

A STUDY OF PERSONALITY TRAITS, SITUATIONAL FACTORS,
AND LEADERSHIP ACTIONS OF SELECTED SCHOOL
MAINTENANCE SUPERVISORS

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MAINTENANCE SUPERVISORS

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By

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CHAPTER I

INTRODUCTION

Statement of the Problem

The purpose of this study was to determine the relationships between certain personality traits, certain situational factors, scores on the leadership behavior dimensions, and scores on the effectiveness and efficiency scale of selected school maintenance supervisory personnel.

The major problem was broken down into the following areas:

1. What significant relationships exist between the scores on the Leadership Behavior Description Questionnaire and the measured personality traits of maintenance supervisory personnel?
2. What significant relationships exist between the scores on the Leadership Behavior Description Questionnaire and the scores of supervisors as rated by the effectiveness and efficiency scale?
3. What significant relationships exist between high and low scores on the Leadership Behavior Description Questionnaire and the length of service

of these supervisors in the previous role of a maintenance worker or skilled craftsman?

4. What significant relationships exist between high and low scores on the Leadership Behavior Description Questionnaire and length of service as a maintenance supervisor?
5. What relationships exist between high and low scores on the Leadership Behavior Description Questionnaire and the number of personnel being directed by a supervisor?
6. What relationships exist between high and low scores on the Leadership Behavior Description Questionnaire and the three categories of personnel supervised?

Leadership behavior is influenced by many factors and presents many problems that require solution. Recognition of such behavior as related to personality traits, variously listed factors, and their description is one of these problems.

Hypotheses

Although many questions emerged during the study, the testing of the following major hypotheses was the primary task:

1. There is a significant positive relationship between the personality scores of maintenance

supervisory personnel and their leadership action scores on initiating structure.

2. There is a significant positive relationship between the rating of supervisors on the effectiveness and efficiency scale and their scores on the Leadership Behavior Description Questionnaire.
3. There is a significant positive relationship between the personality scores of maintenance supervisory personnel and their leadership action scores on consideration.
4. There is a significant relationship between scores on leadership behavior dimensions and the previous experience of the supervisor in the role of a maintenance man.
5. There is a significant relationship between scores on leadership behavior dimensions and the length of service as a maintenance supervisor.
6. There is a significant relationship between scores on leadership behavior dimensions and the number of personnel supervised by maintenance supervisors.
7. There is no significant relationship between scores on leadership behavior dimensions and the listed categories of supervisors.

3. There is a positive correlation among scores on personality traits, scores on leadership behavior, and each of the situational factors.

Background and Significance of the Study

With the rapidly increasing school enrollment comes the problem of providing adequate school plant facilities. As new plants are constructed, administrators will be required to provide for their maintenance and operation. Maintenance consists of those services, activities, and procedures which are concerned with preserving, protecting, and keeping buildings, grounds, and equipment in a satisfactory state of repair. It covers such activities as repairs, replacements, renovations, and adjustments. Operation includes such daily services and activities as are necessary to keep the physical plant in a usable condition.

Linn (17) has said that maintenance supervisors who know the "what," "when," "where," "how," and "why" of school plant operation and have the ability to impart this "know how" to others are necessary because principals and superintendents often lack these qualifications. The selection of supervisors for school maintenance is a problem that will become more complex to educational administrators as the school population increases. With rapid development in areas of educational leadership the

need for research in the area of maintenance supervision is vital. Much research has been done relating to educational supervision; little or no research has been done in the area of school maintenance supervision. These supervisors will be entrusted with the task of recommending school maintenance budgets, spending maintenance funds wisely in order to keep school plants in good repair for years to come, and the responsibility for the health, safety, and general well being of the school personnel.

In one of the larger southwestern United States urban school districts, approximately one maintenance worker to every four teachers and administrators is employed. The maintenance budget is approximately five million dollars, or 15 per cent of the total school budget. These funds are budgeted and expended almost entirely upon the recommendations of the various maintenance supervisors employed by the district.

Nationally, the present capital outlay investments in public school plants, sites, and equipment in the United States are being increased at the rate of approximately three billion dollars annually. This cost will, of course, increase as new plants are added. School plant management, like other phases of the educational program, faces serious challenges, making it imperative

that school officials have some knowledge of the basic principles and procedures involved in school plant care (7).

In the United States an estimated 125,000 custodial employees and supervisors currently provide daily care for 1,286,000 public school instruction rooms and related facilities (21, p. 3) for over 39 million pupils and 1,640,494 teachers and administrators (19, p. 3).

During the 1955-1956 school year, the most recent for which national data are available, expenditures for operating and maintaining the public school plants in the United States amounted to \$752,739,000 (22).

The job of operating school plants to utilize their potentialities in promoting an effective educational program is one that requires training, knowledges, skills, and services of a specialized nature (8). School maintenance supervisors in charge of school plant management are primarily responsible for careful planning, adequate supervision, and good judgment, which are essential to the management of a program. Experience shows that good supervision is as helpful to non-instructional employees as it is to the teaching staff (2). The quality of work, performance levels, employee morale, personnel relations, and job performance techniques can be improved by the

proper supervision of maintenance personnel. With such an assignment as this, obviously some criteria for the selection of these individuals are needed.

One approach would be to determine the traits or characteristics of an individual who is considered successful as a maintenance supervisor. Jenkins (15) and Hall (11) agreed that there is no doubt that personality factors are important in leadership prediction. Pierce and Merrill (20) stated that the study of leadership behavior from the point of view of personal qualities of the leader is a profitable undertaking; nevertheless, leadership behavior is a product of the interaction between the individual and the groups in which leadership takes place. Pierce and Merrill further stated that studies of the qualities of the individual which affect leadership behavior are generally lacking and that research in all areas of leadership is particularly needed.

Another approach would be to consider some situational factors that have a bearing on the effectiveness of leadership. Stogdill's (26) research has shown that a study of "traits and characteristics" when used as the only criteria of the effectiveness of leadership is somewhat lacking in its predictive nature. Hemphill (14) emphasized in his findings that personal factors may manifest their effectiveness in interaction with situational factors, rather

than as universal effects to be found in all situations. Because of these findings, this study attempted to use both traits and situational factors as determinants for effective leadership.

The decision to use both the Guilford-Zimmerman Temperament Survey and the Gordon Personal Profile to obtain personality traits of supervisors resulted from Hemphill and Stogdill's findings.

According to Freeman and Taylor (9), leadership is measured by a study of what effects the personality and behavior of leaders have upon the group activities they lead. In their analysis, leadership is measured by the led.

Malpin (12), in his study of fifty Ohio school superintendents and in his study of leadership behavior of airplane commanders, used a device called a Leader Behavior Description Questionnaire, developed by the Personnel Research Board of Ohio State University. This questionnaire as revised by Malpin and Winer (25) has identified Initiating Structure and Consideration as two fundamental dimensions of leadership behavior. Freeman and Taylor's research reported that, in the final analysis, leadership is measured by the led. For this reason, it was decided to use this questionnaire to validate the study further.

The prediction of leadership behavior involves the evaluation of many variables. This study, however, was concerned only with the relationship between personality traits, certain situational factors, and leadership behavior as rated by both employee and employer.

Limitations of the Study

The nature and the scope of this study were conducted within the bounds of the following limitations:

1. This study was geographically limited to a large metropolitan area located in the southwestern section of the United States.
2. Only those school systems having maintenance supervisors and at least five workers under a supervisor were considered.
3. A minimum of fifty maintenance supervisors was included in this study.
4. Leadership behavior dimensions considered in this study were limited to the dimensions of Consideration and Initiating Structure as measured by the Leadership Behavior Description Questionnaire. If fewer than five descriptions were obtained on any one supervisor, that supervisor was eliminated from the study.

5. Only those factors of personality as measured by the Guilford-Zimmerman Temperament Survey and the Gordon Personal Profile were considered in this study.

Definition of Terms

For purposes of clarity the following terms used in this study and their definitions are given as follows:

Consideration.--The leader's behavior indicative of friendship, mutual trust, respect, and warmth in the relationship between the leader and the members of his group.

Craftsman.--A journeyman maintenance mechanic in any trade area.

Custodial supervisor.--Those persons charged with the responsibility of directing the custodial help in a school plant large enough to require at least five full-time workers.

Initiating structure.--The leader's behavior in delineating the relationships between himself and members of his work group and in endeavoring to establish patterns of organization, channels of communication, and methods of procedure.

Leadership actions.--The behavior of the formally designated leader or supervisor of a work group as defined in the Leadership Behavior Description Questionnaire.

Leadership Behavior Description Questionnaire.--A form developed at Ohio State University to describe the leadership behavior of the maintenance supervisors as rated by their groups.

Maintenance.--Work of a routine recurring nature required to keep structures and equipment in such condition that they may be continuously utilized at their original or designed capacity for their intended purpose.

Maintenance supervisor.--All central office maintenance supervisors regardless of area assignment.

Operations supervisor.--Those supervisors directing the work of the various crafts such as plumbers, electricians, steamfitters, carpenters, painters, and other craftsmen employed by a school district.

Personality trait.--A term used in conjunction with the ten traits as contained in the Guilford-Zimmerman Temperament Survey and the five traits contained in the Gordon Personal Profile.

Repair.--Restoration of a structure or equipment to its originally designed condition by replacement, overhaul, or reconditioning of parts and material.

Situational factors.--Those situations listed in the statement of the problem, such as length of service in an area, number of personnel supervised, and a maintenance supervisor's previous experience.

Basic Assumptions

First, it was assumed that the three test instruments selected obtained the information needed. Second, it was assumed that the responses to the questions on the tests were the true feelings of the respondent and were given in good faith.

Procedure for Collecting Data

After a study of research on personality traits, two instruments were selected for this survey. The first instrument selected was the Guilford-Zimmerman Temperament Survey. This instrument uses 300 items that by factor analysis are divided into ten personality traits. The traits are (a) General activity, (b) Restraint, (c) Ascendence, (d) Emotional stability, (e) Social interest, (f) Objectivity, (g) Friendliness, (h) Thoughtfulness, (i) Personal relations, and (j) Masculinity. Each of

these traits is represented by thirty items, and no trait is scored for more than one variable. The items in the Survey are expressed in statement form rather than in question form, and each item may be answered with "yes," "no," or "?."

Steenburg (4) felt that the Survey is a well-rounded, carefully worked-out method of evaluating an important portion of a person's total personality. Shaffer (24), in his review of the Survey, said that it is very useful for screening, evaluating, and research. In Baros' Fourth Mental Measurements Yearbook, other authorities have stated that the Guilford-Zimmerman Temperament Survey is a superior instrument to be used in the study of personality traits.

The second instrument selected further to validate and complete the study was the Gordon Personal Profile (10). This instrument was developed by Gordon in connection with his work with the U. S. Naval Personnel Research Unit, San Diego, California. It was selected because of its characteristic of bearing more specifically on face-to-face contact between supervisors and their groups, such as was the case in this study. This instrument is a simple, short, and easily administered test that makes use of the "forced-choice" technique. It measures five personality traits, including a self-evaluation

trait that was considered necessary for this study. The forced-choice technique also gives more assurance against "faking" on the part of the respondent. Radcliffe described the five traits and the main features of the profile as (a) factorial derivation of the trait being measured, (b) use of both internal and external validating procedures, (c) frequent cross validations against external criteria, (d) use of forced-choice responses, and (e) the more-than-average validity data reported in the manual (5). Fricke said that the instrument has shown more sensitivity than most non-empirical personality tests as far as relating test scores to real-life behavior (5). Since this study was concerned with persons of perhaps lower educational achievement, it was believed that the Gordon Personal Profile in conjunction with the Guilford-Zimmerman Temperament Survey would make the study of personality traits more valid.

The Leadership Behavior Description Questionnaire (25) was the third instrument decided upon for use in this study after an intensive review of research in the field of leadership. Developed by the Bureau of Business Research of Ohio State University, it is a valid and reliable instrument.

Hemphill and Coons constructed the original form of this instrument; but it was revised by Halpin and Winer (25), and the two fundamental dimensions of Initiating

Structure and Consideration were identified by them. The reliability for these two dimensions is high, and in several studies agreements between respondents in describing their respective leaders have been found to be significant. It has been found in other studies that the most effective leaders are those who score high on both dimensions of leadership behavior. The two dimensions of Initiating Structure and Consideration describe the behavior of a leader as he operates in his position and is not to be considered as traits of leadership. Stogdill (26) pointed out that there should be a greater emphasis on viewing leadership as a behavior and not as a trait of individual personality. Evenson (6), in his study of high-school principals, reported that it would be unwise to use these dimensions, as rated by teachers, as the only criteria for leadership effectiveness. The questionnaire does not measure an intrinsic capacity for leadership but gives a description of what the leader does. It does not attempt to evaluate the effectiveness or efficiency of how a leader performs his job.

Because of Evenson's study, it was decided that a scale would be devised to evaluate the efficiency and effectiveness of maintenance supervisors. This was done by having a recognized jury of experts in the field of maintenance select items on which each supervisor should

be rated. This jury was selected from the combined membership lists of the Association of School Business Officials of the United States and Canada and the National Council on School House Construction. From these memberships, an effort was made to identify members who had extensive experience with school maintenance personnel in a large geographical area. To get a wide range of ideas, the members were divided into three categories--assistant superintendents in charge of business in large urban school districts, state department of education men who specialize in school maintenance, and regional school development councils concerned with planning, constructing, and operating school plants. An equal number of highly regarded men in their field were chosen from each of these categories. This instrument was completed to the satisfaction of each member of the jury; it was then given to each supervisor's immediate superior so that an evaluation could be made of each supervisor's job performance.

The situational factors discovered were determined by use of a short questionnaire attached to the Gordon Personal Profile. This instrument was constructed in accordance with suggestions advanced by Selltitz, Jahoda, and others (23).

Each school selected, as set forth in the limitations, was visited, and the appropriate administrator interviewed.

At this interview the purpose of this study was explained, and the school's cooperation was solicited. When this had been achieved, each maintenance supervisor was interviewed, and at this interview the Guilford-Zimmerman Temperament Survey and the Gordon Personal Profile were administered. Also at this time each maintenance worker selected was visited, and the Leadership Behavior Description Questionnaire was administered.

Assurance of anonymity of the persons giving the information was given each respondent, and no names appeared on any of the instruments used. The forms were numbered to conform to a code for identification purposes for the study.

In summary, the procedure for collecting the data for this study consisted of the following steps:

1. Visited with the appropriate school administrators to secure approval for each school's participation in the study.
2. Secured information needed for the situational factors according to the situational information form.
3. Obtained a measure of supervisory efficiency and effectiveness by administering the effectiveness and efficiency scale.

4. Obtained a measure of personality by administering the Guilford-Zimmerman Temperament Survey and the Gordon Personal Profile.
5. Obtained a description of leadership behavior by administering the Leadership Behavior Description Questionnaire.
6. Categorized the supervisors into the following areas:
 - a. central office maintenance supervisor
 - b. operations supervisors
 - c. custodial supervisors.

Related Literature in Business and Industry

The control of maintenance costs has always been of vital importance to industrial organizations, but this has been an area where unscientific practices and poor management were excused because of "emergencies" (16). To keep operating costs and expenses to a minimum, plant maintenance departments should be carefully studied. Maintenance throughout history has always been an area where the control of costs was difficult because the types of work were so varied and the locations where the work was performed were so widely separated.

The application of better work habits and measurement to help improve effectiveness of maintenance management

did not begin until after World War II. When labor costs for skilled craftsmen began to rise, with a simultaneous rise in material costs, attention was focused on the entire expense involved in the maintenance function.

The most complete study of maintenance services seems to be one that is constantly undergoing modifications by the Bureau of Yards and Docks, a segment of the U. S. Navy. They publish an annual series of instructional volumes concerning maintenance of public works and public utilities. In the latest edition, maintenance was defined as the routine recurring work required to keep a facility (plant, building, structure, ground facility, utility system, or other real property) in such a condition that it may be continuously utilized, at its original or designed capacity and efficiency, for its intended purpose (3). The broad objective was described as maintaining all equipment in connection with heating, refrigeration, air conditioning, and mechanical ventilating equipment in a manner that will protect the Government's investment therein and to assure a continuation of efficient service.

Public, governmental, and private maintenance programs are all concerned with effecting operating economies. Linn suggested three areas in which operating economies may be effected; namely, personnel, utilities, and operating supplies and equipment (18).

Custodians can reduce plant operating costs by correcting conditions which cause waste in the use of such utilities as heat, electricity, water, and gas. Other plant operating economies can be effected through the proper management and use of custodial supplies and equipment. Supervisors who know the type and quantity of supplies, as well as the correct methods to employ in their economical and efficient use, can save both time and supplies.

Supervision of maintenance personnel seems to be as much of a problem in business and industry as it is in public school administration. Lewis said that the supervision of maintenance was one of the most critical areas in any modern business operation and the maintenance supervisor must be more highly skilled and better trained than any man in a production assignment. The good maintenance supervisor must be a dynamic individual with real dedication to his job, an inquiring mind, a thirst for knowledge, and the highest degree of integrity (16).

The maintenance supervisor has a very difficult job to do because the very nature of the work means that he has a large number of variables to control. The supervisor's men may work in several different locations which may change from hour to hour. The types of work may vary, but even similar work may have detailed requirements which

are different. Only a well-trained maintenance supervisor who is extremely alert and conscientious can handle all the different problems of maintenance.

A good understanding of the basic principles of industrial psychology and human relations is important for the maintenance supervisor. Research in business and industry has revealed that technical knowledge of a job is not the only factor in a worker's efficiency and success. He must know how adequately to perform his job, but his attitude toward his job may be even more important than his skill in it. At least two basic factors that fundamentally govern the harmony and happiness of working groups have been identified: one is the desire of every individual to feel important; and the other is the almost equally strong desire to feel secure and at ease, not only economically but also in human relationships (1). A supervisor's men may come in contact with every area of the facility from changing a light bulb in the office of the president to oiling a rusty hinge on a janitor's closet. In this process, every maintenance supervisor must deal with many different people, and he must do it in an effective way in order to gain cooperation and respect. Human relations practices that motivate men to work efficiently are of special importance with maintenance

supervisors. This type of responsibility makes it mandatory for the maintenance supervisor to understand industrial psychology and human relations and to be able to impart some of this knowledge to his men.

In the maintenance supervisory field, really good men are needed--not geniuses but men with the desire to learn and to help others learn (16). They must also be convinced that good maintenance supervision is good business for every level, from scrubwoman to stockholder.

Maintenance supervision is a relatively new area of industrial concern. The maintenance supervisor has no organized and controlled history of good practices to follow. His job has always been done, but it has never before been studied and made efficient.

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CHAPTER II

A SURVEY OF THE DATA COLLECTING INSTRUMENTS

In the selection or promotion of a maintenance supervisor, it is evident that the person to be chosen must be an individual whose probability of success is much greater than that of the typical applicant or craftsman. To facilitate this selection procedure, it would be helpful if administrators could identify certain personality traits and situational factors as predictors of success in a supervisory or leadership position.

Tead (16) defined leadership as the activity of influencing people to cooperate toward achieving some goal which they believe to be desirable. Yoder (17) described leadership as the function of planning, coordinating, and directing activities; a function that must be performed if men are to combine their talents, abilities, and services with material resources in the production and provision of the goods and services they desire. It is a continuing and dynamic process, never ending, and varying as it meets new problems.

Smith and Kruger (12) found that leadership is related to physical characteristics. After surveying

several studies concerning leadership. they discovered that the person who is above average in height and weight and who is attractive in appearance has a better chance of being promoted to a leadership position.

Stogdill (13), after an examination of several studies, reported that the person who is in a position of leadership is superior to the average person in his group in intelligence, scholarship, dependability, activity, and socio-economic status. Stogdill also found that the leader is above average in sociability, initiative, persistence, self-confidence, alertness, cooperativeness, popularity, adaptability, and verbal facility.

Taylor (15, pp. 31-32) said that a leader must have seven qualifications; they are above average of the group in mental ability, broad interest and abilities, communication skills, maturity, motivational strength, social skills, and administrative abilities.

Although research has shown that personality traits do determine to a great extent the behavior of an individual, the situational surroundings of that individual are factors that must be considered. Nemphill (9) has indicated in his studies that traits or personal factors reliably manifest their actions only when in interaction with situational factors. Stogdill (14) also indicated that when personality traits are the only

criteria used in a study of behavior or as a predictive device, they are somewhat lacking in their reliability.

This study was conducted with the hope of discovering some significant relationships between certain factors that could be used as predictive devices in identifying individuals with greater possibilities of supervisory success for positions in maintenance activities. It was felt that if scores and relationships could be established between the various factors, then a major contribution would have been made in the selection and promotion of school maintenance personnel.

The instruments selected for this study were chosen after an intensive examination of many measuring and evaluating devices. They had to meet certain standards as set up in the study in addition to being valid and reliable, easily administered and scored, as well as being reputable and highly esteemed by authorities in the field.

Gordon Personal Profile

The Gordon Personal Profile is an instrument developed by Gordon in connection with his work with the U. S. Naval Personnel Research Unit, San Diego, California. The test takes little time--from seven to fifteen minutes--to

complete. The directions for taking the test are clear, making it virtually self-administering.

The Profile is especially helpful in the selection of personnel in business and industry. It purports to measure four traits of personality that are especially significant in the daily functioning of the normal person. They are Ascendency (A), signifying dominance and initiative in the group situation; Responsibility (R), signifying persistence in getting a job done; Emotional Stability (E), signifying an absence of neurotic symptoms; and Sociability (S), signifying general gregariousness.

The Profile uses the forced-choice technique and tetrads, in which all four factors are represented in each tetrad. The forced-choice type of item consists of two complimentary and two uncomplimentary phrases from which the person taking the test selects the one of the four which is most like his supervisor and the one which is least like his supervisor. This forced-choice technique is stated to be less subject to faking and more valid than the conventional questionnaire method, particularly for the low-criterion individuals (2, p. 128).

The reliability of the scores on each of the factors has been tested by several methods and has been found to be satisfactory. Using the split-half method in two

studies, the reliability coefficients ranged from a low of .82 on the factor of Ascendency (A) in one of the studies to a high of .94 on the factor of Sociability (S) in the other (6, p. 12). The test-retest method in one study yielded reliability coefficients of .84 to .87 on the various factors (6, p. 12).

This instrument appeared to meet the specifications as set forth for this study. It is easily scored and administered and is reliable and valid. It has been used in business and industry and has proved to relate itself well to real-life behavior in face-to-face situations.

Guilford-Zimmerman Temperament Survey

The Guilford-Zimmerman Temperament Survey is an instrument designed to measure ten traits of personality. Each of these ten traits is represented by thirty items, and no trait is scored for more than one variable. The items in the Survey are expressed in statement form rather than in question form, and each item may be answered with "yes," "no," or "?."

Steenberg (1, p. 96) said that the intercorrelations between the traits are generally small, one is as high as .61, some others are of the magnitude of about .40, but most of them are small enough so that there does not

seem to be any question as to the existence of the separate traits.

The ten measured traits are General Activity (G), signifying drive, energy, and activity; Restraint (R), signifying degree of introvertness or extrovertness; Ascendence (A), signifying dominance or lack of dominance in a group situation; Sociability (S), signifying the tendency to be a member of the group; Emotional Stability (E), signifying optimism, cheerfulness, or lazy phlegmatic individual; Objectivity (O), signifying egotism or sensitivity; Friendliness (F), revealing pacifist feelings, degrees of hostility or healthy attitudes; Thoughtfulness (T), revealing tact and feelings for others; Personal Relations (P), revealing ability to get along with others; and Masculinity (M), revealing manly or feminine traits.

Mackie (11) used the Guilford-Zimmerman Temperament Survey in an industrial setting and found high correlations between several of the scores as related to the success of foremen.

The Guilford-Zimmerman Temperament Survey has been deemed acceptable as a data-gathering instrument for this study. It has proven validity and reliability, is easily and rapidly scored, clearly separates personality

traits, is highly regarded and esteemed by authorities, and has met the general requirements of this study.

Leadership Behavior Description Questionnaire

The Leadership Behavior Description Questionnaire is an instrument which provides a technique whereby group members may describe the leadership behavior of their leader in formal organizations. There are forty items on the questionnaire but only thirty are scored. Each of these items describes a specific way in which a leader may behave. The respondent indicates the frequency with which he perceives the leader in each type of behavior by marking one of five responses--always, often, occasionally, seldom, and never (7, p. 1). The responses are then scored on the two dimensions of leadership behavior. One dimension is Consideration, which refers to behavior indicative of friendship, mutual trust, respect, and warmth in the relationship between the leader and members of his group. The second dimension is Initiating Structure, which refers to the leader's behavior in delineating the relationship between himself and the members of his group and in endeavoring to establish well-defined patterns of organization, channels of communication, and ways of getting the job done (7, p. 2). For each dimension, the scores from the various group members are

averaged to yield an approximation of the leader's behavior in respect to that dimension.

The Leadership Behavior Description Questionnaire was developed by the Bureau of Business Research of the Ohio State University, Columbus, Ohio (7). The questionnaire is a revision of one originally constructed by Hemphill and Coons (13). It was shortened and refined to its present form by Halpin and Winer (13, p. 47).

The Leadership Behavior Description Questionnaire has been used for research purposes in industrial, military, and educational settings. Fleishman, Harris, and Burt (4) have used the Leadership Behavior Description Questionnaire in their studies of factory foremen and have found the two leadership behavior dimensions useful in evaluating the results of a supervisory training program.

Halpin indicated that it is preferable that the leader not be physically present when the questionnaire is being administered. This facilitates its administration by allowing different individuals to respond at their convenience without interrupting the leader in each instance. Adding further to the desirability of the instrument is the fact that it has been found that a minimum of four respondents should describe each leader but that additional respondents beyond ten do not

significantly change the stability of the scores on the two behavioral dimensions (7, p. 7).

This study required instruments with as high a degree of reliability as possible since it is a study of relationships. By applying the Spearman-Brown formula to correct for attenuation, Halpin and Winer found a reliability of .93 on the Consideration factor and .85 on the Initiating Structure factor (13, p. 48). The estimated reliability by the split-half method is stated to be .83 for Initiating Structure scores and .92 for the Consideration scores, corrected for attenuation, according to a later report by Halpin (7, p. 6). To check further the reliability of the questionnaire, Halpin found that in several studies the agreement among respondents in describing their respective leaders was significant at the .01 level (7, p. 6).

This instrument was the only one found that so closely met the needs of this study. Because of its brevity, Fitzpatrick considered it as a tribute to the researchers who developed the Leadership Behavior Description Questionnaire that the program "rose above superficiality" (3, p. 292). The questionnaire has proven to be reliable, to be practical for administration, and to give an accurate appraisal of leadership

behavior (3, p. 292). Because of these characteristics, it was deemed a sound choice for collecting the data required to solve this problem. A copy of the questionnaire used is given in Appendix A.

Effectiveness and Efficiency Questionnaire

This questionnaire was constructed and administered so that the maintenance supervisor's superior could evaluate that supervisor's job performance. This score could then be correlated with scores on the Leadership Behavior Description Questionnaire as scored by the supervisor's group to see what relationship there was between these ratings. Laird said that what management wants from bosses jibes only partly with what the workers want. There is only about a fifty-fifty chance that employees and top executives will agree that a particular foreman is a good leader (10).

This questionnaire was devised to ascertain the effectiveness and efficiency of a supervisor or craftsman on his job performance as rated by his employers. Competent authorities were selected to determine the itemized content of the questionnaire, and each item was given a numerical value in order to ascertain a relative score on each supervisor.

The questionnaire was constructed in accordance with suggestions advanced by several authorities in the field.

Good, Barr, and Seates said that questionnaires are not necessarily confined to statistical data, or even to factual material. They may enter the field of attitudes, opinions, and judgments (5). Precautions were taken so that unnecessary items were weeded out and no trivial questions were asked; simple responses to the items were carefully considered in the construction of the questionnaire; each item was carefully worded so that no unnecessary specifications or details were included; each question applied directly to the situation and fitted into a pattern of essential information needed; precautions were taken to assure each question's clarity; and simple, clear directions telling the respondent just what he is supposed to do were included.

Kornhauser and Sheatsley (9, p. 550) indicated that when the questionnaire has been completed, it should then be subjected to revision by the initial reaction of individuals who are more familiar with the type of problems at hand. The jury of experts as described in Chapter I of this study were consulted and their suggestions were considered and incorporated into the questionnaire before it was finally completed.

The jury of experts consulted for this purpose were George R. McCormack, Director of Plant Facilities for

the Jefferson County Public Schools of Colorado; Thomas Little of the Richmond, Virginia, Public Schools; N. L. George of the Oklahoma City, Oklahoma, Public Schools; George D. Englehart, Director of School Building Services of the State Department of Education of Missouri; John E. Marshall, Educational Consultant from Belmont, Massachusetts; W. B. Southerlin, Supervisor of School Plant Services of the State Department of Education of South Carolina.

Each responding member of the jury made revisions and recommendations, and each of these was incorporated in the questionnaire in its final form. It was recognized that no instrument of this type can be completely satisfactory since all of them involve personalities. The task of assigning values and arithmetically scoring the questionnaire was particularly difficult. McCormack indicated that this step in evaluation is a most difficult and impersonal analysis and is almost an impossibility. He did indicate, however, that the questionnaire was a thorough and deep-evaluating device, and that over all the thinking and depth of the instrument was excellent. Englehart was concerned with the over-all generality of the questionnaire, and because of his suggestions, the scale was made somewhat more specific. George added a

category, and then indicated that over all the instrument was very thorough. Little made several revisions in form and advanced suggestions concerning the scoring of the questionnaire. Southerlin was concerned with the weighting of each of the five scales on the questionnaire so that the values would be more nearly consistent as they were gathered from the different appraisers. He also suggested that the questionnaire might have more meaning if some of the original items could be broken into subheads for each facet of the problem under consideration. Southerlin and Englehart were both particularly concerned about the generalities of the items since they feared that possibly an appraiser could rate a supervisor high on one phase included in an item and yet possibly rate him low on another phase in the same item. Because of those suggestions, some items were broken into subheads under that item.

In its final form, the instrument proved satisfactory for obtaining the information needed to complete the study. A copy of the questionnaire as it was used is given in Appendix B.

Situational Information Form

The situational information form was developed after a study of the literature in the field. In each instance

it was discovered that this form should be brief and concise. Only the information actually needed for the study was included, with the exception of age, which was included for the purpose of aiding in the exploratory look at supervisory leadership in maintenance. This brevity insured better participation by respondents and also did not consume an excessive amount of time. A copy of this form is given in Appendix C.

The five instruments just described seemed to meet the requirements of reliability, ease of administration, and obtaining of the information required for this study. These factors, plus the care in administering and scoring of the instruments, gave assurance that the study produced reliable data for an analysis of the relationships as described in Chapter I.

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CHAPTER III

COLLECTION AND PROCESSING OF DATA

After the instruments were selected for securing data on the leadership behavior dimensions and the ten measured personality traits of maintenance supervisors and after the two questionnaires were designed and constructed for securing the situational information required for evaluating the supervisors, it was then necessary to determine the details pertaining to securing the data needed for the study.

Selection of Participating Schools

The first step in the selection of the participating schools was to visit various schools to determine whether the school system employed either central office maintenance personnel, operational maintenance supervisors, or supervisory custodians or custodians in charge. The participating schools had to employ at least one supervisor in one of these capacities with at least five employees under that supervisor in order to meet the requirements as set forth in Chapter I of this study. Also, the participating

school system had to fall within the geographical boundaries as prescribed in the limitations section of Chapter I.

Twenty-nine school systems were visited during this selection process, with seventeen of the systems meeting these previously listed specifications. A total of fifteen school systems agreed to participate in the study out of the seventeen that qualified. The two schools that qualified and refused to participate had various and understandable reasons for not wanting to be included in the study. At the initial visit, the superintendent or an appropriate administrator was informed of the complete nature of the study, the problems and the limitations, and what would be involved if he agreed for the school system to participate in the study. Not every superintendent was visited or informed of the nature of the visit because in some school systems this type of authority was delegated either to assistant superintendents or to administrative assistants, and in three instances to the head maintenance supervisor. Also, in two school systems this type of authority came under the jurisdiction of the business manager. Insistence to participate in the study was not used in any school system since it was more desirable if participation was on a voluntary basis.

Personal Contact with Participants

Upon securing consent for the school system to participate in the study, a list of qualified supervisors and men working under that supervisor was obtained for each school in that system. At this time, the effectiveness and efficiency questionnaire was usually administered to the administrator furnishing the names of the qualified supervisors and his men. In most instances, that person giving the consent and the names was the administrator to whom all the maintenance supervisors were responsible. Each supervisor who met the requirements as set forth in Chapter I was evaluated by the use of the effectiveness and efficiency questionnaire and was then visited. In most school systems, the administrator who gave permission for that school's participation wrote a short introductory letter explaining briefly the reason for the study and soliciting each supervisor's cooperation. In the smaller school systems, this explanation was usually effected by a short visit with the supervisor. This was done because every participating school had a ruling against its maintenance supervisors discussing anything of an official nature with visitors to that school district without the visitor having first obtained permission from higher authority.

In order to insure that the data would be as reliable as possible, the procedure for collection was planned in such a way as to promote frankness and sincerity of participation on the part of the respondents. Each maintenance supervisor was personally interviewed in order that questions could be answered and any lack of understanding of the role of the participant in the study could be clarified. In this visit, the supervisor was assured of anonymity in the study. No name, either of the supervisor or of the school, appeared on any of the instruments used. A code was used in order to match the instruments filled out by the supervisor with those completed by his men and his superior. No school system can be identified in the report of the study. Assurance was given the participants that no superintendent or other school official would be given any information of individual findings. Each of the fifty-four supervisors visited agreed to cooperate. The majority of the supervisors were, in fact, only too willing to engage in a study that might recognize their work as an important contribution to the education of today's youth.

Various methods were used in the actual administering of the instruments to obtain the scores on the desired personality traits. A majority of the custodial supervisors

and many of the central office supervisors completed the Guilford-Zimmerman Temperament Survey and the Gordon Personal Profile during this initial visit. The situational information form was attached to the Gordon Personal Profile, thereby administering these instruments simultaneously. A majority of the operations supervisors completed the instruments away from the job; and in each case the completed instruments were collected personally and any remaining questions were answered. Most of the instruments were collected the next day after distribution, with a few being out over a week end.

Each of the 316 maintenance and custodial workers was personally contacted and asked to complete the Leadership Behavior Description Questionnaire. The instrument was explained to them in detail, assuring the workers of the same anonymity as was given the supervisors. In every case, the questionnaire was filled out at this initial visit. In some school systems, this was done after the entire work force under that particular supervisor had been assembled for this purpose; and, in some systems, the questionnaire was administered individually. In a situation where a worker was absent from work, that person was visited at his home or after he returned to work. In several instances, the respondent's reading ability was

such that the instrument had to be read to him, allowing him to choose his responses. This occurred, however, only in the custodial category.

As was the case in the supervisory level, not one person refused to cooperate after the study was explained and assurances of anonymity had been given.

Within the geographic boundaries of this study, a sufficient number of school systems agreed to participate to bring the total number of supervisors to fifty-four. This met the requirements as planned and as set forth in Chapter I of this report. All other limitations, such as qualifying participants, were adhered to as were required of the study.

Processing of Data

As respondents completed their forms, each form was checked to determine its completeness. Only one supervisor was asked to execute a new form because of incompleteness. This completeness of answered forms is due in part to their being administered personally and the answering of any questions that arose.

The Leadership Behavior Description Questionnaires were scored according to the instructions of the authors (4). A copy of this questionnaire is included as Appendix A. Scores on Initiating Structure and Consideration were

then averaged and rounded off to the nearest whole number for each supervisor as instructed in the manual. They were then recorded on the statistical table as variables 1 and 2 for correlational computation. These scores ranged from 29 to 56 on Initiating Structure and from 17 to 46 on Consideration, the two major dimensions of behavior measured on the instrument. The statistical table of raw data, Appendix D, shows these scores.

The Guilford-Zimmerman Temperament Survey and the Gordon Personal Profile were then scored as directed in their respective manuals (3, 2). A mean score was computed and then converted to C scores; these scores are shown on the statistical table in Appendix D. The ten scores, representing variables 3 through 12, are the personality trait scores as rated by these two instruments. The scores range from 0 to 10 on the C scale and from 1 to 99 on the percentile rank order scale.

In tabulating the effectiveness and efficiency scale, each of the fifteen items were checked for completeness. Each of these items was worth from 0 to 4 points for a numerical evaluation, with a score of 60 being a perfect score. These scores ranged from 26 to 54. A complete listing of these scores is shown in the statistical table, Appendix D, of this report.

The situational information forms were all tabulated, but only those items related to the study were placed in the statistical table. This information is recorded on the basis described below. This was necessary in order to check relationships as planned.

The supervisor's previous experience in maintenance work was recorded in terms of number of years, which ranged from 2 to 28 years. This means that the higher the score on this factor, the more previous maintenance experience the supervisor had before becoming a supervisor.

The length of service as a supervisor was the second factor used in this study of relationships. It was also recorded in terms of number of years. The higher the score on this factor, the more experience the person had as a maintenance supervisor.

The third factor included in this study of relationships was the number of persons supervised. This figure was supplied by the various school administrators and was the actual number of workers who completed the behavior dimensions questionnaire describing the behavior of their respective supervisors. The score was also recorded numerically for correlational computation in the statistical table in Appendix D.

The first step following the tabulation of the data and the setting up of the statistical table shown as

Appendix D was to determine the mean and standard deviation of each of the variables according to categories. This is shown in Table I (see pages 51 and 52). This table is given because a comparison and discussion of these three categories will be included in Chapter IV.

The next step was the focusing of attention on leadership behavior in such a way as to see the relationships between these two behavior dimensions and the ten personality traits being studied. This was done by computing a coefficient of correlation between these factors. Lindquist (5, p. 158) indicated that the nature of the relationship and the degree of relationship between measures of two traits for the individuals in a given group may be of significance in education and psychology for a number of different purposes, among the most important of which are prediction of future success, the description of the reliability and validity of measurement, and the study of cause and effect. Garrett (1, p. 268) said that frequently it is of more importance to examine the relationship of one ability to another than it is to measure performance in either trait alone.

Table II (see page 53) shows the coefficient of correlation between the leadership behavior dimensions

TABLE I
MEAN AND STANDARD DEVIATION OF EACH OF THE VARIABLES
ACCORDING TO SUPERVISORY CATEGORY

Variable	Group I (Custodial)	Mean	S. D.
1	Initiating Structure	40.76	5.31
2	Consideration	31.19	7.24
3	General Activity	5.14	1.42
4	Responsibility	5.47	1.13
5	Ascendency	5.00	.872
6	Sociability	4.42	1.04
7	Emotional Stability	4.52	1.33
8	Objectivity	4.61	1.46
9	Friendliness	4.85	1.31
10	Thoughtfulness	5.19	.957
11	Personal Relations	5.33	1.49
12	Masculinity	4.76	.867
13	Length of service in maintenance	8.57	4.06
14	Length of service as supervisor	3.87	2.21
15	Number of workers supervised	5.71	.982
16	Effectiveness and efficiency score	37.23	6.05
Variable	Group II (Operations)	Mean	S. D.
1	Initiating Structure	44.55	4.48
2	Consideration	36.05	6.95
3	General Activity	4.83	1.74
4	Responsibility	5.83	1.64
5	Ascendency	4.38	1.94
6	Sociability	4.77	1.58
7	Emotional Stability	4.77	1.43
8	Objectivity	4.94	1.02
9	Friendliness	5.83	1.11
10	Thoughtfulness	5.77	1.39
11	Personal Relations	6.05	1.87
12	Masculinity	4.66	1.10

TABLE I--Continued

Variable	Group II (Operations)	Mean	S. D.
13	Length of service in maintenance	15.00	7.71
14	Length of service as supervisor	6.72	5.82
15	Number of workers supervised	5.88	1.88
16	Effectiveness and efficiency score	39.22	5.40
Variable	Group III (Central Office)	Mean	S. D.
1	Initiating Structure	42.60	5.74
2	Consideration	35.53	5.26
3	General Activity	6.13	1.45
4	Responsibility	5.86	1.49
5	Ascendancy	5.33	1.39
6	Sociability	5.40	1.20
7	Emotional Stability	4.73	.771
8	Objectivity	4.73	1.06
9	Friendliness	5.46	.618
10	Thoughtfulness	6.53	1.54
11	Personal Relations	5.46	1.49
12	Masculinity	4.86	1.08
13	Length of service in maintenance	13.80	5.26
14	Length of service as supervisor	7.53	3.34
15	Number of workers supervised	6.13	1.66
16	Effectiveness and efficiency score	40.20	6.17

and each of the ten measured personality traits of custodial supervisors.

TABLE II

COEFFICIENT OF CORRELATION FOR RAW SCORES ON THE
LEADERSHIP BEHAVIOR DIMENSIONS OF CONSIDERATION
AND INITIATING STRUCTURE AND SCORES ON EACH
OF THE PERSONALITY TRAITS MEASURED
FOR CUSTODIAL SUPERVISORS

Personality Traits	Coefficients of Correlation		Value of <u>t</u> Score	
	I S	C	I S	C
General Activity	.6523	.4453	3.751	2.168
Responsibility	.7421	.7222	4.826	4.552
Ascendency	.5950	.5499	3.227	2.870
Sociability	.7945	.7284	5.703	4.634
Emotional Stability	.5085	.6661	2.574	3.893
Objectivity	.5942	.6675	3.220	3.907
Friendliness	.3548	.6157	1.654	3.406
Thoughtfulness	.0744	.3314	.325	1.531
Personal Relations	.7609	.8763	5.111	7.930
Masculinity	-.2187	-.0913	-.976	-.399

Table III shows the coefficient of correlation between the leadership behavior dimensions and each of the ten measured personality traits of operations supervisors. (See page 54.)

Table IV shows the coefficient of correlation between the leadership behavior dimensions and each of the ten measured personality traits of central office supervisors. (See page 55.)

Tables II, III, and IV were broken down and shown according to category in order to distinguish between

TABLE III

COEFFICIENT OF CORRELATION FOR RAW SCORES ON THE
LEADERSHIP BEHAVIOR DIMENSIONS OF CONSIDERATION
AND INITIATING STRUCTURE AND SCORES ON EACH
OF THE PERSONALITY TRAITS MEASURED
FOR OPERATIONS SUPERVISORS

Personality Traits	Coefficients of Correlation		Value of t Score	
	I S	C	I S	C
General Activity	.2181	.5699	.894	2.774
Responsibility	.7064	.6625	3.992	3.538
Ascendency	.3121	.6256	1.314	3.209
Sociability	.3927	.7477	1.709	4.505
Emotional Stability	.1140	.3460	.459	1.475
Objectivity	.3034	.3118	1.296	1.312
Friendliness	.5499	.2655	2.634	1.101
Thoughtfulness	.2590	.3386	1.072	1.439
Personal Relations	.6716	.7770	3.626	4.938
Masculinity	-.5002	-.3588	-2.310	-1.537

the three categories and to facilitate the testing of hypothesis seven in Chapter I, which stated that there is no significant relationship between scores on leadership behavior dimensions and personality traits and the listed categories of supervisors. A complete discussion of the results of this testing will be included in Chapter IV.

Having completed the correlational computations for the leadership dimensions and each of the measured personality traits for each category of supervisors, it was

TABLE IV
 COEFFICIENT OF CORRELATION FOR RAW SCORES ON THE
 LEADERSHIP BEHAVIOR DIMENSIONS OF CONSIDERATION
 AND INITIATING STRUCTURE AND SCORES ON EACH
 OF THE PERSONALITY TRAITS MEASURED
 FOR CENTRAL OFFICE SUPERVISORS

Personality Traits	Coefficients of Correlation		Value of <u>t</u> Score	
	I S	C	I S	C
General Activity	.7639	.3737	4.268	1.453
Responsibility	.3882	.4143	1.519	1.641
Ascendency	.6137	.4376	2.802	1.755
Sociability	.1585	.5577	.578	2.486
Emotional Stability	.0210	.1326	.075	.669
Objectivity	.5610	.4664	2.443	1.901
Friendliness	.5402	.4765	2.314	1.954
Thoughtfulness	.3095	.6952	1.173	3.487
Personal Relations	.6867	.3559	3.406	1.377
Masculinity	-.0512	.0706	-.184	.255

then necessary to compute the coefficient of correlation between the leadership dimensions, each of the situational factors, and scores on the effectiveness and efficiency scale. The results of these computations are shown in Table V (see page 56).

The table of t values made it possible to focus attention on the differences between each of the three categories in each table presented. It also aided in determining whether each of the hypotheses would be accepted or rejected. A discussion of the findings as presented in Table V will be found in Chapter IV.

TABLE V

COEFFICIENT OF CORRELATION FOR RAW SCORES ON THE LEADERSHIP BEHAVIOR DIMENSIONS OF INITIATING STRUCTURE AND CONSIDERATION, SCORES ON EACH OF THE SITUATIONAL FACTORS, AND SCORES ON THE EFFECTIVENESS AND EFFICIENCY SCALE FOR EACH CATEGORY

Categories Measured	Behavior Dimensions	Length of Service	Value of \bar{t}	Time as Supervisor	Value of \bar{t}	Number of Workers Supervised	Value of \bar{t}	Effect. and Effic. Score	Value of \bar{t}
Custodial supervisors	I S C	.7793	5.422	.6033	3.297	.5974	3.247	.8625	7.431
		.6610	3.840	.5430	2.813	.5529	2.969	.6647	3.378
Operations supervisors	I S C	.5775	2.829	.5198	2.434	.2177	.892	.2630	1.090
		.5785	2.837	.4538	2.037	.3399	1.445	.4063	1.778
Central office supervisors	I S C	.2373	.880	-.2559	-.954	-.2378	-.882	.8452	5.703
		.5037	2.162	.0027	.010	.3183	1.210	.6506	3.089

Table VI shows the combined coefficient of correlation and value of t for the totaled three categories. This table presents the complete analysis of relationships for the groups measured. Tables II, III, and IV were presented in order to point out some of the differences between the three groups and for the testing of hypothesis seven; Table VI is concerned with testing hypotheses one, two, three, four, five, and six.

TABLE VI

COEFFICIENT OF CORRELATION FOR RAW SCORES ON THE LEADERSHIP BEHAVIOR DIMENSIONS OF CONSIDERATION AND INITIATING STRUCTURE AND SCORES ON EACH OF THE PERSONALITY TRAITS, SITUATIONAL FACTORS, AND EFFECTIVENESS AND EFFICIENCY SCALE

Personality Traits	Coefficients of Correlation		Value of <u>t</u> Score	
	I S	C	I S	C
General Activity	.4598	.4439	3.734	3.572
Responsibility	.5979	.6102	5.378	5.554
Ascendency	.3623	.4556	2.803	3.691
Sociability	.4386	.6905	3.520	6.885
Emotional Stability	.2725	.4699	2.043	3.838
Objectivity	.5152	.5186	4.335	4.373
Friendliness	.4850	.5250	3.999	4.448
Thoughtfulness	.2460	.4598	1.830	3.733
Personal Relations	.7053	.7183	7.175	7.445
Masculinity	-.2482	-.1470	-1.847	-1.072
Years in maintenance	.5551	.6198	4.813	5.696
Years as supervisor	.3411	.4330	2.616	3.464
Number of workers supervised	.1582	.3812	1.155	2.974
Efficiency and effectiveness score	.6941	.5895	6.953	2.974

An analysis of these relationships and their significance will be discussed in Chapter IV.

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CHAPTER IV

ANALYSIS OF FINDINGS

In interpreting the findings of this study, a procedure was used whereby each statistical computation was given in table form for a clearer analysis. This was done in mathematical sequence and not necessarily in order of importance, starting with the computed mean and standard deviation of each of the variables and then the simple coefficient of correlation of each of the variables. These tables are shown in Chapter III. The partial correlations found in Appendix E and multiple correlations found in Appendix F of this report are also discussed in this same sequence.

Leadership Behavior Dimensions of Supervisors

In analyzing the results of the data on the leadership dimensions of the 54 supervisors studied, it was revealed that a supervisor may score high on both of the leadership behavior dimensions of Consideration and Initiating Structure. From variables 1 and 2 of the statistical table of raw scores in Appendix D, it is seen that of

the 26 supervisors scoring above the mean of Initiating Structure, 22 of these same supervisors scored above the mean on Consideration. This verified the findings of Evenson (2), who found that a leader can score high on both dimensions of leadership behavior. Halpin (4) also found in his studies that high scores on both dimensions are desirable for effective leadership. By adding the effectiveness and efficiency scale score variable 16 on the statistical table of raw scores, a supervisor was rated both by his subordinates using the Leadership Behavior Description Questionnaire and by his supervisor using the effectiveness and efficiency scale. The results of this showed that a total of 17 supervisors out of the 22 scoring above the mean on both Initiating Structure and Consideration also scored above the mean on this third measurement. This was in direct contrast to Laird's (5) implications that what management wants from supervisors only partly jibes with what the workers want from their supervisors. The scores as shown in Table I in Chapter III ranged from 29 to 56 on the leadership dimensions of Initiating Structure with a mean of 40.76 and a standard deviation of 5.31 for custodial supervisors, a mean of 44.55 and a standard deviation of 4.48 for operations supervisors, and a mean of 42.60 and a standard deviation of 5.74 for central office supervisors. The scores ranged

from 17 to 45 on the leadership behavior dimension of Consideration with a mean of 31.19 and a standard deviation of 7.24 for custodial supervisors, a mean of 36.05 and a standard deviation of 6.95 for operations supervisors, and a mean of 35.53 and a standard deviation of 5.26 for central office supervisors. The mean for the combined categories was 42.63 for Initiating Structure and 34.25 for Consideration. These scores favorably compared to other groups who have responded on these behavior dimensions. Scores on the effectiveness and efficiency scale ranged from 26 to 53 with a mean of 37.23 and a standard deviation of 4.48 for custodial supervisors, from 31 to 54 with a mean of 39.22 and a standard deviation of 5.40 for operations supervisors, and from 27 to 54 with a mean of 40.20 and a standard deviation of 6.17 for the central office supervisors. Of the three categories, the operations supervisors tended to score slightly higher on leadership dimensions whereas the central office personnel tended to score higher on the effectiveness and efficiency scale. This was probably because of the face-to-face relationships involved. The operations supervisors were found to have more contact with the men working under their supervision, who rated them using the Leadership Behavior Description Questionnaire than they did with their superiors,

who rated them using the effectiveness and efficiency scale. On the other hand, the central office supervisors had more contact with their superiors, who rated them using the effectiveness and efficiency scale than they did with their men, who rated them using the Leadership Behavior Description Questionnaire.

Because of the changing emphasis on supervision from autocratic to democratic in recent years, it would seem that school officials need to determine the needs in each particular supervisory level to ascertain whether more emphasis on Initiating Structure is needed or whether more emphasis on Consideration is needed to implement the effectiveness of supervision. A comparison of these previously listed categories would seem to bear this out, giving further meaning to Evenson's recommendation that it would be unwise to use only the staff's or only the management's rating as a sole criterion for leadership effectiveness.

Finally, since it was hypothesized that there is a significant relationship between the personality trait scores and scores on the leadership behavior dimension of Initiating Structure, correlation coefficients were calculated to ascertain this relationship, as shown in Table VI in Chapter III. From this correlation table, it is seen that the correlations range from .7053 to -.2482

for the personality traits and the behavior dimension of Initiating Structure, and from .7183 to -.1470 for the personality traits and the behavior dimension of Consideration. Referring to a table for determining the values necessary for significance at the 5 per cent and 1 per cent level, it was found that in this correlation no hypothesis could be rejected at either level (6, p. 430). Also, from this same table, it is indicated that, at the proper degrees of freedom, a value of t of 2.000 is needed for significance at the 5 per cent level and a value of 2.660 is needed for significance at the 1 per cent level. Only on the correlation between Initiating Structure (I S) and the personality trait Thoughtfulness (T) is there a level of significance at better than the 5 per cent level.

There were five personality traits positively related to the leadership dimension of Initiating Structure. These five are presented in Table VII.

TABLE VII

SIGNIFICANT CORRELATION COEFFICIENTS BETWEEN THE LEADERSHIP BEHAVIOR DIMENSION OF INITIATING STRUCTURE AND THE MEASURED PERSONALITY TRAITS

Leadership Behavior	Personality Traits				
	G	R	O	F	P
I S	.4598	.5979	.5152	.4850	.7053

In Table VII, the first column represents the leadership behavior dimension of Initiating Structure, and columns two through seven represent the significant correlation coefficients for those five personality traits.

There are seven personality traits positively related to the leadership dimension of Consideration. These seven are presented in Table VIII.

TABLE VIII
SIGNIFICANT CORRELATION COEFFICIENTS BETWEEN THE LEADERSHIP BEHAVIOR DIMENSION OF CONSIDERATION AND THE MEASURED PERSONALITY TRAITS

Leadership Behavior	Personality Traits						
	R	S	E	O	F	T	P
C	.6102	.6905	.4699	.5186	.5250	.4598	.7183

In Table VIII, the first column represents the leadership behavior dimension of Consideration, and columns two through eight represent the significant correlation coefficients for those seven personality traits.

In the case of the behavior dimension of Initiating Structure and the personality trait of Masculinity (M), a negative correlation is found in Table VI in Chapter III. This correlation indicated that a lower score on this

personality trait was more likely to occur among supervisors who scored high on the behavior dimension of Initiating Structure than among those who scored low on Initiating Structure. This same negative correlation also was found to exist between the behavior dimension of Consideration and the personality trait of Masculinity (M), also indicating that when a person scored high on the dimension of Consideration that same individual would score low on the personality trait of Masculinity (M). The manual of instructions for the Guilford-Zimmerman Temperament Survey (3, p. 10) indicated that the best supervisors are probably those whose masculine tendencies have been tempered with refinements just enough to give them "motherly" attributes and feelings of responsibility toward the men in their charge. This, perhaps, would justify to an extent the negative correlations found to exist between leadership behavior and the personality trait of Masculinity (M).

In view of these findings, it is necessary that hypotheses one and three be accepted in part. The study did not establish any positive significant relationship between the leadership dimensions of Initiating Structure, Consideration, and the personality trait of Masculinity (M), but did establish a negative correlation as previously discussed. All the other personality traits measured did

have a positive correlation when coefficients were computed between those traits and the leadership dimensions. Only those with higher and more significant positive correlations were accepted and are shown in Tables VII and VIII.

The second hypothesis in Chapter I hypothesized that there was a significant positive relationship between the rating of supervisors on the effectiveness and efficiency scale and their scores on the leadership behavior dimensions of Initiating Structure and Consideration. Correlation coefficients were calculated for the relationships between the leadership behavior dimension of Initiating Structure and scores on the effectiveness and efficiency scale. This correlation was found to be .6941, as shown in Table VI in Chapter III. The t table (6, p. 430) showed this correlation to be significant at better than the 1 per cent level of confidence. Correlation coefficients were calculated for the relationships between the leadership behavior dimension of Consideration and scores on the effectiveness and efficiency scale. This correlation was found to be .5895 as shown in Table VI in Chapter III. The t table (6, p. 430) showed this correlation to be significant at better than the 1 per cent level of confidence.

In view of these findings, it is necessary to accept hypothesis two without any limitations or reservations.

Leadership Behavior Dimensions and Situational Factors

In hypothesis four the relationship of previous maintenance experience by the supervisor and each of the two behavior dimensions was examined. It was hypothesized that there is a significant relationship between scores on Initiating Structure and Consideration and previous maintenance experience by the supervisor. Briner (1, p. 23) indicated that usually there are two broad areas of attributes school administrators value in selecting personnel, and previous work experience is one of the two areas. By applying Pearson's simple correlation coefficient to the relationship between the leadership dimension of Initiating Structure and previous maintenance experience, a correlation of .5551 was found, as shown in Table VI in Chapter III with a better than 1 per cent level of confidence. By applying this same formula, the correlation coefficient between the leadership dimension of Consideration and previous work experience of the supervisor was found to be .6198, as shown in Table VI in Chapter III with a better than 1 per cent level of confidence. This examination proved that the relationships

were positively correlated, and because of these findings hypothesis four will have to be accepted in its entirety.

Hypothesis five stated that there is a significant relationship between scores on the leadership behavior dimensions and the length of service as a supervisor. Calculations for the coefficient of correlation between these variables are presented as follows: The correlation between the leadership dimension of Initiating Structure and the length of service as a maintenance supervisor was found to be .3411, as shown in Table VI, Chapter III, with a better than 2 per cent level of confidence. The correlation between the leadership dimension of Consideration and the length of service as a maintenance supervisor was found to be .4330, as shown in Table VI, Chapter III, with a better than 1 per cent level of confidence. In view of these findings, hypothesis five must be accepted, although the relationship between Initiating Structure and the length of service as a supervisor was not found to be nearly so highly correlated as it was thought to be.

The sixth hypothesis will be accepted as it pertains to the relationship between Consideration and the number of workers supervised and will be rejected as it pertains to the relationships between Initiating Structure and the number of workers supervised. Hypothesis six said that

there is a significant relationship between scores on leadership dimensions and the number of personnel supervised by maintenance supervisors. The calculated coefficient of correlation between the leadership behavior dimension of Initiating Structure and the number of personnel supervised by maintenance supervisors was found to be .1532, as shown in Table VI in Chapter III with a better than 5 per cent level of confidence. These factors are not considered to be significantly related, in view of this finding. The correlation between the leadership dimension of Consideration and the number of personnel supervised by maintenance supervisors was found to be .3812, as shown in Table VI in Chapter III with a better than 1 per cent level of confidence. This part of the hypothesis will be accepted as it has proved to be a significant relationship.

Hypothesis seven, which stated that there is no significant relationship between scores on leadership behavior dimensions and the listed categories of supervisors, is accepted in part. By testing the mean scores of no significant difference in the leadership behavior dimensions of Initiating Structure and Consideration in each of the categories it was discovered that there was a significant difference of the means in the following

categories: In testing the significant difference of the means in categories one and two, which is testing between custodial and operations supervisors, a significant difference of the means at better than the 5 per cent level between both Initiating Structure and Consideration was found. In testing the significant difference of the means in categories one and three, which is testing between custodial and central office supervisors, a significant difference at better than the 5 per cent level between the leadership dimension of Consideration was found in each category. All other tests of the mean scores of no significant difference between the categories proved acceptable. Only those as previously discussed were significant, causing the hypothesis to be accepted in part. A reference to Table I in Chapter III will show the means and standard deviations of the leadership behavior dimensions of Initiating Structure and Consideration in each category.

Hypothesis eight was tested by calculating both partial and multiple correlations to determine the relationships among the variables. This hypothesis stated that there is a positive correlation among scores on personality traits, scores on leadership behavior, and each of the situational factors. A comparison of these relationships is shown, calculated by using formulas for both

partial and multiple correlations. Appendix E and Appendix F show the coefficient of correlations and their levels of significance for each of these calculations. The table of partial correlations holds each of the situational factors constant in sequence in order to determine if that factor has any importance or bearing on the total correlation, as is shown in the table of multiple correlations. In each instance, the coefficient of correlation was lowered from that of the multiple correlation when the situational factors were held constant. This gave credence to the findings that indicated that each of these factors is of importance in the selection of personnel for supervisory positions. In the table of partial correlations in Appendix E, it is noted that all the correlations are significant positive correlations except those involving the personality trait of Masculinity (M), which produced a negative correlation. Reasons for this negative correlation were discussed in an earlier part of this chapter. In the table of multiple correlations, Appendix F, it may be observed that with the situational factors again being included, each coefficient of correlation rose considerably. This further justified the inclusion of these situational factors as criteria to be considered when selecting maintenance supervisors. All

coefficients of correlation were significant on the table of partial correlations shown in Appendix B with the following exceptions: Variables 1 and 7, holding variable 13 constant, were not sufficiently correlated to be considered significant. Variables 1 and 10, holding variable 13 constant, were not sufficiently correlated to be considered significant. Variables 1 and 7, holding variable 14 constant, were not sufficiently correlated to be considered significant. Variables 1 and 10, holding variable 14 constant, were not sufficiently correlated to be considered significant. Variables 1 and 7, holding variable 15 constant, were not sufficiently correlated to be considered significant. Variables 1 and 10, holding variable 15 constant, were not sufficiently correlated to be considered significant. Variable 7 is the personality trait of Emotional Stability (E), and variable 10 is the personality trait of Thoughtfulness (T). In summary, these variables, when correlated with Initiating Structure and holding each of the situational factors constant, did not show significant positive relationships on this partial correlation. These findings, however, did not keep hypothesis eight from being accepted, since most of these correlations were raised considerably when the situational factors were included to calculate the multiple correlation.

The multiple correlation shown in Appendix F is a correlation between leadership behavior dimensions, personality traits, situational factors, and scores on the effectiveness and efficiency scale. This is, in fact, a correlation among all the variables included in this study. The computation was done by means of a simple analysis of variance and the levels of significance were shown by use of the F scale. The F test is a variance ratio or probability scale and was computed by the use of the following formula:

$$\frac{R^2 / m}{(1 - R^2) / (N - m - 1)}$$

This is the standard test for levels of confidence when using a multiple correlation or a correlation between three or more variables. In reference to the table of multiple correlations as shown in Appendix F, it may be observed that only three coefficients of correlation are significant at above the 5 per cent level. These are the multiple correlations between variables 1, 7, and 15, which are Initiating Structure, the personality trait of Emotional Stability (E), and the number of workers supervised; variables 1, 10, and 15, which are Initiating Structure, the personality trait of Thoughtfulness (T), and the number of workers supervised; and the multiple

correlation between variables 1, 12, and 15, which are Initiating Structure, the personality trait of Masculinity (M), and the number of workers supervised. All the other multiple correlations were found to be significant, since the F table in McNemar's (6, p. 433) text shows an F value of 11.97 to be a level of confidence of 1 per cent, 7.31, a level of confidence of 2 per cent, and 4.08, a level of confidence of 5 per cent. All other multiple correlations fall within these areas with the majority being significant at better than the 1 per cent level of confidence.

In view of these findings, hypothesis eight will be accepted in part with only those correlations previously mentioned as not being significant being rejected. The next chapter summarizes the findings and formulates the conclusions reached.

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CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to discover what relationships exist between the two leadership behavior dimensions of maintenance supervisors, the measured personality traits, and the situational factors studied. Also, to what extent these relationships exist was a part of this study. To achieve this purpose, data were collected from fifteen school systems located in metropolitan areas of Texas. It is desirable to summarize briefly the findings of the study as a basis for arriving at the conclusions as a result of such findings. The major findings were as follows:

1. In comparing the following means, it was found that the maintenance supervisors who were tested on this dimension scored very high. The fifty-four maintenance supervisors had a range of scores from 29 to 56 on the leadership behavior dimension of Initiating Structure with a mean of 42.63 on this dimension. Halpin (2) found that

the educational administrators who were tested on this dimension in his study had a mean score of only 37.9.

2. In comparing the following mean with the means of educational administrators in Halpin's study, it is considered to be low. These supervisors had a range of scores from 17 to 45 on the leadership behavior dimension of Consideration with a mean of 34.25 on this dimension. Halpin (2) found that the educational administrators in his study had a mean score of 44.7 on this dimension.

3. A score of 30 on the effectiveness and efficiency scale would indicate that the supervisor met the requirements of his particular job. The range of scores of these supervisors was from 26 to 53 with a mean score of 38.88. A mean score of 38.88 shows that a majority of these maintenance supervisors were rated either as exceeding the requirements or as outstanding by their supervisors.

4. The previous experience of these maintenance supervisors in maintenance ranged from 2 to 28 years with a mean of 12.79 years of previous maintenance experience.

5. The length of service as a supervisor ranged from 1 to 21 years with a mean of 5.91 years service as a maintenance supervisor.

6. The number of workers supervised ranged from 5 to 11 with a mean of 6 persons under each supervisor.

7. When a comparison is made between these means and those as scored by college men tested by Guilford-Zimmerman (1), it is evident that the maintenance supervisors scored as well generally on these personality traits as did the college men. The scores of the supervisors ranged from 1 to 8 on General Activity, from 4 to 10 on Responsibility, 0 to 8 on Ascendency, 1 to 8 on Sociability, 2 to 9 on Emotional Stability, 0 to 8 on Objectivity, 2 to 9 on Friendliness, 4 to 9 on Thoughtfulness, 2 to 9 on Personal Relations, and from 3 to 7 on Masculinity. The mean scores were 5.36 on General Activity, 5.72 on Responsibility, 4.90 on Ascendency, 4.86 on Sociability, 4.66 on Emotional Stability, 4.76 on Objectivity, 5.38 on Friendliness, 5.38 on Thoughtfulness, 5.61 on Personal Relations, and 4.78 on Masculinity.

8. Significant correlations at the 5 per cent level or better were found to exist between scores on the leadership behavior dimension of Initiating Structure and the personality traits of General Activity, Responsibility, Objectivity, Friendliness, and Personal Relations.

9. Significant correlations at the 5 per cent level or better were found to exist between scores on the

leadership behavior dimension of Consideration and the personality traits of Responsibility, Sociability, Emotional Stability, Objectivity, Friendliness, Thoughtfulness, and Personal Relations.

10. Significant correlations at better than the 1 per cent level of confidence were found to exist between the leadership behavior dimensions of Initiating Structure and Consideration and scores on the effectiveness and efficiency scale.

11. Significant correlations at better than the 1 per cent level of confidence were found to exist between the leadership behavior dimensions of Initiating Structure and Consideration and the number of previous years in maintenance.

12. Significant correlations were found to exist at better than the 2 per cent level of confidence between the leadership behavior dimension of Initiating Structure and the number of years as a maintenance supervisor. Significant correlations were found at better than the 1 per cent level of confidence between the leadership behavior dimension of Consideration and the number of years as a maintenance supervisor.

13. A significant correlation at better than the 1 per cent level of confidence was found to exist between

the leadership behavior dimension of Consideration and the number of personnel supervised.

14. Significant correlations were found to exist between scores on personality traits, scores on leadership behavior, and each of the situational factors.

Conclusions

The findings of this study do not indicate or imply that a cause-effect relationship exists between any of the various factors. They do, however, indicate that predictions can be made concerning leadership behavior based upon personality traits and situational factors. It must also be kept in mind that in arriving at conclusions from these findings, such conclusions are deemed to apply only to the sample of supervisors studied. They are considered to be significant, however, for other maintenance supervisors who fall within the descriptive limitations of the ones used in this study.

The following conclusions are considered to be justified by the findings of this study:

1. Hypothesis one is accepted in part. It is concluded that there is a significant positive relationship between Initiating Structure and the personality scores of General Activity, Responsibility, Objectivity, Friendliness, and Personal Relations. It is rejected when applied

to Initiating Structure and the personality scores of Ascendancy, Sociability, Emotional Stability, Thoughtfulness, and Masculinity.

2. Hypothesis two is accepted in its entirety. It is concluded that there is a significant positive relationship between scores on leadership behavior dimensions and scores on the effectiveness and efficiency scale.

3. Hypothesis three is accepted in part. It is concluded that there is a significant positive relationship between Consideration and the personality scores of Responsibility, Sociability, Emotional Stability, Objectivity, Friendliness, Thoughtfulness, and Personal Relations. It is rejected when applied to Consideration and the personality trait scores of General Activity, Ascendancy, and Masculinity.

4. Hypothesis four is accepted in its entirety. It is concluded that there is a significant positive relationship between scores on the leadership behavior dimensions and the number of years of previous experience of the supervisor as a maintenance worker.

5. Hypothesis five is accepted in its entirety. It is concluded that there is a significant relationship between scores on the leadership behavior dimensions and the length of service as a maintenance supervisor. It is concluded that the correlation between Initiating

Structure and the length of service as a maintenance supervisor has, however, a much lower correlation than it was thought to have.

6. Hypothesis six is accepted when applied to Consideration and the number of workers supervised and is rejected when applied to Initiating Structure and the number of workers supervised. It is concluded that there is a significant relationship between Consideration and the number of workers supervised, but there is much less correlation between Initiating Structure and the number of workers supervised.

7. Hypothesis seven is accepted when applied to the relationship of leadership behavior dimensions of Initiating Structure and Consideration between custodial and operations supervisors and Consideration between custodial and central office supervisors. It is rejected when applied to the relationships of Initiating Structure and Consideration between operations and central office supervisors and of Initiating Structure between custodial and central office supervisors. It is concluded that there is a significant relationship between operations and central office supervisors in both leader dimensions, and there is a significant relationship between custodial and central office supervisors in the leader dimension of Initiating Structure.

8. Hypothesis eight is accepted in its entirety.

It is concluded that there is a significant positive relationship between scores on personality traits, scores on the leadership behavior dimensions, and each of the situational factors.

9. It is concluded that maintenance supervisors generally score higher on the leadership behavior dimension of Initiating Structure than on Consideration.

10. It is concluded that maintenance supervisors who score high on both the leadership behavior dimensions of Initiating Structure and Consideration tend to score low on Masculinity.

11. It is concluded that the findings concerning hypothesis two tend to prove that maintenance men expect essentially the same job performance of their supervisors as do these supervisors' superiors.

12. It is concluded that successful supervisors as rated by scores on leadership behavior dimensions and the effectiveness and efficiency scale tend consistently to score considerably above the mean on the personality traits of Personal Relations and Responsibility.

13. It is concluded that the instruments used to measure personality traits could best be utilized in most situations as one phase of a screening program in the selection of maintenance supervisors. The items in

these instruments which have been shown to be significantly correlated with leadership behavior actions should yield predictive information concerning future actions of these individuals in a supervisory capacity.

These conclusions represent the major findings of this study. It is evident from these findings that there are relationships generally between leadership behavior and the various personality traits of a supervisor.

Recommendations

1. School administrators should make use of a leadership behavior description questionnaire such as the one used in this study as one of the tools used in the selection or promotion of personnel for positions of leadership.

2. Behavioral dimensions of good leadership practices should be instilled in maintenance supervisors, and these supervisors should constantly evaluate their own leadership actions to ascertain their effectiveness in meeting these desired behavior dimensions of Initiating Structure and Consideration.

3. School administrators should develop in-service training programs designed to give attention to those learning experiences which will improve the ability of the prospective maintenance supervisors to engage in

leadership behavior practices which develop effectiveness in the leadership dimensions of Initiating Structure and Consideration. These two behavior dimensions are traits and actions that are considered necessary for each supervisor to possess. Designers of in-service training programs such as the one recommended should be cognizant of this fact and should direct the program toward the cultivation of these desired leadership behavior actions.

4. School administrators should develop an in-service program for maintenance personnel designed to instill a pride of workmanship and a feeling of belonging to the total school program in these individuals. It was evident during the testing of these supervisors that generally they possessed feelings of inferiority and of low status around the school. Alert administrators should recognize this tendency and should realize that the highest job performance will not be reached under these conditions. A simple in-service program similar to an orientation program would help solve this problem.

5. Future research studies should be undertaken to determine causal factors involved in the relationships between leadership behavior dimensions, personality traits, and the situational factors so that relationships conducive to effective leadership behavior be encouraged

and developed by those administrators trying to improve their school maintenance programs.

6. Future research studies should be undertaken somewhat similar to this study to determine whether comparable high correlations would exist.

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APPENDIX A

LEADERSHIP BEHAVIOR DESCRIPTION QUESTIONNAIRE

Developed by staff members of
The Ohio State Leadership Studies

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

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

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

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DIRECTIONS:

- a. READ each item carefully.
- b. THINK about how frequently the leader engages in the behavior described by the item.
- c. DECIDE whether he always, often, occasionally, seldom, or never acts as described by the item.
- d. DRAW A CIRCLE around one of the five letters following the item to show the answer you have selected.

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

- | | |
|---|-----------|
| 1. He does personal favors for group members. | A B C D E |
| 2. He makes his attitudes clear to the group. | A B C D E |
| 3. He does little things to make it pleasant to be a member of the group. | A B C D E |
| 4. He tries out his new ideas with the group. | A B C D E |
| 5. He acts as the real leader of the group. | A B C D E |
| 6. He is easy to understand. | A B C D E |
| 7. He rules with an iron hand. | A B C D E |
| 8. He finds time to listen to group members. | A B C D E |
| 9. He criticizes poor work. | A B C D E |
| 10. He gives advance notice of changes. | A B C D E |
| 11. He speaks in a manner not to be questioned. | A B C D E |
| 12. He keeps to himself. | A B C D E |
| 13. He looks out for the personal welfare of individual group members. | A B C D E |
| 14. He assigns group members to particular tasks. | A B C D E |

15. He is the spokesman of the group. A B C D E
16. He schedules the work to be done. A B C D E
17. He maintains definite standards of performance. A B C D E
18. He refuses to explain his actions. A B C D E
19. He keeps the group informed. A B C D E
20. He acts without consulting the group. A B C D E
21. He backs up the members in their actions. A B C D E
22. He emphasizes the meeting of deadlines. A B C D E
23. He treats all group members as his equals. A B C D E
24. He encourages the use of uniform procedures. A B C D E
25. He gets what he asks for from his superiors. A B C D E
26. He is willing to make changes. A B C D E
27. He makes sure that his part in the organization is understood by group members. A B C D E
28. He is friendly and approachable. A B C D E
29. He asks that group members follow standard rules and regulations. A B C D E
30. He fails to take necessary action. A B C D E
31. He makes group members feel at ease when talking with them. A B C D E
32. He lets group members know what is expected of them. A B C D E
33. He speaks as the representative of the group. A B C D E

34. He puts suggestions made by the group into operation. A B C D E
35. He sees to it that group members are working up to capacity. A B C D E
36. He lets other people take away his leadership in the group. A B C D E
37. He gets his superiors to act for the welfare of the group members. A B C D E
38. He gets group approval in important matters before going ahead. A B C D E
39. He sees to it that the work of group members is coordinated. A B C D E
40. He keeps the group working together as a team. A B C D E

APPENDIX B

EFFECTIVENESS AND EFFICIENCY QUESTIONNAIRE

Instructions: Read the statement and evaluate the supervisor in each of the following areas. Carefully consider the items in each area and then mark your response in the appropriate box.

Employee Name _____

Position Name	Time in Position	Length of Time Under Appraiser's Supervision

Describe present assignment. _____

1. Technical and Professional Knowledge and Ability

Consider how this supervisor applies his knowledge and ability on the job in light of the job requirements.

Comments: _____

2. Accomplishment of Assignments (Productivity)

Consider how efficiently he completes assignments in the time allotted, his efficient attainment of conclusive results, his adherence to schedules.

Comments: _____

Outstanding	Exceeds Requirements	Meets Requirements	Below Requirements	Inadequate

3. Expense and Cost Control
 Consider this supervisor's influence on personnel utilization, equipment utilization, inventory of materials and equipment, waste, rework, over-time utilization, and the planning, administering, and adoption of budget.
 Comments: _____

4. Ability to Delegate Work and Authority
 Consider the degree of which he passes on work and authority to those capable of performing, the amount of work he does himself that could and should have been passed on to subordinates, his follow-up on accomplishments of work delegated, and his knowledge.
 Comments: _____

5. Ability to Lead, Inspire, and Motivate Subordinates
 Consider his everyday counseling of subordinates, his disciplining of substandard accomplishment and deportment, facing up to issues, rewarding accomplishment, inspiration to his people, and how his people respond. How good is his leadership?
 Comments: _____

Outstanding	Exceeds Requirements	Meets Requirements	Below Requirements	Inadequate

6. Appraisal of Subordinates and Appraisal Counseling

Consider whether this supervisor realistically compares his subordinate's performance against the requirements of the job, whether he is effective in counseling his men.

Comments: _____

7. Training and Development of Subordinates

Consider how effective this supervisor is in improving his subordinate's job skills; his delegation of appropriate responsibilities; and his record in developing people and his efficient use of people.

Comments: _____

8. Analytical Ability

Consider how he uses this ability to see what is needed, what can be improved, what can be simplified, what can be eliminated; consider the ideas, inventiveness, imagination, and the vision which he uses.

Comments: _____

Outstanding	Exceeds Requirements	Meets Requirements	Below Requirements	Inadequate

9. Judgment and Decision Making
 Consider his performance in getting and screening facts, his readiness and courage in making recommendations, the timeliness of his decisions, the soundness of his judgments, and his ability to think for himself.
 Comments: _____

10. Planning and Organizing
 Consider what this supervisor does in creating proper relationships for efficient operation, in defining responsibilities to subordinates, in forming efficient organization of people, in knowing objectives, and in looking ahead.
 Comments: _____

11. Oral Expression
 Are his speech and diction good? Does he express himself clearly, logically, and convincingly?
 Comments: _____

12. Written Expression
 Are his presentations and reports clear, explicit, and well organized? Does he express his thoughts logically, accurately, and completely?
 Comments: _____

Outstanding	Exceeds Requirements	Meets Requirements	Below Requirements	Inadequate

13. Self-Improvement Activity

Consider how this supervisor has reacted to counseling and suggestions advanced by the appraiser. Is he accomplishing the goals and objectives as cooperatively set up in his last formal conference with the appraiser?

Comments: _____

14. Record Keeping and Controls

Consider this supervisor's use of available equipment in keeping records, how he documents noteworthy incidents of personnel performance or behavior and noteworthy incidents of a technical nature.

Comments: _____

15. Relationship with Others
(Liaison)

How well does this supervisor coordinate his work with other supervisors and the operating staff to insure smooth and efficient transmission of information and operation.

Comments: _____

16. Optional factors and comments: _____

Outstanding	Exceeds Requirements	Meets Requirements	Below Requirements	Inadequate

APPENDIX C

SITUATIONAL INFORMATION

To be filled out by:
FOREMEN AND SUPERVISORS

CODE _____

1. Number of employees you supervise: (circle one)

5 6 7 8 9 10 11 12 13 14

2. How many years have you been a foreman or supervisor?

Answer _____ years

3. How many years were you in your area of work before you became a supervisor?

Answer _____ years

4. How many years have you served in your present position?

Answer _____ years

APPENDIX D

STATISTICAL DATA ON THE FIFTY-FOUR SUPERVISORS OF THIS STUDY

Supervisor	Leader-ship Behavior Scores		Personality Trait Scores										Situational Factors		
	Initiating Structure	Consideration	General Activity	Responsibility	Ascendency	Sociability	Emotional Stability	Objectivity	Friendliness	Thoughtfulness	Personal Relations	Masculinity	Length of Service in Maintenance	Length of Service as Supervisor	Number of Workers Supervised
1	47	37	5	5	5	5	5	5	5	5	5	10	5	5	32
2	40	41	5	5	5	5	5	5	5	5	5	10	5	5	37
3	39	28	5	5	5	5	5	5	5	5	5	10	5	5	35
4	42	17	5	5	5	5	5	5	5	5	5	12	5	5	40
5	39	22	5	5	5	5	5	5	5	5	5	12	5	5	31
6	43	28	5	5	5	5	5	5	5	5	5	12	5	5	40
7	35	25	5	5	5	5	5	5	5	5	5	13	5	5	37
8	41	34	5	5	5	5	5	5	5	5	5	13	5	5	40
9	40	23	5	5	5	5	5	5	5	5	5	13	5	5	37
10	37	26	5	5	5	5	5	5	5	5	5	7	5	5	32
11	46	32	5	5	5	5	5	5	5	5	5	9	5	5	41
12	41	28	5	5	5	5	5	5	5	5	5	11	5	5	38
13	47	36	5	5	5	5	5	5	5	5	5	11	5	5	43
14	38	29	5	5	5	5	5	5	5	5	5	5	4	5	30
15	33	23	5	5	5	5	5	5	5	5	5	6	1	5	31
16	49	43	5	5	5	5	5	5	5	5	5	11	1	5	36
17	49	43	5	5	5	5	5	5	5	5	5	11	1	5	36
18	45	39	5	5	5	5	5	5	5	5	5	13	4	5	47
19	45	39	5	5	5	5	5	5	5	5	5	13	4	5	47
20	45	39	5	5	5	5	5	5	5	5	5	13	4	5	47

STATISTICAL DATA--Continued

Supervisor	Leader-ship Behavior Scores		Personality Trait Scores										Situational Factors		
	Initiating Structure	Consideration	General Activity	Responsibility	Ascendency	Sociability	Emotional Stability	Objectivity	Friendliness	Thoughtfulness	Personal Relations	Masculinity	Length of Service in Maintenance	Length of Service as Supervisor	Number of Workers Supervised
21	38	34	3	1	6	6	6	6	6	6	6	21	2	2	34
22	50	46	7	10	6	6	6	6	6	6	6	21	9	2	34
23	44	41	6	10	6	6	6	6	6	6	6	17	9	2	34
24	39	35	5	6	6	6	6	6	6	6	6	17	9	2	39
25	42	33	5	6	6	6	6	6	6	6	6	16	6	2	38
26	42	34	5	6	6	6	6	6	6	6	6	28	6	2	41
27	47	43	7	7	6	6	6	6	6	6	6	28	6	2	36
28	44	29	6	6	6	6	6	6	6	6	6	22	6	2	40
29	39	33	6	6	6	6	6	6	6	6	6	14	6	2	36
30	49	37	7	6	6	6	6	6	6	6	6	14	6	2	43
31	46	42	6	6	6	6	6	6	6	6	6	16	6	2	44
32	47	40	6	6	6	6	6	6	6	6	6	21	6	2	44
33	49	40	6	6	6	6	6	6	6	6	6	26	6	2	45
34	40	23	7	6	6	6	6	6	6	6	6	11	6	2	39
35	39	26	6	6	6	6	6	6	6	6	6	11	6	2	31
36	45	42	6	6	6	6	6	6	6	6	6	9	6	2	38
37	44	37	6	6	6	6	6	6	6	6	6	27	6	2	36
38	40	23	6	6	6	6	6	6	6	6	6	7	6	2	34
39	56	45	6	6	6	6	6	6	6	6	6	22	6	2	32
40	43	38	6	6	6	6	6	6	6	6	6	11	6	2	40
41	46	32	6	6	6	6	6	6	6	6	6	8	6	2	40
42	32	39	6	6	6	6	6	6	6	6	6	16	6	2	37
43	41	33	6	6	6	6	6	6	6	6	6	16	6	2	38
44	42	33	6	6	6	6	6	6	6	6	6	23	6	2	43
45	43	27	6	6	6	6	6	6	6	6	6	10	6	2	39

APPENDIX E

PARTIAL CORRELATIONS FOR LEADERSHIP DIMENSION SCORES
AND PERSONALITY TRAIT SCORES HOLDING THE VARIOUS
SITUATIONAL FACTORS CONSTANT

Variables	Coefficient of Correlation	Value of t Score
1-3---13 Constant	.4726	3.830
1-4---13	.4845	3.956
1-5---13	.3668	2.815
1-6---13	.2904	2.167
1-7---13	.2299	1.687
1-8---13	.4572	3.671
1-9---13	.4485	3.584
1-10--13	.1608	1.163
1-11--13	.6542	6.178
1-12--13	-.2746	-2.040
2-3---13	.4701	3.803
2-4---13	.4930	4.047
2-5---13	.4996	4.118
2-6---13	.6215	5.665
2-7---13	.4855	3.956
2-8---13	.4661	3.762
2-9---13	.5093	4.226
2-10--13	.4315	3.415
2-11--13	.6800	6.623
2-12--13	-.1592	-1.151
1-3---14 Constant	.4734	3.839
1-4---14	.5591	4.816
1-5---14	.4262	3.365
1-6---14	.3947	3.068
1-7---14	.2981	2.230
1-8---14	.5149	4.289
1-9---14	.4689	3.791
1-10--14	.2128	1.556
1-11--14	.7007	7.013
1-12--14	-.2320	-1.703

PARTIAL CORRELATIONS--Continued

Variables	Coefficient of Correlation	Value of <u>t</u> Score
2-3---14 Constant	.4715	3.819
2-4---14	.5689	4.941
2-5---14	.5595	4.820
2-6---14	.6749	6.532
2-7---14	.5322	4.489
2-8---14	.5306	4.471
2-9---14	.5192	4.338
2-10--14	.4471	3.569
2-11--14	.7285	7.595
2-12--14	-.1199	.863
1-3---15 Constant	.4525	3.623
1-4---15	.5863	5.169
1-5---15	.3627	2.780
1-6---15	.4146	3.253
1-7---15	.2858	2.130
1-8---15	.5194	4.341
1-9---15	.4375	3.777
1-10--15	.2110	1.541
1-11--15	.7025	7.050
1-12--15	-.2712	-2.012
2-3---15	.4429	3.528
2-4---15	.5961	5.302
2-5---15	.4820	3.928
2-6---15	.6471	6.062
2-7---15	.5331	4.500
2-8---15	.5547	4.761
2-9---15	.4900	4.015
2-10--15	.3924	3.046
2-11--15	.7422	7.909
2-12--15	-.2071	-1.512
1-3---16 Constant	.1167	.839
1-4---16	.5149	4.290
1-5---16	.0704	.505
1-6---16	.1846	1.341
1-7---16	.2360	1.734
1-8---16	.3830	2.961
1-9---16	.4262	3.384
1-10--16	.0701	.502

PARTIAL CORRELATIONS--Continued

Variables	Coefficient of Correlation	Value of <u>t</u> Score
1-11--15 Constant	.6226	5.682
1-12--16	-.4021	-3.136
2-3---16	.1682	1.219
2-4---16	.5259	4.416
2-5---16	.2592	1.916
2-6---16	.5837	5.134
2-7---16	.4772	3.878
2-8---16	.3990	3.098
2-9---16	.4696	3.798
2-10--16	.3770	2.907
2-11--16	.6352	5.873
2-12--16	-.2253	-1.651

APPENDIX F

MULTIPLE CORRELATIONS BETWEEN LEADERSHIP DIMENSIONS
 SCORES, PERSONALITY TRAIT SCORES, SITUATIONAL
 FACTORS, AND SCORES ON THE EFFECTIVENESS
 AND EFFICIENCY SCALE

Variables	Coefficient of Correlation	Value of F Score
1-3---13	.6802	21.965
1-4---13	.6860	22.671
1-5---13	.6334	17.091
1-6---13	.6054	14.756
1-7---13	.5871	13.418
1-8---13	.6729	21.102
1-9---13	.6688	20.646
1-10--13	.5710	12.339
1-11--13	.7774	38.951
1-12--13	.6003	14.368
2-3---13	.7213	27.662
2-4---13	.7307	29.213
2-5---13	.7334	29.687
2-6---13	.7887	41.976
2-7---13	.7275	28.685
2-8---13	.7197	27.406
2-9---13	.7375	30.417
2-10--13	.7063	25.386
2-11--13	.8179	51.531
2-12--13	.6323	16.989
1-3---14	.5607	11.699
1-4---14	.6266	16.437
1-5---14	.5262	9.765
1-6---14	.5040	8.685
1-7---14	.4414	6.173
1-8---14	.5921	13.770
1-9---14	.5573	11.493
1-10--14	.3954	4.727
1-11--14	.7417	31.193
1-12--14	.4048	4.999

MULTIPLE CORRELATIONS--Continued

Variables	Coefficient of Correlation	Value of F Score
2-3---14	.6068	14.861
2-4---14	.6712	20.909
2-5---14	.6647	20.188
2-6---14	.7467	32.142
2-7---14	.6462	18.287
2-8---14	.6452	18.188
2-9---14	.6376	17.468
2-10--14	.5915	13.728
2-11--14	.7866	41.386
2-12--14	.4463	6.343
1-3---15	.4739	7.389
1-4---15	.6002	14.359
1-5---15	.3916	4.618
1-6---15	.4389	6.084
1-7---15	.3235	2.981
1-8---15	.5367	10.318
1-9---15	.4880	7.972
1-10--15	.2616	1.873
1-11--15	.7115	26.149
1-12--15	.3111	2.732
2-3---15	.5595	11.620
2-4---15	.6701	20.786
2-5---15	.5864	13.367
2-6---15	.7094	25.839
2-7---15	.6231	16.185
2-8---15	.6390	17.602
2-9---15	.5921	13.769
2-10--15	.5262	9.768
2-11--15	.7849	40.934
2-12--15	.4266	5.675
1-3---16	.6991	24.389
1-4---16	.7869	41.471
1-5---16	.6959	23.956
1-6---16	.7067	25.447
1-7---16	.7146	26.614
1-8---16	.7469	32.174
1-9---16	.7595	34.763
1-10--16	.6959	23.953
1-11--16	.8262	54.872
1-12--16	.7520	53.204

MULTIPLE CORRELATIONS--Continued

Variables	Coefficient of Correlation	Value of F Score
2-3---16	.6050	14.724
2-4---16	.7266	28.531
2-5---16	.6256	16.401
2-6---16	.7549	33.786
2-7---16	.7043	25.112
2-8---16	.6715	20.944
2-9---16	.7010	24.644
2-10--16	.6635	20.063
2-11--16	.7815	40.025
2-12--16	.6170	15.676

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