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BEHAVIORAL AND ATTITUDINAL IMPLICATIONS OF
DIFFERENT STYLES OF PERFORMANCE EVALUATION:
AN EMPIRICAL STUDY.

THE LOUISIANA STATE UNIVERSITY AND
AGRICULTURAL AND MECHANICAL COL., PH.D., 1979

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BEHAVIORAL AND ATTITUDINAL IMPLICATIONS OF DIFFERENT
STYLES OF PERFORMANCE EVALUATION:
AN EMPIRICAL STUDY

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy

in

The Department of Accounting

by

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B.S., Louisiana State University, 1974
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May, 1979

ACKNOWLEDGEMENTS

I would like to express my grateful appreciation to Dr. Bart P. Hartman, the chairman of my dissertation committee, for his guidance of the work, and for his counsel and assistance during the course of this study. I would also like to thank the other members of the faculty who served on my committee, Dr. Vincent C. Brenner, Dr. Alan J. Winters, Dr. C. Willard Elliott, and Dr. Eugene C. McCann. In addition, special appreciation is extended to the managers of those companies who participated in the study. Their interest and efforts made possible the collection of the data, without which the research would not have been possible.

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ABSTRACT

This research was designed to identify the relationships between the manner in which industrial supervisors are evaluated in their jobs, and certain behavioral and attitudinal variables. These variables include budget-related behavior, leadership style, role conflict and ambiguity, and satisfaction with supervision.

Eight industrial firms located in South Louisiana agreed to participate in the research project. Questionnaires were distributed to 286 supervisors who had responsibility at a level in the organization for which a budget served as a guide to the activities of the supervisor. Useable returns totaled 177, for a 61% response rate.

The first step of the data analysis required that the supervisors be categorized into distinctly different groups. Included in the questionnaire was a list of 26 statements which represented potentially important factors in the evaluation of supervisors. The responses to these statements were factor analyzed, resulting in the identification of two major styles of performance evaluation. These two styles were identified as "Accounting Style" and "Non-accounting Style". Factor scores were used to categorize the supervisors on the basis of which of the two styles of evaluation they felt most characterized their own. The supervisors who were

grouped under the "Accounting Style" of evaluation indicated that budget-related information was the most important factor in their evaluation. The supervisors who were in the "Non-accounting Style" group felt that their evaluation was based more upon specific job-related abilities and attitudes rather than accounting-related data.

Once the supervisors in the sample were grouped, discriminant analysis was utilized to develop a descriptive profile of each of the two groups. The results of the analysis indicated that the supervisors in Group 1 (Accounting Style) when compared with the supervisors in Group 2 (Non-accounting Style) were more characterized by the following independent variables:

- (a) Use of Budgets for Planning and Control
- (b) Production Emphasis Leadership Style
- (c) Manipulation of Accounts

In addition, the results indicated that the supervisors in Group 2 when compared with the supervisors in Group 1 were more characterized by:

- (a) Satisfaction with Supervision
- (b) Participation in Budget Preparation
- (c) Initiating Structure Leadership Style

The independent variables role conflict, role ambiguity, and Consideration leadership style failed to enter the stepwise discriminant analysis because of their failure to significantly discriminate between the two groups of supervisors. The research results provide evidence that a relationship does exist between the manner in which a supervisor is evaluated, and certain job-related attitudes and behaviors.

Chapter 1

INTRODUCTION

In recent years, a great deal of attention has been devoted to the behavioral implications of accounting information. Much of the attention has centered on the implications concerning the organizational and individual consequences that may result from the use of budgets. The activities of individuals working under any budgetary control system and its related processes involve a number of sociological, psychological, and behavioral relationships with other members of the organization. Since accounting involves the setting of standards and the preparation of budgets, accountants need to be aware of the behavioral and attitudinal implications of using accounting reports for control and evaluation purposes. Thus, accountants can aid management in using their reports more wisely and efficiently by preparing the reports in a manner more conducive to achieving the organization's goals.

Significant progress has been made in the development of new and better accounting and control techniques in the field of management accounting. But after a period when perhaps too much attention has been paid to the techniques of accounting in isolation from their organizational context,

recent years have seen important questions asked concerning the role accounting should play in the overall management of today's business enterprise. An important part of the changing view of accounting concerns the increased emphasis that is being given to its human and social dimensions.

An effective management accounting system must provide information which assists managers and employees in identifying those courses of action which are in the best interests of the organization, and encourage the implementation of those desired courses of action. Therefore, in addition to possessing sufficient technical knowledge in such areas as budgeting and cost behavior, management accountants must also consider the motivations, attitudes, values, and behaviors of the individuals within the organization. An accounting system has performed in a manner less than adequate whenever the actions of accountants, the operation of the accounting system, or the interpretation of accounting reports motivates an individual to take an action which is not in the best interest of the organization. Regardless of how sophisticated an accounting system becomes, the effectiveness of any accounting procedure ultimately depends upon how it influences human behavior and attitudes.

As suggested above, accounting data can play a significant role in influencing human attitudes and behavior in organizations. This can be particularly true in the process of evaluating the performance of employees. Accountants

have designed numerous methods intended to help managers evaluate the performance of their subordinates. Companies have been separated into cost centers, profit centers, and investment centers, and accounting performance reports prepared for each of the different subunits. Accountants have been aware of the problems associated with efforts to prepare such reports, particularly when managers do not have control over all the items reported for their subunits. As a result of this, the concept of responsibility accounting has become much more important. Under this concept, reports appraising performance contain only those items of costs and revenue that are considered to be under the control or influence of the person being evaluated.

Despite such efforts to improve accounting performance measurement methods, many problems still exist.¹ The costs over which managers have no control are difficult to isolate because controllability can vary from absolutely no control to complete control. Such a continuum is difficult to represent within the framework of an accounting report. In addition, accountants are aware that the long-term implications of managerial decisions are often not reflected in current performance reports, a factor that makes more difficult the use of these reports for performance evaluation.

¹See for example C. T. Horngren, Accounting for Management Control: An Introduction (2nd ed.; Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970), pp. 357-390.

Important questions concerning the impact of measurement on human action need to be investigated further. Social, as well as economic, activities may be redirected by different methods of measurement. Individuals will naturally engage in behavior they feel will help them maximize the performance measures that are used in their evaluation. If production is the principal measurement of performance, employees will seek to maximize production. If profit is the primary measurement, efforts will be made to maximize profit, with the possibility that other important factors may be ignored. One might anticipate entirely different results if satisfaction of employee needs is the primary measurement. In any case, employees may not be motivated to engage in behavior that is desirable to the organization as a whole until the method of evaluating their success is changed.

THE PROBLEM TO BE INVESTIGATED

One of the primary means used by top-level management to try to motivate employees toward effective performance is by linking organizational rewards to the level of employee performance. Often, the means used to determine effective performance are accounting measures. Budgets, for example, are used in this way, and even when performance measures are wider in scope, employees often see the accounting function as responsible for those measures and adapt their behavior and attitudes toward both the accountants and their systems accordingly.

Much has been written concerning the many problems associated with using accounting data for performance evaluation.² Methods of measuring performance will never be perfect. But perhaps a great deal of the organizational and human problems associated with performance measurement and reward systems are not the result of the inadequacies of present procedures, but the manner in which the procedures are used. The final impact which any accounting system has on employee behavior is dependent not only upon its design, but also, upon how the resulting information is used. Even the use of standard accounting reports which show, for example, a comparison of budgeted and actual costs, can be used in various ways in performance evaluation. Regardless of the effort and care put into developing an evaluation system, its value may be questionable if the system is used in an inappropriate manner.

With this background in mind, the current study was undertaken to provide an increased understanding of the ramifications of using different styles and methods of

²For a discussion of such problems see L. S. Rosen and R. E. Schneck, "Some Behavioral Consequences of Accounting Measurement Systems," Cost and Management, 41:6-16, October, 1967; M. E. Wallace, "Behavioral Considerations in Budgeting," Management Accounting, 47:3-8, August, 1966; S. W. Becker and D. Green, "Budgeting and Employee Behavior," The Journal of Business, 35:392-402, October, 1962; V. F. Ridgway, "Dysfunctional Consequences of Performance Measurements," Administrative Science Quarterly, 1:240-247, September, 1956; C. Argyris, The Impact of Budgets on People (New York: The Controller-ship Foundation, Inc., 1952).

performance evaluation. The sample group chosen for this research study was comprised of supervisors in actual business settings who have responsibility at a level in the organization for which a budget serves as a guide to their activities. The data for this project was gathered through the use of a questionnaire.

The first step of the data analysis required that the supervisors be categorized into distinctly different groups. The supervisors in the sample were grouped on the basis of their perceptions of how accounting and non-accounting related information was used in their evaluation. Therefore, each group represented a particular style used in evaluating the supervisors. Once the supervisors in the sample were grouped, the relationships between the various styles of performance evaluation and certain behavioral and attitudinal variables were identified. These variables include budget-related behavior, leadership style, role conflict and ambiguity, and satisfaction with supervision. Discriminant analysis was used to develop a descriptive profile of the groups of supervisors by identifying which specific variables selected for the study were good discriminators between the groups. The independent variables, budget-related behavior, leadership style, role conflict and ambiguity, and satisfaction with supervision, that were examined in this research are briefly discussed below.³

³For a detailed discussion of these variables, see Chapter 2.

Budget-related Behavior

Budget-oriented behavior has been described as the on-going, recurring actions and interactions of employees brought about by the firm's use of budgets to allocate resources and to measure and evaluate performance.⁴ Many of the normal, routine activities engaged in by a firm's employees can be associated primarily, if not solely, with the operation of a budgeting system. For example, supervisors may be active participants in budget preparation, may use budgets for daily activities and planning, may be active in explaining and correcting budget variances, or perhaps may be unconcerned over the use of budgets. These possibilities are investigated in order to determine if significant differences exist between groups of supervisors whose performances are judged under different styles of performance evaluation.

Leadership Style

Two major behavioral dimensions that have emerged from leadership research are those which have been termed "Consideration" and "Initiating Structure." These basic dimensions of leadership behavior were identified as a result of the Ohio State Leadership Studies which comprise one of the most comprehensive research programs in the fields of industrial

⁴R. J. Swieringa and R. H. Moncur, "The Relationship Between Managers' Budget-Oriented Behavior and Selected Attitude, Position, Size, and Performance Measures," Empirical Research in Accounting: Selected Studies, 1972, p. 196.

psychology and organizational behavior. The purpose of the research was to determine, through factor-analytic procedures, the smallest number of dimensions which would adequately describe leader behavior. The result was the isolation of two dimensions which were named "Consideration" and "Initiating Structure" and have been defined in the following manner:⁵

Consideration reflects the extent to which an individual is likely to have job relationships characterized by mutual trust, respect for subordinates' ideas, and consideration of their feelings.

Initiating Structure reflects the extent to which an individual is likely to define and structure his role and those of his subordinates toward goal attainment.

To measure these two dimensions of leadership behavior, supervisors in the sample were asked to describe their own behavior by responding to the Revised Leader Behavior Description Questionnaire (LBDQ-Form XII).⁶ In addition, the Production Emphasis subscale of the LBDQ-Form XII was utilized to obtain a measure of the pressure applied for productive output by the supervisors in the sample.

⁵E. A. Fleishman and D. R. Peters, "Interpersonal Values, Leadership Attitudes and Managerial Success," Personnel Psychology, 15:127-143, Summer, 1962.

⁶R. M. Stogdill, Manual for the Leader Behavior Description Questionnaire - Form XII (Columbus, Ohio: Bureau of Business Research, The Ohio State University, 1963).

Role Conflict and Role Ambiguity

Various members of an individual's role set may have quite different role expectations toward that individual. At any given time, these expectations may impose pressures on him toward different kinds of behavior. This can result in the individual experiencing psychological conflict.

Role conflict has been defined as being the simultaneous occurrence of two or more sets of pressures such that compliance with one would make more difficult compliance with the other.⁷ In other words, the behaviors expected of an individual are inconsistent.

Role ambiguity concerns the degree to which required information is available to a given organizational position. To the extent that such information is clearly and consistently communicated to a focal person, he will be provided with a degree of certainty concerning his role requirements and his place in the organization. To the extent that such information is not provided, he will experience ambiguity. In this study, role conflict and ambiguity were measured by scales developed by Rizzo, House, and Lirtzman.⁸

⁷R. L. Kahn and others, Organizational Stress (New York: John Wiley & Sons, Inc., 1964), p. 71.

⁸J. R. Rizzo, R. J. House, and S. E. Lirtzman, "Role Conflict and Ambiguity in Complex Organization," Administrative Science Quarterly, 15:150-163, June, 1970.

Job Satisfaction

Job satisfaction involves the feelings that a worker has concerning the total job situation. Consideration must be given to the total of influences of the job, such as the nature of the job itself, the pay, the promotion opportunities, and the nature of supervision. Improving any one of these influences will lead in the direction of job satisfaction, while deterioration of these influences will lead in the direction of job dissatisfaction. The measurement of job satisfaction is justified in order to provide an increased understanding of this important aspect of organizational life. The Job Descriptive Index (JDI) was utilized in this research to measure satisfaction with supervision.⁹

ANTICIPATED CONTRIBUTION OF THE STUDY

The current research was undertaken to provide an increased understanding of the influence that accounting data may have upon the attitudes and behaviors of supervisors in actual business settings. This research will provide additional insight into the ways accounting information is used in the evaluation process of the supervisors. The fact that accountants are not yet able to prepare the ideal performance report increases the importance of understanding the different

⁹P. C. Smith, L. M. Kendal, and C. L. Hulin, The Measurement of Satisfaction in Work and Retirement (Chicago, Illinois: Rand McNally, 1969).

ways in which the existing reports are used. In addition, this study will seek to identify the relationships between various styles of performance evaluation and certain behavioral and attitudinal variables. Specifically, the results of this study are expected to provide new perspectives to questions such as: What are the various ways in which accounting and non-accounting related data are used in the performance evaluation of supervisors? Is the style of performance evaluation a factor in differentiating leader behavior? Does style of evaluation constitute a factor in determining the role conflict and ambiguity, satisfaction with supervision, or budget-related behavior of supervisors?

The nature of the sample in this study limits the generalizations that can be made concerning the findings of the research. Specific conclusions can only be drawn with regard to the supervisors that respond to the questionnaire. Accordingly, the dissertation will be directed strictly toward reporting the relationships that are found to exist between the responding supervisors in this research project. While the design of this research is descriptive in nature only, and not designed to show causal relationships, the findings can still provide important insights into organizational behavior. No one research study provides conclusive evidence in any area. Rather, research builds upon research. The relationships that are found in this study might suggest that in similar business settings similar relationships could be expected to exist.

While many aspects of accounting systems result in behavior which is highly desirable and efficient, other aspects of those same accounting systems may at the same time result in behaviors which are inefficient. These undesirable behaviors are the unanticipated negative consequences of some accounting systems. The responsibility for the undesirable results should be placed with the accountants who designed the system and with accountants and managers for the way they use the system. Unquestionably, this aspect of organizational life merits further study by both managers and accountants.

Chapter 2

DISCUSSION OF THE RESEARCH VARIABLES

The purpose of this chapter is to examine the research variables that have been selected for the current study. As previously discussed, the basic objective of this research is to examine the relationship between the manner in which a supervisor feels he is evaluated in his job and certain behavioral and attitudinal variables. These variables include budget-related behavior, leadership style, role conflict and ambiguity, and satisfaction with supervision.

The Role of Accounting Data in Performance Evaluation

The objective nature of a budget allows for goals to be quantified in a way that makes sense to the pragmatic manager. The budget, therefore, is likely to play a significant role in a company's performance evaluation process. In research conducted in one manufacturing division of a large Chicago-based company by Anthony Hopwood, three distinct styles of performance evaluation were identified.¹ Hopwood's research questionnaire included eight possible criteria of performance. The cost center heads in his sample

¹A. G. Hopwood, An Accounting System and Managerial Behaviour (Saxon House, 1973).

were asked to rank order the three most important criteria in their evaluation. On the basis of these rankings, the cost center heads were divided into three groups.

The first category of cost center heads was identified as being under a Nonaccounting style of evaluation. Hopwood's analysis concluded that the individuals in this group felt that accounting reports did not play an important role in the evaluation of their performance. However, even when accounting data are important for performance appraisal, the information can be used in more than one way. In Hopwood's study, two different ways of using accounting data in performance evaluation were distinguished. The first was called a Budget Constrained evaluation, and the second, a Profit Conscious evaluation.

A Budget Constrained evaluation is one based upon the ability of the individual in charge of a cost center to meet his budget. Under this type of evaluation, a cost center head receives an unfavorable evaluation if his actual costs exceed the budgeted costs, regardless of other considerations. On the other hand, a Profit Conscious evaluation is based upon the cost center head's ability to minimize the long-run costs of his cost center. A Profit Conscious evaluation is not represented by a rigid use of the accounting data. Rather, the information is used with care and discretion, and where necessary, supplemented with information from other sources.

Accounting systems do not provide information on all the dimensions relevant for the performance evaluation of supervisors. This limitation is due to a number of factors. First, accountants have been unable to develop perfect standards for all the relevant aspects of performance. For instance, the maintenance of equipment, the development of human resources, and research and development are all important aspects of a manager's job which are in some cases omitted from accounting performance reports and in other cases are judged against inadequate standards.

Accountants also have problems reflecting complex relationships of interdependent activities in their performance reports. For example, a manager may produce an inferior product by using less than the standard amount of labor and materials in its production. This will show up as a favorable budget variance even though the inferior product may result in the loss of future sales. The results of the lost sales will eventually show up in the overall accounting reports of the organization, but will not be reflected in the reports of the manager responsible for the inferior work which caused the lost sales.

Another reason why all relevant aspects of managerial performance are not included in the accounting reports is because of the short-term perspective of the performance reports. The evaluation of managerial performance should be more concerned with long-term considerations. The decision

to postpone or cancel expenditures may make short-term reports look more favorable, although the final costs may be higher than the cost at the time of postponement. Another problem is that the control aspect of budgeting is often overstressed and results in there being no opportunity for the exercise of personal initiative. Budgets are sometimes viewed as a kind of straight jacket, where individuals will not be able to deviate from the budget even when circumstances indicate that this would be in the long-term interest of the company.

Accounting data, therefore, represents an incomplete source of information for performance appraisal. Not only are all the important dimensions of performance not represented in the short-term reports, but also a manager may not have control over all the costs reported for his area of responsibility. On the other hand, he may have control over costs which are reported for other managers. In addition, the standards against which actual costs are compared may be subject to error, thus making the budget variances an inaccurate reflection of the manager's performance.

If the accounting reports are used with care rather than in a rigid and unflexible manner, then these problems are of less importance. While the isolation of data relevant to performance evaluation may be difficult, at least the person making the evaluation will be aware of the problem. Perhaps of greater importance is that he will know that the achievement

of his own long-term objectives is not necessarily consistent with a set of favorable short-term budget variances.

The current research project seeks to identify different ways in which accounting and non-accounting related information is used in performance evaluation in actual business settings. In order to do this, the research questionnaire includes a list of twenty-six statements which represent potentially important factors in the evaluation of supervisors. Some of the items comprising the list were selected from relevant performance evaluation literature that suggest important criteria for supervisory evaluation. Other items on the list were derived from a description of various performance evaluation styles identified in research conducted by A. G. Hopwood.² The supervisors in the research sample were asked to indicate (on a Likert-type scale) the extent to which they agreed with each of the statements. The responses to these statements will be used as a means to group the supervisors on the basis of their perceptions of how they are evaluated in their current job.

Budget-related Behavior

Budget-related behavior is concerned with the actions of employees resulting from a company's use of budgets for planning and control purposes. This behavior may include

²Hopwood, op. cit.

active participation in budget preparation, using budgets for daily activities and planning, involvement in explaining and correcting budget variances, or perhaps behavior which is unconcerned with the use of budgets. These possibilities are investigated to determine if significant differences exist between groups of supervisors whose performances are judged under different styles of performance evaluation.

To do this, the supervisors in the sample were provided with a list of twenty-three budget-related behaviors and activities. The supervisors were asked to indicate (on a Likert-type scale) how frequently the described events occur in their job situation. The items comprising the list of budget-related behaviors were selected from a questionnaire developed by J. P. Fertakis for use in his doctoral dissertation.³ The questionnaire designed by Fertakis consisted of a list of supervisory activities, events, and interrelationships which occur on a regular basis and which a supervisor could relate to the system of budgetary controls used in his department. The purpose of Fertakis's research was to determine if a significant relationship existed between the amount of budget pressure experienced by a supervisor and the type of leadership behavior he engaged in. To obtain a measure of budget-induced pressure, the descriptive statements

³J. P. Fertakis, "Budget-Induced Pressure and Its Relationship to Supervisory Behavior in Selected Organizations" unpublished Ph.D. dissertation, University of Washington, (1967).

comprising the questionnaire were scored on the basis of whether high or low frequency of occurrence represented high or low budget-induced pressure. The results of the research indicated, for the sample of thirty-one supervisors, that there was a high positive correlation between the measures of budget pressure and of Initiating Structure and Consideration leadership behavior.

Measurement of supervisors' budget-related behavior in this research study required that some modifications be made in the scoring of the items selected for use from the Fertakis questionnaire. The current research is designed, in part, to observe the relationship between budget-related behavior and styles of performance evaluation. Therefore, the selected items were scored on the basis of frequency of occurrence only, and no attempt was made to translate the responses into high or low budget-induced pressure.

The items selected from the Fertakis "Budget Pressure Questionnaire" represented specific behaviors that the supervisors might engage in as the result of the firm's use of a budget. To identify major patterns of budget-related behavior for the supervisors in this research sample, the responses were factor analyzed.⁴

⁴Factor analysis is a multivariate statistical method that can be used to reduce a large set of variables to a smaller set of variables. For a more detailed discussion of factor analysis, see Chapter 3.

In related research, Swieringa and Moncur utilized, with some modifications, Fertakis's questionnaire to measure the budget-related behavior of twenty-six branch managers of a large international bank.⁵ Sixty-five items from the Fertakis questionnaire were factor analyzed. The result of the factor analysis was that four factors were extracted which accounted for forty-four percent of the common variance of the items used. The factors were identified as "active participant behavior", "involved exponent behavior", "reluctant victim behavior", and "unconcerned recipient behavior".⁶ The results of the study indicated that branch managers who exhibited active participant behavior had longer tenure and greater confidence in their organization than managers who exhibited the other three types of behavior. Also, they spent more time with subordinates and other managers but less time with customers, and appeared to experience greater job-related tension than managers who exhibited involved exponent, reluctant victim, or unconcerned recipient behavior.

Leadership Style

Research in the area of leadership has resulted in the isolation of two major dimensions of leadership which have

⁵R. J. Swieringa and R. H. Moncur, "The Relationship Between Managers' Budget-Oriented Behavior and Selected Attitude, Position, Size, and Performance Measures," Empirical Research in Accounting: Selected Studies, 1972, pp. 194-209.

⁶For a complete description of these factors, see Swieringa and Moncur, pp. 194-209.

been termed "Consideration" and "Initiating Structure."

These basic dimensions of leadership behavior were identified as a result of the Ohio State Leadership Studies, and the leader behavior scales derived from these studies have been utilized by literally hundreds of researchers during the last twenty-five years.

To a large extent, leadership is situational in that what is effective leadership in one situation may be ineffective in a different situation. Effective leadership requires that the relationships between the leader, his subordinates, and the organization be properly taken into account. This helps to explain the reason for some of the complexities and inconsistencies that have been reported in research concerned with identifying the most effective type of leadership. The following discussion will highlight some of the major research findings concerning leadership behavior.

A number of researchers have found the leadership style that combines both high Consideration and high Initiating Structure to be related to maximum satisfaction and performance.⁷ However, arguments for a high-high style of leadership

⁷A. W. Halpin, Manual for the Leader Behavior Description Questionnaire (Columbus: Bureau of Business Research, Ohio State University, 1957); E. A. Fleishman and J. Simmons, "Relationship Between Leadership Patterns and Effectiveness Ratings Among Israeli Foreman," Personnel Psychology, 23: 169-172, Summer, 1970; G. Yukl, "Toward a Behavioral Theory of Leadership," Organizational Behavior and Human Performance, 6:414-440, September, 1971.

often fail to consider several important factors. One factor is that Consideration and Structure often fail to be independent, and may in fact be negatively correlated.⁸ These findings may be the result of the environment being studied, or result from the inability of the respondents to perceive their leader as simultaneously exhibiting high Consideration and high Structure.

A second factor to consider is that while high scores on both dimensions may generally correlate positively to morale, satisfaction, and performance, some dysfunctional consequences often are reported to accompany such scores as well. For example, Structure has been found to vary negatively with subordinate satisfaction, grievances, and turnover,⁹ and Consideration sometimes correlates negatively with proficiency ratings by higher management.¹⁰

⁸A. Lowin, W. J. Hrapchak, and M. J. Kavanagh, "Consideration and Initiating Structure: An Experimental Investigation of Leadership Traits," Administrative Science Quarterly, 14:238-253, June, 1969; P. Weissenberg and M. J. Kavanagh, "The Independence of Initiating Structure and Consideration: A Review of the Evidence," Personnel Psychology, 25:119-130, Spring, 1972.

⁹E. A. Fleishman and E. F. Harris, "Patterns of Leadership Behavior Related to Employee Greivances and Turnover," Personnel Psychology, 15:43-56, Spring, 1962.

¹⁰G. Graen, F. Dansereau, and T. Minimi, "An Empirical Test of the Man-in-the-Middle Hypothesis Among Executives in a Hierarchical Organization Employing a Unit-Set Analysis," Organizational Behavior and Human Performance, 8:262-285, April, 1972.

A third factor that should be pointed out is that a leadership style exhibiting both high Consideration and high Structure is not always the most effective one. Hunt and Liebscher¹¹ found that preferences for and attitudes toward the two leadership dimensions vary considerably as a function of both the individual and the situation.

As these factors illustrate, to argue that an effective leadership style consists solely of a combination of high Consideration and high Initiating Structure is an oversimplification. Research has revealed that a number of variables exert a significant influence between the leadership styles of Consideration and Initiating Structure and various satisfaction and performance criteria. Some of these variables include: a) job-related pressure, b) job-related satisfaction, c) subordinate need for information, and d) job level.

Job-related pressure can take the form of time urgency or task demands. One research study found that correlations between proficiency ratings and Structure were significantly positive only in those instances when there was a high degree of time pressure.¹² In addition, Fleishman, Harris, and

¹¹J. G. Hunt and V. K. C. Liebscher, "Leadership Preference, Leadership Behavior, and Employee Satisfaction," Organizational Behavior and Human Performance, 9:59-77, February, 1973.

¹²J. A. Dawson, L. A. Messe, and J. L. Phillips, "Effects of Instructor-leader Behavior on Student Performance," Journal of Applied Psychology, 56:369-376, October, 1972.

and Burt¹³ found that leaders of departments subject to extensive time demands were rated more proficient when they exhibited high-Structure low-Consideration behavior. On the other hand, higher performance ratings were associated with more considerate and less structuring behavior in departments where similar time demands were less common.

Research conducted in three firms by House, Filley, and Kerr caused them to conclude that when work was not intrinsically satisfying, resentment and dissatisfaction were likely to increase as the imposition of deadlines and Structure increased.¹⁴ Based upon a review of relevant literature in this area, House expanded upon this conclusion by stating that relationships between Consideration and subordinate satisfaction and performance tended to be less positive when the task was intrinsically satisfying.¹⁵ In addition, House expanded upon this conclusion by stating that relationships between Structure and satisfaction were likely to be more

¹³E. A. Fleishman, E. F. Harris, and H. E. Burt, Leadership and Supervision in Industry (Columbus: Bureau of Education Research, Ohio State University, Research Monograph No. 33, 1955).

¹⁴R. J. House, A. C. Filley, and S. Kerr, "Relation of Leader Consideration and Initiating Structure to R&D Subordinates' Satisfaction," Administrative Science Quarterly, 16: 19-30, March, 1971.

¹⁵R. J. House, "A Path Goal Theory of Leader Effectiveness," Administrative Science Quarterly, 16:321-338, September, 1971.

negative, but Structure-performance relationships tended to be more positive.¹⁶

Subordinate need for information generally results either from the nature of the task or from characteristics of the individual. House found that the greater the role ambiguity, the more positive the relationship between leader initiating structure and subordinate satisfaction, while a decrease in the relationship between Consideration and subordinate satisfaction occurred as task certainty decreased.¹⁷ Soliman, Hartman, and Olinger found that engineers who had low job knowledge rated Structure as more important than Consideration, while on the other hand those whose knowledge was at least adequate perceived Consideration as more important.¹⁸

Nealey and Blood found certain items of the Initiating Structure scale to be positively correlated to satisfaction at a low supervisory level, but negatively related to satisfaction at a higher level.¹⁹ Other studies have revealed

¹⁶House, pp. 321-338.

¹⁷House, pp. 321-338.

¹⁸H. M. Soliman, R. I. Hartman, and A. H. Olinger, "Leadership Style Under Conditions of High and Low Knowledge," Proceedings of the Fifteenth Annual Midwest Academy of Management Conference, 1972.

¹⁹S. M. Nealey and M. R. Blood, "Leadership Performance of Nursing Supervisors at Two Organizational Levels," Journal of Applied Psychology, 52:414-422, October, 1968.

similar findings by showing respondent preference for Structure to diminish at higher organizational levels.²⁰ However, other research has revealed strong positive correlations between Structure and satisfaction at high levels in the organization.²¹ In an analysis comparing these findings to the negative relationships found at lower levels by Fleishman and Harris,²² House concluded that Initiating Structure appears to clarify path-goal relationships at high occupational levels, while increasing both productivity and dissatisfaction at lower levels.²³

This current research project is designed to contribute additional research findings to the existing body of knowledge concerning leadership behavior. To measure the Consideration

²⁰R. M. Stogdill and A. E. Coons (Eds.), Leader Behavior: Its Description and Measurement, Columbus: Bureau of Business Research, Ohio State University, 1957; J. W. Hill and J. G. Hunt, "Managerial Level, Leadership, and Employee Need Satisfaction," In E. A. Fleishman and J. G. Hunt (Eds.), Current Developments in the Study of Leadership, Carbondale: Southern Illinois University Press, 1973.

²¹R. J. House, A. C. Filley, and S. Kerr, "Relation of Leader Consideration and Initiating Structure to R&D Subordinates' Satisfaction," Administrative Science Quarterly, 16: 19-30, March, 1971; R. J. House, A. C. Filley, and D. N. Gujarati, "Leadership Style, Hierarchical Influence, and the Satisfaction of Subordinate Role Expectations: A Test of Likert's Influence Proposition," Journal of Applied Psychology, 55:422-432, October, 1971.

²²E. A. Fleishman and E. F. Harris, "Patterns of Leadership Behavior Related to Employee Grievances and Turnover," Personnel Psychology, 15:43-56, Spring, 1962.

²³R. J. House, Administrative Science Quarterly, pp. 321-338.

and Initiating Structure dimensions of leadership behavior, supervisors in the sample were asked to describe their own behavior by responding to the revised Leader Behavior Description Questionnaire (LBDQ-Form XII). In addition, the Production Emphasis subscale of the LBDQ-Form XII was utilized to obtain a measure of the pressure applied for productive output by the supervisors in the sample. For a discussion of the origin, development, and reliability of the LBDQ-Form XII, see Stogdill.²⁴ For a comprehensive review of the reliability and validity of the Ohio State leadership scales used for measuring leadership behavior, see Schriesheim and Kerr,²⁵ and Stogdill.²⁶

Role Conflict and Role Ambiguity

Individuals in organizations are constantly exposed to various expectations from their work environment that may affect the perceptions of their organizational roles.²⁷ Different members of an individual's role set may express quite

²⁴R. M. Stogdill, Manual for the Leader Behavior Description Questionnaire - Form XII. Columbus: Bureau of Business Research, Ohio State University, 1963.

²⁵C. Schriesheim and S. Kerr, "Psychometric Properties of the Ohio State Leadership Scales," Psychological Bulletin, 81:756-765, November, 1974.

²⁶R. M. Stogdill, Handbook of Leadership (New York: Free Press, 1974).

²⁷R. J. House, "Role Conflict and Multiple Authority in Complex Organizations," California Management Review, 12:53, Summer, 1970.

different role expectations toward that individual. The pressure that an individual may feel as a result of these different expectations may cause him to experience psychological conflict.

Role conflict has been defined as the simultaneous occurrence of two or more sets of pressures such that compliance with one would make more difficult compliance with the other.²⁸ In other words, the behaviors expected of an individual are inconsistent. For example, a supervisor's superior may make it clear to him that he is to closely supervise his subordinates, seeing to it that they strictly adhere to company rules and meet high production schedules. At the same time, his subordinates may indicate to him in various ways that they would like loose supervision, and that they will make things difficult for him if they are pushed too hard.

Recent evidence has demonstrated that the experience of role conflict is related to unfavorable personal and organizational outcomes.²⁹ This evidence revealed direct relationships between the degree of role conflict a person experiences

²⁸R. L. Kahn and others, Organizational Stress, New York: John Wiley & Sons, Inc., 1964).

²⁹R. J. House and J. R. Rizzo, "Role Conflict and Ambiguity as Critical Variables in a Model of Organizational Behavior," Organizational Behavior and Human Performance, 7: 467-505, June, 1972; J. R. Rizzo, R. J. House, and S. E. Lirtzman, "Role Conflict and Ambiguity in Complex Organizations," Administrative Science Quarterly, 15:150-163, June,

on the job and various work-related outcomes. These include a high degree of job-related tension, low job satisfaction, intensified internal conflicts, and decreased confidence in superiors and in the organization as a whole. In addition, these studies showed that the presence of conflict in one's role tends to adversely affect his relations with his role senders, to produce weaker ties of trust, respect and cooperation, and therefore results in less effective performance by the individual. Thus, role conflict appears to be associated with a variety of undesirable individual outcomes that are generally regarded as dysfunctional for the organization.

Role ambiguity concerns the degree to which required information is available to a given organizational position. To the extent that such information is clearly and consistently communicated to a focal person, he will be provided with a degree of certainty concerning his role requirements and his place in the organization. To the extent that such information is not provided, he will experience ambiguity.

1970; H. W. Tosi, "Organizational Stress as a Moderator of the Relationship Between Influence and Role Response," Academy of Management Journal, 14:7-20, March, 1971; W. C. Hamner and H. W. Tosi, "Relationships of Role Conflict and Role Ambiguity to Job Involvement Measures," Journal of Applied Psychology, 59:479-497, August, 1974; R. T. Keller, "Role Conflict and Ambiguity: Correlates with Job Satisfaction and Values," Personnel Psychology, 28:57-64, Spring, 1975.

Two types of ambiguity may be identified in terms of the direction of the individual's feelings of uncertainty. The first type of ambiguity is the result of a lack of information concerning the proper definition of the job, its goals and the acceptable means for implementing them. This type of ambiguity involves the tasks the individual is supposed to perform. The second type of ambiguity involves the socio-emotional aspects of the individual's role performance. This kind of ambiguity results from a person's concern about his standing in the eyes of others and about the consequences of his actions for the attainment of his goals.

Both types of ambiguity are associated with reduced trust in associates and increased tension. However, task ambiguity tends to create dissatisfaction with the job and feelings of futility, while ambiguity about one's evaluation by others appears to adversely affect both the individual's relations with them and his self-confidence.³⁰

On the whole, the effects of ambiguity are similar to those of role conflict. Nevertheless, the two conditions do occur independently of one another. Thus, largely by coincidence, an individual may find himself in a work situation in which he experiences both role conflict and ambiguity.³¹

³⁰Kahn and others, p. 94.

³¹Kahn and others, p. 95.

In this study, role conflict and ambiguity were measured by scales developed by Rizzo, House, and Lirtzman.³² For an indepth discussion of their validity and reliability, see Schuler, Aldag, and Brief.³³

Job Satisfaction

Job satisfaction involves the feelings that a worker has concerning the total job situation. Consideration must be given to the total of influences on the job, such as the nature of the job itself, the pay, the promotion opportunities, and the nature of supervision. Improving any one of these influences will lead in the direction of job satisfaction, while deterioration of these influences will lead in the direction of job dissatisfaction. However, what makes a job satisfying depends not only on the nature of the job, but also on the expectations that individuals have concerning what their job should provide. For example, if an individual has expectations that his job will provide him with opportunities for challenge, then a failure of the job to meet these expectations will lead to dissatisfaction when compared to a situation where no such expectations are involved.

³²J. R. Rizzo, R. J. House, and S. E. Lirtzman, "Role Conflict and Ambiguity in Complex Organizations" Administrative Science Quarterly, 15:150-163, June, 1970.

³³R. S. Schuler, R. J. Aldag, and A. P. Brief, "Role Conflict and Ambiguity: A Scale Analysis," Organizational Behavior and Human Performance, 20:111-128, October, 1977.

The expectations that individuals have concerning a job may vary for a large number of reasons resulting from social as well as individual causes. For example, individual expectations about a job may be different for males and females. A study by Kuhlen found that females expected less from their job as teachers than did males.³⁴ In another study, Foa found that the expectations that individuals had about the nature of supervision had an effect on their satisfaction with supervision.³⁵ The results of the research indicated that to increase satisfaction, the assignment of workers with permissive expectations to permissive supervisors is desirable, and that authoritarian supervisors should preferably be in charge of workers with prevailing authoritarian expectations. Klein and Maher found that education played a role in expectations in that college educated managers were less satisfied with their pay than non-college educated managers.³⁶ The purpose of these examples is to point out that the matching of expectations and the actual job has important implications for job satisfaction.

³⁴R. G. Kuhlen, "Needs, Perceived Need Satisfaction Opportunities, and Satisfaction with Occupation," Journal of Applied Psychology, 47:56-64, February, 1963.

³⁵U. G. Foa, "Relation of Workers' Expectation to Satisfaction with Supervisor," Personnel Psychology, 10:161-168, Summer, 1957.

³⁶S. M. Klein and J. R. Maher, "Education Level and Satisfaction with Pay," Personnel Psychology, 19:195-208, Summer, 1966.

Research concerning job satisfaction is important to the practitioner. Studies, such as those mentioned above, have shown that what individuals want out of a job can vary with age, sex, occupational level, social groups and individual expectations. These studies emphasize that dealing with the problems of job satisfaction involves an understanding of what expectations and values individuals have, and an understanding that such expectations and values will vary from group to group and between individuals within any one group.

In addition, studies of job satisfaction are important because they have highlighted the effect that job satisfaction has on important matters such as productivity, absence, and turnover. Porter and Lawler report that past research has found strong correlations between absenteeism and satisfaction, as well as between turnover and satisfaction.³⁷ They conclude that job satisfaction has the power to influence both absenteeism and turnover, and, therefore, would seem to be an important focus of organizations which wish to reduce absenteeism and turnover.

The relationship between job satisfaction and productivity is a complex one, and the early view that there was a major and direct relationship between job satisfaction and productivity has had to be abandoned. While there is in fact

³⁷E. E. Lawler and L. W. Porter, "The Effect of Performance on Job Satisfaction," Industrial Relations, 7:20-28, October, 1967.

a positive relationship between job satisfaction and productivity, this relationship depends on those aspects of the job that are satisfying being closely related to productivity. Based upon a study of related research, Porter and Lawler reached the conclusion that rather than being a cause of performance, satisfaction is caused by performance.³⁸ Their position is that good performance may lead to rewards, and rewards in turn lead to satisfaction. This interpretation suggests the desirability of organizations developing a strong relationship between satisfaction and performance. To do this, the organization must effectively distribute rewards based upon performance. The implication is that the more effective employees will have greater job satisfaction because of greater extrinsic rewards, while the poorer performers, rather than the better ones, will show higher turnover and absenteeism.

One of the most comprehensive research efforts concerned with the problems of job satisfaction measurement was begun in 1959. The studies reporting the results of this effort have been published by P. C. Smith, L. M. Kendal, and C. L. Hulin.³⁹ From these studies was developed an instrument for measuring job satisfaction which is known as the Job

³⁸Lawler and Porter, pp. 20-28.

³⁹P. C. Smith, L. M. Kendal, and C. L. Hulin, The Measurement of Satisfaction in Work and Retirement (Chicago: Rand McNally & Company, 1969).

Descriptive Index (JDI). This instrument has been subjected to an intensive validation program and has been shown to possess both high reliability and high validity.⁴⁰

The JDI was utilized in this research to measure satisfaction with supervision. The supervision scale of the JDI contains a series of adjectives describing different characteristics of an employee's superior. Each supervisor in the sample was asked whether he agreed, disagreed, or was uncertain that the adjective described his particular superior. The composite score represents the extent to which the supervisor favorably described the supervision he gets on his job.

Summary

In this chapter, the variables selected for this research were discussed. These variables include performance evaluation, budget-related behavior, leadership style, role conflict and ambiguity, and satisfaction with supervision. Characteristics of the variables, along with the results of related research were presented. In addition, the testing instruments selected to measure these variables were discussed. The following chapter presents the research design and methodology developed for this project utilizing these variables.

⁴⁰Smith, Kendal, and Hulin.

Chapter 3

RESEARCH DESIGN AND METHODOLOGY

To collect the data for this research, a questionnaire was developed which consisted of six major sections:¹ A performance evaluation scale, a budget-related behavior scale, a leadership scale, a role conflict and ambiguity scale, a satisfaction with supervision scale, and a general information section. A small pretest was utilized to determine the adequacy of the questionnaire. Analysis of the pretest data indicated that no significant changes in the questionnaire were necessary.

Eight industrial firms located in South Louisiana agreed to participate in the research. An upper-level manager in each of these firms was first contacted by telephone. The telephone conversation was followed up with a letter and/or a personal visit by the researcher to the plant site. The purpose of the plant visit was to further explain the objectives of the research and to discuss the details of administering the questionnaire. The participating companies granted permission for the questionnaire to be sent through internal company mail. The questionnaire was distributed to those supervisors in each company who had responsibility at

¹The research questionnaire is presented in the Appendix.

a level in the organization for which a budget served as a guide to the activities of the supervisor. In addition, an upper-level manager in each company provided a cover letter encouraging the supervisors in his company to respond to the questionnaire. A total of 286 questionnaires were sent out. Usable returns were received from 177 (61%) respondents.

Classification of the Supervisors

The first step of the data analysis required that the supervisors be categorized into distinctly different groups. Included in the questionnaire was a list of 26 statements which represented potentially important factors in the evaluation of supervisors. The items comprising the list were selected from relevant performance evaluation literature that suggested important criteria for supervisory evaluation (see Chapter 2). The supervisors in the sample were asked to indicate the extent to which they agreed with each of the 26 statements. The responses could range from strongly agree to strongly disagree. The responses to these 26 statements were used as a means to classify the supervisors into groups on the basis of how they perceive they are evaluated in their jobs.

Classification is the process of grouping individuals according to similarities on specified variables. In this study, a sample of industrial supervisors was drawn and a number of measurements were obtained from each supervisor. Solely on the basis of these multivariate measurements, some

supervisors appear more alike and some more different from one another. Certain modal patterns tend to recur with substantial frequencies, and the inference is that these patterns represent homogeneous subtypes. The objective of this part of the analysis was to identify the most frequently occurring patterns which would enable a majority of the supervisors in the sample to be described as being similar to one of the modal types.

Factor Analysis²

To provide a parsimonious description of the manner in which the supervisors perceive that accounting and non-accounting related information is used in the evaluation of their performance, common factor analysis, using the varimax criterion for factor rotation, was performed on the 26 items in the research questionnaire that were related to performance evaluation. Factor analysis is a multivariate statistical technique that can be used to examine the underlying relationships for a large number of variables and determine if the information can be condensed in a smaller set of factors or components. The primary purpose of factor analysis

²The primary sources of information for the discussion of factor analysis were J. F. Hair, Jr., and others, Multivariate Data Analysis (Tulsa, Oklahoma: Petroleum Publishing Company, 1979); N. Níe and others, Statistical Package for the Social Sciences (New York: McGraw-Hill, 1975); P. E. Green and D. S. Tull, Research for Marketing Decisions (Englewood Cliffs: Prentice-Hall, Inc., 1975).

is data reduction and summarization. Factor analysis examines the interrelationships among a large number of variables, and then explains these variables in terms of their common, underlying dimensions (factors).

There are several alternative models that can be used to obtain factor solutions. In this research, the procedure that was utilized was principle factoring with iteration (common factor analysis). Details on the computational aspects of this method are discussed elsewhere,³ and therefore will not be repeated here.

For purposes of factor analysis, total variance consists of three types: (1) common, (2) specific, and (3) error. Common variance is that variance in a variable which is shared with all other variables in the analysis. Specific variance is the variance that is associated with only a specific variable, and error variance is that resulting from the unreliability in the data gathering process or a random component in the measured phenomenon.⁴ Factor analysis procedures are based upon the initial computation of a correlation matrix of all the original variables. This correlation matrix gives an initial indication of the relationships among the variables. The correlation matrix is subsequently transformed to obtain

³Harry H. Harman, Modern Factor Analysis (Chicago: The University of Chicago Press, 1976); R. J. Rummel, Applied Factor Analysis (Evanston: Northwestern University Press, 1970).

⁴Hair and others, p. 224.

a factor matrix. In common factor analysis, only the common variance (rather than the total variance) associated with a set of variables is used in deriving the factor solution. This is accomplished by factoring a "reduced" correlation matrix in which communalities are inserted in the diagonal instead of unities. Communality is defined as the amount of variance an original variable shares with all other variables included in the analysis. When unities are inserted in the diagonal, the total variance is used in determining the factor solution.

When the primary objective is to identify the latent (not easily observed) dimensions represented in the original variables, and the researcher has little knowledge about the amount of specific or error variance and therefore desires to eliminate this variance; the appropriate model to use is the common factor model.⁵ Common factor analysis was selected for this research because of this consideration, and also because common factor analysis is the most widely accepted factoring method.⁶

In addition to selecting the factor model, a decision must also be made concerning how the factors are to be extracted. Two alternatives exist, either orthogonal factors or oblique factor solutions. In an orthogonal solution, the

⁵Hair and others, pp. 224-225.

⁶Nie and others, p. 480.

factors are extracted in such a manner that each factor is independent of all other factors. As a result, the correlation between factors is arbitrarily determined to be zero. An oblique factor solution is more complex in that the factor solution is computed so that the extracted factors are correlated. Because oblique factor structures are still the subject of considerable experimentation and controversy,⁷ and because of the desirability of obtaining uncorrelated factors for subsequent use, the orthogonal method of extracting the factors was selected for this research. The computer program FACTOR of the Statistical Package for the Social Sciences⁸ was used for the analysis.

Analysis of the Results

Three desirable properties of a good factor solution include (1) parsimony, (2) orthogonality or at least relative independence, and (3) conceptual meaningfulness.⁹ There would be little justification for the analysis if the number of factors needed to explain individual differences in the responses was not substantially smaller than the number of original variables. Secondly, for both statistical and conceptual purposes, relative independence among factors is important.

⁷D. Child, The Essentials of Factor Analysis (New York: Holt, Rinehart and Winston, Inc., 1970).

⁸Nie and others.

⁹J. E. Overall and J. Klett, Applied Multivariate Analysis (New York: McGraw-Hill, Inc., 1972), p. 90.

Each of the derived factors should represent a distinctly different underlying source of variance. Finally, in order to understand the nature of factors and therefore to understand the nature of major differences between individuals, the ability to conceptualize what each factor represents is important.

There are two stages involved in the derivation of a final factor solution. First, the initial unrotated factor matrix is computed to provide a preliminary indication of the number of factors to extract. The computation of the unrotated factor matrix indicates the particular combination of original variables that accounts for more of the variance in the data as a whole than any other linear combination of variables. Therefore, the first factor represents the single best summary of linear relationships exhibited in the data. The second factor is defined as the next best linear combination of the variables subject to the constraint that it is orthogonal to the first factor. To be orthogonal to the first factor, the second factor must be derived from the proportion of the variance remaining after the first factor has been extracted. Thus the second factor represents the linear combination of variables that accounts for the most residual variance after the effect of the first factor is removed from the data. Subsequent factors are derived similarly until all the variance in the data is exhausted.

As an initial step toward interpretation, an examination of several summary statistics, which characterize the initial

unrotated factor solution, provides an indication of the number of underlying factors that will be studied in detail. Table 3.1 presents several statistics which are related to the unrotated factor solution. As indicated in Table 3.1, the initial factoring extracts 26 factors (i.e., as many factors as variables). However, factors are extracted in a mechanical manner, and therefore not all of them are necessarily important or meaningful.

One important and often used way of identifying the importance of the factors is to evaluate the eigenvalues associated with each factor. In general, each eigenvalue represents the amount of variance in the initial correlation matrix that is accounted for by the associated factor. For example, the eigenvalue for the first factor is 6.09, and accounts for 23.4% of the variance in the original correlation matrix. The percent of variance explained by a factor is the ratio of its eigenvalue to the total variance. The variables have been standardized, and therefore the variance of each variable is 1.0. The total variance is 26.0 because there are 26 statements. The ratio of the eigenvalue to the total variance, $6.09/26.0$, gives the percent of variance accounted for by Factor I.

The eigenvalue for the second factor is 3.95, and thus explains 15.2% of the variance. Since the factors are orthogonal (uncorrelated), the total variance accounted for by the first two factors is the sum of 23.4 and 15.2, or 38.6% of the variance.

Table 3.1
Unrotated Factor Solution of the Performance
Evaluation Variables

| Variable | Estimated Communality | Factor | Eigenvalue | Percent of Variance | Cumulative Percent |
|----------|--------------------------|--------|------------|------------------------|-----------------------|
| Item 1 | 0.49049 | 1 | 6.09033 | 23.4 | 23.4 |
| Item 2 | 0.23579 | 2 | 3.95510 | 15.2 | 38.6 |
| Item 3 | 0.63993 | 3 | 1.64555 | 6.3 | 45.0 |
| Item 4 | 0.58415 | 4 | 1.56922 | 6.0 | 51.0 |
| Item 5 | 0.35664 | 5 | 1.19256 | 4.6 | 55.6 |
| Item 6 | 0.44907 | 6 | 1.08915 | 4.2 | 59.8 |
| Item 7 | 0.44265 | 7 | 0.97575 | 3.8 | 63.5 |
| Item 8 | 0.56710 | 8 | 0.93535 | 3.6 | 67.1 |
| Item 9 | 0.30830 | 9 | 0.81198 | 3.1 | 70.3 |
| Item 10 | 0.45092 | 10 | 0.76352 | 2.9 | 73.2 |
| Item 11 | 0.44380 | 11 | 0.68289 | 2.6 | 75.8 |
| Item 12 | 0.44295 | 12 | 0.67507 | 2.6 | 78.4 |
| Item 13 | 0.59552 | 13 | 0.64364 | 2.5 | 80.9 |
| Item 14 | 0.46008 | 14 | 0.57878 | 2.2 | 83.1 |
| Item 15 | 0.63352 | 15 | 0.52754 | 2.0 | 85.1 |
| Item 16 | 0.54783 | 16 | 0.50968 | 2.0 | 87.1 |
| Item 17 | 0.52721 | 17 | 0.49312 | 1.9 | 89.0 |
| Item 18 | 0.42013 | 18 | 0.43887 | 1.7 | 90.7 |
| Item 19 | 0.42105 | 19 | 0.41329 | 1.6 | 92.3 |
| Item 20 | 0.65601 | 20 | 0.39485 | 1.5 | 93.8 |
| Item 21 | 0.28744 | 21 | 0.35922 | 1.4 | 95.2 |
| Item 22 | 0.28022 | 22 | 0.33428 | 1.3 | 96.5 |
| Item 23 | 0.28046 | 23 | 0.28248 | 1.1 | 97.5 |

Continued 44

Table 3.1 (Continued)

| | | | | | |
|---------|---------|----|---------|-----|-------|
| Item 24 | 0.56425 | 24 | 0.26412 | 1.0 | 98.6 |
| Item 25 | 0.41735 | 25 | 0.20699 | 0.8 | 99.4 |
| Item 26 | 0.61696 | 26 | 0.16666 | 0.6 | 100.0 |

As illustrated in Table 3.1, each of the successive factors explains a decreasing percent of the variance. The eigenvalues for factors seven through 26 are all less than 1.0, indicating that only the first six factors explain more variance than any one of the initial variables. As a starting point in identifying how many factors to evaluate in detail, researchers often use the eigenvalue greater than one criterion. The justification for the eigenvalue criterion is that any individual factor should account for at least the variance of a single variable if that factor is to be retained for interpretation.

Table 3.1 also presents the estimated communalities for each of the statements for the initial unrotated factor solution. The estimated communalities provide an indication of the amount of variance an original variable shares with all other variables included in the analysis.

While unrotated factor solutions achieve the objective of data reduction, they often do not provide information which offers the most adequate interpretation of the variables under examination. The basic reason for using a rotational method is to obtain simpler and theoretically more meaningful factor solutions. In most cases, factor rotation improves the interpretation by reducing some of the ambiguities which often exist after the initial unrotated factor solutions.

As discussed earlier, unrotated factor solutions extract factors in the order of their importance. The first factor

tends to be a general factor with nearly every variable loading significantly.¹⁰ In addition, the first factor accounts for the largest amount of variance. Subsequent factors are based upon the residual amount of variance with each accounting for a successively smaller portion of the total variance. The effect of rotating the factor matrix is to redistribute the variance from the earlier factors to the later factors. This enables a simpler and theoretically more meaningful factor pattern to be obtained. Thus, the object of factor rotation is to increase the magnitude of loadings for certain variables, while at the same time decreasing their cross-factor loadings. Insofar as possible, variables which load highly on one factor should have minimum loadings on the other. The varimax criterion for orthogonal rotation was chosen because this method maximizes the number of very high and very low factor loadings, therefore providing the simplest factor structure solution. Thus, varimax is generally accepted as the best orthogonal rotation method.¹¹

Factor analysis was performed on the 26 statements to identify different styles of performance evaluation in actual industrial settings. Several factor analytic tests were conducted constraining the number of factors from the originally identified six factors to two factors. An examination of the

¹⁰A factor loading is defined as the correlation of a factor with an original variable.

¹¹Rummel, p. 392.

statements comprising each of the factor structures resulted in the conclusion that a two factor solution provided the most distinct and clearly interpretable factor patterns. Therefore, the following discussion will focus on the structure and meaning of these two factors.

Interpretation of the Factor Matrix

Table 3.2 displays the rotated factor solution for the derived two factor solution. The table presents the factor loadings for each item in the 26-item performance evaluation scale, and the percent of common variance explained by each of the two factors. A factor loading represents the correlation between an original variable and its respective factor, and is the key to understanding the nature of a particular factor.

Once a factor solution has been obtained, an attempt must be made to assign some meaning to the pattern of factor loadings. Those items that have higher loadings are considered more important at this stage of factor interpretation. In this particular analysis, the cutoff point consisted of all loadings +.5 or above. This relatively high cutoff was selected because many high loadings were obtained. To assist the reader, those factor loadings meeting this requirement have been underlined.

The next procedure involves examining all the underlined items for each factor, and then assigning a name or label to each factor which reflects to the greatest extent possible

Table 3.2

Varimax Rotated Factor Matrix of the
Performance Evaluation Variables

| | Factor 1 | Factor 2 |
|---------|----------|----------|
| Item 1 | -0.41471 | 0.38426 |
| Item 2 | -0.05291 | 0.27230 |
| Item 3 | 0.65732 | -0.19097 |
| Item 4 | 0.70946 | -0.16795 |
| Item 5 | 0.00212 | 0.50479 |
| Item 6 | -0.09998 | 0.44919 |
| Item 7 | -0.01461 | 0.62934 |
| Item 8 | -0.03337 | 0.55856 |
| Item 9 | 0.14669 | -0.40508 |
| Item 10 | 0.55942 | 0.12363 |
| Item 11 | 0.08885 | 0.61299 |
| Item 12 | 0.12502 | 0.53169 |
| Item 13 | 0.73379 | 0.00289 |
| Item 14 | -0.13534 | 0.54784 |
| Item 15 | 0.69937 | -0.18074 |
| Item 16 | 0.69354 | 0.05247 |
| Item 17 | -0.14824 | 0.63801 |
| Item 18 | 0.51956 | 0.04892 |
| Item 19 | 0.45715 | -0.18882 |
| Item 20 | -0.14694 | 0.75376 |
| Item 21 | 0.36225 | -0.30831 |
| Item 22 | 0.27957 | 0.19731 |
| Item 23 | -0.09444 | 0.03333 |
| Item 24 | 0.67056 | -0.11582 |
| Item 25 | -0.09286 | 0.57326 |
| Item 26 | 0.71652 | -0.08795 |

| Factor | Eigenvalue | Percent of Variance | Cumulative Percent |
|--------|------------|------------------------|-----------------------|
| 1 | 5.50381 | 62.3 | 62.3 |
| 2 | 3.33754 | 37.7 | 100.0 |

what the items loading on that factor represent. This analysis resulted in naming the factors as follows:

| | |
|-----------|------------------------------------|
| Factor I | Accounting Style of Evaluation |
| Factor II | Non-accounting Style of Evaluation |

These factors, including their item loadings, are presented in Tables 3.3 and 3.4.

Grouping the Supervisors

The factor analysis of the 26 items resulted in the identification of two distinct styles of performance evaluation. To determine which style of evaluation most characterized each respondent, factor scores were established for each supervisor on each of the two factors. Factor scores are composite measures developed by utilizing the original raw data measurements and the factor analytic results. In this study, each supervisor had 26 raw data measurements representing each of the original 26 statements. After factor scores were calculated to represent the factor solution, each supervisor was represented by only two composite measures rather than the original 26 measures. These two composite measures, or factor scores, represent each of the two factors that were derived in the factor solution. A factor score indicates the degree to which a supervisor scores high on the group of statements that load high on a particular factor. Therefore, a supervisor who scores high on the statements that have heavy loadings on a factor will surely obtain a high factor score on that factor. In other words, the factor

Table 3.3
Factor I: Accounting Style of Evaluation

| Item No. ^a | Loading | Item ^b |
|--------------------------|---------|--|
| 3 | 0.65732 | Budget-related information is the most important factor in my evaluation. |
| 4 | 0.70946 | My superior tends to use budget variances as a pressure device, by emphasizing "meeting the budget". |
| 10 | 0.55942 | My superior questions budget reports, and uses them carefully in my evaluation. |
| 13 | 0.73379 | Budget variances are frequently mentioned to me during performance evaluation interviews. |
| 15 | 0.69937 | Budget-related information is rigidly used in evaluating my performance. |
| 16 | 0.69354 | My superior mentions budgets while talking to me about my efficiency as a manager. |
| 18 | 0.51956 | My superior holds me personally accountable for budget variances. |
| 24 | 0.67056 | My superior generally views an unfavorable budget variance as an indicator of poor managerial performance. |
| 26 | 0.71652 | My superior expresses dissatisfaction to me about results when the budget has not been met. |

^aThe number of each item indicates its location on the performance evaluation scale of the questionnaire.

^bItems included were those which had their highest loadings on Factor I.

Table 3.4

Factor II: Non-accounting Style of Evaluation

| Item No. ^a | Loading | Item ^b |
|--------------------------|---------|--|
| 5 | 0.50479 | Ability to handle my subordinates is a very important factor in my evaluation. |
| 7 | 0.62934 | Dependability receives high importance in my evaluation. |
| 8 | 0.55856 | I feel free to discuss budget variances with my superior. |
| 11 | 0.61299 | Planning ability is a very important factor in my evaluation. |
| 12 | 0.53169 | My superior listens to my problems in budget matters. |
| 14 | 0.54784 | Effort put into the job is a very important factor in my evaluation. |
| 17 | 0.63801 | Knowledge of the work is a very important factor in my evaluation. |
| 20 | 0.75376 | Initiative on the job receives high importance in my evaluation. |
| 25 | 0.57326 | Attitude towards the work and company is a very important factor in my evaluation. |

^aThe number of each item indicates its location on the performance evaluation scale of the questionnaire.

^bItems included were those which had their highest loadings on Factor II.

score indicates the extent to which an individual possesses a particular characteristic represented by a factor.

In this part of the study, the factor scores were used to group the supervisors according to which one of the two identified styles of performance evaluation they indicated most characterized their own evaluation. The criteria used to categorize the supervisors were as follows:

1. The highest positive factor score for each supervisor was used to place that individual into Group 1 (Accounting Style) or Group 2 (Non-accounting style).
 - a) An exception was made for those with equal positive factor scores (not different by .1 or more). These supervisors were excluded because their responses failed to indicate which of the two styles of evaluation most clearly characterized their own evaluation.
2. Those supervisors who had negative scores on both factors were excluded from further analysis because their evaluation failed to be characterized by either of the two predominant styles identified in this research.

Based upon the above criteria, 54 supervisors were placed into the "Accounting Style" of evaluation, and 73 were placed into the "Non-accounting Style" group. In addition, 47 supervisors had negative factor scores on each of the two factors, while three supervisors had equal positive scores. These latter 50 supervisors were therefore not included in subsequent analysis.

Summary

This chapter discusses the methodology utilized to classify the supervisors in this study. Two groups of

supervisors, identified as "Accounting Style" and "Non-accounting Style", were selected for further analysis. The procedure used in this research of analyzing only the extreme groups of supervisors and excluding the other supervisors is known as the polar extremes approach. This method can be used any time the analyst desires to examine only the extreme groups.¹²

The polar extremes approach provides for the creation of distinct and clearly identifiable groups. Distinct groups are particularly important when the researcher is interested in identifying additional characteristics of each group which help to distinguish members of one group from members of another group. The following chapter will discuss the use of discriminant analysis for developing a descriptive profile of the two groups based upon selected behavioral and attitudinal variables.

¹²Hair and others, p. 93.

Chapter 4

ANALYSIS OF THE RESEARCH DATA

INTRODUCTION

The previous chapter discussed the methodology used to identify different styles of performance evaluation, and to group the supervisors according to the style they felt most characterized their own evaluation. Once the supervisors were grouped, the next step of the research involved identifying which independent variables selected for the study discriminated between the two groups of supervisors. As previously noted, those variables included budget-related behavior, leadership style, role conflict and ambiguity, and satisfaction with supervision. The budget-related behavior scales and their development are discussed below.

Budget-related Behaviors

To obtain measures of budget-related behavior, the supervisors in the sample were provided with a list of 23 budget-related behaviors and activities. The supervisors were asked to indicate (on a five-point Likert-type scale) how frequently the described events occur in their job situation. The items comprising the list were selected from a

questionnaire developed by J. P. Fertakis.¹ The statements represented specific behaviors that the supervisors might engage in as the result of the firm's use of a budget.

Common factor analysis using the varimax criterion for factor rotation was performed on the 23 budget-related behaviors. Factor analysis was selected as the appropriate technique because of its expressed purpose of data reduction and summarization. Factor analysis can help to reveal the underlying dimensions which tend to be associated with the statements, and to identify the grouping of statements which are most closely associated with those dimensions. With this information, good summary scale measures based upon multiple items can be developed. Multiple-item scales developed in this manner are desirable because they tend to be more reliable than measures based upon the original, individual items.²

An orthogonal factor rotation was chosen in order to obtain both factor loadings and factor scores which are independent. This was desirable since the factor scores were

¹J. P. Fertakis, "Budget-Induced Pressure and Its Relationship to Supervisory Behavior in Selected Organizations" (unpublished Ph.D. dissertation, University of Washington, 1967).

²J. Paul Peter, "Reliability, Generalizability, and Consumer Behavior," in W. D. Perreault, (Ed.), Advances in Consumer Research, Volume IV (Atlanta: Association for Consumer Research, 1977), pp. 394-400.

used as predictor variables in a subsequent analysis, therefore, meeting the assumption that predictor variables are uncorrelated.

Utilizing the eigenvalue-one criterion, a factor analysis of the 23 items resulted in a three factor solution. Additional factor tests were conducted constraining the solution to four and to two factors. These tests resulted in factor patterns which provided no advantage over the three factor solution. Therefore, the three factor solution of the 23-item budget-related behavior scale was selected as the best solution.

Communalities, eigenvalues, and percent of variance extracted with regard to each factor in the unrotated factor solution are presented in Table 4.1. In addition, Table 4.2 indicates the rotated factor matrix derived from this solution. The table includes the factor loadings for each item in the 23-item scale, as well as the eigenvalues and percent of common variance explained by each factor. To assist the reader, the highest factor loading for each item has been underlined.

A cutoff of +.5 or above was used in identifying the most significant loadings on both Factor I and Factor II. The objective of factor rotation is to minimize the number of significant loadings on each row of the factor matrix, and to maximize the number of loadings with insignificant values. In practice, often some variables will have more than one moderately sized loading, as resulted in

Table 4.1
Unrotated Factor Solution of the Budget-related
Behavior Variables

| Variable | Estimated Communality | Factor | Eigenvalue | Percent of Variance | Cumulative Percent |
|----------|--------------------------|--------|------------|------------------------|-----------------------|
| Item 1 | 0.71223 | 1 | 10.35555 | 45.0 | 45.0 |
| Item 2 | 0.75398 | 2 | 2.25614 | 9.8 | 54.8 |
| Item 3 | 0.68964 | 3 | 1.57175 | 6.8 | 61.7 |
| Item 4 | 0.77076 | 4 | 0.99931 | 4.3 | 66.0 |
| Item 5 | 0.57145 | 5 | 0.86310 | 3.8 | 69.8 |
| Item 6 | 0.54555 | 6 | 0.77947 | 3.4 | 73.2 |
| Item 7 | 0.46324 | 7 | 0.69189 | 3.0 | 76.2 |
| Item 8 | 0.52989 | 8 | 0.62557 | 2.7 | 78.9 |
| Item 9 | 0.46089 | 9 | 0.53100 | 2.3 | 81.2 |
| Item 10 | 0.67476 | 10 | 0.51718 | 2.2 | 83.4 |
| Item 11 | 0.43192 | 11 | 0.46608 | 2.0 | 85.5 |
| Item 12 | 0.52250 | 12 | 0.45803 | 2.0 | 87.5 |
| Item 13 | 0.78830 | 13 | 0.40446 | 1.8 | 89.2 |
| Item 14 | 0.69402 | 14 | 0.38355 | 1.7 | 90.9 |
| Item 15 | 0.35343 | 15 | 0.31850 | 1.4 | 92.3 |
| Item 16 | 0.50614 | 16 | 0.29460 | 1.3 | 93.5 |
| Item 17 | 0.56410 | 17 | 0.28073 | 1.2 | 94.8 |
| Item 18 | 0.61265 | 18 | 0.26320 | 1.1 | 95.9 |
| Item 19 | 0.69773 | 19 | 0.23998 | 1.0 | 97.0 |
| Item 20 | 0.65192 | 20 | 0.21535 | 0.9 | 97.9 |
| Item 21 | 0.61857 | 21 | 0.19192 | 0.8 | 98.7 |
| Item 22 | 0.66434 | 22 | 0.15964 | 0.7 | 99.4 |
| Item 23 | 0.48354 | 23 | 0.13296 | 0.6 | 100.0 |

Table 4.2

Varimax Rotated Factor Matrix of the
Budget-related Behavior Variables

| | Factor 1 | Factor 2 | Factor 3 |
|---------|------------|---------------------|--------------------|
| Item 1 | 0.80340 | 0.07663 | 0.20960 |
| Item 2 | 0.69393 | 0.46002 | 0.13940 |
| Item 3 | 0.59134 | 0.52401 | 0.17056 |
| Item 4 | 0.77397 | 0.30254 | 0.18969 |
| Item 5 | 0.61395 | 0.34632 | 0.15411 |
| Item 6 | 0.22549 | 0.55871 | 0.22345 |
| Item 7 | 0.43897 | 0.38906 | 0.14109 |
| Item 8 | 0.06430 | 0.67569 | -0.09931 |
| Item 9 | 0.04036 | 0.50216 | 0.46109 |
| Item 10 | 0.74878 | 0.22227 | 0.10385 |
| Item 11 | 0.14097 | 0.58534 | 0.12580 |
| Item 12 | 0.22164 | 0.08688 | 0.89457 |
| Item 13 | 0.87493 | 0.10708 | 0.19185 |
| Item 14 | 0.57257 | 0.51688 | 0.05946 |
| Item 15 | 0.15231 | 0.07276 | 0.52441 |
| Item 16 | 0.66990 | 0.06882 | 0.09098 |
| Item 17 | 0.23837 | 0.68669 | -0.07944 |
| Item 18 | 0.40874 | 0.61378 | 0.22461 |
| Item 19 | 0.76983 | 0.23939 | 0.00430 |
| Item 20 | 0.65913 | 0.37001 | 0.11036 |
| Item 21 | 0.29354 | 0.68377 | 0.16208 |
| Item 22 | 0.66475 | 0.34269 | 0.12729 |
| Item 23 | 0.27434 | 0.51750 | 0.17455 |
| Factor | Eigenvalue | Percent of Variance | Cumulative Percent |
| 1 | 9.95341 | 76.9 | 76.9 |
| 2 | 1.80273 | 13.9 | 90.8 |
| 3 | 1.19116 | 9.2 | 100.0 |

this analysis. When this occurs, each variable with more than one significant loading must be considered in interpreting (labeling) each of the factors on which it has a significant loading.

The factors were labeled according to the factor loading pattern of the 23 items. Those items with higher loadings were considered more important for the purpose of deriving labels for the three factors. The factors were named as follows:

| | |
|------------|---|
| Factor I | Participation in Budget Preparation |
| Factor II | Use of Budgets for Planning and Control |
| Factor III | Manipulation of Accounts |

These factors, including their item factor loadings are presented in Tables 4.3, 4.4, and 4.5.

Varimax factor scores for each respondent on each of the three factors were derived. The derived factor scores represent the extent to which each supervisor scores high on the group of items that load on a factor. Therefore, the factor scores indicated whether or not a supervisor engages in a particular type of budget-related behavior represented by a factor to a high degree. These factor scores were used as inputs into a two-group discriminant analysis.

Leadership Style, Role Conflict and Ambiguity, and Satisfaction with Supervision

The remaining variables were measured through the use of already existing carefully developed testing instruments. Leadership style was measured with the revised Leader Behavior

Table 4.3

Factor 1: Participation in Budget Preparation

| Item No. ^a | Loading | Item ^b |
|-----------------------|---------|--|
| 1 | 0.80340 | I participate in preparing future budgets. |
| 4 | 0.77397 | I suggest changes in budget figures for my unit. |
| 10 | 0.74878 | I am consulted about special factors I would like to have included in the budget being prepared. |
| 13 | 0.87493 | New budgets include changes I have suggested. |
| 16 | 0.66990 | The budget is not finalized until I am satisfied with it. |
| 19 | 0.76983 | Special problems I mention receive special treatment in the new budget. |
| 22 | 0.66475 | My superior listens to my opinion on budget matters. |
| 2 | 0.69393 | I investigate favorable as well as unfavorable budget variances for my unit. |
| 3 | 0.59134 | I use the budget to plan activities in my unit. |
| 5 | 0.61395 | I use staff assistance in locating causes of budget variances in my unit. |
| 14 | 0.57257 | I personally investigate budget variances in my unit. |
| 20 | 0.65913 | Corrective action for budget variances in my unit is under my direction. |

^aThe number of each item indicates its location on the budget-related behavior scale of the questionnaire.

^bItems included were those which had their highest loadings on Factor I.

Table 4.4

Factor II: Use of Budgets for Planning and Control

| Item No. ^a | Loading | Item ^b |
|-----------------------|---------|---|
| 3 | 0.52401 | I use the budget to plan activities in my unit. |
| 6 | 0.55871 | I evaluate my subordinates by means of the budget. |
| 8 | 0.67569 | I am required to submit an explanation in writing about causes of large budget variances. |
| 9 | 0.50216 | I find it necessary to stop some activities in my unit when budgeted funds are used up. |
| 11 | 0.58534 | I am required to trace the cause of budget variances to groups of individuals within my unit. |
| 14 | 0.51688 | I personally investigate budget variances in my unit. |
| 17 | 0.68669 | I am required to report actions I take to correct causes of budget variances. |
| 18 | 0.61378 | I discuss budget performance expectations with my subordinates. |
| 21 | 0.68377 | I use budgets to measure how efficiently my unit is operating. |
| 23 | 0.51750 | I go to my superior for advice on how to achieve my budget. |

^aThe number of each item indicates its location on the budget-related behavior scale of the questionnaire.

^bItems included were those which had their highest loadings on Factor II.

Table 4.5

Factor III: Manipulation of Accounts

| Item No. ^a | Loading | Item ^b |
|--------------------------|---------|---|
| 12 | 0.89457 | I find it necessary to charge some activities to other accounts when budgeted funds for these activities have been used up. |
| 15 | 0.52441 | I have to shift figures relating to operations to reduce budget variances. |

^aThe number of each item indicates its location on the budget-related behavior scale of the questionnaire.

^bItems included were those which had their highest loadings on Factor III.

Description Questionnaire (LBDQ - Form XII),³ role conflict and ambiguity were measured by scales developed by Rizzo, House, and Lirtzman,⁴ and satisfaction with supervision was measured through the use of the Job Descriptive Index (JDI).⁵ Measures for each of these variables were then used as inputs into a two-group discriminate analysis.

DISCRIMINANT ANALYSIS⁶

The multivariate statistical technique of discriminant analysis was utilized to determine the relationships between the two groups of supervisors with regard to the independent variables. The objectives of the discriminant analysis were twofold:

³R. M. Stogdill, Manual for the Leader Behavior Description Questionnaire - Form XII, Columbus, Ohio: Bureau of Business Research, The Ohio State University, 1963.

⁴J. R. Rizzo, R. J. House, and S. E. Lirtzman, "Role Conflict and Ambiguity in Complex Organizations," Administrative Science Quarterly, 15:150-163, June, 1970.

⁵P. C. Smith, L. M. Kendal, and C. L. Hulin, The Measurement of Satisfaction in Work and Retirement (Chicago, Illinois: Rand McNalley & Company, 1969).

⁶The primary sources of information for the discussion of discriminant analysis were J. F. Hair, Jr., and others, Multivariate Data Analysis (Tulsa, Oklahoma: Petroleum Publishing Company, 1979); N. Nie and others, Statistical Package for the Social Sciences (New York: McGraw-Hill, 1975); P. E. Green and D. S. Tull, Research for Marketing Decisions (Englewood Cliffs: Prentice-Hall, Inc., 1975).

(1) To determine if there were statistically significant differences between the average score profiles of the groups of supervisors in the sample, and

(2) To determine which specific variables in the profile are good discriminators between the groups.

The statistical process of discriminant analysis derives the linear combination of the independent variables that best discriminates between the a priori defined groups. This is accomplished by the statistical decision rule to maximize the between-group variance relative to the within-group variance. The linear combinations for a discriminant analysis are obtained from an equation which takes the following form:⁷

$$Z = W_1X_1 + W_2X_2 + W_3X_3 + \dots +$$

where

Z = the discriminant score
 W = the discriminant weights
 X = the independent variables

Discriminant analysis is the appropriate statistical technique for testing the hypothesis that the group means are equal (not significantly different). Each independent variable is multiplied by its corresponding weight, and then these products are added together. This results in a single composite discriminant score for each person in the analysis. A group mean, referred to as a centroid, is obtained by

⁷Hair and others, p. 85.

averaging the discriminant scores for all the individuals within a particular group. There will be one centroid for each group in the analysis. The centroids represent the most typical location of an individual from a particular group, and a comparison of the group centroids will provide an indication of the similarity (or difference) between the groups along the dimension being tested.

The statistical significance of a discriminant function is determined by comparing the distributions of the discriminant scores for the two or more groups. This will provide a generalized measure of the distance between the group centroids. If the variance between the groups is large relative to the variance within the groups, the discriminant function is a good discriminator between the groups.

Stepwise Discriminant Analysis

The computational method used in this study to derive the discriminant function was the stepwise method. This method involves entering the independent variables into the function one at a time on the basis of their discriminating ability. The single best discriminating variable is chosen first to enter the function. Then, the first variable is paired with each of the other independent variables one at a time, and a second variable is chosen. The second variable to enter is the one which in combination with the first variable is best able to improve the discriminating ability of the function. Subsequent variables are selected to enter

the function in a similar manner. As additional variables are entered, some variables previously selected may be removed if the information contained in them regarding group differences is available in some combination of the other included variables. Ultimately, either all independent variables will have been included in the discriminant function or the excluded variables will have been determined to not make a significant contribution toward further discrimination. The sequential selection of the next best discriminating variable at each step provides for the elimination of those variables which are not useful in discriminating between the groups.⁸ The computer program DISCRIMINANT of the Statistical Package for the Social Sciences⁹ was used for the analysis.

Analysis of the Results

The research findings reveal that the group centroids for the accounting group and the non-accounting group of supervisors are significantly different. A Chi-square value of 51.99 (with 6 degrees of freedom) is highly significant - beyond the 0.0000 level. Once the function has been found to be statistically significant, the next step involves the validation of the findings.

⁸Hair and others, p. 96.

⁹Nie and others.

The validity of the discriminant function was tested by developing a classification matrix. The classification matrix provides an indication of the predictive accuracy of the derived function. The results are illustrated in Table 4.6. As indicated in the table, the function correctly classified 70.4% of the supervisors in Group 1 (Accounting Style) and 79.5% were correctly classified in Group 2 (Non-accounting Style). Thus, the overall hit-ratio of correctly classified supervisors is 75.59%.

If the individuals used in computing the discriminant function are the ones being classified (as has been done here), the result will be an upward bias in the prediction accuracy.¹⁰ In other words, the classification accuracy will be higher than is valid for the discriminant function if it were used to classify a different sample. The implications of this upward bias are not particularly important in this research, since the conclusions will be confined to the research sample.

While the 75.59% classification accuracy is high, a comparison is made with the a priori chance of classifying individuals correctly without the discriminant function. The proportional chance criterion is the appropriate chance model to use, since unequal group sizes exist and the objective is to correctly classify members of both groups. The

¹⁰Nie and others, p. 435.

Table 4.6
Classification Matrix of Supervisors

| Actual Group | -----Predicted Group----- | | Actual Total | Group Classification Percentage |
|---|----------------------------|--------------------------------|-----------------|---------------------------------------|
| | Accounting Style (1) | Non-Accounting Style (2) | | |
| (1) | 38 | 16 | 54 | 70.4 |
| (2) | 15 | 58 | 73 | 79.5 |
| Predicted Total | 53 | 74 | 127 | |
| Percent Correctly Classified (Hit-ratio) = 75.59% | | | | |

formula is:¹¹

$$C_{pro} = p^2 + (1-p)^2$$

where

C_{pro} = the proportional chance criterion
 p = proportion of individuals in group 1
 $1-p$ = proportion of individuals in group 2

Calculation of the proportional chance criterion results in the following:

$$\begin{aligned} C_{pro} &= (.43)^2 + (.57)^2 \\ C_{pro} &= .18 + .33 \\ C_{pro} &= 51\% \end{aligned}$$

The classification accuracy of 75.59% is substantially greater than the proportional chance criteria of 51%. The discriminant function can therefore be considered as a valid predictor of accounting versus non-accounting supervisors within the research sample. Again, however, the upward bias in correct classifications resulting from classifying the same individuals as were used in developing the function must be considered in reaching this conclusion.

Interpretation of the Results

The final stage of discriminant analysis is interpretation. Interpretation involves determining the relative importance of each of the independent variables in discriminating between the groups. A summary of the results of the stepwise discriminant analysis is presented in Table 4.7 As indicated, six of the original nine independent variables

¹¹Hair and others, p. 109.

Table 4.7
Discriminant Analysis Results

| Independent Variables | Step Entered (Rank) | Significance | Standardized Discriminant Function Coefficients | F to Remove Statistic |
|---|---------------------|--------------|---|-----------------------|
| Satisfaction with Supervision | 1 | 0.0000 | 0.64197 | 18.081 |
| Use of Budgets for Planning and Control | 2 | 0.0000 | -0.59723 | 14.676 |
| Participation in Budget Preparation | 3 | 0.0000 | 0.42000 | 6.9671 |
| Initiating Structure Leadership Style | 4 | 0.0000 | 0.38258 | 4.7610 |
| Production Emphasis Leadership Style | 5 | 0.0000 | -0.33675 | 3.8837 |
| Manipulation of Accounts | 6 | 0.0000 | 0.22044 | 1.8818 |

Note: Multicollinearity, or high intercorrelatedness among variables, can sometimes cause the coefficients to be unstable and potentially misleading. However, this was not felt to be a problem in this research because the correlations between the discriminant function variables were all below .40.

entered the function as being statistically significant. In addition, Table 4.7 provides a ranking of the independent variables in terms of their relative discriminatory power. The rankings are based upon the standardized discriminant function coefficients as well as the F To Remove statistics. When the signs are ignored, the coefficients represent the relative contribution of the associated variables to the function. The signs merely indicate whether the variables make a positive or negative contribution.

An examination of the group means provided the information necessary to determine which of the two groups is more characterized by each of the discriminating variables. This analysis resulted in the conclusion that the supervisors in Group 1 (Accounting Style) when compared with the supervisors in Group 2 (Non-accounting Style) were more characterized by the following independent variables:

- (a) Use of Budgets for Planning and Control
- (b) Production Emphasis Leadership Style
- (c) Manipulation of Accounts

In addition, the results indicated that the supervisors in Group 2 when compared with the supervisors in Group 1 were more characterized by:

- (a) Satisfaction with Supervision
- (b) Participation in Budget Preparation
- (c) Initiating Structure Leadership Style

The independent variables role conflict, role ambiguity, and Consideration leadership style failed to enter the stepwise discriminant analysis because of their failure to significantly discriminate between the two groups of supervisors.

Summary

The results presented in this chapter provide evidence that differences do in fact exist between the two groups of supervisors in the research sample. The observed differences contribute support to the hypothesis that the manner in which a supervisor's performance is evaluated may influence his behavior and attitudes. The implications of these findings are discussed in the following chapter.

Chapter 5

SUMMARY AND CONCLUSIONS

Human assets are probably the most important single key to the future profitability and success of any business enterprise. Human capabilities have long been recognized for their importance. However, only in recent years has concern been expressed about the accountants' preoccupation with the reporting of "end-result" variables, such as costs and profits, while ignoring the "causal and intervening" variables which, through changes in morale and attitude could affect future costs and profits.

One area in which accounting data can play a significant role concerns the evaluation of performance. Complex questions continue to be asked concerning the impact of accounting measurements on human behavior and attitudes. This research was designed to contribute additional insight to this important aspect of organizational life.

Summary of Procedures and Principal Findings of the Study

Eight industrial firms located in South Louisiana agreed to participate in the research project. Questionnaires were distributed to those supervisors in these firms who had responsibility at a level in the organization for which a budget served as a guide to the activities of the supervisor.

The first step of the data analysis required that the supervisors be categorized into distinctly different groups. Included in the questionnaire was a list of 26 statements which represented potentially important factors in the evaluation of supervisors. The responses to these statements were factor analyzed, resulting in the identification of two major styles of performance evaluation. These two styles were identified as "Accounting Style" and "Non-accounting Style." Factor scores were computed to categorize the supervisors on the basis of which of the two styles of evaluation they felt most characterized their own. This analysis resulted in grouping 54 supervisors in the "Accounting Style" and 73 supervisors in the "Non-accounting Style". Fifty supervisors were excluded from subsequent analysis because their evaluation failed to be clearly characterized by one of the two predominant styles identified in this research.

Once the supervisors in the sample were grouped, the next part of the research involved the use of discriminant analysis to:

- (1) Determine if there were statistically significant differences between the average score profiles of the groups of supervisors with regard to the independent variables selected for the study, and

- (2) Determine which specific variables in the profile are good discriminators between the groups.

The independent variables selected for this study and used as inputs into the discriminant analysis were budget-

related behavior, leadership style, role conflict and ambiguity, and satisfaction with supervision.

The results of the discriminant analysis indicated that the differences between the group centroids for the accounting group and non-accounting group were statistically significant. An analysis of the variables that entered the discriminant function revealed the following:

1. The supervisors in Group 1 (Accounting Style), when compared with the supervisors in Group 2 (Non-accounting Style), were more characterized by the following independent variables:

- (a) Use of Budgets for Planning and Control
- (b) Production Emphasis Leadership Style
- (c) Manipulation of Accounts

2. The supervisors in Group 2 when compared with the supervisors in Group 1 were more characterized by:

- (a) Satisfaction with Supervision
- (b) Participation in Budget Preparation
- (c) Initiating Structure Leadership Style

The independent variables role conflict, role ambiguity, and Consideration leadership style failed to enter the stepwise discriminant analysis because of their failure to significantly discriminate between the two groups of supervisors.

Discussion of the Research Findings

While accounting data may provide good indicators of the relative efficiency of organizational departments, this does not mean that they necessarily provide unbiased indicators of the performance of department supervisors. Accounting

data are primarily concerned with representing objective outcomes. If factors exist which affect the reported efficiency of the processes, despite the quality of the supervisory performance, then the accounting data alone will not provide an adequate reflection of performance. For example, the isolation of uncontrollable cost, which should be excluded for supervisory evaluation purposes, is a difficult task. In addition, accounting reports often emphasize the short-term, while the evaluation of supervisory performance should be concerned with more long-term considerations, or at least a balance between the short-term and long-term. Finally, accounting systems are designed to serve many purposes. Each purpose may ideally require the preparation of a separate set of data, although accountants frequently try to prepare general purpose reports which attempt to satisfy at least some of the many purposes. However, these general purpose reports may often fail to perfectly satisfy any one particular purpose, such as the appraisal of performance.

The supervisors in the sample who were grouped under the "Accounting Style" of evaluation indicated that budget-related information was the most important factor in their evaluation. These supervisors also felt that their superiors tended to use budget variances as a pressure device, by emphasizing "meeting the budget." This research found that when performance evaluation is rigidly based on accounting data, as is the case in the "Accounting Style" group, there

is a greater tendency for supervisors to perceive their engagement in the manipulation of accounts than when budget-related factors are of lesser importance for evaluation purposes.

A favorable evaluation by one's superior is obviously important in satisfying a person's achievement needs. Promotion, salary increases, and other organizational rewards depend upon a favorable evaluation by one's superiors. Therefore, the greater the emphasis placed upon a particular dimension of performance by the evaluator, the more important will be the behavior which improves the performance rating on this dimension. This may result in various attempts to manipulate the accounting records and in decisions that are not necessarily in the best interest of the organization as a whole, but made in order to make the accounting information reflect more favorably the individual's performance.

Another characteristic of the "Accounting Style" group of supervisors is that they report using budgets for planning and control to a greater extent than the non-accounting group. Among other things, these supervisors evaluate their subordinates by means of the budget, personally investigate budget variances in their units, and are required to submit an explanation in writing about causes of large budget variances. The fact that budgets play such an important role in their evaluation would logically necessitate their active concern and involvement in the use of budgets for planning and control purposes.

The third independent variable that was more characteristic of the accounting group than the non-accounting group was production emphasis leadership style. The supervisor who has this type of leadership style applies pressure to his subordinates for productive output. For example, these supervisors encourage overtime work, stress being ahead of competing groups, needle members for greater effort, and push for increased production. Again, those supervisors whose favorable evaluation is dependent upon meeting a budget would be expected to exhibit this type of leadership style to a greater degree than those supervisors whose evaluation is more characterized by non-accounting related factors. This research study has confirmed this expectation.

The supervisors who were in the "Non-accounting Style" group felt that their evaluation was based more upon specific job-related abilities and attitudes rather than accounting-related data. Factors such as ability to handle the subordinates, dependability, planning ability, effort put into the job, initiative, knowledge of the work, and attitude towards the work and company were rated as being more significant in their evaluation than factors such as meeting a budget. However, while accounting factors are not of primary importance in their evaluation, the responses of these supervisors indicate that budget-related matters do play a role in the performance of their job. This is evidenced by the fact that the non-accounting group of supervisors feel

free to discuss budget variances with their superior, and that their superior listens to their problems in budget matters.

Further evidence of the fact that budgets do in fact play an important role in the job of the non-accounting group was observed by analyzing the results of the discriminant analysis. The results of the discriminant analysis revealed that the non-accounting group of supervisors perceived more active participation in budget preparation than did the accounting group. This finding offers some evidence that budgets can be utilized in an effective manner by allowing supervisors to participate in their preparation, without incurring the undesirable effects of utilizing them as a means to apply pressure in the evaluation process.

An additional implication of this finding is that perhaps the group of supervisors under the "Accounting Style" of evaluation feel that the budget is simply handed down to them and they are expected to meet it. This may be the reason for greater emphasis on a production oriented leadership style, greater manipulation of accounts, and greater use of budgets for planning and control on the part of the accounting group of supervisors when compared to the non-accounting group. In addition, the accounting group of supervisors indicated that they felt less satisfaction with their supervision than did the non-accounting group. Organizational rewards for a supervisor are based upon a favorable evaluation. However,

the supervisors in the accounting style group may feel that there are factors other than accounting-related data which are important in their job, but yet they are not rewarded on the basis of these other factors. When one's superior rigidly adheres to an evaluation style which is based upon budget variances, he is practicing a method of evaluation which is both incomplete and unjust. This type of evaluation could create a situation in which dissatisfaction with one's supervision is likely to exist.

Initiating structure leadership style was more prevalent among the supervisors in the "Non-accounting Style" group than for those supervisors evaluated under the "Accounting Style". Because budgets and accounting data are not important in the evaluation of the supervisors in the non-accounting group, these supervisors may feel that it is therefore necessary to engage in a leadership style that defines and structures their own role and those of their subordinates toward goal attainment moreso than if budgets were used for this purpose. This type of leadership style may be necessary in order for the supervisors to clarify their expectations concerning what they think their subordinates should do, as well as to reduce their own role ambiguity and conflict (for which no significant differences existed between the groups).

A final observation regarding the results of the discriminant analysis is that the independent variable Consideration leadership style failed to discriminate between the two

groups of supervisors in the research sample. This situation may exist because both groups of supervisors may recognize the importance of engaging in a leadership style which demonstrates a consideration for the feelings of their subordinates, regardless of the manner in which their superior evaluates their performance.

Related Research

A landmark study concerning the behavioral implications of budgets was published in 1952 by Chris Argyris and sponsored by the Controllershship Foundation, Inc.¹ During the research, which involved several manufacturing plants, Argyris observed that budgets were being utilized to bring pressure on foremen and workers. Management applies pressure in many ways, but because budgets are definite in nature they seem to provide a medium through which the total effects of management pressure can best be expressed. Argyris concluded that budgets used as a medium of pressure result in unfavorable behavioral reactions such as increased hostility, tension, fear and mistrust.

A threatening system of management may provide short-run gains, but in the long-run the adverse side effects result in a deterioration in positive company attitudes, motivation, and communication. The resulting behavioral and attitudinal

¹Chris Argyris, The Impact of Budgets on People (New York: The Controllershship Foundation, Inc., 1952).

changes can increase turnover, lower product quality, and cause strikes.² In addition, researchers have reported the tendency of managers to "pad" their budgets in order to make the reported variances more favorable or in expectation of cuts by superiors.³ Another important concern are the numerous examples in the literature of managers making decisions in response to the accounting system which are inconsistent with the goals of the organization.⁴ This occurs because budgets often concentrate on and overemphasize departmental results and not the total organization. Such a narrow perspective is conducive to harmful interdepartmental conflict.

This research offers additional support to the conclusion that budgets, if used improperly, can result in dysfunctional consequences to the individual as well as the organization. This is evidenced by the fact that the "Accounting Style" group of supervisors indicated that budget variances were used by their superiors as a pressure device, by emphasizing "meeting the budget". Also, the accounting

²L. S. Rosen and R. E. Schneck, "Some Behavioral Consequences of Accounting Measurement Systems," Cost and Management, 41:6-16, October, 1967.

³For example, A. E. Lowe and R. W. Shaw, "An Analysis of Managerial Biasing: Evidence from a Company's Budgeting Process," Journal of Management Studies, 5:304-315, October, 1968; Rosen and Schneck, Cost and Management.

⁴For instance see, F. J. Jasinski, "Use and Misuse of Efficiency Controls," Harvard Business Review, 34:105-112, July-August, 1956; V. F. Ridgway, "Dysfunctional Consequences of Performance Measurements," Administrative Science Quarterly, 1:240-247, September, 1956.

group of supervisors indicated a greater degree of perceived involvement in the manipulation of accounts than those supervisors evaluated under the "Non-accounting Style." The use of accounting systems and the resulting data as an instrument of strong hierarchical pressure can cause adverse motivational effects. However, the accounting system itself is not necessarily dysfunctional, but rather becomes so through its improper utilization by management. Even if the accounting system is not perfect, the information that it provides can be used with some care and discretion rather than in a rigid and unflexible manner.

Another area in which a great deal of research has been conducted concerns participation in budget preparation. The primary objectives for seeking participation in the budgeting process are to gain acceptance of the budget, to improve morale among workers and toward management, and to increase productivity.⁵

Participation by employees in the budgeting process has been found to increase the probability of its acceptance. Argyris, in a study of the effect of budgets upon supervisors, concluded that goals are more often accepted if the individuals can come together in a group, openly discuss their opinions concerning these goals, and participate in defining

⁵D. J. Cherrington and J. O. Cherrington, "Participation, Performance, and Appraisal," Business Horizons, 17:35, December, 1974.

the manner by which these goals will be achieved.⁶ In studying resistance to change by employees in a manufacturing plant, Coch and French found that employees who participated in discussions concerning the need for change had a more cooperative attitude toward making the change than those that did not participate.⁷ There is also some evidence that participation improves morale. In the same study, Coch and French found a much reduced turnover rate, less grievances about piece rates, and less aggression against the supervisor as individual participation in planning job changes increased. Research by Searfoss and Monczka found that involvement in the decision-making and goal setting processes result in greater personal commitment to the organization and its goals.

This research found that supervisors in the "Non-accounting Style" group felt that they were more involved in budget preparation than the "Accounting Style" group. Also the non-accounting group indicated a higher degree of satisfaction with supervision than the accounting group. Active participation appears to make workers feel more a part of the

⁶Chris Argyris, "Human Problems with Budgets," Harvard Business Review, 31:97-110, Jan.-Feb., 1953.

⁷Lester Coch and John French, "Overcoming Resistance to Change," Human Relations, 11:512-532, August, 1948.

⁸D. Searfoss and R. Monczka, "Perceived Participation in the Budget Process and Motivation to Achieve the Budget," Academy of Management Journal, 16:541-554, December, 1973.

activities and less dominated by a superior, and therefore improves the employee's attitude toward his job and his superior.

A review of the dissertation abstracts and other relevant business indexes revealed only one empirical research study directly related to this research project. Hopwood⁹ did some extensive research in one manufacturing division of a large Chicago-based company in which he identified different ways that budgetary information was used in the evaluation of cost center heads. Hopwood's research questionnaire included eight possible criteria of performance. The cost center heads in his sample were asked to rank order the three most important criteria in their evaluation. On the basis of these rankings, the cost center heads were classified into three groups. These groups represented different styles of performance evaluation and were identified as "Budget Constrained" style, "Profit Conscious" style, and "Non-accounting" style.

In his study, Hopwood found that as a group, those cost center heads who were evaluated strictly on the basis of meeting a budget experienced high job-related tension, were involved in extensive manipulation of the accounting reports, and had poor relations with their supervisors and colleagues. On the other hand, those cost center heads whose evaluation

⁹A. G. Hopwood, An Accounting System and Managerial Behaviour (Saxon House, 1973).

included factors other than just meeting a budget showed little manipulation of the accounting reports, only a medium amount of job-related tension, and had good relations with their supervisors and colleagues. In addition, Hopwood found that those managers who were themselves evaluated strictly on the basis of meeting a budget tended to assess the performance of a significant proportion of their own subordinates on a similar basis. Also, Hopwood found that the managers of the cost center heads who used accounting information for evaluative purposes, unlike those who did not use accounting information, were seen as trying to create a structured task oriented job environment. In contrast to those managers who evaluated cost center heads only on meeting the budget, those managers who used accounting data along with other relevant information and those who did not use accounting related information for evaluative purposes were seen as maintaining a warm and friendly atmosphere which was supportive and conducive for mutual trust and respect.

The methodology used by Hopwood resulted in the identification of three styles of evaluation, whereas only two predominant styles were identified in the current research. Both studies found that when accounting data is rigidly used for evaluation purposes that supervisors are more likely to engage in the manipulation of accounts, and have less favorable relations with their superior than when accounting data is of lesser importance. Further comparisons between the

studies cannot be made because of a lack of comparability of the remaining research variables.

Conclusion

The nature of the research sample requires that the specific findings and conclusions of this research be limited to the supervisors in this project. However, the relationships that have been found to exist in this research might suggest that similar relationships could be expected to exist in similar industrial settings. Accounting, as a body of knowledge, must incorporate behavioral science research findings into its basic theory and also its practical guides to the operations of business enterprises. Failure to do so will increase the probability that dysfunctional behavioral consequences of accounting will go uncorrected. The growing complexity of business operations demands that accountants have an understanding of the behavioral assumptions and consequences of accounting measurement systems. This research study was designed to make a meaningful contribution to the growing body of knowledge in this area.

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APPENDIX
Research Questionnaire

Permission was obtained by the author to use the following scales in the research questionnaire.

"The Budget Pressure Questionnaire" from J. P. Fertakis, "Budget-Induced Pressure and Its Relationship to Supervisory Behavior in Selected Organizations" (unpublished Ph.D. dissertation, University of Washington, 1967).

"Job Descriptive Index" from P. C. Smith, L. M. Kendal, and C. L. Hulin, The Measurement of Satisfaction in Work and Retirement (Chicago: Rand McNally & Company, 1969). Copyright 1969, Bowling Green State University.

"The Leader Behavior Description Questionnaire - Form XII" from R. M. Stogdill, Manual for the Leader Behavior Description Questionnaire - Form XII. Columbus: Bureau of Business Research, Ohio State University, 1963. Copyright 1962, The Ohio State University.

"Role Conflict and Ambiguity Scale" from J. R. Rizzo, R. J. House, and S. E. Lirtzman, "Role Conflict and Ambiguity in Complex Organizations," Administrative Science Quarterly, 15:150-163, June, 1970.

Introduction

The following questionnaire is part of a research project concerning supervisory behavior. As a manager you have first-hand knowledge which is of great value in attempts to understand management practices on the job. Your cooperation is earnestly needed to make the research successful and useful. You have been selected by the researcher because of your supervisory position in the organization.

Your employer knows of this research and has given his permission for the researcher to seek your cooperation. He will not see your responses to the questions and neither the company nor the department will be identified in the final report on the research. Only the researcher will see your completed questionnaire.

Most of the questions can be answered by circling one of the answers following each statement. Pretesting has indicated that the questionnaire can be completed in a relatively short period of time. There are no right or wrong answers. This is not a test of any kind. Your opinions and feelings are what are important. Read each statement carefully, then select the answer that best describes your situation. If you do not find the exact answer that fits your situation, select the one that comes closest to it. Be sure to complete all the items. Your responses cannot be used if any items are not marked.

Thank you very much for taking part in this research project.

Paul J. Carruth
Louisiana State University

Role Conflict and Ambiguity Scale

The following statements will describe some specific characteristics about your particular job. For each statement, please rate how true the characteristic is of your particular job.

| | | | | | | | | |
|---------------------------------------|---|---|---|---|---|---|---|----------------------------------|
| (Definitely NOT TRUE of my job) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | (Extremely TRUE of my job) |
|---------------------------------------|---|---|---|---|---|---|---|----------------------------------|

Please read each characteristic, and select the scale number that best reflects your opinion. Enter the number you select in the column that follows each statement.

| | <u>How True?</u> |
|---|------------------|
| 1. I feel certain about how much authority I have. | 1. _____ |
| 2. Clear, planned goals and objectives for my job. | 2. _____ |
| 3. I have to do things that should be done differently. | 3. _____ |
| 4. I know that I have divided my time properly. | 4. _____ |
| 5. I receive an assignment without the manpower to complete it. | 5. _____ |
| 6. I know what my responsibilities are. | 6. _____ |
| 7. I have to buck a rule or policy in order to carry out an assignment. | 7. _____ |
| 8. I work with two or more groups who operate quite differently. | 8. _____ |
| 9. I know exactly what is expected of me. | 9. _____ |
| 10. I receive incompatible requests from two or more people. | 10. _____ |
| 11. I do things that are apt to be accepted by one person and not accepted by others. | 11. _____ |
| 12. I receive an assignment without adequate resources and materials to execute it. | 12. _____ |
| 13. Explanation is clear of what has to be done. | 13. _____ |
| 14. I work on unnecessary things. | 14. _____ |

Leader Behavior Description Questionnaire - Form XII
 (Initiation of Structure, Consideration, and Production Emphasis
 Subscales.) Copyright 1962, The Ohio State University.

- a. Read each item carefully.
- b. Think about how frequently you engage in the behavior described by each of the following items.
- c. DRAW A CIRCLE around one of the five letters (A B C D E) following the item to show the answer you have selected.

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

- | | | | | | |
|--|---|---|---|---|---|
| 1. Let group members know what is expected of them . . | A | B | C | D | E |
| 2. Am friendly and approachable | A | B | C | D | E |
| 3. Encourage overtime work | A | B | C | D | E |
| 4. Encourage the use of uniform procedures | A | B | C | D | E |
| 5. Do little things to make it pleasant to be a member of the group | A | B | C | D | E |
| 6. Stress being ahead of competing groups | A | B | C | D | E |
| 7. Try out my ideas in the group | A | B | C | D | E |
| 8. Put suggestions made by the group into operation . | A | B | C | D | E |
| 9. Needle members for greater effort | A | B | C | D | E |
| 10. Make my attitudes clear to the group | A | B | C | D | E |
| 11. Treat all group members as my equal | A | B | C | D | E |
| 12. Keep the work moving at a rapid pace | A | B | C | D | E |
| 13. Decide what shall be done and how it shall be done. | A | B | C | D | E |
| 14. Give advance notice of changes | A | B | C | D | E |
| 15. Push for increased production | A | B | C | D | E |
| 16. Assign group members to particular tasks | A | B | C | D | E |
| 17. Keep to myself | A | B | C | D | E |

A = Always

C = Occasionally

E = Never

B = Often

D = Seldom

18. Ask the members to work harder A B C D E
19. Make sure that my part in the group is understood by the group members A B C D E
20. Look out for the personal welfare of group members A B C D E
21. Permit the members to take it easy in their work A B C D E
22. Schedule the work to be done A B C D E
23. Am willing to make changes A B C D E
24. Drive hard when there is a job to be done A B C D E
25. Maintain definite standards of performance A B C D E
26. Refuse to explain my actions A B C D E
27. Urge the group to beat its previous record A B C D E
28. Ask that group members follow standard rules and regulations A B C D E
29. Act without consulting the group A B C D E
30. Keep the group working up to capacity A B C D E

Job Descriptive Index (Supervision Subscale), Copyright 1969, Bowling Green State University.

Think of the kind of supervision that you get on your job. How well does each of the following words describe this supervision? In the blank beside each word below, put

Y if it describes the supervision you get on your job,
N if it does NOT describe it,
? if you cannot decide.

SUPERVISION ON PRESENT JOB

Asks my advice _____

Tells me where I stand _____

Hard to please _____

Annoying _____

Impolite _____

Stubborn _____

Praises good work _____

Knows job well _____

Y if it describes the supervision you get on your job,
N if it does NOT describe it,
? if you cannot decide

| | |
|--------------------------------|---------------------------|
| Tactful _____ | Bad _____ |
| Influential _____ | Intelligent _____ |
| Up-to-date _____ | Leaves me on my own _____ |
| Doesn't supervise enough _____ | Around when needed _____ |
| Quick tempered _____ | Lazy _____ |

Performance Evaluation Scale

- Read each item carefully.
- Indicate the extent to which you agree with each of the following statements concerning the manner in which your immediate superior evaluates your performance.
- DRAW A CIRCLE around one of the five letters (A B C D E) following the statement to show the answer you have selected.

A = Strongly Agree
 B = Agree
 C = Somewhat Agree
 D = Disagree
 E = Strongly Disagree

- Factors more significant than budget-related information are used in my evaluation A B C D E
- Cooperation with colleagues receives high importance in my evaluation A B C D E
- Budget-related information is the most important factor in my evaluation A B C D E
- My superior tends to use budget variances as a pressure device, by emphasizing "meeting the budget" A B C D E
- Ability to handle my subordinates is a very important factor in my evaluation A B C D E
- My superior knows that at times budget variances can be confusing and misleading for evaluation purposes A B C D E

A = Strongly Agree C = Somewhat Agree E = Strongly Disagree
 B = Agree D = Disagree

7. Dependability receives high importance in my evaluation A B C D E
8. I feel free to discuss budget variances with my superior A B C D E
9. My superior is more concerned with showing favorable short-term reports than with longer term effectiveness A B C D E
10. My superior questions budget reports, and uses them carefully in my evaluation A B C D E
11. Planning ability is a very important factor in my evaluation A B C D E
12. My superior listens to my problems in budget matters A B C D E
13. Budget variances are frequently mentioned to me during performance evaluation interviews A B C D E
14. Effort put into the job is a very important factor in my evaluation A B C D E
15. Budget-related information is rigidly used in evaluating my performance A B C D E
16. My superior mentions budgets while talking to me about my efficiency as a manager A B C D E
17. Knowledge of the work is a very important factor in my evaluation A B C D E
18. My superior holds me personally accountable for budget variances A B C D E
19. My superior is likely to ask about variances beyond my control A B C D E
20. Initiative on the job receives high importance in my evaluation A B C D E
21. My explanation of a variance is generally rejected on the grounds that the variance is simply unfavorable A B C D E

A = Strongly Agree C = Somewhat Agree E = Strongly Disagree
 B = Agree D = Disagree

22. My superior believes that budget-related information must be supplemented by other sources of information A B C D E
23. Getting along with the boss is a very important factor in my evaluation A B C D E
24. My superior generally views an unfavorable budget variance as an indicator of poor managerial performance A B C D E
25. Attitude towards the work and company is a very important factor in my evaluation A B C D E
26. My superior expresses dissatisfaction to me about results when the budget has not been met A B C D E

Budget-Related Behavior Scale

- a. Read each item carefully.
- b. Indicate how frequently the described events take place in your current job.
- c. DRAW A CIRCLE around one of the five letters (A B C D E) following the statement to show the answer you have selected.

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

1. I participate in preparing future budgets A B C D E
2. I investigate favorable as well as unfavorable budget variances for my unit A B C D E
3. I use the budget to plan activities in my unit A B C D E
4. I suggest changes in budget figures for my unit. A B C D E
5. I use staff assistance in locating causes of budget variances in my unit A B C D E
6. I evaluate my subordinates by means of the budget A B C D E

A = Always
B = Often

C = Occasionally
D = Seldom

E = Never

7. I offer suggestions for the improvement of budget systems A B C D E
8. I am required to submit an explanation in writing about causes of large budget variances. . . A B C D E
9. I find it necessary to stop some activities in my unit when budgeted funds are used up A B C D E
10. I am consulted about special factors I would like to have included in the budget being prepared A B C D E
11. I am required to trace the cause of budget variances to groups or individuals within my unit A B C D E
12. I find it necessary to charge some activities to other accounts when budgeted funds for these activities have been used up A B C D E
13. New budgets include changes I have suggested . . . A B C D E
14. I personally investigate budget variances in my unit A B C D E
15. I have to shift figures relating to operations to reduce budget variances A B C D E
16. The budget is not finalized until I am satisfied with it A B C D E
17. I am required to report actions I take to correct causes of budget variances A B C D E
18. I discuss budget performance expectations with my subordinates A B C D E
19. Special problems I mention receive special treatment in the new budget A B C D E
20. Corrective action for budget variances in my unit is under my direction A B C D E
21. I use budgets to measure how efficiently my unit is operating A B C D E
22. My superior listens to my opinion on budget matters A B C D E

A = Always
B = Often

C = Occasionally
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E = Never

23. I go to my superior for advice on how
to achieve my budget A B C D E

General Information

1. How many years have you worked for your company? _____
2. What is your present position in the company? _____

3. How long have you been in this position? _____
4. How many people do you supervise? _____
5. What is the major product or products of your company? _____

6. Your age: _____
7. Your sex: _____
8. What level of formal education did you reach? (Check one)

| | |
|-----------------------------|---------------------------------|
| _____ Grade school | _____ Some college |
| _____ Some high school | _____ Completed college |
| _____ Completed high school | _____ Some graduate school |
| | _____ Completed graduate school |

VITA

Paul Joseph Carruth was born October 30, 1953, in Hammond, Louisiana, the son of Angus Lee and Mittie S. Carruth. In May, 1971, he graduated from Jennings High School of Jennings, Louisiana, and proceeded to attend Southeastern Louisiana University in Hammond, Louisiana. In January, 1973, he transferred to Louisiana State University, and received the Bachelor of Science Degree in December, 1974. In May of 1976, he obtained a Master of Science Degree in Accounting from the University of New Orleans. Following graduation in May, 1976, he re-entered Louisiana State University to pursue a doctorate in Accounting.

While in college, Paul Carruth became a member of Phi Kappa Phi, Beta Gamma Sigma, and Beta Alpha Psi. In May of 1975, he passed the Certified Public Accountants' Examination. As a graduate student, he taught principles of accounting and managerial accounting at Louisiana State University.

EXAMINATION AND THESIS REPORT

Candidate: Paul Joseph Carruth

Major Field: Accounting

Title of Thesis: Behavioral and Attitudinal Implications of
Different Styles of Performance Evaluation:
An Empirical Study

Approved:

Bart P. Hartman
Major Professor and Chairman

James H. Traynham
Dean of the Graduate School

EXAMINING COMMITTEE:

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Date of Examination:

April 19, 1979