perform. Rtg. (%)	r
		b. Supervisors' SIHR Immed. Superiors' HR Perform. Rtg.	r
		c. Supervisors' SIHR Group $\bar{X}$ - MY SUPERVISOR	r
		d. Supervisors' SIHR Immed. Superiors' MY SUBORDINATE SUPERVISOR	r
		e. Supervisors' SIC (%) Group $\bar{X}$ - MY SUPERVISOR	r
		f. Supervisors' SIC Immed. Superiors' MY SUBORDINATE SUPERVISOR	r
7	3	a. Supervisors' ME AT WORK (SD) Group $\bar{X}$ - MY SUPERVISOR	r
		b. Supervisors' ME AT WORK Immed. Superiors' MY SUBORDINATE SUPERVISOR	r
		c. Supervisors' MY JOB (SD) Group $\bar{X}$ - MY SUPERVISOR	r

TABLE 4--Continued

Table	H ₀ No.	Measures Used For Analysis	Statistic
8	4	a. 16 PF Weighted Scores Supervisors' SIC (%)	r
		b. 16 PF Weighted Scores Supervisors' SIHR (%)	r
9	5	Group $\bar{X}$ - HR Performance Rtg. Immed. Superiors' HR Perform. Rtg.	r
10	6	a. Workers' Ratings - MY SUPERVISOR Supervisors' Predictions of Ratings (This was done for all 18 groups)	r
11		b. $\bar{X}$ of Top 9 Group r's Table 10 $\bar{X}$ of Low 9 Group r's Table 10	t
12		c. Group $\bar{X}$ - MY SUPERVISOR Supervisors' $\bar{X}$ of Rating Predictions	r
13	7	a. Supervisors' Age Group $\bar{X}$ - MY SUPERVISOR	r
		b. Supervisors' Years of Education Group $\bar{X}$ - MY SUPERVISOR	r
		c. Supervisors' Years with Company Group $\bar{X}$ - MY SUPERVISOR	r
		d. Supervisors' Years Supervisory Exper. Group $\bar{X}$ - MY SUPERVISOR	r
		e. Birth Order Group $\bar{X}$ - MY SUPERVISOR	r _{pb} *

TABLE 4--Continued

Table	H ₀ No.	Measures for Analysis	Statistic
13	7	f. Parental Discipline Group $\bar{X}$ - MY SUPERVISOR	r_b^{**}
14	8	Group $\bar{X}$ - MY SUPERVISOR For: Government Groups) Business Groups) Manufacturing Groups)	F
15	9	a. Supervisors' ME AT WORK (SD) Group $\bar{X}$ - MY SUPERVISOR	r
		b. Supervisors' ME AT WORK Immed. Superiors' MY SUBORDINATE SUPERVISOR	r
		c. Self - ME AT WORK 16 PF Weighted Score	r
16	10	a. Span of Control (Group N) Group $\bar{X}$ - MY SUPERVISOR	r
		b. Size of Organization (N Employees) Group $\bar{X}$ - MY SUPERVISOR	r

*Point-Biserial Correlation

**Biserial Correlation

analysis and the statistical procedures employed with each of the ten hypotheses. Individual tables are presented with each hypothesis throughout the Chapter.

All hypotheses were tested at the .05 level of significance. The descriptive statistics associated with each hypothesis are presented in the appropriate tables.

Results of Testing Hypothesis One

The question considered here was, "Is there a relationship between a supervisor's personality and his communicative behavior as perceived by his staff?" The 16 PF weighted scores were correlated with the groups' ratings on the MY SUPERVISOR semantic differential. The results of testing hypothesis one are shown in Table 5.

TABLE 5
RELATIONSHIP BETWEEN PERSONALITY AND GROUP'S
SUPERVISOR EFFECTIVENESS RATING

Measure	Mean	S.D.	Correlation
Supervisors' Weighted 16 PF Scores	47.83	3.840	-.236*
Group $\bar{X}$ - MY SUPERVISOR Effectiveness Ratings	1.33	.075	

*Not Significant; .05 level of confidence.

The correlation coefficient computed between the two sets of numbers had a negative value ($r = -0.236$). This figure indicates that the highest weighted personality values are associated with the lowest group effectiveness values. This would also indicate that the supervisors who achieved the most qualified overall personality scores were rated lowest by their workers. However, because the relationship between the two variables was not significant, the researcher

concluded that the weighted grid scores on the 16 PF test would not be satisfactory predictors of supervisory effectiveness.

Results of Testing Hypothesis Two

The question to be answered reads: "Does a supervisor who demonstrates knowledge of human relations and communications facts, principles, and approaches seem to use such knowledge in his work?" Before the comparisons between the group/superior ratings and the supervisors' SIHR scores were made, a correlation was computed between the SIHR scores and the Human Relations Performance Rating scores to determine the validity of the SIHR scores in the present study (i.e., whether the supervisors' scores correlate with his job performance, as rated by the workers and the immediate superiors).

Hypothesis number two was tested in an attempt to determine the relationship between the supervisor's capabilities and his effectiveness as determined by his work group and his immediate superior. The supervisors' scores on the Supervisory Inventory on Human Relations and the Supervisory Inventory on Communication were correlated with the group effectiveness ratings (i.e., group mean of the MY SUPERVISOR semantic differential), and with the immediate superiors' ratings of the supervisors' effectiveness. The results of these two correlations are shown in Table 6.

TABLE 6

RELATIONSHIP BETWEEN THE SUPERVISORS' SIC/SIHR SCORES
AND HIS EFFECTIVENESS RATINGS BY HIS IMMEDIATE
SUPERIOR AND HIS WORK GROUP

Measure	Mean	S.D.	Correlation
a. SIHR Scores	86.50%	6.78	.1734
Group $\bar{X}$ - HR Performance Rating	69.24	11.34	
b. SIHR Scores	86.50	6.78	.1378
Immed. Superior - HR Perform. Rating	73.04	19.55	
c. SIHR Scores	86.50	6.78	.3515
Group $\bar{X}$ - MY SUPERVISOR Effectiveness Rtg.	1.33	.71	
d. SIHR Scores	86.50	6.78	-.1264
Immed. Superior MY SUBORDINATE SUPERVISOR	27.44	10.01	
e. SIC Scores	83.47	6.57	.3208
Group $\bar{X}$ MY SUPERVISOR Effectiveness Rating	1.33	.71	
f. SIC Scores	83.47	6.57	.2570
Immed. Superior MY SUBORDINATE SUPERVISOR	27.44	10.01	

The correlation coefficient's computed between the supervisors' SIHR scores and the worker/immediate superior performance ratings (.1734 and .1378) were positive but too low to be significant at the .05 level. These correlations

represent the validity coefficients for the SIHR scores in this study. The researcher concluded that the performance ratings by the immediate superior and work group were not satisfactory measures for predicting supervisor capability and knowledge in the area of Human Relations. The outcome with lower ratings than scores was expected. According to Fiske,¹ "ability as tested is usually superior to ability as reflected in everyday performance; because when a subject is functioning on less structured tasks and is subject to distractions and conflicting motivations, he performs less well."¹

Although none of the correlations computed to answer hypothesis two were significant at the .05 level, the researcher concluded that the group ratings seem to provide a much better indication of a supervisor's human relations and communications capabilities than the ratings by his immediate superior. It would appear that the immediate superiors generally have some idea about the supervisors' communication capabilities (as indicated by the low positive correlation), but very little about his interpersonal relations with his group. In fact, the negative correlation would indicate that those supervisors who earned the highest scores on the SIHR were those rated lowest in human relations performance by their superiors. This negative correlation was unexpected

¹Fiske, op. cit., p. 128.

and is difficult to account for in light of previous research with the human relations performance rating.

Results of Testing Hypothesis Three

The question to be answered was stated as follows: "Does a supervisor's attitude toward on-the-job situational variables have measurable effects on his communicative performance as perceived and rated by his subordinate staff and his immediate superior?" Hypothesis number three was tested to determine the amount of relationship between the morale of the supervisor, based on ME AT WORK/ MY JOB ratings, and the effectiveness ratings given the subject supervisor by his work group and immediate superior. The results of these two correlations are shown in Table 7.

None of the four correlation coefficients computed in testing hypothesis three were significant at the .05 level. However, a closer evaluation of the coefficients yielded some interesting comparisons. For example, when the correlation coefficients for computations a. and c. (.316 and -.214) were compared with those for computations b. and d. (.325 and .239), it appeared that the superiors' ratings were better predictors of the supervisors' morale (as measured by MY JOB and ME AT WORK semantic differential scales), than were the group ratings. These findings indicate that the supervisors with higher ratings by their Immediate Superior (i.e., the "more effective" group) tend to have better attitudes toward

themselves and their job. However, the group attitudes toward the supervisor seem to have had less effect upon his "morale", and vice versa.

TABLE 7

RELATIONSHIP OF SUPERVISORS' MORALE TO EFFECTIVENESS
AS RATED BY SUBORDINATES AND IMMEDIATE SUPERIOR

Measure ^a	Mean	S.D.	Correlation
a. Supervisors' ME AT WORK	1.34	0.96	0.316
Group $\bar{X}$ MY SUPERVISOR	1.33	0.71	
b. Supervisors' ME AT WORK	1.34	0.96	0.325
Immed. Superiors' MY SUB- ORDINATE SUPERVISOR	27.44	10.01	
c. Supervisors' MY JOB	1.47	0.39	-0.214
Group $\bar{X}$ MY SUPERVISOR	1.33	0.71	
d. Supervisors' MY JOB	1.47	0.39	0.239
Immed. Superiors' MY SUB- ORDINATE SUPERVISOR	27.44	10.01	

^aAll items in "Measure" column are semantic differential attitude scales.

In light of these findings, the researcher concluded that with this sample the superior's rating was a more precise index for predicting the supervisor's morale than was the group's rating.

Results of Testing Hypothesis Four

Hypothesis number four was concerned with the relationships among the personality measures and the SIC/SIHR scores. Only the weighted personality scores were considered in the calculations, rather than the 16 individual trait scores. Two correlation coefficients were computed in testing the hypothesis. They are presented in Table 8.

TABLE 8
RELATIONSHIP OF PERSONALITY TO SIC/SIHR SCORES

Measure	Mean	S.D.	Correlation
a. Personality ^a	47.83	3.84	0.315
Supervisors' SIC Scores	83.47	6.57	
b. Personality	47.83	3.84	0.405
Supervisors' SIHR Scores	86.50	6.78	

^aThe personality measure was derived from Cattell's weighted grids for the "Office Supervisor" and the "Factory Supervisor," Handbook Supplement for Form C of the 16 PF Test, pp. 24-25. (Samples of the grids appear in Appendix D.)

The supervisors' scores on the human relations test were more closely related to their personality qualifications than were their communications test scores. Although neither of the two correlation coefficients was significant at the .05 level, the .405 coefficient for the personality/SIHR comparison is the fourth highest in this study. (+.46 was needed for significance).

On the basis of the findings, it appears that the supervisors' most qualified for their job in terms of the 16 PF personality grid scores, tend to be more knowledgeable about human relations than they are about communications. On both comparisons however, there was a low positive correlation. Therefore, the weighted score from the 16 PF would not appear to be an effective index for predicting scores on the SIC or the SIHR and vice versa.

Results of Testing Hypothesis Five

The question to be answered in this section was: "Do ratings of the supervisor's human relations performance by his staff and immediate superior seem correlated?" Hypothesis five was tested by correlating the human relations performance ratings of the supervisor by the immediate superior and the work group. The measures listed here were derived from the same instrument, however, it was completed by two different groups. (A sample of the performance rating form is displayed in Appendix B and C.) The results of the correlation coefficient computed are presented in Table 9.

The coefficient computed to test hypothesis five was not significant at the .05 level, however, the result was positive and was approaching significance. (+.46 was needed). On the basis of this finding, the researcher concluded that the two groups used to rate human relations were probably basing their evaluations on different value structures, due

to their separate vantage points. In this sample, the workers' ratings of the supervisors were lower than those by the immediate superiors. Although neither rating would serve as an effective predictor of the other, a positive trend exists.

TABLE 9

RELATIONSHIP BETWEEN THE HUMAN RELATIONS PERFORMANCE RATINGS OF THE WORK GROUP AND THE IMMEDIATE SUPERIOR

Measure	Mean (%)	S.D.	Correlation
Group $\bar{X}$ Human Relations Performance Ratings	69.24	11.34	0.394
Superior Human Relations Performance Ratings	73.04	19.55	

Results of Testing Hypothesis Six

One of the more important comparisons made in this study was the interpersonal sensitivity indices of the more effective and the less effective supervisors. The question to be answered in relation to hypothesis six was: "Will a supervisor's predictions about rating outcomes be consistent with those ratings by his staff?" The intent was to determine how sensitive a supervisor was to the feelings toward him by his subordinate work group.

The measures used in testing this hypothesis were the results from semantic differential rating scales. The work group rated the supervisor with the MY SUPERVISOR scale

and the supervisor predicted how those ratings would result with the SUBORDINATE RATING PREDICTION form. Both these instruments are displayed in Appendices A and B.

The sensitivity index was computed by correlating each of the 18 supervisors' predictions of rating outcomes with the ratings of him by his work group members. The correlation coefficients for all eighteen groups are presented on Table 10.

Mann¹ had previously reported in a review of literature that the amount of correlation between interpersonal sensitivity and leadership effectiveness was spuriously positive. In Mann's review of 1,400 research results, leaders were found to be more accurate in predicting group opinions in 74% of the cases. An inspection of Table 10 indicates that in this study, the correlation between sensitivity and leadership was also low but positive and corresponds with Mann's earlier findings. The sensitivity indices (on Table 10) are ranked in order for the reader to see more clearly that the supervisors with the greatest degree of sensitivity were those who received the lowest effectiveness ratings by their work group. This result was surprising and difficult to explain.

A comparison of the sensitivity ranks with other raw data in Appendix D was made and the relationships and differences appear in Table 10-A.

¹Mann, op. cit., p. 251.

TABLE 10

SUPERVISORS' INTERPERSONAL SENSITIVITY INDEX: A
CORRELATION BETWEEN THE WORK GROUP'S RATINGS
AND THE SUPERVISOR'S PREDICTIONS

Group Rank ^a	N	Sensitivity Index	Rank ^b
1	4	r = .1991	(13)
2	8	.1936	(15)
3	7	.1302	(16)
4	6	.4913	(7)
5	5	.1970	(14)
6	4	-.0963	(17)
7	5	.4395	(10)
8	8	.2983	(11)
9	10	.0956	(18)
10	7	.6673	(1)
11	3	.6109	(2)
12	6	.5153	(5)
13	6	.4780	(9)
14	8	.4914	(6)
15	7	.4823	(8)
16	6	.5536	(3)
17	9	.2111	(12)
18	8	.5358	(4)

^aBased on MY SUPERVISOR effectiveness ratings

^bThe number in parenthesis is the rank of the sensitivity coefficients in this column.

TABLE 10-A

A COMPARISON OF SENSITIVITY RATINGS WITH OTHER DATA

Sensitivity Rank	Group Eff. Rank	16 PF Scores	Age	Yrs. Exper.	Group HRFR RANK	Group Morale Rank
1	10	44	38	14	17	13
2	11	47 ^a	43	10	10	2
3	16	41	53	22	14	6
4	18	54 ^a	35	4	16	12
5	12	48 ^a	34	4	15	18
6	14	45	29	6	11	9
7	4	50 ^a	53	6	8	11
8	15	49 ^a	39	11	6	14
9	13	50 ^a	29	12	11	10
17	6	44	50	20	4	1
18	9	57 ^a	43	12	13	5

^aScore indicates personality fits job situation

A close inspection of Table 10-A reveals several things:

1) The sensitivity ranks did not seem related either to the group effectiveness ratings or to the group morale ratings.

2) The supervisor with the highest sensitivity score was rated 17th in human relations performance by his workers.

3) The supervisor who rated first on group morale was rated 17th on the sensitivity scores.

4) Six of the nine most sensitive were also qualified for their job as measured by the 16 PF.

5) Six of the nine most sensitive were under 40 years of age.

6) Five of the nine most sensitive had over 10 years of supervisory experience.

7) The supervisor who ranked 18th on the sensitivity scores had a 16 PF weighted score of 57, which was the highest, most qualified personality score in the total sample.

8) The group tasks for the nine most sensitive supervisors were almost evenly divided. Five groups were manufacturing and four were office groups. However, only one of the office groups was a government group. (Exhibit 6, Appendix D.)

On the basis of these findings, the researcher concluded that the sensitivity indices did not provide a satisfactory measure for anything except personality qualification level, age, and number of years supervisory experience. The index seems negatively related to the other data listed on Table 10-A, although correlations were not computed to determine further relationships.

Following the individual group correlations to compute the interpersonal sensitivity indices, another comparison was made. The sensitivity coefficients listed on Table 10

were treated as raw scores and a student's t-test was computed between the means of the more effective and less effective groups. (The reader is reminded that the effectiveness ranking was made on the basis of earlier ratings by the group and the immediate superior with semantic differential scales.) The results of the t-test are presented in Table 11.

TABLE 11
STUDENT'S t-TEST BETWEEN SENSITIVITY SCORES OF
TWO GROUPS OF SUPERVISORS

Group	Mean	S.D.	t value
More Effective Supervisors (N = 9)	.2164	.1778	3.76 ^a
Less Effective Supervisors (N = 9)	.5050	.1268	

^aSignificant at the .01 level.

The results presented on Table 11 indicate that the less effective supervisors were significantly more sensitive than the more effective supervisors. This indicates that in the present study, the MY SUPERVISOR semantic differential ratings used for the effectiveness ranking were not related to the sensitivity indices. The t value was significant at the .01 level, and the researcher concluded that the supervisors who scored higher on the sensitivity measures

were those that tended to be rated lower on effectiveness by their work group.

One final comparison was made in testing hypothesis six, in an attempt to establish the reliability coefficient for the total sample. The mean prediction scores were correlated with the group mean effectiveness ratings. The results are presented in Table 12.

TABLE 12
RELIABILITY OF THE SUPERVISORS' PREDICTIONS

Measure	Mean	S.D.	Reliability (r)
$\bar{X}$ - Supervisors' Predictions of Group Ratings	1.74	.490	.419
Group $\bar{X}$ MY SUPERVISOR Effectiveness Ratings	1.33	.705	

Although the reliability coefficient was not significant at the .05 level, the positive correlation indicated that the two measures were somewhat related. On the basis of the finding, the researcher concluded that the supervisors' predictions were not consistent with those ratings by their subordinates. However, the strength of the correlation was such that a trend toward positive relationship was indicated.

Results of Testing Hypothesis Seven

The question to be analyzed at this point was: "How do demographic factors such as age, educational background,

birth order, and number of years management experience relate to supervisory effectiveness?" To test hypothesis seven, several biographical factors were related to the group effectiveness ratings on the MY SUPERVISOR scale. The results of these correlations are shown in Table 13.

TABLE 13
RELATIONSHIP OF BIOGRAPHICAL FACTORS
WITH SUPERVISORY EFFECTIVENESS

Factor	Mean	Correlation
Age	46.33	0.456
Years of Education	13.83	-0.274
Years With This Company	15.78	0.391
Years Supervisor Experience	12.17	0.363
Birth Order	6 (mode)	0.236 ^a
Parental Discipline Experienced in Childhood	1 (mode)	0.066 ^b

Group $\bar{X}$ MY SUPERVISOR Effective- ness Rating	1.33	

^aPoint-Biserial Correlation

^bBiserial Correlation

None of the coefficients were significant at the .05 level, however, the variables age, tenure, and experience appeared to be more closely related to supervisory effectiveness than either birth order or parental discipline. The negative value on education indicates that the supervisors

with greater amounts of education tended to receive lower effectiveness ratings by their subordinates.

The point-biserial correlation used to compute the relationship of birth order to effectiveness was necessary because the data was in a different form (modes). The biserial correlation was used with the parental discipline comparison for the same reason. According to Downey and Heath¹, when the X variable is continuous and the Y variable is a true dichotomy, the point biserial formula is appropriate. When the X variable is continuous and the Y variable is continuous but is forced into a dichotomy the biserial formula is appropriate.

The reader's attention is directed to the "Mean" column of Table 13. The data in this column indicates that the supervisors in the sample are generally middle-aged, with some college, and a considerable amount of background experience. Complete biographical data on all 18 supervisors are presented on Exhibit 1, Appendix D. Some of the data collected in the biographical area were not used for analysis in this research project.

Results of Testing Hypothesis Eight

Hypothesis eight was a test for significant differences in effectiveness among the three different types of

¹N. M. Downey and R. W. Heath, Basic Statistical Methods (2nd ed.; New York: Harper and Row, Publishers, 1965), p. 212.

organizational settings: government, business, and manufacturing. The statistical test used to test for significant differences was a one-way analysis of variance. The results of the test are listed on Table 14.

TABLE 14
ANALYSIS OF VARIANCE BETWEEN EFFECTIVENESS RATINGS
OF THREE GROUPS OF SUPERVISORS

Source of Variation	Degrees of Freedom	Mean ²	F value
SS Groups	2	0.1654	1.932
SS Error	15	0.1063	

SS Total	17		

The researcher concluded that the F value computed to test hypothesis eight was not significant at the .05 level of confidence. The F value would have needed to reach 3.68 for significance. Based on this finding, it is evident that there were not significant differences in effectiveness among business, government service and manufacturing situations. The groups are somewhat different but the difference is insignificant and was not an effective measure for prediction purposes.

Results of Testing Hypothesis Nine

Hypothesis number nine involved the correlation of three measures related to the supervisor's personality, as

perceived by a) self, b) others, and c) adequacy of performance. The measures used in the correlation computations were the ME AT WORK semantic differential ratings, the weighted 16 PF qualification values, and the MY SUPERVISOR semantic differential ratings. The correlations were computed to determine the relationship between the supervisor's feelings about himself on the job and the feelings and the attitudes of others, based on their perception of his behavior toward them. Relationship was also sought between the self-ratings and the supervisor's personality qualification level, as indicated by the weighted grid scores for office and factory supervisors. The raw data used in the computations are found in Appendix D, Exhibits 3, 4, and 7. The results of the computations are presented in Table 15.

TABLE 15
RELATIONSHIP OF THREE PERSONALITY MEASURES

Measure	Mean	S.D.	Correlation
a. Self - ME AT WORK rating	1.34	0.96	0.316
Others - MY SUPERVISOR	1.33	0.71	
b. Self - ME AT WORK	1.34	0.96	0.325
Others - MY SUBORDINATE SUPERVISOR	1.52		
c. Self - ME AT WORK	1.34	0.96	0.378
Adequacy of Performance - 16 PF weighted score	47.83	3.84	

The correlation coefficients computed to test hypothesis nine were positive but too low to be significant at the .05 level of confidence. A closer inspection of the coefficients indicated that the 16 PF weighted scores were more closely related to the self rating with the semantic differential (ME AT WORK) than they were to the ratings by others with the MY SUPERVISOR, MY SUBORDINATE SUPERVISOR scales. This result was logical and was expected because both the 16 PF and ME AT WORK scale were completed by the supervisor. A higher correlation than actually occurred had been expected between the 16 PF and the ME AT WORK scale, since both tests required responses on an "a priori" basis. (i.e., responses were based on perceptions about experiences after they had occurred.)

The correlation values between the work group/immediate superior ratings and the self ratings were very close (only .009 difference in the coefficients). The mean ratings of the supervisor were also quite similar (1.33/1.52). The rating values would fall in the "quite favorable" category on the semantic differential scale. There appeared to be a trend toward higher ratings by the immediate superiors. This trend was also evident with the human relations performance ratings. (Table 6 on page 88 of this report.) The immediate superiors' performance ratings averaged four percent higher than the work groups' ratings.

On the basis of the findings, the researcher concluded that none of these four measures were sufficiently correlated to serve as accurate predictors of the others. Very little difference in the ratings occurred. The immediate superior ratings tended to be slightly higher than those ratings by the supervisor and the work group.

Results of Testing Hypothesis Ten

Hypothesis ten was tested in an attempt to determine the amount of relationship between the supervisor's group effectiveness ratings and his span of control. (i.e., the number of subordinates under his direct supervision). Another relationship was sought between the size of the organization (i.e., number of employees at this location) and the groups' MY SUPERVISOR effectiveness ratings.

The number of employees was defined as those employees who worked in the same city, excluding any employees in subsidiary offices in other cities. The results of the two correlations are presented in Table 16.

The correlation between the supervisor's span of control and his group effectiveness rating was significant beyond the .05 level. This finding indicated that the supervisors who had the largest span of control were rated lowest and the supervisors with the smallest span of control were rated most effective. This finding is consistent with the findings of Thomas and Fink discussed earlier in Chapter II.

They reported that group size has a noticeable effect on the overall interaction patterns. Larger groups seem to be less cohesive and more conforming and have lower levels of member satisfaction than small groups.¹

TABLE 16

RELATIONSHIP OF SUPERVISOR EFFECTIVENESS RATINGS TO
SPAN OF CONTROL AND TO SIZE OF ORGANIZATION

Measure	Mean	S.D.	Correlation
a. Group $\bar{X}$ MY SUPERVISOR	1.33	0.71	-0.468 ^a
Span of Control	7.00	1.47	
b. Group $\bar{X}$ MY SUPERVISOR	1.33	0.71	-0.413
Size of Organization	9183	149	

^aSignificant at the .05 level

The negative correlation value indicates that the highest rated supervisors were associated with the smallest group size.

The relationship between the size of the organization and the effectiveness ratings was quite high but was not significant at the .05 level, which could be attributed to the smaller number of supervisors used in the sample. When the sample size is small, the coefficient of correlation must be larger to account for contingent differences which

¹Thomas and Fink, op. cit., pp. 371-84.

may exist. In this instance, a coefficient of .427, or a group size of 20 would have made these findings significant.

The negative value indicated that the relationship between organization size and leader effectiveness was similar to that found with the span of control comparison. The indication is that those supervisors who received higher ratings of effectiveness tended to be those from smaller organizations.

On the basis of the correlation coefficients computed therefore, the researcher concluded that span of control and size of organization are factors related to leadership effectiveness, although size of organization is not quite as strong a predictor.

Ancillary Findings

Several additional tests were conducted with the data in an attempt to isolate certain criteria that would be reliable predictors of effective supervision. Although an analysis of variance was computed in conjunction with hypothesis eight to test differences among the three situations, (government, manufacturing, and private business) the researcher felt that an additional situational comparison was needed.

Comparisons were made between the effectiveness ratings and the 16 PF weighted grid scores. Based on job profiles designed by Cattell, the grid scores fell into two categories, office supervisor and factory supervisor. Some

of the business groups and all of the government groups fit the "office" category. The rest of the groups were manufacturing situations and fit the "factory" category. The data for this comparison were drawn from Appendix D, Exhibit 6. The results of the correlations are presented on Table 17.

TABLE 17

RELATIONSHIP BETWEEN SUPERVISOR EFFECTIVENESS RATINGS
AND HIS PERSONALITY QUALIFICATION SCORE

Measure	Correlation
16 PF Weighted Scores for OFFICE supervisors (N = 10)	
a. Office supervisors' Group $\bar{X}$ MY SUPERVISOR Effectiveness Ratings	-.6012 ^a
b. Office supervisors' Immediate Superiors' effectiveness rating	-.1502
16 PF Weighted scores for Manufacturing Supervisors (N = 8)	
a. Group $\bar{X}$ MY SUPERVISOR Effectiveness Ratings for Manufacturing Groups	+.1149
b. Immediate Superior Effectiveness Ratings for Manufacturing Supervisors	-.1632

^aSignificant at the .05 level of confidence

The results of the correlations indicated that the higher 16 PF weighted grid scores were not related to higher

effectiveness ratings. The negative correlations indicate that in this study, the 16 PF grid scores were related to lower ratings by immediate superiors in both groups. The group ratings were interesting, in that the correlations computed for the two groups achieved opposite results. The manufacturing work group ratings of the supervisor were positively correlated with the 16 PF weighted scores. This would indicate that the higher rated manufacturing supervisors tended to score higher on the 16 PF qualification grids. On the other hand the office work group ratings of their supervisors were quite negatively related to the 16 PF weighted scores. This indicated that the supervisors who had higher scores on the 16 PF test tended to be rated lower by their work group. The negative coefficient ($-.6012$) was significant at the .05 level of confidence.

On the basis of the correlation coefficients computed, the researcher concluded that the 16 PF weighted grid scores were not significant predictors of a supervisor's ratings by either the workers or the immediate superior. Earlier, with hypothesis number one, a comparison was made between the 16 PF weighted scores and the mean group effectiveness ratings for the entire sample. This comparison yielded a coefficient of $-.236$ that would reinforce the conclusions that the 16 PF weighted scores proved to be inadequate indices for predicting any of the factors with which they were compared in this study.

Summary

This chapter has included a detailed report of testing results and findings, in conjunction with a careful study of relationships, correlations and trends discovered by the inspection process and by statistical analysis. The format of the chapter was designed to present the data analysis in eleven parts--one part for each of the 10 questions that this study proposed to answer and one part for ancilliary findings. The analysis of data conducted in this chapter has involved 47 Pearson product-moment correlations between 30 different variables. In addition to the correlation computations, one hypothesis (No. 6) required the computation of a student's t-test to compare the difference between "r's" of two groups. Another hypothesis (No. 8) required the computation of an analysis of variance (F test) to test the differences between three groups.

The major results of this analysis are presented on Summary Table 18. The results are listed in descending order with the highest correlation coefficients first. The mean values from the biographical information and the three objective tests appear on Table 19. The data for each test has been separated into subject matter areas for a more precise comparison of the differences between the two groups.

In almost every case, the more effective group had larger values and more subjects scoring above the mean, than

the less effective group. The data on the mean value table was not used in the correlation analysis. The figures representing the subjects above the mean were inspected for possible evaluation with the Fisher test of exact probabilities. Only two of the values proved significant, however, primarily because of the small groups. The two significant values are indicated on Table 19.

TABLE 18
SUMMARY OF STATISTICAL RESULTS

X Variable		Y Variable	N ₀ No.	Correlation
1	Group $\bar{X}$ MSER ^a	Office Supervisors' 16 PF	Auxiliary	(-.601)*
2	Group $\bar{X}$ MSER	Span of Control	10	(-.463)*
3	Group $\bar{X}$ MSER	Age	7	.456
4	Group $\bar{X}$ MSER	Supervisors' Predictions of Workers' Ratings (Interpersonal Sensitivity)	6	.419
5	Group $\bar{X}$ MSER	Size of Organization	7	(-.413)
6	16 PF Weighted Scores	SIHR Score ^d	4	.405
7	Group $\bar{X}$ HRPR ^b	Immediate Superiors' HRPR	5	.394
8	Group $\bar{X}$ MSER	Years With This Company	7	.391
9	16 PF Weighted Scores	Supervisors' Morale (ME AT WORK)	9	.373
10	Group $\bar{X}$ MSER	Years Supervisory Experience	7	.363
11	Group $\bar{X}$ MSER	SIHR Scores	2	.351
12	Immediate Superiors' MSSER ^c	Supervisors' Morale (ME AT WORK)	9	.325
13	Group $\bar{X}$ MSER	SIC ^e Scores	2	.321
14	Group $\bar{X}$ MSER	Supervisors' Morale (ME AT WORK)	9	.316
15	16 PF Weighted Scores	SIC Scores	4	.315
16	Group $\bar{X}$ MSER	Years of Education	7	(-.274)
17	Immediate Superiors' MSSER	SIC Scores	2	.257
18	Immediate Superiors' MSSER	Supervisors' Morale (MY JOB)	3	.239
19	Group $\bar{X}$ MSER	16 PF ^f Weighted Scores	1	(-.236)
20	Group $\bar{X}$ MSER	Birth Order	7	.236
21	Group $\bar{X}$ MSER	Supervisors' Morale (MY JOB)	3	(-.214)
22	Group $\bar{X}$ HRPR	SIHR Scores (Reliability test)	2	.173
23	Immediate Superiors' HRPR	SIHR Scores (Reliability test)	2	.138
24	$\bar{X}$ Less Eff. Supervisors Sensitivity Coefficients	$\bar{X}$ More Eff. Supervisors Sensitivity Coefficients	6 (t-test)	3.76*
25	ANOVA between Government/ Manufacturing/ Private Business Groups		8 (F value)	1.932

^aMSER = MY SUPERVISOR effectiveness rating

^bHRPR = Human Relations Performance Rating

^cMSSER = MY SUBORDINATE SUPERVISOR effectiveness rating

^dSIHR = Supervisory Inventory on Human Relations test

^eSIC = Supervisory Inventory on Communications test

^f16 PF = Sixteen Personality Factor Questionnaire

*Significant, .05 level of confidence

TABLE 19

MEAN VALUES FOR SAMPLE, MORE EFFECTIVE, AND
LESS EFFECTIVE SUPERVISORS

Variable	Total Sample	More Effective	Less Effective
1. Age	44.8	46.3 (4) ^a	43.4 (1)
2. Years of Education	13.6	13.8 (4)	13.4 (3)
3. Years with Company	15.3	18.8 (5)	15.4 (3)
4. Years Supervisory Experience	12.2	15.2 (6)	10.7 (1) ^b
5. Superv. Inventory on Commun.	83.5	84.4 (4)	82.5 (3)
a. Definition	62.7	69.8 (9)	55.6 (5)
b. Principles	87.2	87.7 (4)	86.6 (5)
c. Oral & Written	79.4	82.2 (5)	76.6 (4)
d. Listening	86.1	84.1 (5)	87.7 (6)
6. Superv. Invent. on Human Rel.	86.5	87.0 (4)	86.0 (4)
a. Understanding Role	89.0	90.3 (6)	87.6 (5)
b. Motivating Employees	87.3	86.0 (4)	88.5 (6)
c. Devl. Employee Attitude	86.1	90.0 (7)	82.0 (3)
d. Problem Solving	93.3	95.6 (7)	91.0 (5)
e. Prin. Learning/Training	81.3	85.3 (6)	77.2 (4)
7. 16 PF Weighted Scores	47.8	48.6 (5)	47.0 (4)
Factors:			
A Reserved/Outgoing	4.6	5.1 (7)	4.1 (3)
B Intelligence	5.8	6.6 (8)	4.8 (4)
C Ego Strength	5.8	6.3 (5)	5.2 (4)
E Dominance	4.9	4.2 (4)	5.5 (5)
F Sober/Happy-go-lucky	4.1	3.7 (4)	4.2 (5)
G Expedient/Conscientious	6.2	6.3 (5)	6.0 (4)
H Shy/Venturesome	4.6	4.1 (4)	5.1 (8)
I Tough/Tender-minded	5.1	5.8 (7)	4.0 (1) ^c
L Trusting/Suspicious	4.0	4.0 (4)	4.0 (3)
M Practical/Imaginative	4.4	4.3 (5)	4.0 (3)
N Forthright/Shrewd	6.4	5.8 (3)	6.4 (6)
O Self-assured/Apprehensive	5.0	4.3 (4)	4.8 (6)
Q ₁ Conservative/Experimntg.	4.4	4.0 (4)	4.8 (5)
Q ₂ Group Depend./Self-suff.	5.6	5.2 (4)	5.5 (4)
Q ₃ Self-conflict/Controlled	6.3	7.0 (6)	5.4 (2)
Q ₄ Relaxed/Tense	5.5	4.6 (4)	5.5 (5)

^afigures in parenthesis = number in group above sample mean

^bSignificant - Fisher exact probabilities test -.025 level.

^cSignificant - Fisher exact probabilities test -.01 level.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

Procedure

This study was an investigation of the factors related to interpersonal communication effectiveness of small work group supervisors. The purpose was to determine whether leadership effectiveness factors derived from previous research would be verified with the present sample. The reference frame was interdisciplinary in nature and consisted of these five categories: leadership personality, interpersonal communication, organizational behavior, semantics and small group dynamics.

An analysis and synthesis of information from the literature review produced data revealing current theories about the characteristics of effective leaders. The factors that had proved to be more closely related to leadership effectiveness were identified. Instruments that would identify and/or measure the particular characteristics were selected and/or devised to collect data for the analysis.

One set of material was completed by 18 small work group supervisors; another by 18 immediate superiors of the subject supervisors; and another by 117 work group members, in five organizations representing three situational categories: government service, private business, and manufacturing. To increase the validity of the findings, the supervisors' test scores and predictions of rating outcomes were correlated with measures of group attitudes toward the supervisor.

For the three tests and five rating scales, treatment of data included scoring, posting to data tables, averaging, statistical testing, and interpreting. Averages were computed for group ratings to provide measures of morale and supervisor effectiveness.

Identification of factors that were related to the more effective interpersonal group leaders in this sample was accomplished using the inspection method in conjunction with 47 statistical correlations, and logical analysis. The data analysis was designed to provide information pertinent to the ten research questions this study proposed to answer.

Findings

An analysis of the data collected for this study has provided a basis for the following answers to the ten research questions proposed in Chapter I.

1. There appeared to be no relationship between the more effective supervisor's personality and his behavior as perceived by his staff. The highest weighted personality values were associated with the lowest group effectiveness ratings. The 16 PF weighted grid scores were not satisfactory predictors of supervisory effectiveness. ($r = -.236$)

2. It appeared that supervisors with higher scores on human relations and communication tests used this knowledge to a small degree in their work, as evidenced by the low positive correlations. Worker ratings were stronger predictors of supervisor knowledge than were superior ratings. ($r = .3515/- .1264$) The reliability test of the Supervisory Inventory on Human Relations (SIHR) was positive but too low to be significant. ($r = .173$) The Supervisory Inventory on Communication (SIC) scores were slightly less reliable predictors of leadership effectiveness than were the SIHR scores. ($r = .3208/.3515$).

3. The superior ratings were more precise indices for predicting supervisor morale than were group ratings. Supervisor attitudes about himself at work were positively related to group and superior effectiveness ratings as evidenced by .316 and .325 correlations. However, in comparing attitudes related to the job with ratings, the superior seems to relate to and understand the supervisor more closely than does the work group, as indicated by .239 and $-.214$ coefficients.

4. It appeared that the supervisors most qualified for their job, in terms of the 16 PF weighted grid scores, were more knowledgeable about human relations than they were about communication. (SIHR $r = .405$; SIC $r = .315$). The low positive correlations indicated that the 16 PF would not have been an effective predictor of scores on the SIC or SIHR and vice versa.

5. The human relations performance ratings by the workers and immediate superior were positively related, with a correlation of .394. Superior ratings of the supervisor averaged four per cent higher than worker ratings. The low correlation indicates neither score would have been an effective predictor of the other.

6. The findings on this question were unexpected and seemed illogical. The predictions by the less effective supervisors were more consistent with their subordinates' ratings, than were the predictions by the more effective supervisors. The mean interpersonal sensitivity indices for the low group was .505 while the high groups' indices was only .216. The difference between the two means was statistically significant at the .05 level as indicated by a "t" value of 3.76. A comparison of the sensitivity indices to other data revealed that the indices were more closely related to personality, age, and number of years supervisory experience. Two-thirds of the more sensitive supervisors were well qualified as measured by the 16 PF and were under

40 years of age; five of the nine more effective supervisors had more than 10 years of supervisory experience.

7. The variables age (.456), tenure (.391), and experience (.363), appeared to be more closely related to supervisory effectiveness than either birth order (.236), or parental discipline (.066). The negative value (-.274) for education indicated that supervisors with greater amounts of education tended to receive lower effectiveness ratings by their subordinates. None of the coefficients were significant at the .05 level however.

8. There did not appear to be a significant difference among the government, business and manufacturing group effectiveness ratings as evidenced by an insignificant F value of 1.932.

9. The self-at-work concept was somewhat related to the perceptions by others and to the objective personality measure. (Self/Others $r = .316$ and $.325$; Self/16 PF $r = .378$.) The seemingly closer relationship between the personality test and the self-rating was expected--both measures were completed by the subject supervisors.

10. The correlation between the supervisor's span of control and his group effectiveness ratings was significant beyond the .05 level, (-.468) and was consistent with previous research findings. The negative value indicated that the more effective supervisors tended to have smaller work groups. The same trend was found with the size of

organization comparison. A negative value (-.413) approaching significance, indicated that the more effective supervisors worked for smaller organizations. Span of control was a stronger predictor of effectiveness than was size of organization, however both were closely related to supervisory effectiveness.

Other significant differences between the more effective and less effective supervisors were discovered by comparing the separate area scores mean values on the three objective tests. The mean values for the Supervisory Inventory on Communication revealed that the more effective supervisors were: a) 15 per cent higher on the definitions area and b) 6 per cent higher on the oral and written area. The Supervisory Inventory on Human Relations appeared to identify significant differences in the areas on, a) development of employee attitudes, and b) principles of learning and training. The more effective group averaged eight per cent higher scores on both of these areas.

The Sixteen Personality Factor Questionnaire trait scores revealed some pertinent information also. The mean value table on the separate trait scores indicated that the more effective supervisors tended to be more outgoing and intelligent, higher on ego strength, expedient, shy, tough minded, trusting, practical, forthright, conservative, self-controlled, and more relaxed. (Table 19, Chapter IV.)

Conclusions

The findings of this investigation have led to the following conclusions:

1. The factors that appeared most strongly related to leadership effectiveness were a) smaller span of control, b) age (i.e., older), c) supervisory ability to predict group attitudes, d) smaller organization size, e) greater number of years supervisory experience, and f) higher SIHR scores.

2. Although most of the correlation coefficients were not statistically significant, the fact that fifteen variables correlated with ratings of leadership effectiveness in excess of .300 provided evidence and support for several significant trends.

3. In this study, using the particular instances and the particular schedules, some unexpected results were achieved, for example, the negative correlation of education with leadership effectiveness ratings (Hypothesis 7, Chapter IV). The fact that superior ratings achieved much lower correlations than worker ratings was also an unexpected finding. In this study, it seemed evident that workers were more accurate at rating the effectiveness of their supervisor than was the supervisor's immediate superior (Table 18). Superiors tended to over-rate the supervisor when compared to work group ratings. Superiors' ratings were more adequate than the groups ratings as predictors of supervisor morale, (Hypothesis 3).

4. No significant difference between the three work task types was found. There were supervisors from all three task types in the more effective group; however the manufacturing supervisors tended to be more qualified for their jobs as indicated by the 16 PF.

5. The correlation between sensitivity and leadership was low positive and corresponds with earlier research findings.

6. The 16 PF test was not so strong a predictor of leadership effectiveness as had been expected, however, weighted grid scores were somewhat related to the Supervisory Inventory on Human Relations and the Supervisory Inventory on Communications and the supervisor's ME AT WORK semantic differential.

7. The Supervisory Inventory on Communication scores were not so closely related to leadership in this sample as had been expected. The r value was .321 however, and shows a trend toward relationship between the two variables.

8. The Supervisory Inventory on Human Relations was somewhat related to the 16 PF results (.405) but was only slightly more strongly related to effectiveness ratings than was the SIC--(.351).

9. The MY SUPERVISOR work related semantic differential developed by William E. Scott, Jr., proved to be somewhat related to almost every variable in the study except education, the 16 PF weighted scores, and the MY JOB SD scale. Correlations ranged from .456 to -.601. The variables that appeared most closely related to the MY SUPERVISOR scale were

situational and biographical factors, (Table 18, Chapter IV). The ME AT WORK scale was most closely related to the 16 PF weighted scores. The findings of this study indicate that Scott's work related SD scales are useful measures of employee attitudes and morale and correlate positively with factors previously demonstrated to correlated with leadership success.

Suggestions for Further Study

The researcher determined that future investigations of this type might achieve higher correlations by:

1. using a larger sample
2. using a different personality test
3. employing more sophisticated statistical analysis procedures.
4. using fewer variables
5. eliminating the immediate superior ratings as a variable, or
6. incorporating factor analysis of all area scores on all objective tests into the statistical procedures.

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UNIVERSITY MICROFILMS.

APPENDIX A
DATA COLLECTION MATERIALS
SUPERVISOR'S PACKET

APPENDIX A

The material presented on pages 136 through 149 are data collecting instruments which were included in the "supervisor's packet". The order of materials presented follows:

1. Supervisor Questionnaire
2. You at Work (instructions)
3. Semantic Differential - Instructions - 2 sheets
4. "Me at Work" semantic differential rating scale
5. "My Job" semantic differential rating scale
6. "My Supervisor" semantic differential rating scale
7. Subordinate rating prediction
8. Supervisory Inventory in Human Relations
9. Supervisory Inventory in Communications

EXHIBIT 1

Group Number _____

Location _____

SUPERVISOR QUESTIONNAIRE

Job Information

Exact Job Title _____

Age _____ Sex _____

Years with this company? _____ Years in present job? _____

Years supervisory experience? _____

Educational Background

Circle highest educational level attained.

Secondary: 7, 8, 9, 10, 11, graduated.College: 1, 2, 3, graduated. College Major _____

Have you had any of the following courses:

Psychology _____
Management _____
Communications _____
Human Relations _____Family Background

How many brothers and sisters do you have? Brothers _____

Sisters _____ Describe your age in relation to theirs.

I was the: oldest _____ youngest _____ middle _____ other _____

How would you describe the type of discipline your parents practiced in raising their family? (especially you).

Strict _____
Firm but Fair _____
Permissive _____
Other _____

EXHIBIT 2

YOU AT WORK

Everyone experiences a variety of complicated feelings while at work. Each has his own opinions. However, these feelings and opinions are not always expressed. You may be very dissatisfied with something having to do with your work and not say anything about it. Or, you might be very satisfied with something but somehow it never gets said. There are many reasons for this. You may be too busy. Sometimes you may feel too embarrassed. And there are also times when you may not feel that you can be perfectly frank about your opinions.

Your feelings and opinions are very important whether they are expressed or not. This survey provides some time for you to sit down and seriously think about your opinions. It also provides an opportunity to express your feelings, good or bad, without fear of embarrassment.

Your opinions will be held in strict confidence.

Please complete the booklet and return it to Mrs. Nelson according to previous instructions.

When the survey has been completed, Mrs. Nelson will take all of the booklets to the University for analysis. Then the booklets will be destroyed. Later a report of the results will be given to you, but your booklet will never be shown to anyone connected with your company or your job.

EXHIBIT 3

SEMANTIC DIFFERENTIAL SCALE

Instructions

The purpose of taking this measure is to assess the meanings of certain concepts to various people by having them judge the concepts against a series of descriptive scales. In doing this exercise, please make your judgment on the basis of what these concepts mean to you. On each page of this booklet you will find a different concept to be judged and beneath it a set of scales. You are to rate the concept on each of these scales in order of occurrence.

Here is the way you are to use the scales:

If you feel that the concept at the top of the page is very closely related to one end of the scale, you should place your X-mark as follows:

fair X : ____ : ____ : ____ : ____ : ____ : ____ unfair

or

fair ____ : ____ : ____ : ____ : ____ : ____ : X unfair

If you feel that the concept is quite closely related to the one or the other end of the scale (but not extremely), you should place your X-mark as follows:

strong ____ : X : ____ : ____ : ____ : ____ : ____ weak

or

strong ____ : ____ : ____ : ____ : ____ : X : ____ weak

If the concept seems only slightly related to one side as opposed to the other side (but is not really neutral), then you should check as follows:

active ____ : ____ : X : ____ : ____ : ____ : ____ passive

or

active ____ : ____ : ____ : ____ : X : ____ : ____ passive

The direction toward which you check, of course, depends upon which of the two ends of the scale seem most characteristic of the concept you are judging.

If you consider the concept to be neutral on the scale, both sides of the scale equally associated with the concept, or if the scale is completely irrelevant, unrelated to the concept, then you should place your check-mark in the middle space.

safe ____:____:____: X :____:____:____ dangerous

IMPORTANT:

- (1) Place your check marks in the middle of the spaces, not on the boundaries:

(this)	(not this)
____: <u>X</u> :____:____:____:____:____:	____:____:____:____:____: <u>X</u> :____:

- (2) Be sure you check every scale for every concept--
do not omit any.
- (3) Never put more than one check-mark on a single scale.

Sometimes you may feel as though you have had the same item before on the sheet. This will not be the case, so do not look back and forth through the items. Do not try to remember how you checked a similar item that could have appeared earlier. Do not worry or puzzle over individual items. Work at a fairly high rate of speed through this exercise. Remember, it is your first impressions, or the immediate "feelings" about the items, that we want. On the other hand, please do not be careless and omit some of the items, because we do want your true impressions.

IF YOU HAVE READ ALL OF THE INSTRUCTIONS, YOU MAY
TURN THE PAGE TO THE FIRST CONCEPT AND BEGIN.

EXHIBIT 4

ME AT WORK

	Extremely	Quite	Slightly	Neither One Nor The Other	Slightly	Quite	Extremely	
Appreciated	_____	_____	_____	_____	_____	_____	_____	Unappreciated
Excitable	_____	_____	_____	_____	_____	_____	_____	Calm
Efficient	_____	_____	_____	_____	_____	_____	_____	Inefficient
Penalized	_____	_____	_____	_____	_____	_____	_____	Rewarded
Interested	_____	_____	_____	_____	_____	_____	_____	Bored
Uncooperative	_____	_____	_____	_____	_____	_____	_____	Cooperative
Satisfied	_____	_____	_____	_____	_____	_____	_____	Dissatisfied
Unproductive	_____	_____	_____	_____	_____	_____	_____	Productive
Encouraged	_____	_____	_____	_____	_____	_____	_____	Discouraged
Attentive	_____	_____	_____	_____	_____	_____	_____	Inattentive
High Strung	_____	_____	_____	_____	_____	_____	_____	Serene
Valuable	_____	_____	_____	_____	_____	_____	_____	Worthless
Unreliable	_____	_____	_____	_____	_____	_____	_____	Reliable
Spirited	_____	_____	_____	_____	_____	_____	_____	Lifeless
Useless	_____	_____	_____	_____	_____	_____	_____	Useful
Listless	_____	_____	_____	_____	_____	_____	_____	Alert
Relaxed	_____	_____	_____	_____	_____	_____	_____	Tense
Ineffective	_____	_____	_____	_____	_____	_____	_____	Effective
Informed	_____	_____	_____	_____	_____	_____	_____	Uninformed
Unimportant	_____	_____	_____	_____	_____	_____	_____	Important

EXHIBIT 5

MY JOB

Neither
One Nor

	Extremely	Quite	Slightly	The Other	Slightly	Quite	Extremely	
Attractive	_____	_____	_____	_____	_____	_____	_____	Repulsive
Difficult	_____	_____	_____	_____	_____	_____	_____	Easy
Exciting	_____	_____	_____	_____	_____	_____	_____	Dull
Bad	_____	_____	_____	_____	_____	_____	_____	Good
Complex	_____	_____	_____	_____	_____	_____	_____	Simple
Interesting	_____	_____	_____	_____	_____	_____	_____	Boring
Superior	_____	_____	_____	_____	_____	_____	_____	Inferior
Routine	_____	_____	_____	_____	_____	_____	_____	Varied
Wholesome	_____	_____	_____	_____	_____	_____	_____	Unwholesome
Temporary	_____	_____	_____	_____	_____	_____	_____	Permanent
Meaningful	_____	_____	_____	_____	_____	_____	_____	Meaningless
Stable	_____	_____	_____	_____	_____	_____	_____	Changeable
Important	_____	_____	_____	_____	_____	_____	_____	Unimportant
Secure	_____	_____	_____	_____	_____	_____	_____	Insecure

EXHIBIT 6

MY SUPERVISOR

	Extremely	Quite	Slightly	Neither One Nor The Other	Slightly	Quite	Extremely	
Fair	_____	: _____	: _____	: _____	: _____	: _____	: _____	Unfair
Reasonable	_____	: _____	: _____	: _____	: _____	: _____	: _____	Unreasonable
Discourteous	_____	: _____	: _____	: _____	: _____	: _____	: _____	Courteous
Thoughtful	_____	: _____	: _____	: _____	: _____	: _____	: _____	Thoughtless
Disagreeable	_____	: _____	: _____	: _____	: _____	: _____	: _____	Agreeable
Pleasant	_____	: _____	: _____	: _____	: _____	: _____	: _____	Unpleasant
Emotional	_____	: _____	: _____	: _____	: _____	: _____	: _____	Unemotional
Strong	_____	: _____	: _____	: _____	: _____	: _____	: _____	Weak
Passive	_____	: _____	: _____	: _____	: _____	: _____	: _____	Active
Effective	_____	: _____	: _____	: _____	: _____	: _____	: _____	Ineffective
Positive	_____	: _____	: _____	: _____	: _____	: _____	: _____	Negative
Reserved	_____	: _____	: _____	: _____	: _____	: _____	: _____	Friendly
Bungling	_____	: _____	: _____	: _____	: _____	: _____	: _____	Skillful
Quiet	_____	: _____	: _____	: _____	: _____	: _____	: _____	Talkative
Decisive	_____	: _____	: _____	: _____	: _____	: _____	: _____	Indecisive
Sociable	_____	: _____	: _____	: _____	: _____	: _____	: _____	Unsociable
Tense	_____	: _____	: _____	: _____	: _____	: _____	: _____	Relaxed
Calm	_____	: _____	: _____	: _____	: _____	: _____	: _____	Excitable

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APPENDIX B
DATA COLLECTION MATERIALS
WORKER PACKET

APPENDIX B

The material presented on the next nine pages are data collecting instruments which were included in the "worker packet". The order of materials presented were:

- Exhibit 1. You at Work - introduction
- Exhibit 2. Instructions and questionnaire
- Exhibit 3. Semantic Differential - Instructions - 2 sheets
- Exhibit 4. "Me at Work" semantic differential rating scale
- Exhibit 5. "My Job" semantic differential rating scale
- Exhibit 6. "My Supervisor" semantic differential rating scale
- Exhibit 7. Human Relations Performance Rating - 2 sheets

EXHIBIT 1

YOU AT WORK

Everyone experiences a variety of complicated feelings while at work. Each has his own opinions. However, these feelings and opinions are not always expressed. You may be very dissatisfied with something having to do with your work and not say anything about it. Or, you might be very satisfied with something but somehow it never gets said. There are many reasons for this. You may be too busy. Sometimes you may feel too embarrassed. And there are also times when you may not feel that you can be perfectly frank about your opinions.

Your feelings and opinions are very important whether they are expressed or not. This survey provides some time for you to sit down and seriously think about your opinions. It also provides an opportunity to express your feelings, good or bad, without fear of embarrassment.

Your opinions will be held in strict confidence.

Please complete the booklet and return it to Mrs. Nelson according to previous instructions.

When the survey has been completed, Mrs. Nelson will take all of the booklets to the University for analysis. Then the booklets will be destroyed. Later a report of the results will be given to you, but your booklet will never be shown to anyone connected with your company or your job.

EXHIBIT 2

INSTRUCTIONS

There are three major sections in this booklet. You may never have seen anything quite like it before. Please read carefully the instructions for each section. Please do not hesitate to ask questions at any time.

To begin, please fill out the blank spaces below. This information helps to make the survey more meaningful

Your supervisor's name _____

Department Number _____

Years of Formal Education (that you have) _____ Sex _____

Years of Service with this company? _____

What is your job title? _____

EXHIBIT 3

SEMANTIC DIFFERENTIAL SCALE

Instructions

The purpose of taking this measure is to assess the meanings of certain concepts to various people by having them judge the concepts against a series of descriptive scales. In doing this exercise, please make your judgment on the basis of what these concepts mean to you. On each page of this booklet you will find a different concept to be judged and beneath it a set of scales. You are to rate the concept on each of these scales in order of occurrence.

Here is the way you are to use the scales:

If you feel that the concept at the top of the page is very closely related to one end of the scale, you should place your X-mark as follows:

fair X : ____ : ____ : ____ : ____ : ____ : ____ unfair

or

fair ____ : ____ : ____ : ____ : ____ : ____ : X unfair

If you feel that the concept is quite closely related to the one or the other end of the scale (but not extremely), you should place your X-mark as follows:

strong ____ : X : ____ : ____ : ____ : ____ : ____ weak

or

strong ____ : ____ : ____ : ____ : ____ : X : ____ weak

If the concept seems only slightly related to one side as opposed to the other side (but is not really neutral), then you should check as follows:

active ____ : ____ : X : ____ : ____ : ____ : ____ passive

or

active ____ : ____ : ____ : ____ : X : ____ : ____ passive

The direction toward which you check, of course, depends upon which of the two ends of the scale seem most characteristic of the concept you are judging.

If you consider the concept to be neutral on the scale, both sides of the scale equally associated with the concept, or if the scale is completely irrelevant, unrelated to the concept, then you should place your check-mark in the middle space.

safe ____:____:____: X :____:____:____ dangerous

IMPORTANT:

- (1) Place your check marks in the middle of the spaces, not on the boundaries:

(this) (not this)
 ____: X :____:____:____: X :____:____:

- (2) Be sure you check every scale for every concept--
do not omit any.
- (3) Never put more than one check-mark on a single scale.

Sometimes you may feel as though you have had the same item before on the sheet. This will not be the case, so do not look back and forth through the items. Do not try to remember how you checked a similar item that could have appeared earlier. Do not worry or puzzle over individual items. Work at a fairly high rate of speed through this exercise. Remember, it is your first impressions, or the immediate "feelings" about the items, that we want. On the other hand, please do not be careless and omit some of the items, because we do want your true impressions.

IF YOU HAVE READ ALL OF THE INSTRUCTIONS, YOU MAY

TURN THE PAGE TO THE FIRST CONCEPT AND BEGIN.

EXHIBIT 4

ME AT WORK

	Extremely	Quite	Slightly	Neither One Nor The Other	Slightly	Quite	Extremely	
Appreciated	_____	_____	_____	_____	_____	_____	_____	Unappreciated
Excitable	_____	_____	_____	_____	_____	_____	_____	Calm
Efficient	_____	_____	_____	_____	_____	_____	_____	Inefficient
Penalized	_____	_____	_____	_____	_____	_____	_____	Rewarded
Interested	_____	_____	_____	_____	_____	_____	_____	Bored
Uncooperative	_____	_____	_____	_____	_____	_____	_____	Cooperative
Satisfied	_____	_____	_____	_____	_____	_____	_____	Dissatisfied
Unproductive	_____	_____	_____	_____	_____	_____	_____	Productive
Encouraged	_____	_____	_____	_____	_____	_____	_____	Discouraged
Attentive	_____	_____	_____	_____	_____	_____	_____	Inattentive
High Strung	_____	_____	_____	_____	_____	_____	_____	Serene
Valuable	_____	_____	_____	_____	_____	_____	_____	Worthless
Unreliable	_____	_____	_____	_____	_____	_____	_____	Reliable
Spirited	_____	_____	_____	_____	_____	_____	_____	Lifeless
Useless	_____	_____	_____	_____	_____	_____	_____	Useful
Listless	_____	_____	_____	_____	_____	_____	_____	Alert
Relaxed	_____	_____	_____	_____	_____	_____	_____	Tense
Ineffective	_____	_____	_____	_____	_____	_____	_____	Effective
Informed	_____	_____	_____	_____	_____	_____	_____	Uninformed
Unimportant	_____	_____	_____	_____	_____	_____	_____	Important

EXHIBIT 5

MY JOB

	Extremely	Quite	Slightly	Neither One Nor The Other	Slightly	Quite	Extremely	
Attractive	_____	_____	_____	_____	_____	_____	_____	Repulsive
Difficult	_____	_____	_____	_____	_____	_____	_____	Easy
Exciting	_____	_____	_____	_____	_____	_____	_____	Dull
Bad	_____	_____	_____	_____	_____	_____	_____	Good
Complex	_____	_____	_____	_____	_____	_____	_____	Simple
Interesting	_____	_____	_____	_____	_____	_____	_____	Boring
Superior	_____	_____	_____	_____	_____	_____	_____	Inferior
Routine	_____	_____	_____	_____	_____	_____	_____	Varied
Wholesome	_____	_____	_____	_____	_____	_____	_____	Unwholesome
Temporary	_____	_____	_____	_____	_____	_____	_____	Permanent
Meaningful	_____	_____	_____	_____	_____	_____	_____	Meaningless
Stable	_____	_____	_____	_____	_____	_____	_____	Changeable
Important	_____	_____	_____	_____	_____	_____	_____	Unimportant
Secure	_____	_____	_____	_____	_____	_____	_____	Insecure

EXHIBIT 6

MY SUPERVISOR

	Extremely	Quite	Slightly	Neither One Nor The Other	Slightly	Quite	Extremely	
Fair	_____	_____	_____	_____	_____	_____	_____	Unfair
Reasonable	_____	_____	_____	_____	_____	_____	_____	Unreasonable
Discourteous	_____	_____	_____	_____	_____	_____	_____	Courteous
Thoughtful	_____	_____	_____	_____	_____	_____	_____	Thoughtless
Disagreeable	_____	_____	_____	_____	_____	_____	_____	Agreeable
Pleasant	_____	_____	_____	_____	_____	_____	_____	Unpleasant
Emotional	_____	_____	_____	_____	_____	_____	_____	Unemotional
Strong	_____	_____	_____	_____	_____	_____	_____	Weak
Passive	_____	_____	_____	_____	_____	_____	_____	Active
Effective	_____	_____	_____	_____	_____	_____	_____	Ineffective
Positive	_____	_____	_____	_____	_____	_____	_____	Negative
Reserved	_____	_____	_____	_____	_____	_____	_____	Friendly
Bungling	_____	_____	_____	_____	_____	_____	_____	Skillful
Quiet	_____	_____	_____	_____	_____	_____	_____	Talkative
Decisive	_____	_____	_____	_____	_____	_____	_____	Indecisive
Sociable	_____	_____	_____	_____	_____	_____	_____	Unsociable
Tense	_____	_____	_____	_____	_____	_____	_____	Relaxed
Calm	_____	_____	_____	_____	_____	_____	_____	Excitable

EXHIBIT 7

HUMAN RELATIONS PERFORMANCE RATING

Group Number _____

Please consider the performance of your supervisor in relation to each of the areas listed below. The rating which you judge as correct should be indicated with an "X" at the appropriate point on each scale.

Supervisor: _____

HOW DOES HE RATE ON:

1. Friendliness and personal interest in others.

High Average Low

2. Openmindedness to the opinions and suggestions of others.

Low Average High

3. Training and development of subordinates.

High Average Low

4. Confidence in himself.

Low Average High

5. Friendly acceptance by subordinates.

High Average Low

6. Job placement and assignment.

Low Average High

7. Ability to assist subordinates in solving their problems.

High Average Low

8. Personal example he sets for others.

$\dot{\quad}$ $\dot{\quad}$ $\dot{\quad}$ $\dot{\quad}$ $\dot{\quad}$
 Low Average High

9. Ability to make accurate and fair decisions.

$\dot{\quad}$ $\dot{\quad}$ $\dot{\quad}$ $\dot{\quad}$ $\dot{\quad}$
 High Average Low

10. Ability to lead and to motivate others.

$\dot{\quad}$ $\dot{\quad}$ $\dot{\quad}$ $\dot{\quad}$ $\dot{\quad}$
 Low Average High

On the scale below, designate your over-all rating of this supervisor's HUMAN RELATIONS PERFORMANCE. Place an "X" at the appropriate point on the scale.

$\dot{\quad}$ $\dot{\quad}$ $\dot{\quad}$ $\dot{\quad}$ $\dot{\quad}$
 Superior Very Average Fair Poor
 Good

APPENDIX C
DATA COLLECTION MATERIALS
IMMEDIATE SUPERIOR PACKET

APPENDIX C

The next six pages contain materials presented in the "Immediate Superior" packet. The order of the data collecting instruments was:

- Exhibit 1. Immediate Superior Questionnaire
- Exhibit 2. Semantic Differential - Instructions -
2 sheets
- Exhibit 3. "My Subordinate Supervisor" semantic
differential
- Exhibit 4. Performance Rating of Subordinate
Supervisor's Human Relations - 2 sheets

EXHIBIT 1

Group Number _____

Location _____

IMMEDIATE SUPERIOR QUESTIONNAIRE

Job Information

Exact Job Title _____

Age _____ Sex _____

Years with this company? _____ Years in present job? _____

Years supervisory experience? _____

Educational Background

Circle highest educational level attained.

Secondary: 7, 8, 9, 10, 11, graduated.College: 1, 2, 3, graduated. College Major _____

Have you had any of the following courses:

Psychology _____
Management _____
Communications _____
Human Relations _____Family Background

How many brothers and sisters do you have? Brothers _____

Sisters _____ Describe your age in relation to theirs.

I was the: oldest _____ youngest _____ middle _____ other _____

How would you describe the type of discipline your parents practiced in raising their family? (especially you).

Strict _____
Firm but Fair _____
Permissive _____
Other _____

EXHIBIT 2

SEMANTIC DIFFERENTIAL SCALE

Instructions

The purpose of taking this measure is to assess the meanings of certain concepts to various people by having them judge the concepts against a series of descriptive scales. In doing this exercise, please make your judgment on the basis of what these concepts mean to you. On each page of this booklet you will find a different concept to be judged and beneath it a set of scales. You are to rate the concept on each of these scales in order of occurrence.

Here is the way you are to use the scales:

If you feel that the concept at the top of the page is very closely related to one end of the scale, you should place your X-mark as follows:

fair X : ____ : ____ : ____ : ____ : ____ : ____ unfair

or

fair ____ : ____ : ____ : ____ : ____ : ____ : X unfair

If you feel that the concept is quite closely related to the one or the other end of the scale (but not extremely), you should place your X-mark as follows:

strong ____ : X : ____ : ____ : ____ : ____ : ____ weak

or

strong ____ : ____ : ____ : ____ : ____ : X : ____ weak

If the concept seems only slightly related to one side as opposed to the other side (but is not really neutral), then you should check as follows:

active ____ : ____ : X : ____ : ____ : ____ : ____ passive

or

active ____ : ____ : ____ : ____ : X : ____ : ____ passive

The direction toward which you check, of course, depends upon which of the two ends of the scale seem most characteristic of the concept you are judging.

If you consider the concept to be neutral on the scale, both sides of the scale equally associated with the concept, or if the scale is completely irrelevant, unrelated to the concept, then you should place your check-mark in the middle space.

safe ____:____:____: X :____:____:____ dangerous

IMPORTANT:

- (1) Place your check marks in the middle of the spaces, not on the boundaries:

(this) (not this)
 ____: X :____:____:____:____: X ____:

- (2) Be sure you check every scale for every concept--
do not omit any.
- (3) Never put more than one check-mark on a single
 scale.

Sometimes you may feel as though you have had the same item before on the sheet. This will not be the case, so do not look back and forth through the items. Do not try to remember how you checked a similar item that could have appeared earlier. Do not worry or puzzle over individual items. Work at a fairly high rate of speed through this exercise. Remember, it is your first impressions, or the immediate "feelings" about the items, that we want. On the other hand, please do not be careless and omit some of the items, because we do want your true impressions.

IF YOU HAVE READ ALL OF THE INSTRUCTIONS, YOU MAY
TURN THE PAGE TO THE FIRST CONCEPT AND BEGIN.

EXHIBIT 3

MY SUBORDINATE SUPERVISOR

	Extremely	Quite	Slightly	Neither One Nor The Other	Slightly	Quite	Extremely	
Fair	_____	_____	_____	_____	_____	_____	_____	Unfair
Reasonable	_____	_____	_____	_____	_____	_____	_____	Unreasonable
Discourteous	_____	_____	_____	_____	_____	_____	_____	Courteous
Thoughtful	_____	_____	_____	_____	_____	_____	_____	Thoughtless
Disagreeable	_____	_____	_____	_____	_____	_____	_____	Agreeable
Pleasant	_____	_____	_____	_____	_____	_____	_____	Unpleasant
Emotional	_____	_____	_____	_____	_____	_____	_____	Unemotional
Strong	_____	_____	_____	_____	_____	_____	_____	Weak
Passive	_____	_____	_____	_____	_____	_____	_____	Active
Effective	_____	_____	_____	_____	_____	_____	_____	Ineffective
Positive	_____	_____	_____	_____	_____	_____	_____	Negative
Reserved	_____	_____	_____	_____	_____	_____	_____	Friendly
Bungling	_____	_____	_____	_____	_____	_____	_____	Skillful
Quiet	_____	_____	_____	_____	_____	_____	_____	Talkative
Decisive	_____	_____	_____	_____	_____	_____	_____	Indecisive
Sociable	_____	_____	_____	_____	_____	_____	_____	Unsociable
Tense	_____	_____	_____	_____	_____	_____	_____	Relaxed
Calm	_____	_____	_____	_____	_____	_____	_____	Excitable

8. Personal example he sets for others.

Low Average High

9. Ability to make accurate and fair decisions.

High Average Low

10. Ability to lead and to motivate others.

Low Average High

On the scale below, designate your over-all rating of this supervisor's HUMAN RELATIONS PERFORMANCE. Place an "X" at the appropriate point on the scale.

Superior Very Average Fair Poor
 Good

APPENDIX D
RAW DATA FROM SUPERVISOR'S TESTS
AND GROUP RATINGS

APPENDIX D

The following pages contain tables of raw data taken from the following sources:

- Exhibit 1. Supervisors' Biographical Data
- Exhibit 2. Results of Communication and Human Relations Tests
- Exhibit 3. Ranked Ratings of Work Group and Immediate Superior
- Exhibit 4. Results: Sixteen Personality Factor Test
- Exhibit 5. Weighted Score Grids for the 16 PF Occupational Areas
- Exhibit 6. Type of Grid Used and Weighted Personality Test Results
- Exhibit 7. Summary of Supervisor's Self Ratings
- Exhibit 8. Number of Worker Packets Distributed, Returned and Size of Organization
- Exhibit 9. Group Means on the "My Supervisor" SD Rating Scale

EXHIBIT 1

TABLE 20

SUPERVISORS' BIOGRAPHICAL DATA

Group Rank	Age	Years Education	Years With Company	Years Supervisory Experience	Special Courses	Birth Order	Parental Discipline
1	41	13	20	3	M P H C ^a	M ^b	F ^c
2	54	13	30	20	M	L	F
3	33	12	14	7	M P H	L	F
4	36	16	11	6	M P	O	F
5	48	12	6	24	None	M	F
6	50	16	22	20	M C	L	S
7	53	15	3	30	M H C	L	P
8	59	12	25	15	M P H C	F	S
9	43	16	25	12	M P	F	S
10	38	12	15	14	M P C	F	F
11	43	12	20	10	None	F	F
12	34	15	7	4	H	M	all
13	32	14	8	5	None	O	F
14	29	12	9	6	None	M	F
15	39	17	3	11	M	L	P
16	53	12	32	22	M C	M	P
17	41	12	16	6	None	O	F
18	35	15	10	4	M P	L	S

^aCourses: M = Management; P = Psychology; H = Human Relations; C = Communications.

^bBirth Order: O = Only Child; F = Oldest; M = Middle; L = Youngest.

^cParental Discipline: F = Firm But Fair; S = Strict; P = Permissive.

EXHIBIT 2

TABLE 21

RESULTS OF COMMUNICATION AND
HUMAN RELATIONS TESTS

Group Rank	SICA ^a					SIHR ^b					
	A	B	C	D	Total	1	2	3	4	5	Total
1	92%	97%	96%	80%	93%	100%	95%	100%	80%	100%	96%
2	67	77	71	90	76	100	85	100	100	69	87
3	67	84	75	90	81	85	79	70	100	92	84
4	67	93	84	90	89	85	92	90	80	92	80
5	67	86	79	80	82	92	74	80	100	85	81
6	67	86	71	90	79	67	74	90	100	69	79
7	67	88	92	80	87	100	94	100	100	100	97
8	67	82	88	60	80	92	84	90	100	69	85
9	67	97	84	100	93	92	97	90	100	92	95
10	33	79	59	90	73	93	74	80	80	60	75
11	33	95	88	100	91	92	95	90	100	85	93
12	100	93	100	100	96	77	80	60	80	100	80
13	67	79	67	90	76	100	95	100	100	62	91
14	67	86	83	90	85	83	92	80	80	100	90
15	67	88	71	80	81	100	95	100	100	85	95
16	33	88	71	80	80	85	90	80	100	80	85
17	67	88	83	60	82	92	79	80	100	61	80
18	33	83	67	100	79	67	92	70	80	62	84

^aSupervisory Inventory in Communications: A = Definition; B = Principles; C = Oral and Written; D = Listening.

^bSupervisory Inventory in Human Relations: 1 = Understands Role; 2 = Motivating Employees; 3 = Development of Employee Attitudes; 4 = Problem Solving; 5 = Principles of Learning and Training.

EXHIBIT 3

TABLE 22

RANKED RATINGS OF WORK GROUP AND IMMEDIATE SUPERIOR

Group Rank	Worker Morale ^c	Ratings of Supervisor by:		Human Relations Performance Ratings by:	
		Immediate Superior ^d	Work Group ^e	Immediate Superior	Work Group ^f
1	1.513 (8)	2.333 ^a (1) ^b	1.931 (2)	98.7% (2)	85.1% (2)
2	1.588 (4)	2.056 (4)	1.979 (1)	86.3 (6)	85.6 (1)
3	1.520 (7)	2.222 (3)	1.373 (8)	86.9 (5)	74.6 (7)
4	1.354 (11)	2.333 (1)	1.241 (11)	99.4 (1)	71.9 (8)
5	1.212 (16)	1.778 (6)	1.458 (5)	77.8 (8)	83.4 (3)
6	1.944 (1)	1.111 (13)	1.514 (3)	66.3 (12)	81.9 (4)
7	1.230 (15)	1.167 (12)	1.422 (6)	64.4 (13)	79.5 (5)
8	1.666 (3)	1.611 (9)	1.326 (10)	78.8 (7)	69.8 (9)
9	1.537 (5)	1.722 (8)	1.083 (14)	96.9 (3)	62.8 (13)
10	1.258 (13)	1.778 (6)	.968 (16)	89.4 (4)	53.4 (17)
11	1.717 (2)	1.056 (14)	1.474 (4)	60.6 (15)	65.6 (10)
12	.764 (18)	2.056 (4)	.889 (17)	75.6 (10)	60.3 (15)
13	1.425 (10)	1.611 (9)	1.185 (13)	76.9 (9)	63.5 (11)
14	1.489 (9)	1.000 (16)	1.368 (9)	68.8 (11)	63.5 (11)
15	1.248 (14)	1.000 (16)	1.238 (12)	58.8 (16)	78.5 (6)
16	1.525 (6)	1.056 (14)	1.389 (7)	63.8 (14)	60.9 (14)
17	1.152 (17)	1.278 (11)	1.009 (15)	37.5 (17)	49.0 (18)
18	1.325 (12)	.389 (18)	.535 (18)	28.1 (18)	57.0 (16)

^a0 to .999 = Slightly Favorable; 1.0 to 1.999 = Quite Favorable; 2.0 to 2.999 = Extremely Favorable.

^bRank of rating in relation to others in same vertical column.

^c"Mean" of "Me at Work" and "My Job" SD's of Work Group.

^dResults of "My Subordinate Supervisor" SD Rating.

^e"Mean" of "My Supervisor" SD's of Individual Workers.

^f"Mean" of Individual Ratings.

EXHIBIT 4

TABLE 23

RESULTS: SIXTEEN PERSONALITY FACTOR TEST^a

Group Rank	A	B	C	E	F	G	H	I	L	M	N	O	Q ₁	Q ₂	Q ₃	Q ₄	Weighted ^b
1	5	9	6	5	1	7	1	6	6	6	5	5	8	5	10	4	46
2	6	6	5	2	3	8	4	6	2	5	3	3	2	7	5	3	46
3	1	6	8	4	4	5	5	4	5	3	7	5	3	6	7	4	47
4	6	6	5	6	5	1	2	7	4	5	5	2	5	9	7	3	50
5	6	5	3	6	6	9	4	6	4	4	6	7	5	5	7	6	48
6	3	6	7	1	1	7	3	6	5	6	6	4	5	9	6	6	44
7	5	7	5	3	6	9	5	4	6	2	7	6	3	4	7	4	52
8	7	6	8	2	6	5	7	7	2	6	8	3	2	1	6	6	48
9	7	9	10	9	3	6	5	6	2	2	6	4	3	1	8	6	57
10	3	3	6	6	6	5	6	4	4	6	7	7	5	6	6	8	44
11	4	6	5	4	5	4	7	5	5	4	6	4	4	8	7	4	47
12	3	1	2	5	4	9	5	3	6	4	8	4	6	4	4	6	48
13	6	6	6	7	6	7	5	5	5	3	3	5	7	5	6	4	50
14	2	6	5	4	6	7	5	4	4	2	5	5	4	6	5	4	45
15	6	5	5	6	5	5	5	3	2	6	7	5	5	5	5	6	49
16	3	7	7	4	1	3	5	6	2	3	7	5	4	6	5	8	41
17	3	5	6	10	1	6	2	2	4	2	8	5	4	5	4	6	45
18	7	5	5	4	4	8	6	4	4	6	7	4	5	5	7	4	54
Profile ^c	4.7	7.8	6.2	5.9	5.5	6.1	7.0	5.0	5.0	5.1	5.9	5.0	5.6	6.2	6.5	3.8	
Profile ^d	5.1	6.5	5.4	5.1	4.5	5.8	5.1	5.1	4.5	4.9	5.7	5.7	5.6	5.5	5.6	5.4	

^aPrimary and Secondary Source Traits: A, Reserved/Outgoing; B, Dull/Bright; C, Affected by Feelings/Emotionally Stable; E, Humble/Assertive; F, Sober/Happy-Go-Lucky; G, Expedient/Conscientious; H, Shy/Venturesome; I, Tough/Tender-Minded; L, Trusting/Suspicious; M, Practical/Imaginative; N, Forthright/Astute; O, Self-Assured/Apprehensive; Q₁, Conservative/Experimenting; Q₂, Group Dependent/Self-Sufficient; Q₃, Undisciplined Self-Conflict/Controlled; Q₄, Relaxed/Tense.

^bScores Represent Qualification Level: 0 to 29 = Under; 30 to 47 = Minimally; and 48 to 69 = Well.

^cCattell's "Effective Leader" Profile, Handbook for the 16PF, p. 244.

^dCattell's "Industrial Plant Foreman" Profile, Handbook for the 16PF, p. 200.

EXHIBIT 5

WEIGHTED SCORE GRIDS FOR 16 PF OCCUPATIONAL AREAS^a

FACTORY SUPERVISOR

Person's Sten Sc:	Personality Factor															
	A	B	C	E	F	G	H	I	L	M	N	O	Q ₁	Q ₂	Q ₃	Q ₄
10	2	4	5	4	2	5	3	0	0	0	2	0	1	5	6	0
9	3	5	6	5	3	6	4	1	1	1	3	1	2	4	6	1
8	4	4	5	4	5	5	5	1	2	1	5	1	3	3	5	2
7	5	3	4	3	4	4	4	2	3	2	4	2	5	3	4	2
6	3	3	3	3	3	3	3	2	3	3	3	3	4	2	3	3
5	3	3	3	3	3	3	3	2	3	3	3	3	4	2	3	3
4	3	2	2	2	3	2	3	3	3	3	3	3	2	2	3	3
3	2	1	1	1	2	1	2	4	2	4	2	4	2	1	1	4
2	1	1	1	1	1	1	1	5	2	3	1	5	1	1	1	5
1	0	0	0	0	0	0	0	4	1	2	0	3	0	0	0	3
Weight:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Weighted Score: _____																
Qualification Level: _____																

5. Supervisor Job Areas

OFFICE SUPERVISOR

Person's Sten Sc:	Personality Factor															
	A	B	C	E	F	G	H	I	L	M	N	O	Q ₁	Q ₂	Q ₃	Q ₄
10	2	4	6	3	2	3	3	0	0	0	3	0	2	4	6	0
9	3	5	5	5	3	5	4	1	1	1	5	1	3	5	6	1
8	4	4	4	4	5	4	4	2	2	1	4	2	3	3	5	2
7	5	3	3	3	4	3	4	3	3	2	3	3	4	3	4	2
6	3	3	3	3	3	3	3	3	3	3	2	3	4	2	3	3
5	3	3	3	3	3	3	3	3	3	3	2	3	4	2	3	3
4	3	2	2	2	3	2	3	3	4	4	2	4	3	2	2	4
3	2	1	1	2	2	1	2	4	3	5	1	5	2	1	1	5
2	1	1	1	1	1	1	1	4	3	6	1	3	1	1	1	6
1	0	0	0	0	0	0	0	3	2	5	0	3	0	0	0	6
Weight:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Weighted Score: _____																
Qualification Level: _____																

^aCattell, Handbook Supplement, pp. 24-25.

EXHIBIT 6

TABLE 24

TYPE OF GRID USED AND WEIGHTED PERSONALITY TEST RESULTS

Group Rank	Group Task	Type Grid	Score*
1	Personnel-Manpower Planning	Office	46
2	Personnel/Employee Relations	Office	46
3	Receiving and Handling Materials	Factory	47
4	Education & Development of Work Force	Office	50
5	Warehouse Shipping Office	Factory	48
6	Personnel/Job Classification	Office	44
7	Industrial Relations	Office	52
8	Training	Office	48
9	Personnel	Office	57
10	Assembly Line	Factory	44
11	Welding	Factory	47
12	Warehouse Receiving and Material Handling	Factory	48
13	Warehouse Shipping	Factory	50
14	Assembly	Factory	45
15	Accounting	Office	49
16	Insurance Underwriting	Office	41
17	Assembly	Factory	45
18	Insurance Underwriting	Office	54

*Weighted Score represents personality qualification level as follows: 0 to 29 = under; 30 to 47 = minimal; 48 to 69 = well.

EXHIBIT 7

TABLE 25

SUMMARY OF SUPERVISOR'S SELF-RATINGS^a

Group #	Me at Work	My Job	My Supervisor
1	1.65	1.29	.78
2	1.90	1.36	2.00
3	2.35	2.00	2.33
4	1.75	1.07	1.44
5	.85	1.57	.78
6	1.65	1.79	2.06
7	2.50	2.00	2.28
8	1.35	1.71	1.56
9	2.50	2.14	2.11
10	.90	1.50	1.50
11	.85	1.14	2.00
12	1.35	.93	1.50
13	1.90	1.79	1.11
14	1.30	.93	.89
15	1.75	1.64	1.39
16	1.60	1.57	2.17
17	.40	.93	1.50
18	.90	1.14	1.94
Sample Mean	1.53	1.38	1.63
High 9 Mean	1.83	1.66	1.70
Low 9 Mean	1.22	1.29	1.56

^a0 to .99 = Slightly Favorable; 1.00 to 1.99 = Quite Favorable; 2.00 to 3.00 = Extremely Favorable

EXHIBIT 8

TABLE 26

WORKER PACKETS DISTRIBUTED AND RETURNED,
AND SIZE OF ORGANIZATION

Group Rank	# Packets Distributed ^b	# Packets Returned ^b	# Employees This Location
1	5	4	26,000
2	8	8	26,000
3	7	7	415
4	6	6	26,000
5	6	5	2,200
6	5	4	26,000
7	5	5	125
8	8	8	26,000
9	10	10	26,000
10	8	7	415
11	3	3	415
12	7	6	2,200
13	6	6	2,200
14	8	8	415
15	7	7	125
16	8	6	188
17	10	9	415
18	9	8	188
Means	7 ^a		9,183

^aAverage Group Size = Span of Control^bThese figures do not include 18 Supervisors or 18 Immediate Superiors.

EXHIBIT 9

TABLE 27

GROUP MEANS ON THE 'MY SUPERVISOR' SD RATING SCALE

Scales	1	2	3	4	5	6	7	8	9	Mean Top 9	10	11	12	13	14	15	16	17	18	Mean Low 9
Fair/Unfair	2.50	2.63	2.28	2.33	2.00	2.50	2.40	2.25	1.60	2.28	1.14	2.00	1.67	.33	1.75	2.42	2.80	1.17	1.12	1.60
Reasonable/Unreas.	2.50	2.50	2.28	2.17	2.25	2.50	2.00	2.50	1.70	2.27	1.00	1.67	1.50	1.17	1.63	2.14	2.60	.67	.37	1.42
Courteous/Discour.	1.75	2.50	2.14	2.00	1.00	2.50	2.60	2.12	2.20	2.09	1.43	2.00	1.67	1.50	1.88	2.14	1.80	1.50	.87	1.64
Thoughtful/ Thoughtless	2.25	2.63	1.00	2.00	2.25	3.00	1.80	2.00	1.60	2.06	1.14	2.33	1.00	.17	.75	2.14	1.80	1.17	.37	1.21
Agreeable/ Disagreeable	1.00	2.25	2.00	1.67	1.00	2.25	1.80	2.00	1.70	1.74	1.43	1.00	.83	0.00	1.25	1.71	1.60	.67	.37	.98
Pleasant/Unpleas.	3.00	2.63	2.00	1.67	2.50	2.25	2.00	2.25	1.70	2.22	1.71	1.33	1.00	1.17	2.13	2.14	2.60	1.67	.62	1.60
Emotional/Unemot.	0.00	.38	-.43	-1.00	-.75	-.50	.20	-1.00	0.00	-.34	-2.43	-1.00	-2.17	-.50	.25	-.42	1.40	.50	-.50	-.54
Strong/Weak	2.00	1.75	1.30	.833	1.75	2.25	2.60	.88	.60	1.55	1.29	2.00	1.33	1.00	1.63	1.42	1.40	1.17	.62	1.32
Active/Passive	3.00	1.00	1.43	2.00	1.75	2.75	1.40	.50	.70	1.61	1.43	.67	2.50	1.67	2.00	.85	1.00	.33	2.00	1.38
Effective/Ineff.	2.50	2.38	1.47	.83	2.25	.75	1.80	1.25	1.50	1.64	1.43	1.67	1.67	2.17	1.38	1.71	1.80	1.00	1.12	1.55
Positive/Negative	1.75	2.13	1.30	1.00	1.50	2.25	2.00	1.12	1.00	1.56	1.86	.33	1.33	1.00	2.00	1.28	1.80	.83	.37	1.20
Reserved/Friendly	2.75	2.75	1.57	2.00	1.00	-1.25	-2.00	2.25	.70	1.09	1.86	2.00	1.50	1.50	2.25	0.00	-.40	.83	-.25	1.03
Bumbling/Skillful	2.75	2.50	2.28	1.33	1.25	2.50	2.20	1.75	1.80	2.04	1.43	2.00	1.50	2.00	2.00	2.20	2.40	1.83	1.87	1.91
Quiet/Talkative	.50	.50	-.57	2.00	.75	-2.0	-1.60	1.37	-1.10	-.13	2.14	2.33	1.50	1.67	-.38	-.57	-2.00	.17	-.87	.44
Decisive/ Indecisive	2.25	1.50	1.80	1.50	2.5	2.00	2.00	.75	1.20	1.72	1.29	2.00	.83	2.00	.50	1.57	2.40	.83	1.00	1.38
Sociable/ Unsociable	2.75	2.25	1.14	2.00	2.00	1.00	2.00	2.12	.60	1.76	1.57	1.67	2.17	1.83	1.88	.57	1.40	1.67	.50	1.47
Tense/Relaxed	1.00	1.38	1.00	-1.33	0.00	0.00	1.40	.5	.40	.48	-1.43	2.00	-2.00	1.67	0.00	.14	1.60	.67	-.11	-.22
Calm/Excitable	.50	2.00	1.14	-.67	1.25	.50	1.40	-.75	1.60	.77	-.86	1.00	-1.83	1.00	1.00	.71	2.80	1.50	.12	.60

APPENDIX E
CORRESPONDENCE

EXHIBIT 1

November 2, 1971

Dr. William E. Scott, Jr.
School of Business
Indiana University
Bloomington, Indiana

Dear Dr. Scott:

I am presently a graduate student at O.U. (as well as an Assistant Professor of Business here at Central State). I have finished my doctoral course work and am in the process of designing a research project for my dissertation. The project I have been working with is a study of the relation of employee attitudes toward his job and his supervisor to the communication effectiveness of the supervisor. I have studied your article (published in 1967) dealing with the validation of scales that could be used to measure these type attitudes and am interested in learning more about your study. You mentioned that there were many aspects of the study that you didn't mention because of space, etc. Would it be possible for me to get a more complete copy of the complete study to examine for a couple of weeks?

I am also interested in whether or not you feel that it would be best to use your complete scales as listed in the article or whether you would recommend that maybe only selected scales be used as "general attitude predictors".

Do I need to get permission to use these scales from you or the publisher of the periodical? If so, please consider this as a request for permission to incorporate your scales entitled "Me at Work", "My Supervisor", and "My Job", in my dissertation research project.

Your opinions and comments would be appreciated. I shall look forward to hearing from you.

Sincerely,

(Mrs.) Mary Jane Nelson
Assistant Professor of Business

EXHIBIT 2

INDIANA UNIVERSITY

Graduate School of Business

SCHOOL OF BUSINESS BUILDING

BLOOMINGTON, INDIANA 47401

TEL. NO. 812-337-8529

November 10, 1971

Mrs. Mary Jane Nelson
Assistant Professor of Business
School of Business
Central State University
Edmond, Oklahoma 73034

Dear Mrs. Nelson:

Enclosed are reprints of two additional studies related to the semantic differential and a copy of the most current revision of the instrument.

I'd recommend you use the complete scales since I don't know what would happen to the factorial composition if you selected.

You have my permission to use the instrument, and no other is needed. Please send me a copy of your study, if you would.

Sincerely,


William H. Scott
Professor of Personnel
and Organizational Behavior

WES:jr

Enc.



CENTRAL STATE UNIVERSITY

Edmond, Oklahoma 73034

April 1, 1972

SCHOOL OF BUSINESS

Dr. Donald L. Kirkpatrick
4380 Continental Drive
Brookfield, Wisc. 53005

Dear Dr. Kirkpatrick:

As you know, I am using both your SIC and SIHR tests in my doctoral research study of the interpersonal communication effectiveness of small work group supervisors. At the present time, I am need of a list of sources--previous studies that have used your tests---for my literature review. Could you supply me with a bibliography or if possible an abstract of the related research.

I would certainly appreciate your help with this problem and will be happy to send you a copy of my abstract when the project is completed.

I anticipate having a total of approximately 200 Ss in the study when completed. I will also be happy to supply you with the demographic information and the SIC/SIHR scores on the Ss with a breakdown by subject area for each Ss.

I will look forward to hearing from you in regard to the sources. Thank you so much for your trouble.

Sincerely,

Mary Jane Nelson
Mary Jane Nelson
Assistant Professor

Mary Jane -

*For a
Thorough
understanding
of the SIHR,*

*know a
copy of my
Ph D dissertation*

*1954 - U of Wis
Madison*

"Evaluating

a H.R. program

*for Training &
Supervisors"*

*Go through your
library to get
it.*

*If I run across
any other info
I'll let you
know.*

Don

HOW TO EVALUATE TRAINING PROGRAMS
 Supplementary References
 Dr. Donald L. Kirkpatrick

Machine, was
 53705

- Get this
1. Catalanello & Kirkpatrick, "Evaluating Training Programs - The State of the Art", Journal of ASTD, May, 1968.
 2. Crawford, H.E., "A Note of Caution on Listening Training," Journal of ASTD May, 1967.
 3. House, R. J., "Management Development: Design, Evaluation, and Implementation," The University of Michigan, Bureau of Industrial Relations, Ann Arbor, 1967.
 4. Kirkpatrick, D. L., "Evaluation of Training," (Chapter 5) Training & Development Handbook, American Society for Training & Development, McGraw-Hill, Inc., 1967.
 5. Kirkpatrick, D.L., "Evaluating a Training Program for Supervisors and Foremen," The Personnel Administrator, Sept.-Oct., 1969.
 6. Kohn, Vera "A Selected Bibliography on Evaluation of Management Training and Development Programs," The American Foundation for Management Research (American Management Association) April, 1969.
 7. Malouf, L.G., "Managerial Grid Evaluated," Journal of ASTD, March, 1966.
 8. McClintock, Vanderplas & Zick, "Orienting the New Employee with Programmed Instruction," Journal of ASTD, May, 1967.
 9. Miraglia, J. F., "Human Relations Training," Journal of ASTD, September, 1966 (Extensive references).
 10. Moffie, Calhoun & O'Brien, "Evaluation of a Management Development Program," Personnel Psychology, Winter, 1964.
 11. Mosel, J.N., "Why Training Programs Fail to Carry Over," The University of Wisconsin Extension, Department of Business and Management, 600 W. Kilbourn Ave., Milwaukee.
 12. Murdick, R.G., "Measuring the Profit in Industry Training Programs," Journal of ASTD, April, 1960.
 13. Nevis, Smith, & Harper, "Behavior and Attitude Changes Related to Laboratory Training," Journal of ASTD, February, 1965.
 14. Norman, J.H., "Dollars and Cents Evaluation of a Training Program," Journal of ASTD, October, 1959.
 15. Soik and Kirkpatrick, "Effective Listening," Journal of ASTD, August, 1968.
 16. Stander, Townshend, & Swartz, "A Quantative Evaluation of a Motivational Training Program for Blue Collar Workers," Journal of ASTD, November, 1964.
 17. Underwood, W.J., "Evaluation of Laboratory-Method Training," Journal of ASTD May, 1965.
 18. Wakeley & Shaw, "Management Training - An Integrated Approach", Journal of ASTD, July, 1965.

EXHIBIT 4

May 18, 1972

J.S.A.P.
1602 Coronado Drive
Champaign, Illinois 61820

Gentlemen:

I am presently putting together my Reading Copy for the PhD. dissertation and would like to request permission to display a blank copy of the Cattell 16PF Test, Form J in my appendices section. I used this test along with several others in my research project dealing with the biological, personality, etc. factors related to Small Work Group supervisor effectiveness.

I am enclosing a post card for your convenience in replying.

Thank you.

Sincerely,

Mary Jane Nelson

INSTITUTE FOR PERSONALITY AND ABILITY TESTING

1602 Coronado Drive, Champaign, Illinois, U.S.A. 61820

May 26, 1972

Miss Mary Jane Nelson
4332 N. W. 55th
Oklahoma City, Oklahoma 73112

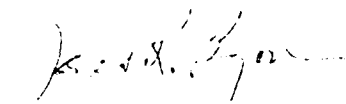
Dear Miss Nelson:

I am replying to your request for permission to include a copy of Form C of the 16 PF in the "Reading Copy" of your dissertation. Since different universities use different terminology, I'm not certain what you mean by "reading Copy." If it is merely for distribution to your Committee, it is permissible to have a test copy in it. However, according to the regulations of the American Psychological Association's Ethics Committee no test booklet may be bound into the library copies which are circulated among the general university library public.

If you have an abstract, or an extra copy of your dissertation when it is completed, we should like very much to have one for our reference files.

Sincerely yours,

INSTITUTE FOR PERSONALITY
AND ABILITY TESTING



(Mrs.) Janet R. Bijou
Associate Director

JRB/rb

EXHIBIT 6

POSTCARDS GRANTING PERMISSION TO DISPLAY TESTS

Mary Jane

5/23/72

I will be pleased if you
will include the tests &
manuals in your dissertation.
Let me know if you need
copies.

Sincerely,

Good luck in
getting the PhD
on schedule!

Don
Kirkpatrick

You have my permission to display the semantic
scale which I have developed for the At work,
My job and My Supervisor.

I'd like a copy of your dissertation

7/16/72