AN INVESTIGATION OF THE RELATIONSHIPS BETWEEN CORE JOB DIMENSIONS, PSYCHOLOGICAL STATES, AND PERSONAL AND WORK OUTCOMES AMONG PUBLIC SCHOOL TEACHERS.

by
Robert Allan Gorsuch

Dissertation submitted to the Faculty of the Graduate School of the University of Maryland in partial fulfillment of the requirements for the degree of Doctor of Education
1976

APPROVAL SHEET

Title of Dissertation: AN INVESTIGATION OF THE RELATIONSHIPS BETWEEN CORE JOB DIMENSIONS, PSYCHOLOGICAL STATES, AND PERSONAL AND WORK OUTCOMES AMONG PUBLIC SCHOOL TEACHERS

Name of Candidate: ROBERT ALLAN GORSUCH
DOCTOR OF EDUCATION, 1976

Dissertation and Abstract Approved: James Dudley

DR. JAMES DUDLEY
PROFESSOR
ADMINISTRATION, SUPERVISION
AND CURRICULUM

Date Approved: 11/4/76

ABSTRACT

Title of Dissertation: AN INVESTIGATION OF THE RELATIONSHIPS BETWEEN CORE JOB DIMENSIONS, PSYCHOLOGICAL STATES, AND PERSONAL AND WORK OUTCOMES AMONG PUBLIC SCHOOL TEACHERS

Robert Allan Gorsuch, Doctor of Education, 1976

Dissertation directed by: Professor James Dudley
Department of Administration, Supervision and Curriculum

The Job Characteristics Model of Work Motivation was developed on the bases of prior research and theory in the area of work redesign. The purpose of this study was to determine the applicability of this model for predicting worker-job interaction among one group of public sector employees-teachers.

A sample of 90 full-time teachers was selected from one public school system in Maryland. The Job Diagnostic Survey was administered to all subjects as a measure of most of the variables presented in the job characteristics model. Personnel records were used to obtain absenteeism and performance data. These data were analyzed through zero-order and multiple regression analyses.

Five primary research questions were posed regarding the validity of the job characteristics model. First, relationships between core job dimensions and model specified worker psychological states were investigated. Findings indicated a need to reexamine the core job dimensions in terms of how well

they measured all aspects of the job of teaching. The psychological states were examined relevant to their dual role as mediating variables, and as predictors of personal and work outcomes. It was found that the psychological states appeared to measure similar constructs and did not account for the total psychological set of teachers in terms of personal and work outcomes. However, significant correlations were reported between the combined psychological states and these outcomes. Growth need strength as a moderator of relationships between core job dimensions and psychological states and personal and work outcomes was determined to be ineffective. Teachers generally scored high on this measure and little variance was reported. It was concluded that an alternative individual difference moderator variable be used in subsequent tests of the model.

Four secondary research questions were addressed to determine teacher levels of personal and work outcomes and growth need strength. A motivating potential score for the job of teaching was also derived. Comparisons of these data with data reported for business work groups indicated that teachers were very similar, as a group, to business work groups. Mean scores for the core job dimensions, and consequently the motivating potential score for teaching, was found to be higher than those in the comparison groups.

Recommendations were made to revise the job characteristics model in terms of teacher data. It was suggested that

absenteeism data not be used with work groups where there was little incentive to avoid being absent from work. If individual differences among workers were to be measured in terms of a moderator variable, something other than individual growth need strength should be used. Finally, it was recommended that a valid measure of teacher performance be used for further tests of the job characteristics model.

ACKNOWLEDGEMENTS

I am pleased to acknowledge the kind and patient assistance of my advisor, Dr. James Dudley, in providing direction for this research and dissertation. Dr. Clayton Stunkard, as statistics advisor, made a major contribution which made possible the completion of Chapter IV. Dr. Robert Stephens, Dr. Barry Clemson, Dr. David Bowering, and Dr. Richard Holler are gratefully acknowledged for their suggestions and editorial comments throughout this study and for serving as members of my doctoral research committee.

An important contribution to my academic efforts, including this dissertation, was that made by my wife, Beverly, and my children, Lori and Billy. Without their understanding, few of my professional objectives would have been met. In addition, I wish to acknowledge the contribution made to this study through the services provided by the Computer Science Center of the University of Maryland. Finally, I wish to thank my typist, Mrs. Carole Chance, for her many long days preparing this manuscript for presentation.

TABLE OF CONTENTS

LIST OF TABLES

ILLUSTRATIONS

CHAPTER I

PROBLEM STATEMENT

Introduction

Early in this century, Frederick Taylor[1] spoke of scientific management as involving "...a complete mental revolution on the part of the working man engaged in any particular establishment or industry ...". It involved a change in attitude and behavior of both management and workers towards their respective duties and towards each other. Through scientific management, workers and the work itself were explicitly studied to promote increased output per unit of human effort. Management's responsibility was to "inspire" workers to follow a scientifically prescribed "one best way" of doing their jobs. Using this scientific approach both managers and workers were to benefit from increased efficiency.

Whatever Taylor's intentions in the development of this approach to the study of jobs, one of the outcomes was an emphasis upon work simplification and standardization.

---

[1]Frederick W. Taylor, "The Principles of Scientific Management", Classics in Management, ed. Harwood F. Merrill (New York: American Management Association, Riverside Press, 1960), p. 89.

As a result, workers who were placed in simple routine non-challenging jobs were difficult to manage. Workers under these conditions were highly dissatisfied, as was evidenced by high absenteeism and turnover.[1] As researchers began trying to determine what produced these negative outcomes, two alternative approaches to work simplification were developed. Argyris[2] suggested that jobs be enlarged to involve the worker in more than one specific job function. Herzberg, Mausner, and Snyderman[3] agreed with this proposition but suggested a further step. They were of the opinion that jobs should not only be enlarged but also enriched, making them more meaningful and more challenging. Considerable success was reported in the use of job enrichment to increase employee satisfaction and productivity.[4] However,

---

[1]Chris Argyris, Integrating the Individual and the Organization (New York: Wiley, 1964); Charles R. Walker, "The Problem of the Repetitive Job", Harvard Business Review 28 (1950): 54-58; Charles R. Walker and Robert H. Guest, The Man on the Assembly Line (Cambridge, Mass.: Harvard University Press, 1952).

[2]Argyris, Integrating the Individual and the Organization.

[3]Frederick Herzberg, Bernard Mausner, and Barbara B. Snyderman, The Motivation to Work (New York: Wiley, 1959).

[4]Robert N. Ford, Motivation Through the Work Itself (New York: American Management Association, 1969); Eaton H. Conant and Maurice D. Kilbridge, "An Interdisciplinary Analysis of Job Enlargement: Technology, Costs, and Behavior Implications", Industrial and Labor Relations Review 3 (1965): 377-395.

for methodological and other reasons these findings appeared insufficient to fully explain worker motivation and satisfaction.[1]

Herzberg and others[2] developed a theory relevant to work redesign from which several propositions were derived regarding conditions on the job that are motivating to employees. In particular, these writers felt a job should enhance employee motivation to the extent that it provides opportunities for (a) achievement, (b) recognition, (c) responsibility, (d) advancement, and (e) growth in competence. Ford[3] summarized the findings of several successful job enrichment experiments based on these propositions. For the purpose of work redesign, however, the theory did not adequately specify how individual differences among employees affected their responses to these motivating job conditions. Also, the theory failed to indicate how differences among jobs affect employee responses.[4]

---

[1]Charles Hulin and Milton Blood, "Job Enlargement, Individual Differences and Worker Responses," Psychological Bulletin 69 (1968): 41-55.

[2]Frederick Herzberg, Work and the Nature of Man (Cleveland: World, 1966) p. 196; Herzberg, Mausner, and Snyderman, The Motivation to Work, pp. 44-49.

[3]Ford, Motivation Through the Work Itself.

[4]Richard Hackman and Edward Lawler, "Employee Reactions to Job Characteristics", Journal of Applied Psychology 55 (June 1971): 259.

Turner and Lawrence[1] measured job characteristics extensively on the assumption that the job itself contained the key to improved worker attitudes and behaviors. Six attributes of any given job were identified and a summary measure, the Requisite Task Attribute Index (RTA), was devised to ascertain the relationships between the attributes of a job and worker satisfaction and attendance. It was concluded that job characteristics, as combined in the RTA index, were related to and predictive of these outcomes.

Subsequent research by Hackman and Lawler,[2] provided additional support for this theoretical arrangement of variables. Hackman and Oldham[3] supplemented Turner and Lawrence's[4] research with the development of a theoretical model specifying the relationships between job dimensions and personal and work outcomes. Adopting an interactive approach, these theor-

---

[1]Arthur N. Turner and Paul R. Lawrence, Industrial Jobs and the Worker: An Investigation of Response to Task Attributes (Boston, Mass.: Harvard University School of Business Administration, 1965).

[2]Hackman and Lawler, "Employee Reactions to Job Characteristics", pp. 271-280.

[3]Richard Hackman and Greg Oldham, Motivation Through the Design of Work: Test of a Theory, Technical Report No. 6 (New Haven, Conn.: Yale University School of Organization and Management, 1974), pp. 7-13.

[4]Turner and Lawrence, Industrial Jobs and the Worker.

ists identified the psychological need structure of workers as a moderator of job dimensions and personal and work outcomes. This model, the Job Characteristics Model of Work Motivation, was later empirically tested by its developers[1]. Finding support for their conceptualization, they suggested that the job characteristics model is a valid description of employee-job interaction which is generalizable to all jobs in all types of organizations.

The job characteristics model has been applied by numerous business and industrial organizations to determine the need for work redesign projects.[2] Although this management strategy has been assumed to be valid, the relationships specified by Hackman and Oldham have not been tested with employees in public service organizations and there has been little effort to apply the model to work redesign in such organizations. This research is an attempt to test these relationships as applied to one public service organization's employees- teachers in a public school setting.

---

[1]Hackman and Oldham, Motivation Through the Design of Work.

[2]Kenneth Purdy, interviewed by telephone at Roy Waters Associates, Inc., Glen Rock, N.J., February 1976.

Problem

The problem investigated in this research is to test the adequacy of the job characteristics model for describing job characteristics - job outcomes relationships for one public service work group. Specifically, it seeks to answer questions which involve (1) the relationships between job characteristics and other model specified variables, (2) the influence that the moderator variable (growth need strength) has on these relationships, and (3) the utility of the model for predicting personal and work outcomes. In addition, an important question concerns the test population as it is characterized through variable measurement. How employees perceive their job and how they respond to it in terms of personal and work outcomes are questions with which managers are constantly concerned.

The significance of additional tests of the model stems from findings reported by Hackman and Oldham.[1] Specifically, relationships involving absenteeism as a work outcome were not as strong as expected. Simple correlations between absenteeism and predictor variables ranged from .16 to -.24.

---

[1]Hackman and Oldham, Motivation Through the Design of Work, pp. 22-25.

The moderator variable, employee growth need strength, also failed to significantly influence predictions of absenteeism. More importantly, the relationships between two job dimensions and their corresponding psychological states did not operate in accordance with the model. Hackman and Oldham suggested that additional research be conducted to "obtain increased specificity and clarity"[1] regarding the function of these variables in the job characteristics model.

Public school teachers should be representative of the larger non-industrial, public service employee group. If teacher attitudes and behaviors are found to be strongly influenced by the design of their jobs, then work redesign could be effectively used by management with similar work groups. Increased performance, lower absenteeism, and improved employee motivation and satisfaction are important organizational goals. They are especially important goals in public education organizations since teachers have the primary responsibility for delivering the services provided by public schools.

Theoretical Base

Employees constantly interact with their work environment. The complexity of this interaction has been documented

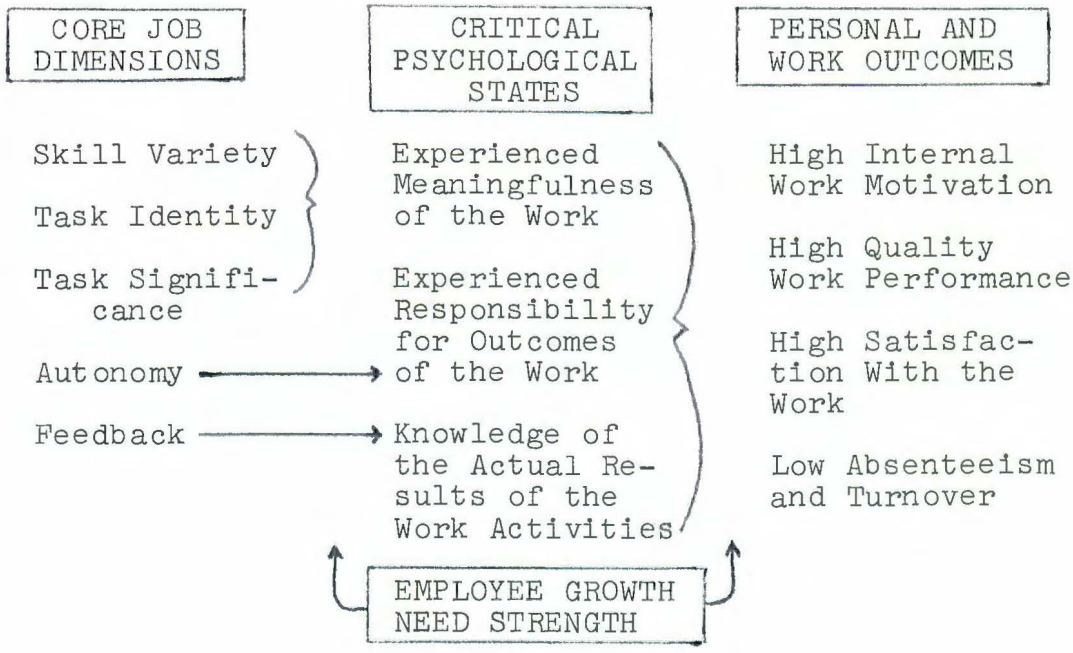
---

[1]Ibid., p. 25.

by researchers for several decades. To theoretically explain these complex relationships, Hackman and Oldham developed the Job Characteristics Model of Work Motivation (Figure 1). The model identifies three interrelated sets of variables which are influenced by an individual difference moderator- employee growth need strength.

Figure 1

Job Characteristics Model of Work Motivation[1]



[1]Ibid., p. 9.

This conceptualization is based primarily on the expectancy theory of motivation as formulated by Lewin[1] and Tolman,[2] and applied to work settings by Vroom[3] and Porter and Lawler.[4] Hackman and Lawler reviewed the propositions suggested by this research and concluded that:

> .....the long term congruence of high satisfaction and high effort is seen as depending upon (a) the existence of employee desires for higher order need satisfactions and (b) conditions on the job such that working hard and effectively toward organization goals will bring about satisfaction of these needs.[5]

Lewin and others[6] suggested that individuals may experience higher order need satisfaction when these conditions are met.

---

[1]Kurt Lewin, The Conceptual Representation of the Measurement of Psychological Forces (Durham: Duke University Press, 1938).

[2]Edward C. Tolman, "Principles of Purposive Behavior", Psychology: A Study of Science, ed. S. Koch, vol. 2 (New York: McGraw-Hill, 1959).

[3]Victor H. Vroom, Work and Motivation (New York: Wiley, 1964).

[4]Lyman W. Porter and Edward E. Lawler, III, Managerial Attitudes and Performance (Homewood, Ill.: Irwin, 1968).

[5]Hackman and Lawler, "Employee Reactions to Job Characteristics", p. 263.

[6]Kurt Lewin, Tamara Dembo, Leon Festinger, and Pauline Sears, "Level of Aspiration", Personality and the Behavior Disorders, ed. J. McV. Hunt (New York: Ronald Press, 1944); Argyris, Integrating the Individual and the Organization.

The job must provide feedback about what is accomplished, it must allow the employee to feel personally responsible for a meaningful portion of the work, and the job must provide outcomes which are intrinsically meaningful or experienced as worthwhile. These conditions are referred to in the job characteristics model as "critical psychological states".

The concept of a hierarchy of needs as a basis for human motivation was first developed by Maslow.[1] The proposition that many employees desire higher order need satisfaction has been documented by several researchers.[2] When employees have a high desire for higher order need satisfaction, a job which produces high levels of the three psychological states should be motivating. Thus the personal and work outcomes specified in the model should be optimum. However, not all employees have a strong desire for higher order need satisfaction and would therefore be less motivated by the same job. This individual difference, called "growth need strength" (GNS), moderates the relationships between the

---

[1]Abraham H. Maslow, "A Theory of Human Motivation", Psychological Review 50 (1943): 370-396.

[2]David C. McClelland, John W. Atkinson, Russell A. Clark, and Edgar L. Lowell, The Achievement Motive (New York: Appleton Century Crofts, Inc., 1953); Clayton P. Alderfer, Human Needs in Organizational Settings (New York: The Free Press of Clencoe, 1971); Alderfer, "An Empirical Test of a New Theory of Human Needs", Organizational Behavior and Human Performance 4 (1969): 142-175.

psychological states and the outcomes they affect.

It was suggested by Hackman and Oldham[1] that the critical psychological states experienced by employees are dependent upon the presence of five specific "core job dimensions". When a job is high on these dimensions, employees experience high levels of the psychological states. Since the core dimensions create these feelings within individuals, employee growth need strength also moderates the relationships between core dimensions and psychological states. Employees who desire higher order need satisfaction from their jobs react differently to a high level of these core dimensions than those who do not.

The core job dimensions, as separate job characteristics, were derived from research by Turner and Lawrence[2] and Hackman and Lawler.[3] The combined core dimensions, as a summary measure, are said to determine the potential of a job to be motivating. This motivating potential score (MPS) closely approximates the Requisite Task Attribute Index devised by Turner and Lawrence. When jobs are high on the MPS measure, the growth need strength of individual employees

---

[1]Hackman and Oldham, Motivation Through the Design of Work, pp. 9-10.

[2]Turner and Lawrence, Industrial Jobs and the Worker.

[3]Hackman and Lawler, "Employee Reactions to Job Characteristics".

serves as a moderator of the relationships specified in the model. However, when a job receives a low MPS, this individual difference is not expected to affect these relationships. This is attributed to the fact that the job characteristics model is based on the assumption that most individuals are motivated by jobs that help them obtain higher order need satisfactions. Therefore, the level of individual growth need strength operates most effectively as a moderator when the job has a high motivating potential.

In summary, the development of the job characteristics model is based on theory and research in the areas of motivation and work redesign. The model represents an attempt to pull together and conceptually arrange factors describing employee-job interactions as predictors of personal and work outcomes. As Vroom stated:

> .....data collection in the absence of the construction of models or theory to explain the data can be wasted effort. The construction of theory and accumulation of empirical observations must work hand in hand with each providing the necessary corrective adjustments in the other.[1]

The job characteristics model is an example of one such effort.

---

[1]Vroom, Work and Motivation, pp. 286-287.

Research Questions

This research is intended to serve a twofold purpose. First, it undertakes an additional test of the job characteristics model in an effort to add to current knowledge about employee-job interaction. Secondly, by using public school teachers as the research group, it seeks to extend the application of work redesign theory to the public service sector.

The first five research questions were derived from the conceptualization presented in the job characteristics model.

1. What relationships exist between the core job dimensions and model specified psychological states?
2. What relationships exist between psychological states and model specified personal and work outcomes?
3. What relationships exist between the combined core job dimensions and outcome variables?
4. Do psychological states mediate the relationships between core job dimensions and outcome variables?
5. Does the growth need strength measure moderate the relationships between (a) core job dimensions and psychological states and (b) between psychological states and outcome variables?

Of secondary importance are the findings obtained from variable measurement. The following research questions reflect a concern for the specific population investigated in this research.

1. How potentially motivating is the job of teaching and which core job dimensions account for this potential?
2. What are the levels of internal work motivation and work satisfaction among teachers?
3. What are the work performance and attendance levels of teachers?
4. What is the level of teacher growth need strength?

Limitations

Often social science research does not lend itself to an experimental approach. When such is the case, alternative approaches are required. Campbell and Stanley[1] referred to such approaches as quasi-experimental. The ex post facto experiment is such a design and best describes this research. The objective of most ex post facto designs is to provide correlational support for hypothesized causal relationships among variables. Although causation cannot be determined through correlational analysis, disconfirmation of causal hypotheses can be. "If a zero correlation is obtained, the credibility of the hypothesis is lessened. If a high correlation occurs, the credibility of the hypothesis is strengthened in that it has survived a chance of disconfirmation."[2] Since this is the objective of this research,

---

[1]Donald T. Campbell and Julian C. Stanley, Experimental and Quasi-Experimental Designs for Research (Chicago: Rand McNally College Publishing Co., 1963), pp. 64-65.

[2]Ibid.

the only threats to the validity of the findings are (1) how representative the sample is of the population, and (2) whether or not the variables are accurately measured.

To overcome the first problem, the subjects were randomly selected. The second concern posed a more serious limitation. All variables in the job characteristics model with the exception of absenteeism and work effectiveness, were measured by the Job Diagnostic Survey (Appendix B). This instrument was developed by Hackman and Oldham[1] and has acceptable test validity and reliability. The work outcome variables, absenteeism and work effectiveness, were measured on the basis of existing school system records. Absenteeism posed no problem in that only data tabulation was required. However, the measure of work effectiveness used imposed a major constraint. The instrument used by the school system to evaluate overall teacher performance was not designed to provide data that differentiates performance levels. Acceptable alternative performance measures were not available through the school system. A partial measure of performance was therefore obtained through an analysis of forms used to rate teaching behavior in the classroom. This was not a valid measure of overall work effectiveness and might not

---

[1]Hackman and Oldham, The Job Diagnostic Survey: An Instrument for the Diagnosis of Jobs and the Evaluation of Job Redesign Projects, Technical Report No. 4 (New Haven, Conn.: Yale University School of Organization and Management, 1974).

relate to causal variables as specified in the job characteristics model. Also data bias was possible with such a measure since the data was not sufficient to obtain inter-rater reliability coefficients. While these limitations seem severe, it was felt that the research could still yield valid information relative to the questions posed in the study.

Definitions

Variables investigated in this study are those presented in the job characteristics model. There are four sets of variables which require definition. All variables except the work outcomes are defined as suggested by Hackman and Oldham.[1]

There are five factors referred to as core job dimensions:

Skill Variety - The degree to which a job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee.

---

[1]Hackman and Oldham, Motivation Through the Design of Work, pp. 9-12.

Task Identity - The degree to which the job requires completion of a "whole" and identifiable piece of work - that is, doing a job from beginning to end with a visible outcome.

Task Significance - The degree to which the job has a substantial impact on the lives or work of other people - whether in the immediate organization or in the external environment.

Autonomy - The degree to which the job provides substantial freedom, independence, and discretion to the employee in scheduling the work and in determining the procedures to be used in carrying it out.

Feedback - The degree to which carrying out the work activities required by the job results in the employee obtaining direct and clear information about the effectiveness of his or her performance.

The second set of variables involve the three psychological states created by the core dimensions:

Experienced Meaningfulness of the Work - The degree to which the employee experiences the job as

one which is generally meaningful, valuable, and worthwhile.

Experienced Responsibility for Work Outcomes - The degree to which the employee feels personally accountable and responsible for the results of the work he or she does.

Knowledge of Results of Work Activities - The degree to which the employee knows and understands, on a continuing basis, how effectively he or she is performing the job.

The individual difference moderator is defined as follows:

Employee Growth Need Strength - The degree that an individual desires to obtain "growth" satisfaction from his or her work.

Finally, the fourth set of variables are personal and work outcomes. The work outcome variables are defined as they apply to this study.

Internal Work Motivation - The degree to which the employee is self-motivated to perform effectively on the job - that is, the employee experiences positive internal feelings when working effectively on the job, and negative internal feelings when doing poorly.

Satisfaction with Work - The degree to which an employee is satisfied and happy with various aspects of his or her job.

Quality Work Performance - The degree to which subjects have been given satisfactory ratings on instructional lesson characteristics.

Absenteeism - The total number of subject initiated incidences of absence from work for a six and one half month period.

Organization of the Study

This paper was organized into five chapters. Chapter I was devoted to an explanation of the purpose and direction of the effort as a whole. Chapter II provided a look at research related to the problem under study. In Chapter III, a discussion was provided of the methodology and procedures used to conduct the research. Findings reported and discussed in Chapter IV were analyzed in Chapter V in terms of conclusions and suggestions for further research.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The present research involves a test of the adequacy of the Job Characteristics Model of Work Motivation to explain job characteristics - job outcome relationships among public school teachers. This model, developed by Hackman and others,[1] is a conceptualization of the psychological interaction between individual employees and their jobs. The relationships specified in the model are based on prior motivation theory and research.[2]

The first section of this chapter is devoted to a discussion of the development of the model in terms of these theoretical and research efforts. As stated previously, the job characteristics model has been applied in numerous business settings. A review of these efforts and findings is provided in section two. The implications of these efforts for the present study are also discussed.

---

[1]Hackman and Lawler, "Employee Reactions to Job Characteristics", pp. 271-280; Hackman and Oldham, Motivation Through the Design of Work.

[2]Primarily the work of Maslow, Herzberg, and Turner and Lawrence.

The final section of this chapter deals briefly with the methodology used in this study. Although the analytical procedures used by Hackman and Oldham[1] have been used as a guide for this effort, their reported findings suggest a few modifications. The rationale for these changes is also presented in this section.

Development of the Model

Job enlargement theory suggests that the job itself is most important in determining worker satisfaction and motivation. Based on this theory "...work redesign is becoming increasingly prominent as a strategy for attempting to improve simultaneously the productivity and the quality of the work experiences of employees in contemporary organizations".[2] Among the many advocates[3] of this view, one of the more sophisticated and thorough accounts is provided by Richard Hackman. Hackman and Lawler[4] reviewed research and theory on motivation from which they derived several propo-

---

[1]Hackman and Oldham, Motivation Through the Design of Work.

[2]Ibid., p. 1.

[3]John VanMaanen, Peter Gregg, and Ralph Katz, Work in the Public Sector: An Economic Development Administrative Technical Report (Washington, D.C.: National Training and Development Service, 1974), p. 9.

[4]Hackman and Lawler, "Employee Reactions to Job Characteristics".

sitions regarding employee-job interactions. These later served as the foundation for the development of the Job Characteristics Model of Work Motivation by Hackman and Oldham.[1] These efforts do not represent a new theory of motivation, but a consolidation of prior theory and research into an empirically testable model.

Hackman and Lawler's[2] conceptualization of the interaction between job characteristics and individual differences was based primarily on the expectancy theory of motivation. Five propositions were derived from previous research which addressed the specific problem of how employee motivation could be enhanced through the way jobs are designed. These propositions are summarized as follows:

1. Workers will do things they perceive as helpful in obtaining outcomes they value.

2. Outcomes are valued by workers to the extent they are perceived as enabling them to meet physiological and psychological needs.

3. If work is arranged so that workers who are effective meet their needs, then organizational goals will be met.

4. Except in unusual circumstances, only higher order needs are motivating. Satisfaction of higher order needs does not diminish these needs; and, in fact, may even serve to

---

[1]Hackman and Oldham, Motivation Through the Design of Work.

[2]Hackman and Lawler, "Employee Reactions to Job Characteristics".

increase them. However, not all employees will respond to opportunities for higher order need satisfactions.

5. Individuals capable of higher order need satisfaction will obtain satisfaction when the job (a) allows workers to feel responsible for an identifiable and meaningful portion of work, (b) provides outcomes which are intrinsically meaningful or experienced as worthwhile, and (c) provides feedback about performance effectiveness.[1]

Hackman and Lawler[2] concluded that by designing a job to provide for the three conditions specified in proposition five, the manager could simultaneously achieve high employee satisfaction and high employee effort toward organizational goals. Four of Turner and Lawrence's[3] "requisite task attributes" were chosen as measures of these three job conditions. Perceived employee "autonomy" was said to tap the degree to which workers felt personal responsibility for their work. Experienced meaningfulness of the work was said to be measured by the degree to which the worker could identify the work as a meaningful whole (task identity). Meaningfulness of the work was also indicated by the perceived variety of activities required to do the job (skill variety). The third

---

[1]Ibid., p. 263.

[2]Ibid.

[3]Turner and Lawrence, Industrial Jobs and the Worker, p. 20.

job condition appeared to be adequately measured by Turner and Lawrence's[1] task attribute entitled "feedback". These four attributes were renamed "core job dimensions".

Since workers were expected to respond differently to opportunities for higher order need satisfaction, Hackman and Lawler attempted to determine which individual difference moderator would best explain interaction between workers and job characteristics. Turner and Lawrence[2] suggested that these relationships were substantially moderated by differences in the cultural backgrounds of employees. Blood and Hulin[3] provided additional support for the importance of subcultural factors in determining worker responses to job factors. They hypothesized that an important moderator is alienation from traditional middle class work norms. When employees were alienated from these norms, more complex jobs were responded to negatively. However, Shepard[4] reported con-

---

[1]Ibid.

[2]Ibid., pp. 75-84.

[3]Milton R. Blood and Charles L. Hulin, "Alienation, Environmental Characteristics, and Worker Responses", Journal of Applied Psychology 51 (1967): 284-290; Hulin and Blood, "Job Enlargement, Individual Differences and Worker Responses".

[4]Jon M. Shepard, "Functional Specialization, Alienation, and Job Satisfaction", Industrial and Labor Relations Review 23 (1970): 207-219.

tradictory findings when using the same moderator. Stone[1] used employee endorsement of the Protestant Work Ethic as a moderator but also failed to show support for any effect it had on job-response relationships.

Based on these findings, Hackman and Lawler[2] developed a measure of employee desires for growth satisfactions. This measure, "employee growth need strength", was expected to account for significant differences in worker responses to potentially motivating jobs. The greater a person's growth need strength, the more responsive he should be to jobs perceived as having high levels of the four core job dimensions.

In summary, Hackman and Lawler determined that "...the long term congruence of high satisfaction and high effort is seen as depending upon (a) the existence of employee desires for higher order need satisfaction and (b) conditions on the job such that working hard and effectively toward organizational goals will bring about satisfaction of these needs".[3] The presence of a high level of the four core job dimensions should create the three conditions discussed pre-

---

[1]Eugene F. Stone, "The Moderating Effect of Work-Related Values on the Job Scope - Job Satisfaction Relationship", Organizational Behavior and Human Performance 15 (1976): 147-167.

[2]Hackman and Lawler, "Employee Reactions to Job Characteristics".

[3]Ibid., p. 263.

viously. These job conditions, when present, should be "causal"[1] of high employee satisfaction, motivation, performance, and attendance.

Hackman and Lawler[2] empirically tested a theoretical construct derived from the research and propositions reported above. Six job dimensions, similar to those used by Turner and Lawrence,[3] were identified as follows: (a) variety, (b) autonomy, (c) task identity, (d) feedback, (e) dealing with others, and (f) friendship opportunities. The first four, the core job dimensions, were defined as presented previously and were said to tap the three conditions necessarily present in any motivating job. The last two were included to permit exploration of the impact of the interpersonal characteristics of job design. These dimensions were adapted with very minor revision from the task attributes "required interaction" and "optional interaction" proposed by Turner and Lawrence.[4] They were not, however, seen as directly relevant to the conceptualization about job-based work motivation and no specific predictions regarding them were made. Instruments were developed to measure these job

---

[1]The term "causal" was qualified by Hackman and Oldham in that causation cannot be determined through correlation. The term is used here in the same context.

[2]Hackman and Lawler, "Employee Reactions to Job Characteristics".

[3]Turner and Lawrence, Industrial Jobs and the Worker.

[4]Ibid.

characteristics from three points of view: (a) employee perceptions, (b) perceptions of supervisors, and (c) job ratings by the researchers based on observation. Comparisons were also made with results obtained by using Turner and Lawrence's[1] objective coding procedure. Subjects for the research were 208 employees and 62 supervisors involved in 13 different jobs in the plant and traffic departments of an eastern telephone company.

High agreement among the four measurements was found on all job dimensions with the exception of feedback. It was suggested that this was due to the different attention given by employees, supervisors, and researchers to different aspects or levels of feedback. It was found that on all other dimensions, employees' perceptions did not differ substantially from the perceptions of others. The authors[2] noted that <u>how</u> an employee perceives these dimensions will determine his affective and behavioral responses to the job rather than their objective state. Data on employee perceptions was therefore used in the rest of the analysis.

---

[1]Ibid.

[2]Hackman and Lawler, "Employee Reactions to Job Characteristics".

Four types of employee affective reactions to their jobs were obtained and used as dependent variables. These were (a) experienced work motivation, (b) job involvement, (c) general job satisfaction, and (d) specific satisfaction items. "Experienced work motivation" included the amount of intrinsic motivation experienced by employees and the source of their motivation.

A measure of employee growth need strength was obtained and it was predicted that this would moderate the relationships between job dimensions and dependent variables. For this analysis, the highest third and the lowest third of employees scoring on this measure were compared. The Yale Job Inventory[1] was constructed and used to collect the affective responses of employees on the variables mentioned above.

Performance, as a dependent variable, was measured by having supervisors rate employees on (a) quantity of work produced, (b) quality of work produced, and (c) overall performance effectiveness. Absenteeism data were collected from company records. Occasions of absence rather than days of absence were used.

In general, positive relationships were obtained between the four core dimensions and dependent measures of motivation, satisfaction, performance, and attendance.

---

[1]Ibid., pp. 267-271.

Hackman and Lawler summarized their findings as follows:

> The higher jobs are on the core dimensions, the more employees tend to report feeling internal pressures to take personal responsibility for their work and to do high quality work. And, in fact, when jobs are described as being higher on variety, autonomy, and task identity, employees are rated as doing higher quality work and as being generally more effective performers on the job.
>
> Further, ...when jobs are high on the core dimensions, employees report having higher intrinsic motivation to perform well.[1]

The two interpersonal dimensions did not relate very consistently or strongly to employee affective responses or to their actual work performance. As was expected, these dimensions did not represent significant variables relative to the dependent variables.

The specific satisfactions that related highest with the core job dimensions were: (a) the opportunity for independent thought and action in my job, (b) the feeling of worthwhile accomplishment in my job, (c) the opportunity for personal growth and development in my job, (d) the self-esteem and self-respect a person gets from being in my job. Three of

---

[1]Ibid., p. 273.

these appeared to reflect the growth need of the employee, while the second might have been termed "task significance".

One of the premises of Hackman and Lawler's[1] conceptualization was that for maximum motivation, jobs should be high simultaneously on all four of the core job dimensions. It was predicted that when jobs were high on all four, that:

> (a) experienced pressures to take personal responsibility for one's work and to do high quality work would be high, (b) intrinsic motivation would be high, (c) rated performance quality and overall performance effectiveness would be high, (d) job satisfaction and involvement would be high, and (e) absenteeism would be low.[2]

All of these expectations were borne out substantially. Results were statistically significant at the .05 level - except for expectations relative to absenteeism.

The investigation of the moderating effect of higher order need strength led the researchers to conclude that: "All in all, the data make a strong case for the moderating effect of individual higher order need strength in determining the effects of job characteristics on employee behavior and attitudes at work".[3]

---

[1]Ibid., p. 276.

[2]Ibid., p. 277.

[3]Ibid., p. 280.

As a result of their research, Hackman and Lawler provided support for the major aspects of their job characteristics - job outcomes theory. However, they also raised questions concerning various components of their theory. First, the validity of the use of attendance data as a measure of employee performance was in question. No explanation was apparent for the low correlations between attendance data and the other variables.

Secondly, a redefinition of the feedback dimension seemed necessary since there was no convergence among the several methods for measuring this dimension. Further refinement of the core dimensions was called for by the researchers to determine if fewer or more core dimensions are implicit in producing the three "conditions on the job" necessary for internal work motivation.[1]

As a result of Hackman and Lawler's work, Hackman and Oldham[2] stated these relationships in a paradigm later to be called the Job Characteristics Model of Work Motivation. The model incorporated "task significance" as a core job dimension and excluded reference to the interpersonal job dimensions included by Hackman and Lawler in their research (see Figure 1,

---

[1]Ibid., p. 282.

[2]Hackman and Oldham, Motivation Through the Design of Work, p. 8.

page 8). This model became the basis for the research to be discussed in the next section of this chapter.

Tests of the Model

Several empirical research studies have been conducted to either test the entire job characteristics model or specific relationships suggested within the model. The discussion that follows focuses first on the major research studies which tested specific relationships implied in the model and then on the research which tested the entire construct using work groups from various types of organizations.

Work redesign or job enrichment is based on the effects that manipulation of factors related to the job itself have on employee affective and behavior responses. The underlying assumption here is that there is a causal relationship between the nature of the job itself and employee responses to the job. Substantial research over the past 50 years has shown that this assumption is valid. However, these various research efforts have led to significant questions regarding these relationships. Hulin and Blood[1] reviewed this body of research and concluded that: "The case for job enlargement has been drastically overstated and overgeneralized."[2] They

---

[1]Hulin and Blood, "Job Enlargement, Individual Differences and Worker Responses".

[2]Ibid., p. 50.

pointed to the need to investigate differences among individual employees and work groups as they affect these relationships. Job redesign is apparently not for everyone.

The proposition that individual differences interact with the relationships between job characteristics and job outcomes has been investigated in several studies. The focus has been primarily on which individual differences moderate these relationships.

It has been previously noted that Hackman and Lawler[1] found support for looking at individual differences in terms of Maslow's hierarchy of needs. The greater a person's growth need strength, the more responsive he appears to be to jobs that are perceived as high on the core job dimensions.

Findings similar to the above were reported by Brief and Aldag[2] in a partial replication of Hackman and Lawler's research. One hundred and four employees occupying jobs aimed at rehabilitating inmates completed a questionnaire involving their (a) perceptions of four core job dimensions, (b) internal work motivation, (c) general job satisfaction, (d) job involvement, (e) higher order need strength, and (f) specific satisfactions. Positive correlations were found

---

[1]Hackman and Lawler, "Employee Reactions to Job Characteristics".

[2]Arthur P. Brief and Ramon J. Aldag, "Employee Reactions to Job Characteristics: A Constructive Replication," Journal of Applied Psychology 60 (1975): 182-186.

between job dimensions and employee reactions which were significant at the .05 level. While results were in the direction of Hackman and Lawler's[1] findings regarding growth need strength, the role of this moderator was found to be more complex. That is, persons low in growth need strength displayed stronger relationships between job dimensions and affective responses that were more extrinsic to the work itself than did persons high in growth need strength. Brief and Aldag[2] suggested additional "constructive replications" which sample different types of jobs and which use different instrumentation to clarify these relationships.

Robey[3] investigated extrinsic/intrinsic work values as a moderator using sixty production management students in a laboratory experiment. He found that work values did moderate the interaction of task design with job satisfaction and performance.

In an attempt to directly compare three individual differences as moderators, Wanous[4] examined urban versus rural background, strong versus weak belief in the Protestant work ethic, and higher order growth need strength. Each was assessed

---

[1]Hackman and Lawler, "Employee Reactions to Job Characteristics".

[2]Brief and Aldag, "Employee Reactions: A Replication", p. 186.

[3]Daniel Robey, "Task Design, Work Values, and Worker Response: An Experimental Test," Organizational Behavior and Human Performance 12 (1974): 264-273.

[4]John P. Wanous, "Individual Differences and Reactions to Job Characteristics," Journal of Applied Psychology 59 (1974): 616-622.

as to its strength in explaining the relationships between job characteristics and (1) specific job facet satisfactions, (2) overall job satisfaction, and (3) job behavior. Wanous[1] used a sample of 80 volunteers who were newly hired female telephone operators. Urban-rural background was determined by a questionnaire and the group was divided into two groups according to where they had lived most of the time while growing up. Separate measures of Protestant work ethic and higher order need strength were used and subjects were divided at the median on both measures. Findings indicated that the higher order need strength moderator was the most useful way to measure individual differences in reactions to job characteristics as related to satisfaction. No differences were found between the three moderators as to their usefulness in explaining the relationships between job characteristics and job behavior. However, all three did successfully serve as moderators. Hackman and Oldham summarized these efforts as follows:

> In sum, there is now substantial evidence that differences among people do moderate how they react to the complexity and challenge of their work - and studies using direct measures of individual needs seem to provide more consistent and strong support for this finding than do measures of sub-cultural background or of generalized work values.[2]

---

[1]Ibid.

[2]Hackman and Oldham, Motivation Through the Design of Work, p. 7.

On the basis of this support, Hackman and Oldham included growth need strength in their model as a moderator of the relationships between the five core job dimensions and the three psychological states and as a moderator of the relationships between psychological states and personal and work outcomes.

Two major research studies have been conducted testing Hackman and Oldham's model. The first study[1] tested a modified version of the job characteristics model; the second, Hackman and Oldham's[2] own research, empirically tested the entire theoretical construct.

An empirical test of a model similar to Hackman and Oldham's was undertaken by VanMaanen, Gregg, and Katz.[3] A sample of approximately 3,500 public employees of four municipal governments was chosen. The total useable sample was 3,086 employees constituting eighty-eight percent of the planned sample. Hackman and Lawler's Yale Job Inventory[4] and the Minnesota Satisfaction Questionnaire[5] (MSQ) were completed by all subjects. Organizational commitment was measured with a 15 item questionnaire. This affective response category

---

[1]VanMaanen, Gregg, and Katz, Work in the Public Sector.

[2]Hackman and Oldham, Motivation Through the Design of Work.

[3]VanMaanen, Gregg, and Katz, Work in the Public Sector.

[4]Hackman and Lawler, "Employee Reactions to Job Characteristics".

[5]David J. Weiss, Rene V. Dawis, George W. England, and Lloyd H. Lofquist, Manual for the Minnesota Satisfaction Questionnaire (Minneapolis: University of Minnesota, Industrial Relations Center, Work Adjustment Project, 1967).

was added to the Hackman and Oldham[1] model as an outcome variable. Demographic data on each subject was also collected. Turnover, as a dependent variable, was determined by asking each respondent if he or she was going to go job hunting the next year. Absenteeism as a dependent variable was not investigated. Although a measure of growth need strength was obtained, the purpose of the study was such that no data were reported on its effect as a moderator.

Findings of this extensive study empirically supported the relationships suggested by the job characteristics model. For the overall sample, the correlations among the core dimensions, psychological states, motivating potential score (MPS) and overall job satisfaction were all positive and significant, ranging from .23 to .47. The correlations between the same variables and overall satisfaction were also positive and significant for each of eight job categories into which the sample was divided.

> Those individuals having more variety, identity, significance, autonomy and feedback than their peer employees also tend to be more satisfied (and hopefully more motivated). Job redesign programs therefore can be constructed around those job dimensions whenever a particular job dimension appears deficient for a specific job.[2]

---

[1]Hackman and Oldham, Motivation Through the Design of Work, p. 8.

[2]Van Maanen, Gregg, and Katz, "Work in the Public Sector", p. 110.

As stated above, the growth need strength moderator was not dealt with in terms of data reported or analyzed. In light of Hackman and Oldham's[1] research, one would expect higher correlations between variables if the data had been examined in terms of subjects with high versus low growth need strength.

Hackman and Oldham[2] attempted to empirically test the relationships suggested in their Job Characteristics Model of Work Motivation. A sample of 658 employees working on 62 different jobs in seven organizations was used. The jobs were highly heterogeneous, including blue collar, white collar, and professional work. Both industrial and service organizations were included in the sample, but all were business organizations. The organizations were located in the east, southwest, and midwest, in both urban and rural settings.

The primary data collection instrument used was the Job Diagnostic Survey[3] (JDS). This survey was specifically designed to measure the variables in the job characteristics model and includes most of the items in the Yale Job Inventory

---

[1]Hackman and Oldham, Motivation Through the Design of Work.

[2]Ibid.

[3]Hackman and Oldham, The Job Diagnostic Survey.

used by Hackman and Lawler[1] and Van Maanen, Gregg and Katz.[2] In addition to employee perceptions acquired through administering the JDS, a Job Rating Form[3] was completed by employee supervisors and the researchers. Members of management were asked to rate the work performance of each subject on (a) effort expended on the job, (b) work quality, and (c) work quantity. A summary measure of rated work effectiveness was obtained by averaging these ratings across the three scales and across supervisors who rated each employee. Absence data were obtained from company records in terms of the total number of days of absence for each employee for the preceding year.

Findings concerning employee descriptions of the jobs as compared to researcher and supervisor job descriptions yielded a median correlation of .65.[4] Thus, the researchers used only employee perceptions for tests of the model.

The results obtained by correlating the five core job dimensions and the three psychological states with the outcome measures were generally consistent with expectations derived from the model. All correlations were reported as

---

[1]Hackman and Lawler, "Employee Reactions to Job Characteristics".

[2]Van Maanen, Gregg, and Katz, Work in the Public Sector.

[3]Hackman and Oldham, The Job Diagnostic Survey, Appendix E.

[4]Hackman and Oldham, Motivation Through the Design of Work, p. 14.

being in the predicted direction with most reaching acceptable levels of statistical significance. The psychological states generally correlated higher with the outcome measures than did the job dimensions. This was as expected since in the model the psychological states are the immediate causal factors of the outcomes.

The core job dimension scores were combined to produce an overall motivating potential score (MPS) for each job.[1] This summary measure correlated higher with the outcome measures than did the separate job dimensions. Relationships involving absenteeism and performance, however, were not as strong as expected.[2]

The mediating function of the psychological states was tested by correlating the psychological states, first singly and then in all possible combinations, with the outcome variables. Results showed that as additional psychological states were added to the regression equations, the amount of explained outcome measure variance increased as expected. Correlations between job dimensions and outcome variables were substantially lowered when the scores for the psychological states were statistically controlled through partial regression analysis.

---

[1]MPS equals the sum of the scores for skill variety, task identity, and task significance divided by three and then multiplied by the scores for autonomy and feedback.

[2]Hackman and Oldham, Motivation Through the Design of Work, p. 15.

However, results were less strong for "feedback" and "autonomy" than for the other job dimensions.

> Although relationships between these variables and the outcome measures do decrease moderately when the corresponding psychological states are controlled for, partial correlations involving feedback do not approach zero for any of the dependent measures, and partials involving autonomy approach zero only for the measure of internal motivation.[1]

A complementary analysis was conducted by using multiple regression with the psychological states as primary predictors and the job dimensions as secondary predictors. It was predicted that the introduction of the secondary predictors in the multiple regression equation would not substantially increase the amount of dependent variable variance controlled. As predicted, the psychological states accounted for substantial variance for each dependent measure. The five core dimensions, when added to the multiple regression equation, resulted in near zero to small increases in variance controlled.

Inconsistencies revealed by data analysis were reported in reference to the psychological state "experienced responsibility". It was found that experienced responsibility scores added little to prediction for two of the outcome states. For both measures, autonomy (the job dimension said to be mediated by the experienced responsibility measure) had a relatively

---

[1]Ibid., p. 18.

larger regression coefficient than did experienced responsibility.

Hackman and Oldham summarized this part of the analysis as follows:

> In sum, the results ...provide generally strong support for the predictions of the job characteristics model, although some difficulties having to do with certain specific job dimension-psychological state relationships were identified.[1]

In an attempt to determine whether or not the job dimensions related to the psychological states as specified in the model, regression equations were computed for each of the psychological states in which the predictor(s) were the job dimensions specified in the model as directly causal of that psychological state. In addition, job dimensions not expected to affect a given psychological state were introduced into the equation for each psychological state. Findings indicated that the functions of two of the psychological states, experienced meaningfulness and knowledge of results, were as specified in the model. However, the psychological state experienced responsibility was not in complete accord with the model. When job dimensions other than autonomy were introduced in the regression equation, the variance controlled increased by .16. Experienced responsibility, then, appeared also to

---

[1]Ibid., p. 19.

be influenced by the other job dimensions.

To test the moderating effect of growth need strength (GNS), the researchers[1] selected subjects scoring in the top quartile for comparison with subjects scoring in the bottom quartile. Individual GNS operates in the model at two points. The first moderating effect is between the job dimensions and the psychological states. It was reported that all differences between correlations for high vs. low GNS groups were in the predicted direction and (except for task identity) were statistically significant.

The moderating effect of GNS between psychological states and outcome variables was tested, yielding similar results. Except for the measure of absenteeism, differences in the magnitude of the correlations for high vs. low GNS employees were all in the predicted direction and statistically significant.

In an effort to support the method in which the motivating potential score (MPS) was derived, five possible alternatives for combining the job dimension scores into a single measure were computed and compared. The performance of the five alternatives indicated little difference between them as to how well they correlated with the outcome variables. Multiple regression was reported as being the best method; but the MPS as derived by the researchers did not differ significantly.

---

[1]Ibid.

In summary, the results of this research provided generally strong support for the validity of the job characteristics model.

> The basic relationships between the job dimensions and the outcome measures were as predicted and generally of substantial magnitude, although correlations involving absenteeism and work performance were lower than those for the other outcome measures. Similarly, substantial support was found for the proposition that individual growth need strength moderates other model-specified relationships - and that the moderating effect occurs both at the link between the job dimensions and the psychological states, and at the link between the psychological states and the outcome variables. This moderating effect was not, however, obtained for the measure of absenteeism.[1]

The authors[2] suggested that the failure of absenteeism data, and to some extent performance data, to relate as predicted by the model could be due to (1) the possibility that these behaviors are more causally remote from job characteristics than are employees' affective reactions to their work, (2) the fact that the motivation and satisfaction variables are measured in the same questionnaire resulting in an inflation in relationships due to common method variance, and/or (3) absenteeism data being collected on the basis of <u>days</u> absent, rather than occasions of absence.

---

[1]Ibid., p. 22.

[2]Ibid., p. 23.

General support was also found for the mediating effect of the three psychological states. Problems identified were that:

> (a) results involving the feedback dimension are in some cases less strong than those obtained for the other job dimensions; and (b) the autonomy - experienced responsibility linkage does not operate exactly as specified by the model in predicting the outcome variables.[1]

The problem with feedback was perceived as resulting from the fact that only feedback from the job itself was dealt with in the research, and that feedback from other sources was not accounted for in the analysis. The results relative to the autonomy - experienced responsibility linkage showed "...two findings that were contrary to expectation: (a) experienced responsibility is determined not only by autonomy but by other job dimensions as well, and (b) autonomy has direct effects on certain of the outcome variables that equal or exceed its predicted indirect impact via experienced responsibility."[2] Explanations suggested for these discrepancies included the fact that the job dimensions were not empirically independent and that autonomy was the least independent of the five job dimensions. Autonomy served, at least in part, to

---

[1]Ibid., p. 24.

[2]Ibid.

summarize the overall complexity of a job and was both more multiply determined and had a greater diversity of effects than did the other job dimensions. Additional research was called for to obtain increased specificity and clarity of the functions of autonomy and experienced responsibility in the job characteristics model.[1]

Implications for Research

Substantial support was reported by Hackman and Oldham[2] for the validity of the relationships specified in their job characteristics model. However, questions concerning the autonomy-experienced responsibility link and the feedback dimension were raised. Low correlations between perceived job characteristics and performance and absenteeism data were also reported. In addition, the job characteristics model was reputed by Hackman and Oldham[3] to be valid for all employee groups, although it had only been tested in business organizations. This assertion and the problems reported above require additional tests of the model, especially with non-business work groups.

---

[1]Ibid., p. 25.

[2]J. Richard Hackman and Greg R. Oldham, "Development of the Job Diagnostic Survey", Journal of Applied Psychology 60 (1975): 159-170.

[3]Ibid., p. 160.

The methodology used by Hackman and Oldham[1] excluded other methods for collecting and analyzing data. Alternative methodologies should serve to provide clarification of model specified relationships and thereby strengthen work redesign theory. As stated by Lykken[2], a constructive replication is a study which, if successful, extends the generalizability of the research after which it is modeled, by avoiding the exact duplication of the first researcher's methods. Such is the approach taken in this research.

Summary

The Job Characteristics Model of Work Motivation is a product of research and theory relative to work motivation. The model represents an attempt to draw together the research evidence acquired during the past several decades into one conceptual structure. Efforts to validate this conceptualization of employee-job interaction have met with some success. Most model specified relationships have received general support for work groups in a variety of business organizations. However, as a result of reported findings, further clarification of some relationships is required if the model is to be

---

[1]Hackman and Oldham, Motivation Through the Design of Work.

[2]David T. Lykken, "Statistical Significance In Psychological Research", Psychological Bulletin 70 (1968): 155-156.

considered fully valid. In addition, further tests of the model with other types of work groups are needed to determine how generalizable the model is. This study is an attempt to serve both of these needs by applying the model to public school teachers.

CHAPTER III

METHODOLOGY

Introduction

The relationships specified in the Job Characteristics Model of Work Motivation are reported to be an adequate explanation of job characteristics - job outcomes relationships for any selected work group.[1] Employees' perceptions of their jobs are said to produce three psychological states within the individual - experienced meaningfulness of the work, experienced responsibility, and knowledge of results. Causal relationships are suggested between these states and employee job attendance, performance, satisfaction, and motivation. The individual employee's growth need strength is presented as a moderator of the relationships between job dimensions and psychological states and between psychological states and personal and work outcomes.

The conceptualization described above has received support in studies conducted in business and industry.[2]

---

[1]Hackman and Oldham, "Development of the Job Diagnostic Survey", p. 160.

[2]Ibid., p. 165.

However, the model, as devised by Hackman and Oldham,[1] has not been applied in public service organizations. The purpose of this research is therefore to test the adequacy of the job characteristics model for describing these relationships for one such work group - public school teachers. The focus of this chapter is on how this test of the model was accomplished.

The chapter is organized into four sections. In section one, the variables to be dealt with are identified and labelled. Research hypotheses are presented which were derived from the research questions posed in Chapter I. Section two is devoted to a discussion of the research population, sample, and procedures used to gather data. Empirical properties of the major data collection instrument, the Job Diagnostic Survey, are discussed in section three. The final section describes the statistical treatment of the research data.

Research Variables and Hypotheses

The variables considered in this study were derived from the relationships graphically presented in the job characteristics model (see Figure 1, page 8). The five core job dimensions are independent variables which create the

---

[1]Hackman and Oldham, Motivation Through the Design of Work, p. 8.

three psychological states. High levels of skill variety, task identity, and task significance produce the first psychological state, experienced meaningfulness of the work; a high level of autonomy produces experienced responsibility for work output; and feedback produces knowledge of results. The psychological states, then, are outcome variables in the first part of the construct. The psychological states in combination, however, function as a predictor variable with the personal and work outcomes as outcome variables in the second part of the construct. Although it is hypothesized that the combined core job dimensions also relate positively with the personal and work outcomes, the psychological states are hypothesized to account for most of the explained variance, with the core job dimensions accounting for little, if any, additional explained variance when added to the psychological states in a multiple regression analysis.

In addition, the employee's growth need strength is said to moderate the relationships between the predictor variables and the outcome variables. Growth need strength is a moderator of the relationships between (a) the model specified core job dimensions and their related psychological state, and (b) the combined psychological states and the four personal and work outcomes. Table 1 below indicates the relationships among variables from which hypotheses were derived.

Table 1

Relationships Among Model Variables

Predictor Variables	Mediating Psychological States	Outcome Variables
Skill variety	Experienced meaningfulness	Intrinsic motivation
Task identity	Experienced responsibility	Work satisfaction
Task significance	Knowledge of results	Work performance
Autonomy	*Growth need strength	Attendance
Feedback		
*Growth need strength		

*The growth need strength variable will be treated as an added predictor variable in multiple regression equations (a) predicting appropriate psychological states, and (b) predicting outcome variables from psychological states.

Based on these variables and their arrangement in the job characteristics model, five research questions pertaining to the model were posed in Chapter I. The following hypotheses were formulated to provide answers to those questions:

1. A positive relationship exists between job dimensions and the psychological states which they are said to create.

2. Specific job dimensions will correlate higher with the psychological state to which they are said to be related than to other psychological states.

3. Positive relationships exist between the combined measures of psychological states and the outcome variables.

4. The three psychological states as a single, combined measure will correlate higher with the four personal and work outcomes than they do individually or in pairs.

5. The combined core job dimensions will have a stronger relationship with the outcome variables than they do individually.

6. Each of the job dimensions will account for an appreciable additional amount of explained variance[1] when added to the multiple regression equation predicting outcome variables.

7. No appreciable additional amount of variance will be explained when the measures of the core job dimensions are added as secondary predictors to the multiple regression equation predicting outcome variables from psychological states.

8. An appreciable additional amount of variance will be explained when the growth need strength (GNS) score is added to multiple regression equations predicting psychological states from core job dimensions.

9. An appreciable additional amount of variance will be explained when the growth need strength (GNS) score is added to multiple regression equations predicting outcome variables.

---

[1]An "appreciable additional amount of explained variance" is defined as equal to or greater than three percent of total variance.

A second set of research questions related to variable measurement were also presented in Chapter I. The mean scores for the model specified variables were used to provide answers to those questions.

As stated in Chapter II, problems were reported by Hackman and Oldham[1] with the feedback dimension. Feedback from the job itself was not as strongly related to the outcome variables as expected. One explanation suggested by the researchers[2] was that feedback from other sources was not accounted for in their analyses. Therefore, a secondary analysis was done in this study which combined feedback from the job itself with feedback from other sources. The Job Diagnostic Survey[3] provided a measure of both variables.

Selection of an appropriate research design for this study was limited to one of several quasi-experimental designs. Such designs have often been used in social science research when experimental approaches were not possible. The hypotheses and questions considered in this research suggested that correlation and regression be used to analyze the data. Campbell and Stanley[4] designated the ex post facto design as most

---

[1]Hackman and Oldham, Motivation Through the Design of Work, p. 24.

[2]Ibid.

[3]Hackman and Oldham, The Job Diagnostic Survey, Appendix A.

[4]Campbell and Stanley, Experimental and Quasi-Experimental Designs for Research, pp. 64-65.

appropriate when this type of analysis was called for. The ex post facto design therefore best describes this study.

Population, Sample, and Procedures

This study was conducted in the Kent County Public School System, Kent County, Maryland. The population from which the research sample was selected was composed of 175 full time classroom teachers. This teacher population was similar to most other teacher populations in rural counties in Maryland. The majority of these teachers were trained by Maryland educational institutions; those who were not were mostly from the state of Pennsylvania. All of the teachers in the population were ten month employees who were employed on a continuing yearly contract. Most of the teachers were from white, middle class backgrounds and generally had been employed for less than three years or more than ten.[1]

For the purposes of this study, 90 teachers were randomly drawn from the population described above. A table of random numbers was used to determine which teachers would be asked to participate. Prior to approaching the subjects, however, several steps were taken to obtain approval of and support for the research.

---

[1]Robert J. Eckert, interview held at Kent County Board of Education, Chestertown, Md., March, 1976.

In January, 1976, a presentation of the research purposes, design, and methodology was made at the monthly administrative and supervisory staff meeting. All school administrators and supervisors employed by the county were present and had the opportunity to raise questions. An abbreviated version of the research proposal was distributed along with a list of selected teachers and a suggested schedule of meetings. Full support for the research effort was obtained from the Superintendent of Schools and the others present. To assist the researcher, building level administrators agreed to announce meeting times and dates and encourage the selected teachers to attend the initial meeting.

A second similar presentation was made before the Representative Council of the Kent County Teachers Association, also in January, 1976. As a result of this meeting, a letter was provided by the teachers' association indicating their support for the research (Appendix A). In a subsequent meeting with the same group, in February, 1976, a methodological change was explained. Following questions and discussion, a vote was taken which indicated continued support for the study.

A schedule of meetings with subjects was developed and distributed to all school principals. During the last two weeks in January and the first two weeks in February,

three meetings were held with each group of subjects at each of eight schools. Subjects were given an explanation of the research and how they were selected. A copy of the teacher association letter of support was distributed to each subject. Of the 90 teacher sample, 85 volunteered to participate in the study.

The Job Diagnostic Survey[1] (Appendix B) was administered to all participating subjects in groups ranging in size from four to twenty-four. Anonymity of respondents was maintained through the use of a researcher designed coding system that required the subjects to develop a unique six digit code by answering three questions. The same three questions were responded to each time data was provided - thus providing the same individual code on each data collection instrument (Appendix B). The Job Diagnostic Survey provided measures of all variables included in the job characteristics model, except for absenteeism and work performance. As stated previously, turnover data was not collected.

Absenteeism data was collected from employee records for the period from September 1, 1975, to February 15, 1976. Incidents of absence, as defined in Chapter I, was used as the measure of absenteeism. Subjects were provided the absenteeism data in a second meeting and asked to code it by reproducing their six digit identification code.

---

[1]Hackman and Oldham, The Job Diagnostic Survey, Appendix A.

Obtaining an adequate measure of work performance was the most difficult part of the data collection procedure. The negotiated agreement between the Kent County Board of Education and the teachers' association required that any performance rating of teachers conform to the procedures stated therein. Since this agreement was adopted board of education policy, a policy change would had been required to allow the use of any other performance evaluation instrument. The evaluation procedure used in Kent County provided a limited quantity of data in that teachers were rated as "satisfactory" or "needs to improve" in five broad categories. Although appropriate for its purpose, this type of evaluation did not provide sufficient data for meaningful analysis. As an alternative to obtaining a measure of over-all performance, it was decided to compile the periodic ratings completed by administrators and supervisors during observations of classroom teaching. The form used (Report of Classroom Visitation) contained twenty items representing teacher behaviors which might be observed during any given instructional session (Appendix B). Each teacher had been rated on each item as "satisfactory", "needs to improve", or "not applicable". Written permission was obtained from each subject to allow the researcher to review their Classroom Visitation Reports for the period from September 1, 1975, to February 15, 1976 (Appendix A). The ratings on the visitation summary

form were summarized by the researcher. A third meeting was then held to allow each participant to review their summary form and to code it, as explained previously. The written comments in the "additional comments" section of the visitation report forms could not be objectively weighted, and thus were not dealt with.

The Job Diagnostic Survey

The Job Diagnostic Survey (JDS) was developed by Hackman and Oldham[1] to measure most of the variables in their Job Characteristics Model of Work Motivation. It was designed to be administered to employees on any given job, as long as (1) those employees have obtained at least an eighth grade education, (2) the employees remain anonymous to reduce the tendency to provide socially acceptable or otherwise fake answers and (3) the analysis of the results of the JDS are based on no less than five persons in a work group.[2] The JDS included measures of two supplementary job dimensions which are not characteristics, per se, of the job itself. These were "feedback from agents" and "dealing with others". "Dealing with others" was not dealt with as a variable in this research and "feedback from agents" was used only in a secondary analysis as discussed previously. In addition to

---

[1]Ibid.

[2]J. Richard Hackman and Greg R. Oldham, Instructions for Administering the Job Diagnostic Survey (Glen Rock, N.J.: Roy W. Walters and Associates, Inc., 1975), pp. 1-2.

the global measure of general job satisfaction used in this research, measures of five specific satisfactions were also included in the JDS to provide supplementary data for job redesign projects. Again, this supplementary data was not used in this research.

The research by Hackman and Oldham[1] reported in Chapter II provided the basis for establishing the reliability and validity of the JDS. In review, 658 employees in seven business organizations, holding 62 different jobs, completed the JDS. Reported scale split half reliability coefficients showed that internal consistency reliabilities ranged from a high of .88 to a low of .59 for the measures used in this research.[2] The median off-diagonal correlations ranged from .12 to .26 for the same constructs.[3] "In general, the results suggest that both the internal consistency reliability of the scales and the discriminant validity of the items are satisfactory."[4]

Correlations among the scales indicated that the core job dimensions were moderately intercorrelated, ranging from .16 to .51.[5] This was as expected since it was assumed that

---

[1]Hackman and Oldham, "Development of the Job Diagnostic Survey", p. 165.

[2]Ibid., p. 17.

[3]Ibid., p. 164.

[4]Hackman and Oldham, The Job Diagnostic Survey, p. 19.

[5]Hackman and Oldham, "Development of the Job Diagnostic Survey", p. 167.

"good" jobs are good in a number of ways and "bad" jobs are often generally "bad". This non-independence, however, must be recognized and accounted for in interpreting the scores of jobs on a given job dimension.

Data provided on the validity of the instrument showed that the variables measured by the JDS related to one another and to external criterion variables generally as predicted by the theory on which the instrument was based. Ratings of job characteristics by employees, supervisors, and outside observers showed a moderate level of convergence for most of the job dimensions. The authors concluded that: "In general, theory-specified relationships among JDS scales (and between these scales and behaviorally based dependent measures) are in the direction predicted by the theory on which the instrument is based".[1]

Norms were not available for the JDS due to revisions made in the last three years. However, means for each scale across for the 658 employees surveyed in this study were available for the purpose of comparison with subsequent work groups which completed the JDS.

The first five sections of the JDS, containing a total of 60 items, required the subject to respond to a seven-point Likert-type scale. Section six, with eleven items, was

---

[1]Hackman and Oldham, The Job Diagnostic Survey, pp. 27-28.

similar except that a ten-point Likert-type scale was used. This section measured the specific satisfactions of employees. Section seven, with twelve items, was built on a five point Likert-type scale. Section eight, not used in this study, requested biographical data on each subject. Items measuring each construct were dispersed throughout the instrument (Appendix B). An average of item scores for each construct provided the individual score for each variable measured.

The instrument was designed to be completed by subjects in one sitting - about twenty-five minutes in length. Specific instructions and a sample item were provided on the JDS itself. The researcher was present during all administrations of the instrument to answer questions and to prohibit collaboration on or discussion of responses.

Statistical Treatment of Data

All raw data were coded by the researcher and keypunched through services available at the Computer Science Center, University of Maryland, College Park Campus. The Statistical Package for the Social Sciences[1] (SPSS) was used as the major medium for data manipulation. Data analysis in print-out form was obtained through the use of the Univac computers at the Computer Science Center.

---

[1]Norman H. Nie, C. Hadlai Hull, Jean G. Jenkins, Karin Steinbrenner, and Dale H. Bent, Statistical Package for the Social Sciences, 2nd. ed. (New York: McGraw-Hill, 1975).

Prior to keypunching, the responses to the Likert scale for section seven of the JDS were linearally transformed manually to a seven point scale (Table 2). Although not mentioned by Hackman[1] in his writing, this transformation was used by Hackman and Oldham[2] in their research.

Table 2

Linear Transformation of Scales

5 pt. scale:	1	2	3	4	5
7 pt. scale:	1	2.5	4	5.5	7

In addition, absenteeism data were manually transformed to an attendance index by subtraction. This was done to obtain positive rather than negative correlations with other variables and thereby simplify data interpretation.

Variable characteristic data were then obtained for all variables and parametric statistics were chosen for the remaining data treatment. Spearman - Brown zero - order or product - moment correlations were computed for all variables against themselves in a correlation matrix. Multiple regression and/or simple regression analyses were used to test the hypotheses, using raw data.

---

[1]Richard Hackman, interviewed by telephone at Yale University, New Haven, Conn., March, 1976.

[2]Hackman and Oldham, Motivation Through the Design of Work.

The motivating potential score (MPS) for the job of teaching was calculated to provide a response to the first secondary research question. However, the MPS measure was not used in prediction equations. Instead, the five core job dimension scores were combined in a multiple regression equation to allow for maximum prediction efficiency. Since public school teachers as a test population were expected to differ somewhat from business work groups, this method was believed to be a better option. Also, Hackman and Oldham[1] found this method to yield the highest correlations with outcome variables.

The moderating effect of growth need strength was tested by introducing it as an additional predictor variable in multiple regression equations. It was expected that the GNS measure would account for three percent or more additional explained variance. This method was selected as an alternative to Hackman and Oldham's[2] procedure for dividing the sample into high GNS and low GNS groups.

Summary

The methodology and procedures described in this chapter were designed to extend work redesign theory by applying Hackman and Oldham's[3] model to a group of public school

---

[1]Ibid., p. 26.

[2]Ibid.

[3]Ibid., p. 8.

teachers. The stated hypotheses were developed to answer questions concerning the adequacy of this model to describe teacher-job interaction. These hypotheses, and questions concerning the nature of the population dealt with, provided direction for data collection and treatment. The results obtained from data analysis are presented in the next chapter.

CHAPTER IV

FINDINGS

Introduction

This research represents an attempt to apply the Job Characteristics Model of Work Motivation[1] to a population of public school teachers. The model was developed through research with workers in business organizations. Therefore, the utility of the model for predicting teacher personal and work outcomes was a major focus of the study. In addition, the interrelationships among the variables presented in the model were investigated to determine whether or not the model was a valid conceptualization of teacher-job interaction. Problems with model specified relationships, as reported in previous research, were also dealt with. Secondary research questions relative to the motivating potential of the job of teaching and the levels of teacher personal and work outcomes were addressed through variable measurement.

Most data collection was accomplished through the use of the Job Diagnostic Survey[2] (JDS). The JDS provided a measure

---

[1]Hackman and Oldham, Motivation Through the Design of Work, p. 9.

[2]Hackman and Oldham, The Job Diagnostic Survey.

of all variables presented in the job characteristics model with the exception of teacher performance and attendance. These data were obtained from employer records.

A sample of 90 teachers was selected; 85 of whom volunteered to participate in the study. The JDS was administered to all subjects and performance and attendance data collected. These data were then statistically treated through the use of distribution characteristics, simple correlation, and multiple regression.

The purpose of this chapter is to present research findings and data analyses. The chapter is divided into three major sections, each of which presents data in tabular form according to the type of analysis used. A summary of these analyses is included at the end of the chapter.

Distribution Characteristics

The first step taken in data analysis was to determine whether or not the data derived from variable measurement approximated a normal distribution and could therefore be treated with parametric statistics. These data were also required to provide responses to the secondary research questions involving teacher levels of growth need strength and personal and work outcomes. The mean, standard deviation, range, and skewness index were therefore obtained for each variable. All variables except job attendance were measured on or transformed to a seven point scale. The job attendance

index provided scores with a possible low score of one and a possible high score of eleven. A score of eleven on this index indicated zero incidences of absence.

Data obtained for the performance measure for teachers proved to be useless for the purpose of further analysis. Of the 13,380 ratings given teachers by administrators and supervisors, only 1.7 percent indicated "needs to improve". The data obtained therefore could not be used to determine levels of performance. As a result, no further analysis was performed using the performance data. The distribution data for each variable are presented in Table 3.

Although the distribution characteristics indicated that most data curves were skewed, the variables appeared to approximate normal distributions. Parametric statistics were therefore selected for the rest of the analyses.

The mean scores shown below for the growth need variable and the personal and work outcomes closely approximated the mean scores reported by Hackman and Oldham[1] for business work groups. These comparison data are presented below in Table 4. Attendance data were not obtained through the same method in this research as obtained by Hackman and Oldham[2]. No comparison was therefore attempted relative to this work outcome.

---

[1]Hackman and Oldham, Motivation Through the Design of Work.

[2]Ibid.

TABLE 3

MEAN, STANDARD DEVIATION, RANGE AND SKEWNESS INDEX FOR TEACHERS ON MODEL SPECIFIED VARIABLES

Variables Measured	Mean	Standard Deviation	Range	Skewness
Skill Variety	5.71	.97	5.67	-1.43
Task Identity	4.93	1.21	5.67	- .71
Task Significance	6.08	.93	3.67	- .95
Autonomy	5.09	1.17	5.00	- .66
Feedback	5.48	1.04	5.67	-1.13
Feedback from others	4.99	1.50	5.67	- .95
Experienced Meaningfulness	5.69	.95	3.75	- .55
Experienced Responsibility	5.34	.97	4.33	- .39
Knowledge of Results	5.25	1.10	5.50	- .91
Growth Need Strength	5.21	.66	3.00	- .52
Satisfaction	4.69	1.21	4.40	- .05
Motivation	5.96	.61	3.00	- .97
Attendance	7.81	2.27	10.00	- .57

$\underline{n}$=85.

TABLE 4

COMPARISON OF MEAN OUTCOME VARIABLE SCORES FOR TEACHING WITH BUSINESS ORGANIZATIONS

Personal and Work Outcomes	Teaching (n=85)	Business (n=658)	t - ratio
Work Satisfaction	4.69	4.62	- .538
Internal Motivation	5.96	5.39	-8.636
Attendance	7.81	. . .	. . .
Growth Need Strength	5.21	5.62*	5.726

*The Job Diagnostic Survey included two measures of GNS which were averaged. This mean reflects only one measure since the other was not available for Hackman and Oldham's research. Critical value of t at the .05 level equals $\pm$1.9888; t ratios were derived from the Student t statistic where $t=\bar{x}-u/s_{\bar{x}}$ and $s_{\bar{x}} = s/\sqrt{n}$.

Comparisons were also made between the mean scores for business and those for teaching relative to the core job dimensions. Core job dimension scores for teachers were then combined according to Hackman and Oldham's formula to provide a basis for comparing the teacher motivating potential score (MPS) with the mean MPS for business organizations. These data are presented in Table 5.

TABLE 5

COMPARISON OF MEAN JOB DIMENSION SCORES FOR TEACHING WITH BUSINESS ORGANIZATIONS

Core Job Dimensions	Teaching (n=85)	Business (n=658)	t - ratio
Combined Job Dimensions (MPS)	155.46	118.32	. . .
Skill Variety	5.71	4.49	-11.619
Task Identity	4.93	4.87	- 4.286
Task Significance	6.08	5.49	- 5.842
Autonomy	5.09	4.80	- 2.283
Feedback	5.48	4.98	- 4.425

Critical value of t at .05 level equals - 1.9888; t ratios were derived from the student t statistic where $t=\bar{x}-u/s_{\bar{x}}$ and $S\bar{x} = S/\sqrt{n}$.

The MPS measures reported above were derived from the following formula:[1]

$$MPS = \frac{\text{Skill Variety} \quad \text{Task Identity} \quad \text{Task Significance}}{3} \times \text{Autonomy} \times \text{Feedback}$$

This formula was not used in subsequent data analyses. Instead, multiple regression equations were used to allow for appropriate weightings of each job dimension according to how each contributed to the prediction of each outcome variable.

[1]Ibid., p. 11.

Findings in Table 5 indicated that the mean scores for each job dimension, and consequently the MPS, for the job of teaching exceeded those reported for business organizations.

Simple Correlation Analysis

The simple correlations reported in this section were derived from the use of the Pearson product-moment statistic. In order to determine linear relationships among variables, this statistic was applied at several steps in the data analysis. First, the five core job dimensions were correlated with each other to determine whether they represented independent job dimensions.

TABLE 6

CORRELATIONS (r) BETWEEN CORE JOB DIMENSIONS

Core Job Dimensions	Task Identity	Task Significance	Autonomy	Feedback
Skill Variety	.040	.309	.110	.068
Task Identity	. . .	.133	.356	.274
Task Significance	. . .	. . .	.140	.087
Autonomy	. . .	. . .	. . .	.224

n=85; critical value of r at the .05 level equals .2124.

As shown in Table 6, the findings indicated small to moderate convergence among these dimensions, with correlations ranging from .04 between skill variety and task identity to .34 between task identity and autonomy. Four of the correlation coefficients reached significance at the .05 level.

A similar analysis was conducted with the critical psychological states to determine whether they were independent of each other. These data are presented in Table 7.

TABLE 7

CORRELATIONS (r) BETWEEN PSYCHOLOGICAL STATES

Psychological States	Experienced Responsibility	Knowledge of Results
Experienced Meaningfulness	.637	.417
Experienced Responsibility	. . .	.207

n=85; critical value of r at the .05 level equals .2124.

A moderate to high degree of convergence among these three states was found with one correlation coefficient exceeding .63.

A third analysis was performed to determine the degree to which the personal and work outcomes were related.

TABLE 8

CORRELATIONS (r) BETWEEN OUTCOME VARIABLES

Personal and Work Outcomes	Internal Motivation	Job Attendance
Work Satisfaction	.193	-.001
Internal Motivation	. . .	.129

n=85; critical value of r at the .05 level equals .2124.

As shown in Table 8, a near zero relationship was found between work satisfaction and job attendance. None of the relationships

among outcome variables was significant at the .05 level.

In the job characteristics model each of the core job dimensions was shown to be related to a specific psychological state. Experienced meaningfulness was said to be produced by the first three job dimensions with autonomy creating experienced responsibility and feedback creating knowledge of results. Correlations between job dimensions and psychological states were therefore obtained. These data are given below in Table 9.

TABLE 9

CORRELATIONS (r) BETWEEN JOB DIMENSIONS AND PSYCHOLOGICAL STATES

Job Dimensions	Psychological States		
	Experienced Meaningfulness	Experienced Responsibility	Knowledge of Results
Skill Variety	.458	.310	.276
Task Identity	.175	.126	.227
Task Significance	.391	.167	.273
Autonomy	.181	.073	.130
Feedback	.206	.127	.361

n=85; critical value of r at the .05 level equals .2124.

Only seven of the correlations reached significance at the .05 level.

Although the psychological states were said to mediate the relationships between core job dimensions and personal and

work outcomes, the job dimensions were expected to have a moderate direct relationship with the outcome variables.

TABLE 10

CORRELATIONS (r) BETWEEN JOB DIMENSIONS AND PERSONAL AND WORK OUTCOMES

Core Job Dimensions	Personal and Work Outcomes		
	Work Satisfaction	Internal Motivation	Job Attendance
Skill Variety	.314	.362	-.011
Task Identity	.492	-.119	-.220
Task Significance	.305	.206	.202
Autonomy	.327	.061	.025
Feedback	.302	.124	-.163

n=85; critical value of r at the .05 level equals .2124.

As shown above, correlations obtained between these variables indicated that all of the job dimensions related moderately well with work satisfaction. However, only two additional correlations were shown to be significant at the .05 level; one of which was a significant negative correlation.

In a similar analysis, correlations were obtained between the psychological states and personal and work outcomes. Although the outcomes were said to be produced by the combined psychological states, each separate psychological state was expected to correlate moderately with the outcome variables. These data are presented below in Table 11. With respect to work satisfaction and internal motivation the psychological states were

TABLE 11

CORRELATIONS (r) BETWEEN PSYCHOLOGICAL STATES AND PERSONAL AND WORK OUTCOMES

Psychological States	Personal and Work Outcomes		
	Work Satisfaction	Internal Motivation	Job Attendance
Experienced Meaningfulness	.654	.347	.121
Experienced Responsibility	.454	.387	.035
Knowledge of Results	.376	.034	-.119

n=85; critical value of r at the .05 level equals .2124.

generally moderately related. However, knowledge of results showed a near zero correlation with internal motivation and none of the psychological states correlated at the .05 level with job attendance.

Multiple Regression Analysis

Many of the relationships specified in the job characteristics model depended upon the combination of variables in a linear prediction equation. Multiple regression analysis was therefore used to examine the data in terms of these stated relationships. The first multiple regression analysis completed was that dealing with the combined core job dimensions as a predictor of personal and work outcomes. The linear prediction method was selected for this analysis as an alternative to the weighted formula method used in previous research. In addition, the effect of the moderator variable, growth need strength (GNS), was tested by adding it to the five core job

dimensions as a sixth predictor variable. The addition of the GNS score was expected to increase the amount of variance explained by the five variable equation by three percent or more. These data are presented in Table 12.

TABLE 12

MULTIPLE REGRESSION COEFFICIENTS (R) AND ADDITIONAL EXPLAINED VARIANCE USING FIVE AND THEN SIX PREDICTORS OF PERSONAL AND WORK OUTCOMES

Predictors In Equation	Personal and Work Outcomes		
	Work Satisfaction	Internal Motivation	Job Attendance
Core Job Dimensions (R)	.624	.427	.366
Core Job Dimensions Plus GNS (R)	.637	.431	.368
Additional Variance	.016	.003	.002

n=85; critical value of R at the .05 level equals .3594 for the five predictor equation and .3827 for the six predictor equation.

As shown above, moderate to high relationships between the combined job dimensions and personal and work outcomes were found. However, the addition of the GNS variable as a sixth predictor did not explain a significant additional amount of variance.

Related to the previous analysis was the examination of the amount of variance accounted for by each core job dimension as it was entered into a multiple equation predicting personal and work outcomes. Each of the job dimensions is an integral part of what makes a job acceptable and therefore

should account for three percent or more outcome variable variance.

TABLE 13

OUTCOME VARIANCE EXPLAINED BY CORE JOB DIMENSIONS WHEN SUCCESSIVELY ENTERED IN FIXED ORDER

Order of Entry	Predictors In Equations	Outcome Variance Explained		
		Work Satisfaction	Internal Motivation	Job Attendance
1	Skill Variety	.099	.131	.000
2	Task Identity	.231	.018	.048
3	Task Significance	.025	.014	.060
4	Autonomy	.017	.004	.008
5	Feedback	.018	.017	.017

n=85.

The findings, shown in Table 13, indicated that when task identity was added as the second predictor, the criterion of three percent additional explained variance was met relative to work satisfaction and job attendance. Also when task significance was added as the third predictor, the explained variance for job attendance increased by six percent. In all other cases, less than three percent additional variance was explained as other job dimensions were added to the first predictor- skill variety.

Since the first three core job dimensions were said to produce the first psychological state (experienced meaningfulness of the work), they were combined in a multiple regression equation and the multiple coefficient compared with the simple correlations shown in Table 9. As shown in Table 14, the mul-

TABLE 14

A COMPARISON OF SIMPLE CORRELATIONS (r) WITH THE MULTIPLE REGRESSION COEFFICIENT (R) USING THREE JOB DIMENSIONS TO PREDICT EXPERIENCED MEANINGFULNESS

Psychological State	Predictor Variables			
	Skill Variety	Task Identity	Task Significance	3 Dimension Equation
Experienced Meaningfulness	r=.458	r=.175	r=.391	R=.542

n=85; critical value of r at the .05 level equals .2124; critical value of R at the .05 level equals .3031.

tiple coefficient exceeded all of the simple correlations between individual job dimensions and experienced meaningfulness.

The combined psychological states were presented in the job characteristics model as being causal of personal and work outcomes. When combined as predictors in multiple regression equations, relationships with work satisfaction and internal motivation were positive and significant at the .05 level. In contrast, the multiple correlation coefficient was not significant at the .05 level relative to job attendance. These findings are presented in Table 15.

TABLE 15

MULTIPLE REGRESSION COEFFICIENTS (R) BETWEEN COMBINED PSYCHOLOGICAL STATES AND PERSONAL AND WORK OUTCOMES

Predictors In Equation	Personal and Work Outcomes		
	Work Satisfaction	Internal Motivation	Job Attendance
3 Psychological States	.666	.421	.233

n=85; critical value of R at the .05 level equals .3031.

The psychological states were also expected to correlate higher with the personal and work outcomes when combined than they did individually or in pairs. To test this proposition, the three possible pairs of psychological states were placed in multiple regression equations predicting personal and work outcomes. These data are presented in Table 16.

TABLE 16

MULTIPLE REGRESSION COEFFICIENTS (R) FOR PAIRED PSYCHOLOGICAL STATES AS PREDICTORS OF PERSONAL AND WORK OUTCOMES

Predictors In Equations	Personal and Work Outcomes		
	Work Satisfaction	Internal Motivation	Job Attendance
Experienced Meaningfulness Experienced Responsibility	.656	.408	.132
Experienced Meaningfulness Knowledge of Results	.664	.368	.222
Experienced Responsibility Knowledge of Results	.537	.390	.134

n=85; critical value of R at the .05 level equals .2660.

These findings were then compared with data already presented in Table 11 and Table 15. As was expected the multiple regression coefficients in Table 15 exceeded all other coefficients reported.

The psychological states appeared in the job characteristics model as mediating the relationships between the core

job dimensions and the personal and work outcomes. Therefore, the core job dimensions should have accounted for less than three percent additional explained variance when added as secondary predictors in multiple regression equations predicting personal and work outcomes from the combined psychological states. The findings from this analysis, presented in Table 17, showed that in some cases more than three percent additional variance was explained.

TABLE 17

INCREASE IN OUTCOME VARIANCE EXPLAINED BY JOB DIMENSIONS WHEN ADDED IN SUCCESSIVE STEPS TO THE EQUATION PREDICTING PERSONAL AND WORK OUTCOMES FROM PSYCHOLOGICAL STATES

Order of Entry	Predictors As Added To Equation	Increase In Outcome Variance Explained		
		Work Satisfaction	Internal Motivation	Job Attendance
1	Combined Psychological States	.444	.178	.054
2	Skill Variety	.000	.065	.010
3	Task Identity	.147	.029	.049
4	Task Significance	.000	.013	.055
5	Autonomy	.009	.001	.008
6	Feedback	.004	.013	.009

n=85.

The addition of skill variety to the equation increased the explained variance for internal motivation by 6.5 percent. Task identity accounted for 14.7 percent additional explained variance for work satisfaction and 4.9 percent for job attendance. Task significance explained an additional 5.5 percent of variance for job attendance.

The GNS variable was said to moderate relationships between core job dimensions and psychological states and between psychological states and outcome variables. Multiple regression analyses similar to the above were used to test these relationships. First, GNS was added to the core job dimension(s) as a secondary predictor of their corresponding psychological states. It was expected that the GNS variable would account for three percent or more additional explained variance. However, this was found to be true for only the relationships between autonomy and experienced responsibility. Even then, the addition of GNS accounted for only 4.5 percent of additional explained variance. These findings are presented in Table 18.

Second, GNS was added to multiple regression equations predicting personal and work outcomes from the combined psychological states. Again, the addition of GNS was expected to increase the amount of additional explained variance by three percent or more. As shown in Table 19, it was found that GNS did not increase the explained variance as much as expected for any of the personal and work outcomes.

A secondary question posed in this study reflected problems confronted in previous research with the feedback dimension. Feedback, as a core job dimension, did not correlate as well as expected with its corresponding psychological state or with personal and work outcomes. These findings were thought to have been the result of using only feedback from the job

TABLE 18

VARIANCE EXPLAINED BY ADDING GNS TO JOB DIMENSIONS AS SECONDARY PREDICTORS OF PSYCHOLOGICAL STATES IN MULTIPLE REGRESSION EQUATIONS

Predictors In Equation	Variance Explained by Predictors		
	Experienced Meaningfulness	Experienced Responsibility	Knowledge of Results
Skill Variety Task Identity Task Significance	.294	. . .	. . .
Skill Variety Task Identity Task Significance GNS	.316	. . .	. . .
Additional Variance	.022	. . .	. . .
Autonomy	. . .	.005	. . .
Autonomy and GNS	. . .	.050	. . .
Additional Variance	. . .	.045	. . .
Feedback	. . .	. . .	.130
Feedback and GNS	. . .	. . .	.041
Additional Variance	. . .	. . .	.011

n=85.

TABLE 19

VARIANCE EXPLAINED BY ADDING GNS TO MULTIPLE REGRESSION EQUATIONS PREDICTING PERSONAL AND WORK OUTCOMES FROM PSYCHOLOGICAL STATES

Predictors In Equation	Variance Explained by Predictors		
	Work Satisfaction	Internal Motivation	Job Attendance
3 Psychological States	.444	.178	.054
3 Psychological States Plus GNS	.451	.182	.083
Additional Variance	.007	.004	.029

n=85.

itself as a predictor variable and thereby eliminating feedback from other sources. To test this proposition a multiple regression analysis was performed. Feedback from others[1] was added as a predictor to linear equations predicting knowledge of results and personal and work outcomes from feedback from the job. These data are presented in Table 20.

TABLE 20

VARIANCE EXPLAINED BY ADDING FEEDBACK FROM OTHERS TO REGRESSION EQUATIONS PREDICTING KNOWLEDGE OF RESULTS AND PERSONAL AND WORK OUTCOMES FROM FEEDBACK FROM THE JOB

Predictors In Equation	Variance Explained by Predictors			
	Knowledge of Results	Work Satisfaction	Internal Motivation	Job Attendance
Feedback	.130	.091	.015	.027
Feedback Plus Feedback From Others	.224	.114	.017	.027
Additional Variance	.094	.023	.002	.000

n=85.

It was expected that three percent or more additional explained variance would be accounted for by this secondary predictor. The findings from this analysis showed that more than nine percent additional variance was explained relative to the psychological state, knowledge of results. However, no significant increases in explained variance were attributed to the secondary predictor in equations predicting personal and work

[1]"Feedback from others" is defined as the degree to which the employee receives clear information about his or her performance from supervisors or from co-workers.

outcomes.

Summary of Findings

The descriptive data presented indicated that variable scores approximated normal curve distribution and consequently parametric statistics were applicable. The mean scores for teachers on each variable approximated the mean scores obtained for business workers. Therefore, the data had face validity for use in subsequent tests of the job characteristics model. Also, the motivating potential score (MPS) for the job of teaching was higher than the mean MPS for business work groups.

The product-moment correlation coefficients presented showed some convergence among the core job dimensions and a high relationship between two of the independent psychological states. Low correlations among personal and work outcomes were also reported. Correlations between core job dimensions and psychological states were all positive, with less than half of the coefficients reaching significance at the .05 level. Significant correlations were reported between the core job dimensions and work satisfaction. However, little relationship was reported between job dimensions and other personal and work outcomes. The psychological states correlated generally well with work satisfaction and internal motivation, but correlations with job attendance were consistently low.

Multiple regression analysis also showed mixed results. The combined core job dimensions correlated at the .05

level with personal and work outcomes. However, not all job dimensions made an adequate contribution to the prediction equation in that their addition to the equation did not account for three percent or more additional explained variance.

A moderately high correlation of .54 was reported between experienced meaningfulness of the work and the combined job dimensions which supposedly created that psychological state. This multiple correlation coefficient exceeded all of the product-moment correlations between these three individual job dimensions and experienced meaningfulness.

The psychological states, when combined in a prediction equation, correlated higher with the personal and work outcomes than they did individually or in pairs. Although the psychological states were expected to mediate the relationships between job dimensions and outcome variables, findings indicated that some job dimensions added significantly to the outcome variance explained by the combined psychological states.

Findings relative to the moderator variable, growth need strength, indicated little support for its effect on other model specified relationships. Only the relationship between autonomy and its corresponding psychological state was significantly improved by including the GNS score as a predictor. All other relationships reported showed that less than three percent additional explained variance was accounted for when GNS was added as a predictor variable.

In the last analysis reported, feedback from others was shown to improve the relationship between feedback from the job and knowledge of results. This was not found to be true for relationships between feedback and personal and work outcomes.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The Job Characteristics Model of Work Motivation was presented by Hackman and Oldham[1] as a viable description of employee-job interaction for any given job. However, the model had only been tested with work groups in business organizations. Reported research indicated that the job characteristics model required additional testing with various work groups before the structural arrangement of variables in the model could be said to be fully validated. In response to these limitations, this study was devised to answer several research questions relative to the application of the model to public school teachers. Interrelationships among variables in the model were also investigated.

Based on the research questions posed in Chapter I, nine research hypotheses were developed and tested. The purpose of this chapter is to discuss these hypotheses and report conclusions and recommendations for which the research data provided support. In the first section of the chapter the findings are summarized in terms of the research questions. Specific

---

[1]Hackman and Oldham, Motivation Through the Design of Work, p. 9.

reference is made to the research hypotheses. Conclusions and implications relative to the hypotheses and findings are addressed in a second section. Recommendations for further research are included in the final section.

Primary Research Questions

The five major research questions posed in Chapter I pertained to the adequacy of the job characteristics model for describing job characteristics-job outcomes relationships for public school teachers. Each of these questions are restated below and discussed in terms of the related findings.

Research Question 1:

> What relationships exist between the core job dimensions and model specified psychological states?

It was predicted that positive relationships would exist between job dimensions and the psychological states which they were said to create (Hypothesis 1). The zero-order correlations reported in Table 9 indicated that all of the core job dimensions were positively related to the psychological states, with seven correlations reaching significance at the .05 level.

It was expected that the core job dimensions would correlate higher with the psychological state they were presumed to create than with other psychological states (Hypothesis 2). However, task identity correlated .227 with knowledge of results and only .175 with its corresponding psychological

state. Also, autonomy was related less with experienced responsibility (r=.073) than with either of the other two psychological states (r=.181 and .130). These findings were contrary to expectations.

Multiple regression analysis (Table 14) indicated that the strength of the relationship between the first three core job dimensions and experienced meaningfulness was improved when they were combined in a prediction equation (R=.542). This was as expected since the model showed experienced meaningfulness as being created by these three core job dimensions in combination. Some of this increase, however, can be attributed to the intercorrelation between skill variety and task significance (r=.309), as reported in Table 6.

A secondary analysis was conducted in response to Hackman and Oldham's[1] proposition that the low correlation between feedback and knowledge of results might be the result of restricting the measure of feedback to feedback from the job itself. The moderate correlation between feedback and knowledge of results (r=.361) reported in this study was satisfactory. However, if Hackman and Oldham's[2] proposition was accurate, more than three percent additional explained variance should have been accounted for when feedback from others was added as a second predictor of knowledge of results. The data reported in Table 21 showed that more than nine percent additional vari-

---

[1]Ibid., p. 24.

[2]Ibid.

ance was explained by feedback from others. This result suggested that feedback from the job itself would be a more effective predictor if feedback from others was included.

Research Question 2:

> What relationships exist between psychological states and model specified personal and work outcomes?

The combined psychological states are the causal core of the job characteristics model. It was expected that positive relationships would be found between the combined psychological states and the outcome variables (Hypothesis 3). The multiple regression coefficients reported in Table 15 indicated positive and significant relationships with work satisfaction (R=.667) and internal motivation (R=.421) at the .05 level. The coefficient for job attendance (R=.233), although positive, was not significant at the .05 level.

The multiple correlations reported above were expected to exceed correlations between individual psychological states and outcome variables (Hypothesis 4). The separate psychological states were, however, expected to show a moderate relationship with the individual outcome variables. Reported data (Table 12) indicated that for work satisfaction, all relationships were significant at the .05 level. The same was generally true for internal motivation, with the exception of the low correlation with knowledge of results (r=.034). None of the correlations between psychological states and job

attendance were significant at the .05 level, with the correlation between knowledge of results and job attendance being negative (r=-.119). As expected, none of the zero-order correlations exceeded the multiple regression coefficients between the combined psychological states and outcome variables. However, the high correlation of .654 between experienced meaningfulness and work satisfaction was very close to the multiple correlation of .666 between the combined psychological states and work satisfaction. So close, in fact, that experienced meaningfulness apparently accounted for nearly all of the explained variance in work satisfaction, with other psychological states contributing little, if any, to the multiple regression prediction equation.

Multiple regressions predicting outcome variables from paired psychological states were also expected to yield correlations of a lower magnitude than were found when all three psychological states were combined (Hypothesis 4). Findings indicated (Table 16) that none of the regression equations using paired psychological states yielded coefficients greater than those reported for the three variable equations. Again, however, correlations obtained by combining one other psychological state with experienced meaningfulness were nearly as high as that reported for the three predictor equation (R=.656 and .664). When experienced responsibility was combined with knowledge of results, the multiple correlation coefficient for work satisfaction was .537. This also was not far below the

three predictor multiple correlation coefficient (R=.666) for work satisfaction.

A possible explanation for these findings would be the high relationships reported (Table 7) among the psychological states. Experienced meaningfulness and experienced responsibility were highly intercorrelated (r=.637). Contrary to the job characteristics model, these two psychological states did not represent independent constructs. Experienced meaningfulness and knowledge of results were also significantly related at the .05 level (r=.417). Further, the correlation between experienced responsibility and knowledge of results, although slightly less than significant at the .05 level, was .207.

Research Question 3:

> What relationships exist between the combined core job dimensions and outcome variables?

The core job dimensions, as a combined predictor, were expected to have a positive relationship with outcome variables that exceeded the relationships between individual job dimensions and outcomes (Hypothesis 5). As reported in Table 12, the multiple coefficient for each of the outcome variables was significant at the .05 level, with the relationship between the combined core job dimensions and work satisfaction exceeding .62. All of the reported correlations (Table 10) between job dimensions and work satisfaction were positive and significant at the .05 level. Mixed results were reported for internal

motivation and job attendance with relationships ranging from a significant negative correlation of -.220 to a significant positive correlation of .362. As expected, none of the zero-order correlations exceeded the multiple regression coefficients for outcome variables.

Further investigation of these relationships (Table 13) showed that task identity accounted for 23 percent of the explained variance in work satisfaction while skill variety accounted for nearly 10 percent. The remaining core job dimensions each accounted for less than three percent additional explained variance when entered in the multiple regression equation predicting work satisfaction. Relative to internal motivation, only skill variety accounted for more than three percent explained variance (13.1%). Task identity (4.8%) and task significance (6.0%) made the only meaningful contributions to the equation predicting job attendance. These findings suggested that not all of the core job dimensions contributed to a meaningful degree to regression equations predicting outcome variables (Hypothesis 6). Similar levels of regression coefficients could be obtained by eliminating selected core job dimensions from prediction equations.

In a secondary analysis, feedback from others was added to the feedback dimension to determine whether three percent or more additional outcome variance would be explained. As stated earlier, this procedure was suggested by Hackman and

Oldham[1] as a possible remedy for the low correlations they obtained between feedback and variables to which it was supposed to be related. Findings (Table 20) indicated that less than three percent additional variance was explained for any of the outcome variables. Although this appeared to contradict previously reported findings concerning knowledge of results, it is understandable in that the psychological states were the immediate causal variables in the job characteristics model.

Research Question 4:

> Do psychological states mediate the relationships between core job dimensions and outcome variables?

The psychological states appeared in the job characteristics model as mediating variables between core job dimensions and personal and work outcomes. Since the psychological states were said to be causal of the outcomes, they should have accounted for most of the explained outcome variance. Therefore, the core job dimensions should have accounted for negligible additional explained variance when added as secondary predictors to the regression equation predicting outcomes from the combined psychological states (Hypothesis 7). Findings reported in Table 17 indicated that in some cases the core job dimensions accounted for more than three percent additional outcome variance. Task identity accounted for 14.7 percent of additional variance for work satisfaction and 4.9 percent

---

[1]Ibid.

additional variance for job attendance. Skill variety accounted for 6.5 percent additional variance for internal motivation. In addition, skill variety increased the amount of explained variance for job attendance by 5.5 percent. These data suggested that the psychological states did not entirely mediate job dimension-outcome relationships as specified in the model. Task identity, especially, appeared to measure something other than what was accounted for by experienced meaningfulness.

Research Question 5:

> Does the growth need strength measure moderate the relationships between (a) core job dimensions and psychological states and (b) between psychological states and outcome variables?

Growth need strength (GNS) was specified in the job characteristics model to moderate the relationships between core job dimensions and psychological states and between psychological states and personal and work outcomes. To test this conceptualization, GNS was first added as a secondary predictor to regression equations predicting psychological states from model specified core job dimensions. It was expected that as a moderator variable GNS would account for three percent or more additional explained variance relative to each predicted psychological state (Hypothesis 8). Reported findings (Table 18) indicated that only with reference to the autonomy-experienced responsibility relationship did GNS account for more than three percent additional explained variance (4.5%).

GNS was expected to account for three percent or more additional explained outcome variance when added as a secondary predictor to the combined psychological states (Hypothesis 9). Again, contrary to expectations, GNS did not serve as a moderator of these relationships (Table 19). The addition of GNS to the three psychological states did not account for three percent or more additional variance for any of the outcome variables.

Secondary Research Questions

Secondary research questions pertaining to variable measurement were also posed in Chapter I. These questions are restated below and discussed.

Research Question 1:

> How potentially motivating is the job of teaching and which core job dimensions account for this potential?

A motivating potential score (MPS) for teaching was calculated according to Hackman and Oldham's[1] formula. The MPS and mean job dimension scores for teaching were compared to available data for business organizations (Table 5). The data indicated that teacher mean scores for each job dimension, and therefore the MPS, exceeded mean scores for business organizations. All mean job dimension scores for teachers were above the expected mean of four, which was derived from the fact that all core job dimensions were measured on a seven point scale. The lowest mean score was for task identity and the highest mean score was for task significance. These were as expected

---

[1]Ibid., p. 11.

since an individual teacher only provides part of the work required to complete a child's education. However, what they do with children is perceived as highly significant.

Research Question 2:

> What are the levels of internal work motivation and work satisfaction among teachers?

Teacher mean scores for internal work motivation were higher than those reported for business organizations. The mean score for work satisfaction did not differ significantly from that for business work groups. Since teachers are academically trained for the profession they are a part of, it was expected that their mean scores for personal outcomes would at least approximate those reported for business work groups.

Research Question 3:

> What are the work performance and attendance levels of teachers?

The work performance data did not discriminate among teachers and therefore were not subjected to statistical analyses. The mean score for teacher attendance was 7.81 (Table 4). This score reflected an attendance index that ranged from a low score of one to a high score of eleven. A score of one indicated a total of ten incidences of absence and a score of eleven indicated zero incidences of absence. An average of 3.19 incidences of absence for teachers was obtained prior to subtracting all scores from eleven to obtain the attendance index. Since attendance data was based on incidences of absence rather than days of absence, no comparison with business work groups was possible.

Research Question 4:

What is the level of teacher growth need strength?

The worker-job interaction presented via the job characteristics model was based on the assumption that workers are generally desirous of opportunities at work which will satisfy their growth needs. The developers[1] of the model also recognized that some people do not have strong growth needs and therefore the model may not adequately represent worker-job interaction for these people. For this reason the job characteristics model was said to describe worker-job interaction for workers who had high growth needs and who were working in jobs that were potentially motivating. The MPS for teaching was shown to exceed that reported for business work groups. As reported in Table 4, the growth need strength measure for teachers was only slightly below that reported for business organizations (5.21 and 5.62, respectively). Therefore, the job characteristics model should have adequately described teacher-job interaction, if the model had validity.

Conclusions and Implications

The Job Characteristics Model of Work Motivation was developed as a conceptualization of worker-job interaction based on motivation theory and research. Five specific job dimensions were defined that characterized any given job. These job dimen-

---

[1]Hackman and Oldham, Motivation Through the Design of Work.

sions were said to create within the individual employee three psychological states which were necessarily present if a job was to be motivating. If the job was such that workers perceived these psychological states to be present at high levels, then the psychological states as a combined measure were said to be predictive of specific personal and work outcomes. The growth need strength of individual workers was presented as a moderator of the relationships between core job dimensions and psychological states and between psychological states and personal and work outcomes. This structural arrangement of variables was to provide the basis for work redesign projects with any work group. Through variable measurement the job was to be diagnosed in terms of the presence or absence of satisfactory levels of the core job dimensions and then redesigned in such a way as to increase the levels of the core job dimensions that were not sufficiently high. Increased levels of core job dimensions would create higher levels of the psychological states which in turn would increase personal and work outcome levels.

The job characteristics model was generally supported by reported research and the model was used with business work groups for job redesign projects. The model had not been applied to public service work groups. The purpose of this research was to make such an application by using public school teachers as a test group.

The proposition that characteristics of a job create psychological states within employees and that these states

account for levels of personal and work outcomes received general support in this study. The core job dimensions were found to be positively related to the psychological states with seven correlations reaching significance at the .05 level. The psychological states as a combined measure were related highly with work satisfaction and moderately with internal motivation. The multiple coefficient for job attendance was positive but not significant at the .05 level.

These results suggested that job redesign projects aimed at improving levels of job characteristics have some merit. However, the relationships between the five specified core job dimensions and psychological states were only moderate at best. A redefinition of these dimensions or more refined measures appeared to be necessary. Other job characteristics might be identified which would account for some of the unexplained variance in the psychological states. Also, the job of teaching might be better characterized by different job dimensions than those specified.

The combined psychological states did serve as a predictor of work satisfaction and internal motivation. However, the work outcome, job attendance, did not relate as well to the combined psychological states. One explanation of this finding was the increased use of sick leave as paid vacation by workers in many occupations, including teaching. Without a substantial incentive to use sick leave for which it was intended, there was little reason to expect that teachers would not use their yearly allotment of days on a yearly basis. If this was the

case, then absenteeism might not have been indicative of job commitment or performance.

Although the combined psychological states correlated fairly well with outcome variables, subsequent analysis showed that only experienced meaningfulness accounted for a sizeable proportion of explained outcome variance. Zero-order correlations between experienced meaningfulness and the other two psychological states supported this finding. It was concluded that only the measure of experienced meaningfulness was required to obtain similar correlations reported between combined psychological states and outcomes.

Contrary to expectations, the growth need strength measure served as a moderator for only one specified relationship. These findings suggested that an alternative individual difference moderator be used with teacher populations. The data indicated that as a group teachers had high levels of growth need strength and that there was little variability among the subjects on this measure (Standard Deviation=.66, Range=3.00). It was not surprising that this measure did not differentiate among individuals in the sample.

In addition to the broad conceptualization presented in the job characteristics model, variable interrelationships were specified. The core job dimensions were supposed to relate stronger with one designated psychological state than with others. The data did not show this to be true for the teacher sample. Some core job dimensions correlated higher with psychological states other than the one specified in the model. Another ex-

amination of which job characteristics actually created each of the psychological states appeared necessary. Again, a redefinition of these dimensions, improved measurement, or additional dimensions might be useful for further tests of the model with teachers. This was especially apparent since the measures of teacher core job dimension levels showed higher mean scores for teachers than for business work groups. In fact, the teacher mean scores for nearly all model variables were very similar to those for business. No comparisons were made using the job attendance data.

It was also expected that the five core job dimensions would have positive correlations with outcome variables. The data indicated acceptable results regarding work satisfaction. However, the correlations between task identity and internal motivation and between autonomy and internal motivation were not as expected. Only the relationship between task significance and job attendance proved to be satisfactory relative to job attendance as a work outcome. These results again suggested that some job dimensions required redefinition or improved measurement. The low and negative correlations with attendance was not indicative of performance. Correlations reported between job attendance and other outcome variables were also very low. The implication of this data was to omit absenteeism as a work outcome in the model unless there were adequate incentives to avoid being absent.

The combined core job dimensions generally correlated well with outcome variables. However, most of the outcome vari-

able variance was accounted for by one or two of the job dimensions. The data also showed moderate correlations between some job dimensions but very low relationships between others. These findings reinforced previous conclusions regarding the core job dimensions.

The psychological states were expected to be individually related to outcome variables as well as being related to them as a combined measure. Positive relationships were reported for all psychological states with work satisfaction and internal motivation. Results for job attendance were again contrary to expectations and supported the contention that job attendance was not a valid work outcome for teachers. It was concluded from these data and previously reported data regarding psychological state-outcome relationships that the psychological states did not measure different constructs and that a single measure would have yielded similar results.

The psychological states were positioned in the model as mediating the relationships between core job dimensions and outcomes. Data indicated that for some relationships this was not true. This variation from the model appeared to be caused by problems with both the core job dimensions and the psychological states. The measurement of some core job dimensions appeared to include something other than what created the psychological states. The measures of the psychological states, on the other hand, appeared to be measuring similar constructs. Apparently improved measures of worker psychological states were needed that would have mediated all core job dimension-outcome rela-

tionships. Previous comments regarding the correlations between some core job dimensions and supposedly unrelated psychological states supported this finding.

Although the broader framework provided in the job characteristics model received some support, little support was found for the interrelationships specified for model variables. Findings indicated that revisions were needed in the identification and measurement of core job dimensions for teaching. The psychological states appeared to inadequately account for the total worker psychology involved in producing personal and work outcomes. The growth need strength variable proved to be inadequate for explaining individual differences among teachers relative to their reactions to their jobs. Finally, absenteeism, as a work outcome, was not shown to be a valid measure of job commitment or performance in a job where there was little incentive to avoid being absent from work.

Recommendations

The fact that the job characteristics model did not totally describe teacher-job interaction does not mean that work redesign is not applicable to teachers. It is recommended that a larger sample of teachers, across several school systems, be given the Job Diagnostic Survey and other instruments to provide data for factor analysis. In addition it is suggested that absenteeism data not be used as a work outcome for teacher work groups. Also, performance data should be acquired through the use of a valid instrument that differentiates among overall per-

formance levels. If a moderator variable is deemed to be required, then something other than growth need strength should be used with teachers. Given this additional data, a revised model that is applicable to teachers, and perhaps to other public service work groups, could be constructed. Job redesign might then be accomplished based upon predictable results in terms of personal and work outcomes.

APPENDIX A

1. Letter of Support From Teachers' Association
2. Teacher Consent Form

KENT COUNTY TEACHERS ASSOCIATION

R.F.D. 1 Box 342D
Millington, Md. 21651
January 15, 1976

Mr. R. Allan Gorsuch
Foxley Manor
Chestertown, Md. 21620

Dear Allan:

The Kent County Teachers Association Executive Committee and Representative Council, at their January 13, 1976, meeting, voted to support your request for assistance in your graduate research.

The Executive Committee and Representative Council believe that your research findings may provide the Association with interesting and useful data. We would therefore like to urge the teachers whom you have selected to participate in this project to give you the few minutes of their time that you have requested to compile the necessary statistics.

We anticipate reading your conclusions with much interest.

Very truly yours,

Joseph S. Massey

Joseph S. Massey
President

TEACHER CONSENT FORM

To the Teacher:

One of the outcome variables being measured in this research effort is that of teacher performance. The teacher evaluation form completed by your principal and supervisor is the only job performance measure used in this school system. However, since the teacher evaluation does not yield enough useable data for statistical analysis, no overall measure of job performance will be used. As an alternative, information regarding your in-class teaching activities will be used as a measure of classroom teaching behavior. This data will be compiled by reviewing your reports of classroom visitation that are on file in the principal's office. Naturally, I need to acquire your written consent to review these reports. With your written consent, I will summarize the information from your various visitation reports and will submit that summary, in written form, to you in a brief session at your school. At that time you will be asked to code the summary sheet and remove your name. This data is useful only if it is coded the same way as other anonymous data collected during this research. That is, since all of the other data collected has been coded by you to maintain anonymity, this summary sheet must also be coded by you in order to correlate this data with previous data. Therefore, your anonymity is assured. Please understand that no attempt is being made to use this information in any way not explained in this letter. Your help is needed and appreciated

during this final stage of my research. If you will, please indicate with your signature below that I have your consent to review your reports of classroom visitations for this school year. Thank you.

_____ _____

Teacher's Signature Date

Note: This consent form will be placed in the principal's file for classroom visitation reports.

APPENDIX B

1. Job Diagnostic Survey
2. Report of Classroom Visitation
3. Summary of Classroom Visitations
4. Absence Data Coding Sheet

JOB DIAGNOSTIC SURVEY

On the following pages you will find several different kinds of questions about your job. Specific instructions are given at the start of each section. Please read them carefully. It should take no more than 25 minutes to complete the entire questionnaire. Please move through it quickly.

The questions are designed to obtain *your* perceptions of your job and *your* reactions to it.

There are no "trick" questions. Your individual answers will be kept completely confidential. Please answer each item as honestly and frankly as possible.

Thank you for your cooperation.

This part of the questionnaire asks you to describe your job, as *objectively* as you can.

Please do *not* use this part of the questionnaire to show how much you like or dislike your job. Questions about that will come later. Instead, try to make your descriptions as accurate and as objective as you possibly can.

A sample question is given below.

A. To what extent does your job require you to work with mechanical equipment?

1---------2---------3---------4---------5---------(6)---------7

Very little; the job requires almost no contact with mechanical equipment of any kind.

Moderately

Very much; the job requires almost constant work with mechanical equipment

You are to *circle* the number which is the most accurate description of your job.

If, for example, your job requires you to work with mechanical equipment a good deal of the time--but also requires some paperwork--you might circle the number six, as was done in the example above.

If you do not understand these instructions, please ask for assistance. If you do understand them, begin now.

1. To what extent does your job requires you to *work closely with other people* (either "clients", or people in related jobs in your own organization)?

1---------2---------3---------4---------5---------6---------7

Very little; dealing with other people is not at all necessary in doing the job.	Moderately; some dealing with others is necessary.	Very much; dealing with other people is an absolutely essential and crucial part of doing the job.

2. How much *autonomy* is there in your job? That is, to what extent does your job permit you to decide *on your own* how to go about doing the work?

1---------2---------3---------4---------5---------6---------7

Very little; the job gives me almost no personal "say" about how and when the work is done.	Moderate autonomy; many things are standardized and not under my control, but I can make some decisions about the work.	Very much; the job gives me almost complete responsibility for deciding how and when the work is done.

3. To what extent does your job involve doing a *"whole" and identifiable piece of work*? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small *part* of the overall piece of work, which is finished by other people or by automatic machines?

1---------2---------3---------4---------5---------6---------7

My job is only a tiny part of the overall piece of work; the results of my activities cannot be seen in the final product or service.	My job is a moderate-sized "chunk" of the overall piece of work; my own contribution can be seen in the final outcome.	My job involves doing the whole piece of work, from start to finish; the results of my activities are easily seen in the final product or service.

4. How much *variety* is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of your skills and talents?

1---------2---------3---------4---------5---------6---------7

Very little; the job requires me to do the same routine things over and over again.	Moderate variety	Very much; the job requires me to do many different things, using a number of different skills and talents.

- continued -

5. In general, how *significant or important* is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people?

1---------2---------3---------4---------5---------6---------7

Not very significant; the outcomes of my work are *not* likely to have important effects on other people.	Moderately significant.	Highly significant; the outcomes of my work can affect other people in very important ways.

6. To what extent do *managers or co-workers* let you know how well you are doing on your job?

1---------2---------3---------4---------5---------6---------7

Very little; people almost never let me know how well I am doing.	Moderately; sometimes people may give me "feedback"; other times they may not.	Very much; managers or co-workers provide me with almost constant "feedback" about how well I am doing.

7. To what extent does *doing the job itself* provide you with information about your work performance? That is, does the actual *work itself* provide clues about how well you are doing--aside from any "feedback" co-workers or supervisors may provide?

1---------2---------3---------4---------5---------6---------7

Very little; the job itself is set up so I could work forever without finding out how well I am doing.	Moderately; sometimes doing the job provides "feedback" to me; Sometimes it does not.	Very much; the job is set up so that I get almost constant "feedback" as I work about how well I am doing.

SECTION TWO

Listed below are a number of statements which could be used to describe a job.

You are to indicate whether each statement is an *accurate* or an *inaccurate* description of *your* job.

Once again, please try to be as objective as you can in deciding how accurately each statement describes your job--regardless of whether you like or dislike your job.

Write a number in the blank beside each statement, based on the following scale:

How accurate is the statement in describing your job?

1	2	3	4	5	6	7
Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate

_____ 1. The job requires me to use a number of complex or high-level skills.

_____ 2. The job requires a lot of cooperative work with other people.

_____ 3. The job is arranged so that I do *not* have the chance to do an entire piece of work from beginning to end.

_____ 4. Just doing the work required by the job provides many chances for me to figure out how well I am doing.

_____ 5. The job is quite simple and repetitive.

_____ 6. The job can be done adequately by a person working alone--without talking or checking with other people.

_____ 7. The supervisors and co-workers on this job almost *never* give me any "feedback" about how well I am doing in my work.

_____ 8. This job is one where a lot of other people can be affected by how well the work gets done.

_____ 9. The job denies me any chance to use my personal initiative or judgment in carrying out the work.

_____10. Supervisors often let me know how well they think I am performing the job.

_____11. The job provides me the chance to completely finish the pieces of work I begin.

_____12. The job itself provides very few clues about whether or not I am performing well.

_____13. The job gives me considerable opportunity for independence and freedom in how I do the work.

_____14. The job itself is *not* very significant or important in the broader scheme of things.

SECTION THREE

Now please indicate how *you personally feel about your job.*

Each of the statements below is something that a person might say about his or her job. You are to indicate your own, personal *feelings* about your job by marking how much you agree with each of the statements.

Write a number in the blank for each statement, based on this scale:

How much do you agree with the statement?

1	2	3	4	5	6	7
Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly

_____ 1. It's hard, on this job, for me to care very much about whether or not the work gets done right.

_____ 2. My opinion of myself goes up when I do this job well.

_____ 3. Generally speaking, I am very satisfied with this job.

_____ 4. Most of the things I have to do on this job seem useless or trivial.

_____ 5. I usually know whether or not my work is satisfactory on this job.

_____ 6. I feel a great sense of personal satisfaction when I do this job well.

_____ 7. The work I do on this job is very meaningful to me.

_____ 8. I feel a very high degree of *personal* responsibility for the work I do on this job.

_____ 9. I frequently think of quitting this job.

_____10. I feel bad and unhappy when I discover that I have performed poorly on this job.

_____11. I often have trouble figuring out whether I'm doing well or poorly on this job.

_____12. I feel I should personally take the credit or blame for the results of my work on this job.

_____13. I am generally satisfied with the kind of work I do in this job.

_____14. My own feelings generally are *not* affected much one way or the other by how well I do on this job.

_____15. Whether or not this job gets done right is clearly *my* responsibility.

SECTION FOUR

Now please indicate how *satisfied* you are with each aspect of your job listed below. Once again, write the appropriate number in the blank beside each statement.

How satisfied are you with this aspect of your job?

1	2	3	4	5	6	7
Extremely Dissatisfied	Dissatisfied	Slightly Dissatisfied	Neutral	Slightly Satisfied	Satisfied	Extremely Satisfied

_____ 1. The amount of job security I have.

_____ 2. The amount of pay and fringe benefits I receive.

_____ 3. The amount of personal growth and development I get in doing my job.

_____ 4. The people I talk to and work with on my job.

_____ 5. The degree of respect and fair treatment I receive from my boss.

_____ 6. The feeling of worthwhile accomplishment I get from doing my job.

_____ 7. The chance to get to know other people while on the job.

_____ 8. The amount of support and guidance I receive from my supervisor,

_____ 9. The degree to which I am fairly paid for what I contribute to this organization.

_____10. The amount of independent thought and action I can exercise in my job.

_____11. How secure things look for me in the future in this organization.

_____12. The chance to help other people while at work.

_____13. The amount of challenge in my job.

14. The overall quality of the supervision I receive in my work.

SECTION FIVE

Now please think of the *other people* in your organization who hold the same job you do. If no one has exactly the same job as you, think of the job which is most similar to yours.

Please think about how accurately each of the statements describes the feelings of those people about the job.

It is quite all right if your answers here are different from when you described your *own* reactions to the job. Often different people feel quite differently about the same job.

Once again, write a number in the blank for each statement, based on this scale:

How much do you agree with the statement?

1	2	3	4	5	6	7
Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly

_____ 1. Most people on this job feel a great sense of personal satisfaction when they do the job well.

_____ 2. Most people on this job are very satisfied with the job.

_____ 3. Most people on this job feel that the work is useless or trivial.

_____ 4. Most people on this job feel a great deal of personal responsibility for the work they do.

_____ 5. Most people on this job have a pretty good idea of how well they are performing their work.

_____ 6. Most people on this job find the work very meaningful.

_____ 7. Most people on this job feel that whether or not the job gets done right is clearly their own responsibility.

_____ 8. People on this job often think of quitting.

_____ 9. Most people on this job feel bad or unhappy when they find that they have performed the work poorly.

_____ 10. Most people on this job have trouble figuring out whether they are doing a good or a bad job.

SECTION SIX

Listed below are a number of characteristics which could be present on any job. People differ about how much they would like to have each one present in their own jobs. We are interested in learning *how much you personally would like* to have each one present in your job.

Using the scale below, please indicate the *degree* to which you *would like* to have each characteristic present in your job.

NOTE: The numbers on this scale are different from those used in previous scales.

4	5	6	7	8	9	10
Would like having this only a moderate amount (or less)			Would like having this very much			Would like having this *extremely* much

_____ 1. High respect and fair treatment from my supervisor.

_____ 2. Stimulating and challenging work.

_____ 3. Chances to exercise independent thought and action in my job.

_____ 4. Great job security.

_____ 5. Very friendly co-workers.

_____ 6. Opportunities to learn new things from my work.

_____ 7. High salary and good fringe benefits.

_____ 8. Opportunities to be creative and imaginative in my work.

_____ 9. Quick promotions.

_____ 10. Opportunities for personal growth and development in my job.

_____ 11. A sense of worthwhile accomplishment in my work.

SECTION SEVEN

People differ in the kinds of jobs they would most like to hold. The questions in this section give you a chance to say just what it is about a job that is most important to *you*.

> *For each question, two different kinds of jobs are briefly described. You are to indicate which of the jobs you personally would prefer*--if you had to make a choice between them.

In answering each question, assume that everything else about the job is the same. Pay attention only to the characteristics actually listed.

Two examples are given below.

JOB A				JOB B
A job requiring work with mechanical equipment most of the day.				A job requiring work with other people most of the day.
1	2	(3)	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

If you like working with people and working with equipment equally well, you would circle the number 3, as has been done in the example.

* * * * *

Here is another example. This one asks for a harder choice--between two jobs which both have some undesirable features.

JOB A				JOB B
A job requiring you to expose yourself to considerable physical danger.				A job located 200 miles from your home and family.
1	(2)	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

If you would slightly prefer risking physical danger to working far from your home, you would circle number 2, as has been done in the example.

Please ask for assistance if you do not understand exactly how to do these questions.

	JOB A				JOB B
1.	A job where the pay is very good.				A job where there is considerable opportunity to be creative and innovative.
	1	2	3	4	5
	Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B
2.	A job where you are often required to make important decisions.				A job with many pleasant people to work with.
	1	2	3	4	5
	Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B
3.	A job in which greater responsibility is given to those who do the best work.				A job in which greater responsibility is given to loyal employees who have the most seniority.
	1	2	3	4	5
	Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B
4.	A job in an organization which is in financial trouble--and might have to close down within the year.				A job in which you are not allowed to have any say whatever in how your work is scheduled, or in the procedures to be used in carrying it out.
	1	2	3	4	5
	Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B
5.	A very routine job.				A job where your co-workers are not very friendly.
	1	2	3	4	5
	Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B
6.	A job with a supervisor who is often very critical of you and your work in front of other people.				A job which prevents you from using a number of skills that you worked hard to develop.
	1	2	3	4	5
	Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

- continued -

	JOB A			JOB B
7.	A job with a supervisor who respects you and treats you fairly.			A job which provides constant opportunities for you to learn new and interesting things.

1	2	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

8.	A job where there is a real chance you could be laid off.			A job with very little chance to do challenging work.

1	2	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

9.	A job in which there is a real chance for you to develop new skills and advance in the organization.			A job which provides lots of vacation time and an excellent fringe benefit package.

1	2	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

10.	A job with little freedom and independence to do your work in the way you think best.			A job where the working conditions are poor.

1	2	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

11.	A job with very satisfying team-work.			A job which allows you to use your skills and abilities to the fullest extent.

1	2	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

12.	A job which offers little or no challenge.			A job which requires you to be completely isolated from co-workers.

1	2	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

KENT COUNTY PUBLIC SCHOOLS
Chestertown, Maryland

REPORT OF CLASSROOM VISITATION

Visit #

Teacher's Name _____ Date _____

School _____ Grade (s) _____

Subject-Topic _____

Length of Observation _____

1. CHARACTERISTICS OF THE LESSON OBSERVED

	SATISFACTORY	NEEDS IMPROVEMENT	NOT APPLICABLE
Aim or purpose - clear and attainable			
Evidence of definite plans for lesson			
Lesson development - orderly progress			
Vocabulary used - suited to group			
Questions - stimulated thought			
Learning materials - appropriate and varied			
Learning experiences - varied, consistent with purpose			
Pupil involvement - participate actively, alert			
Provision for different ability levels			
Command of written and spoken English			
Teacher's knowledge of lesson content			
Summary activity - effective and clea			
Assignment - applicable and clearly stated			

2. CLASSROOM MANAGEMENT AND ORGANIZATION

Routine classroom procedures established			
Control and discipline - firm, fair and sympathetic			
Attention to health and safety needs of pupils			
General order and cleanliness of room			
Use of bulletin boards and /or displays			
Effectiveness of seating & furniture arrangement			
Use of lighting and ventilatian			

FURTHER COMMENTS: _____

1. Original copy remains with teacher.
2. Second copy remains in school office.
3. Third copy is sent to Director of Instructional Services.

* Indicates copy has been received- Not necessarily in agreement with observer.

Signed: _____

Title: _____

*Teacher's Signature _____

SUMMARY OF CLASSROOM VISITATIONS

No. of Visitation Forms: _____

	SUMMARY		
	SATISFACTORY	NEEDS IMPROVEMENT	NOT APPLICABLE
CHARACTERISTICS OF THE LESSON OBSERVED			
Aim or purpose-clear and attainable.			
Evidence of definite plans for lesson.			
Lesson development-orderly progress.			
Vocabulary used-suited to group.			
Questions-stimulated thought			
Learning materials-appropriate and varied.			
Learning experiences-varied, consistent with purpose .			
Pupil involvement-participate actively, alert.			
Provision for different ability levels			
Command of written and spoken English.			
Teacher's knowledge of lesson content.			
Summary activity-effective and clear			
Assignment-applicable and clearly stated			
CLASSROOM MANAGEMENT AND ORGANIZATION			
Routine classroom procedures established			
Control and discipline-firm, fair and sympathetic. . .			
Attention to health and safety needs of pupils			

SUMMARY OF CLASSROOM VISITATIONS
(Continued)

	SATISFACTORY	NEEDS IMPROVEMENT	NOT APPLICABLE
General order and cleanliness of room.			
Use of bulletin boards and/or displays			
Effectiveness of seating & furniture arrangement . . .			
Use of lighting and ventilation.			

ABSENCE DATA CODING SHEET

TOP SECTION

Teacher's Name: _____ School _____

- -

(Fold on dotted line and remove TOP SECTION)

BOTTOM SECTION

INSTRUCTIONS: Please reproduce the same six digit code you used when completing the Job Diagnostic Survey by responding to the items below.

Item 1: Enter the last two numbers of your telephone number in the blanks. ___ ___

Item 2: Enter the last two letters of your mother's first name in the blanks. ___ ___

Item 3: Enter the day of the month on which you were born in the blanks. (Example: If the day was August 2, you would enter 0 2.) ___ ___

INSTRUCTIONS: Remove the TOP SECTION of this form by folding and tearing on the dotted line above. The number below is the data needed for this part of the research. This number represents the total number of separate incidences of absence that you have had from work this school year. Each "incidence of absence" is counted as one, regardless of the number of consecutive days involved. Please return the completed BOTTOM SECTION of this form in the attached envelope via the inter-school mail.

_____

Incidences of Absence

APPENDIX C

1. Scoring Key for the Job Diagnostic Survey
2. Identification Coding Sheet
3. Visitation Data Coding Sheet

SCORING KEY FOR THE JOB DIAGNOSTIC SURVEY

The Job Diagnostic Survey (JDS) measures several characteristics of jobs, the reactions of the respondents to their jobs, and the growth need strength of the respondents. Each variable measured by the JDS is listed below, along with (a) a one or two sentence description of the variable, and (b) a list of the questionnaire items which are averaged to yield a summary score for the variable.

The JDS is based on a questionnaire originally compiled by Hackman & Lawler (Employee Reactions to Job Characteristics, Journal of Applied Psychology Monograph, 1971, 55(3), 259-286). A complete description of the JDS is provided by Hackman & Oldham (The Job Diagnostic Survey: An Instrument for Diagnosing the Motivational Potential of Jobs, Technical Report No. 4, Department of Administrative Sciences, Yale University, 1974). The theory on which the JDS is based is described by Hackman & Oldham (Motivation Through the Design of Work: Test of a Theory, Technical Report No. 6, Department of Administrative Sciences, Yale University, 1974).

For further information about the instrument and its uses, contact:

Prof. J. Richard Hackman
56 Hillhouse Avenue
Yale University
New Haven, Ct. 06520

or

Prof. Greg R. Oldham
Department of Business Administration
University of Illinois
Urbana, Ill. 61801

* * *

I. JOB DIMENSIONS: Objective characteristics of the job itself.

A. Skill Variety: The degree to which a job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee.

Average the following items:

Section One #4
Section Two #1
#5 (reversed scoring--i.e., subtract the number entered by the respondent from 8)

B. Task Identity: The degree to which the job requires the completion of a "whole" and identifiable piece of work--i.e., doing a job from beginning to end with a visible outcome.

Average the following items:

Section One #3
Section Two #11
#3 (reversed scoring)

C. Task Significance: The degree to which the job has a substantial impact on the lives or work of other people--whether in the immediate organization or in the external environment.

Average the following items:

Section One: #5
Section Two: #8
#14 (reversed scoring)

D. Autonomy: The degree to which the job provides substantial freedom, independence, and discretion to the employee in scheduling his work and in determining the procedures to be used in carrying it out.

Average the following items:

Section One: #2
Section Two: #13
#9 (reversed scoring)

E. Feedback from the Job Itself: The degree to which carrying out the work activities required by the job results in the employee obtaining information about the effectiveness of his or her performance.

Average the following items:

Section One: #7
Section Two: #4
#12 (reversed scoring)

F. Feedback from Agents: The degree to which the employee receives information about his or her performance effectiveness from supervisors or from co-workers. (This construct is not a job characteristic per se, and is included only to provide information supplementary to construct (E) above.)

Average the following items:

Section One: #6
Section Two: #10
#7 (reversed scoring)

G. Dealing with Others: The degree to which the job requires the employee to work closely with other people (whether other organization members or organizational "clients").

Average the following items:

Section One: #1
Section Two: #2
#6 (reversed scoring)

II. EXPERIENCED PSYCHOLOGICAL STATES: The psychological impact of the job on the employees. These three psychological states are viewed as mediating between objective job characteristics (listed above) and the affective (e.g., satisfaction, motivation) and behavioral (e.g., performance quality, absenteeism) responses of employees to their work. Each of the three constructs are measured both directly (Section Three) and indirectly, via projective-type items (Section Five).

A. Experienced Meaningfulness of the Work: The degree to which the employee experiences his or her job as one which is generally meaningful, valuable, and worthwhile.

Average the following items:

Section Three: #7
#4 (reversed scoring)
Section Five: #6
#3 (reversed scoring)

B. Experienced Responsibility for the Work: The degree to which the employee feels accountable and responsible for the results of the work he or she does.

Average the following items:

Section Three: #8, #12, #15
#1 (reversed scoring)
Section Five: #4, #7

C. Knowledge of Results: The degree to which the employee knows and understands, on a continuous basis, how effectively he or she is performing his job.

Average the following items:

Section Three: #5
#11 (reversed scoring)
Section Five: #5
#10 (reversed scoring)

III. AFFECTIVE RESPONSES TO THE JOB: The private, affective reactions or feelings an employee gets from working on his job. The first two constructs (general satisfaction and internal work motivation) are measured both directly (Section Three) and indirectly (Section Five).

A. General Satisfaction: An overall measure of the degree to which the employee is satisfied and happy in his or her work. (This measure has been shown to predict both turnover and absenteeism--i.e., the lower the satisfaction, the more the turnover and absenteeism).

Average the following items:

Section Three: #3, #13
#9 (reversed scoring)
Section Five: #2
#8 (reversed scoring)

B. Internal Work Motivation: The degree to which the employee is self-motivated to perform effectively on the job. This measure previously has been shown to relate directly to the quality of the employee's work.

Average the following items:

Section Three: #2, #6, #10
#14 (reverse scoring)
Section Five: #1, #9

C. Specific Satisfactions: These short scales tap several specific aspects of the employee's job satisfaction. They all relate positively to the general satisfaction measure (Construct A above), but the specific satisfaction with "growth" (Scale 5, below) relates most strongly to the characteristics of jobs themselves.

C1. "Pay" satisfaction. Average items #2 and #9 of Section Four.

C2. "Security" satisfaction. Average items #1 and #11 of Section Four.

C3. "Social" satisfaction. Average items #4, #7, and #12 of Section Four.

C4. "Supervisory" satisfaction. Average items #5, #8, and #14 of Section Four.

C5. "Growth" satisfaction. Average items #3, #6, #10, and #13 of Section Four.

IV. INDIVIDUAL GROWTH NEED STRENGTH: These scales tap an individual difference among employees--namely, the degree to which each employee has a strong vs. weak desire to obtain "growth" satisfactions from his or her work. Individuals high on this measure have been shown to respond positively (i.e., with high satisfaction and internal work motivation) to complex, challenging, and "enriched" jobs; individuals low on this measure tend not to find such jobs satisfying or motivating. The questionnaire yields two separate measures of growth need strength, one from Section Six and one from Section Seven.

"Would Like" Format (Section Six)
Average the six items from Section Six listed below. Before averaging, subtract 3 from each item score; this will result in a summary scale ranging from one to seven. The items are:
#2, #3, #6, #8, #10, #11

"Job Choice" Format (Section Seven)
Each item in Section Seven yields a number from 1-5 (i.e., "Strongly prefer A" is scored 1; "Neutral" is scored 3; and "Strongly prefer B" is scored 5. Compute the need strength measure by averaging the twelve items as follows:
#1, #5, #7, #10, #11, #12 (direct scoring)
#2, #3, #4, #6, #8, #9 (reversed scoring)

V. MOTIVATING POTENTIAL SCORE: A score reflecting the potential of a job for eliciting positive internal work motivation on the part of employees (especially those with high desire for growth need satisfactions) is given below.

$$\text{Motivating Potential Score (MPS)} = \left[\frac{\text{Skill Variety} + \text{Task Identity} + \text{Task Significance}}{3}\right] \times \left[\text{Autonomy}\right] \times \left[\text{Feedback from the Job}\right]$$

IDENTIFICATION CODING SHEET

INSTRUCTIONS:[1] You are asked to respond to each of the items below. By doing so, a six digit identification code will be produced which will allow the researcher to correlate the data from the three data collection instruments to be used in this research. This six digit code will be unique to you as a participant and will be known only to you. This procedure is to assure anonymity of responses.

Item 1: Enter the last two numbers of your telephone number in the blanks. ___ ___

Item 2: Enter the last two letters of your mother's first name in the blanks. ___ ___

Item 3: Enter the day of the month on which you were born in the blanks. (Example: If the day was August 2, you would enter 0 2.) ___ ___

---

[1]This form was attached to the Job Diagnostic Survey.

VISITATION DATA CODING SHEET

TOP SECTION

INSTRUCTIONS:[1] Please reproduce the same six digit code you used when completing the Job Diagnostic Survey by responding to the items below.

Item 1: Enter the last two numbers of your telephone number in the blanks. ___ ___

Item 2: Enter the last two letters of your mother's first name in the blanks. ___ ___

Item 3: Enter the day of the month on which you were born in the blanks. (Example: If the day was August 2, you would enter 0 2.) ___ ___

INSTRUCTIONS: Remove the BOTTOM SECTION of this form by folding and tearing on the dotted line below. The BOTTOM SECTION should not be returned.

- -

BOTTOM SECTION

Teacher's Name: _____ School _____

---

[1]This form was attached to the completed Summary of Classroom Visitations.

SELECTED BIBLIOGRAPHY

Books

Alderfer, Clayton P. Human Needs in Organizational Settings. New York: The Free Press of Clencoe, 1971.

Argyris, Chris. Integrating the Individual and the Organization. New York: Wiley, 1964.

Campbell, Donald T., and Stanley, Julian C. Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally College Publishing Co., 1963.

Ford, Robert N. Motivation Through the Work Itself. New York: American Management Association, 1969.

Herzberg, Frederick, Mausner, Bernard, and Snyderman, Barbara B. The Motivation to Work. New York: Wiley, 1959.

Herzberg, Frederick. Work and the Nature of Man. Cleveland: World, 1966.

Lewin, Kurt, Dembo, T., Festinger, L., and Sears, P. "Level of Aspiration." Personality and the Behavior Disorders. Edited by J. McV. Hunt. New York: Ronald Press, 1944.

Lewin, Kurt. The Conceptual Representation of the Measurement of Psychological Forces. Durham, North Carolina: Duke University Press, 1938.

McClelland, David C., Atkinson, J. W., Clark, R. A., and Lowell, E. L. The Achievement Motive. New York: Appleton Century Crofts, Inc., 1953.

Nie, Norman H., Hull, H. C., Jenkins, J. G., Steinbrenner, K., and Bent, D. H. Statistical Package for the Social Sci-

ences. 2nd ed. New York: McGraw-Hill, 1975.

Porter, Lyman W., Lawler, Edward E., III, Hackman, J. Richard. Behavior in Organizational Settings. New York: McGraw-Hill, 1975.

Porter, Lyman W., and Lawler, Edward E. Managerial Attitudes and Performance. Homewood, Illinois: Irwin, 1968.

Taylor, Frederick W. "The Principles of Scientific Management." Classics in Management. Edited by Harward F. Merrill. New York: American Management Association, Riverside Press, 1960.

Tolman, Edward C. "Principles of Purposive Behavior." Psychology: A Study of Science. Edited by S. Koch. New York: McGraw-Hill, Vol. 2, 1959.

Tosi, Henry L., and Hamner, W. Clay. Organizational Behavior and Management- A Contingency Approach. Chicago: Michigan State University, 1974.

Turner, John H., Turner, Alan C., and House, Robert J., ed. Studies in Management Process and Organizational Behavior. New Jersey: Scott Foresman, 1972.

Vroom, Victor H. Work and Motivation. New York: Wiley, 1964.

Walker, Charles R., and Guest, Robert H. The Man on the Assembly Line. Cambridge, Massachusetts: Harvard University Press, 1952.

Periodicals

Alderfer, Clayton P. "An Empirical Test of a New Theory of Human Needs." Organizational Behavior and Human Per-

formance 4 (May 1969): 142-175.

Blood, Milton R., and Hulin, Charles L. "Alienation, Environmental Characteristics, and Worker Responses." Journal of Applied Psychology 51 (June 1967): 284-290.

Brief, Arthur P., and Aldag, Ramon J. "Employee Reactions to Job Characteristics: A Constructive Replication." Journal of Applied Psychology 60 (February 1975): 182-186.

Cohen, Jacob. "Multiple Regression as a General Data-Analytic System." Psychological Bulletin 70 (June 1968): 426-443.

Conant, Eaton H., and Kilbridge, Maurice D. "An Interdisciplinary Analysis of Job Enlargement: Technology, Costs, and Behavior Implications." Industrial and Labor Relations Review 3 (April 1965): 377-395.

Dunnette, Marvin D., Campbell, John P., and Hakel, Milton D. "Factors Contributing to Job Satisfaction and Job Dissatisfaction in Six Occupational Groups." Organizational Behavior and Human Performance 2 (March 1967): 143-174.

Ewen, Robert B. "Weighting Components of Job Satisfaction." Journal of Applied Psychology 51 (February 1967): 68-73.

Ghiselli, Edwin E. "Moderating Effects and Differential Reliability and Validity." Journal of Applied Psychology 47 (April 1963): 81-86.

Hackman, Richard, and Lawler, Edward. "Employee Reactions to Job Characteristics." Journal of Applied Psychology 55

(June 1971): 259-286.

Hackman, J. Richard, and Oldham, Greg R. "Development of the Job Diagnostic Survey." Journal of Applied Psychology 60 (April 1975): 159-170.

Hackman, J. Richard. "Is Job Enrichment Just a Fad?" Harvard Business Review 53 (September-October 1975): 129-138.

Hulin, Charles, and Blood, Milton. "Job Enlargement, Individual Differences and Worker Responses." Psychological Bulletin 69 (January 1968): 41-55.

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

Lawler, Edward E., III, and Hall, Douglas T. "Relationship of Job Characteristics to Job Involvement, Satisfaction, and Intrinsic Motivation." Journal of Applied Psychology 54 (August 1970): 305-312.

Lawler, Edward E., III. "The Individualized Organization: Problems and Promise." California Management Review 17 (Winter 1974): 31-39.

Locke, Edwin A. "Job Satisfaction and Job Performance: A Theoretical Analysis." Organizational Behavior and Human Performance 5 (September 1970): 484-500.

Locke, Edwin A. "What Is Job Satisfaction?" Organizational Behavior and Human Performance 4 (November 1969): 309-336.

Lykken, David T. "Statistical Significance In Psychological Research." Psychological Bulletin 70 (March 1968):

155-159.

Maslow, Abraham H. "A Theory of Human Motivation." Psychological Review 50 (July 1943): 370-396.

Pinder, Craig C. "Statistical Accuracy and Practical Utility in the Use of Moderator Variables." Journal of Applied Psychology 57 (July 1973): 214-221.

Robey, Daniel. "Task Design, Work Values, and Worker Response: An Experimental Test." Organizational Behavior and Human Performance 12 (October 1974): 264-273.

Shepard, Jon M. "Functional Specialization, Alienation, and Job Satisfaction." Industrial and Labor Relations Review 23 (January 1970): 207-219.

Steers, Richard M. "Effects of Need for Achievement on the Job Performance-Job Attitude Relationship." Journal of Applied Psychology 60 (December 1975): 678-682.

Stone, Eugene F., and Porter, Lyman W. "Job Characteristics and Job Attitudes: A Multivariate Study." Journal of Applied Psychology 60 (February 1975): 57-64.

Stone, Eugene F. "The Moderating Effect of Work Related Values on the Job Scope - Job Satisfaction Relationship." Organizational Behavior and Human Performance 15 (April 1976): 147-167.

Walker, Charles R. "The Problem of the Repetitive Job." Harvard Business Review 28 (January 1950): 54-58.

Wanous, John P. "A Causal-Correlational Analysis of the Job Satisfaction and Performance Relationship." Journal of

Applied Psychology 59 (April 1974): 139-144.

Wanous, John P. "Individual Differences and Reactions to Job Characteristics." Journal of Applied Psychology 59 (October 1974): 616-622.

Wood, Donald A. "Effects of Worker Orientation Differences on Job Attitude Correlates." Journal of Applied Psychology 59 (February 1974): 54-60.

Reports

Hackman, J. Richard, and Oldham, Greg R. Instructions for Administoring the Job Diagnostic Survey. Glen Rock, New Jersey: Roy W. Wlaters and Associates, Inc., 1975.

Hackman, Richard, and Oldham, Greg. Motivation Through the Design of Work: Test of a Theory. Technical Report No. 6. New Haven, Connecticut: Yale University School of Organization and Management, 1974.

Hackman, Richard, and Oldham, Greg R. The Job Diagnostic Survey: An Instrument for the Diagnosis of Jobs and the Evaluation of Job Redesign Projects. Technical Report No. 4. New Haven, Connecticut: Yale University School of Organization and Management, 1974.

Turner, Arthur N., and Lawrence, Paul R. Industrial Jobs and the Worker: An Investigation of Response to Task Attributes. Boston: Harvard University School of Business Administration, 1965.

VanMaanen, John, Gregg, Peter, and Katz, Ralph. Work in the Public Sector: An Economic Development Administrative

Technical Report. Washington, D.C.: National Training and Development Service, 1974.

Weiss, David J., Dawis, R. V., England, G. W., and Lofquist, L. H. Manual for the Minnesota Satisfaction Questionnaire. Minneapolis: University of Minnesota, Industrial Relations Center, Work Adjustment Project, 1967.

Interviews

Eckert, Robert J. Kent County Board of Education, Chestertown, Maryland. Interview, March 1976.

Hackman, Richard. Yale University, New Haven, Connecticut. Interview by telephone, March 1976.

Purdy, Kenneth. Roy Walters Associates, Inc., Glen Rock, New Jersey. Interview by telephone, February 1976.