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SOURCES OF ENVIRONMENTAL STRUCTURING AND PARTICIPANT RESPONSES.(U)
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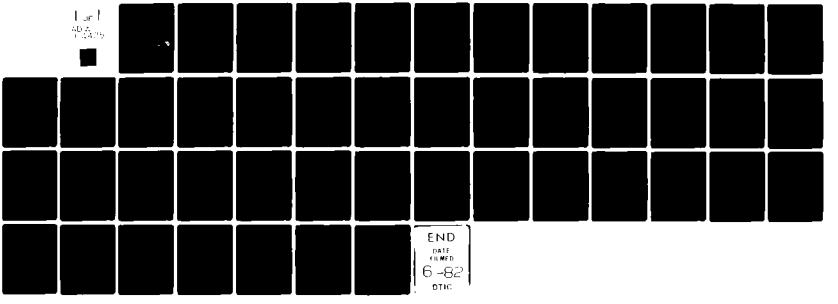

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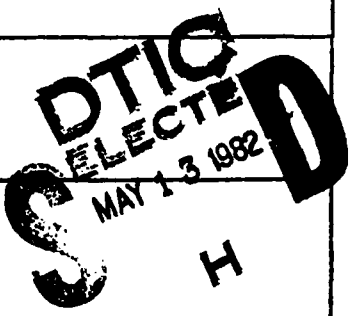

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This study investigated the effects of four sources of environmental structuring on employee responses. These sources are: job, technology, work unit, and leader behavior. Main, joint, and interactive effects were examined. Job structure had the strongest effect. It was demonstrated that technology, job, and work unit structure were found to be substitutes for leader structure. Leader structure had little unique impact on employee reactions except when the other sources of environmental structure were weak. Two alternative theoretical interpretations of the findings are offered:

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SOURCES OF ENVIRONMENTAL STRUCTURING

AND

PARTICIPANT RESPONSES

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SOURCES OF ENVIRONMENTAL STRUCTURING AND PARTICIPANT RESPONSES[1]

One of the recurring themes in organizational analysis centers on the design of systems which will generate predictable and constructive participant behaviors and attitudes. Two general approaches have been proposed for accomplishing this end. The first of these relies upon the pre-organizational experiences of participants to generate norms for appropriate behavior. This first approach emphasizes educational and professional experiences which occur before the individual enters the organization and typically involves factors outside of direct organizational control. The second approach (the one focused on in the present paper) emphasizes those factors which exist within the boundaries of the organization and which the organization can directly influence to define and reinforce appropriate behavior. This second approach involves a number of environmental structuring techniques.

Among the many sources of structure which can be identified in organizations are four which appear particularly salient. These include structure emanating from the design of the job, from the design of the work unit, from the technology of the work unit, and from the behavior of the immediate leader. Although each of these sources of structure has been investigated, research for the most part has been conducted on only one of these constructs at a time. Furthermore this research has been conducted by different researchers, using differing methodologies, and in distinct samples. Although these independent lines of inquiry have made substantial contributions in each of the four areas, the cumulative impact of knowledge derived in such a fashion does not allow for a thorough understanding of the joint and interactive roles of these constructs.

The purposes of this investigation are to explore: 1) the relative impact of the four sources of work environment structure (i.e., job, technology, work unit, and leader-initiating structure) on employee attitudes and behaviors;

2) the joint and interactive effects of the four sources of structure; and 3) the unique impact of leader structure beyond that of the other three alternative sources of work environment structure. To further understanding of the role of leader behavior, the relationship between leader structure and employee responses will be examined under conditions where: 1) job structure, technology, and work unit structure highly define and constrain employee behavior, and 2) job structure, technology, and work unit structure allow behavioral discretion for employees.

The remainder of this introduction will provide comments on the current state of knowledge in each of the four areas of sources of structure. Following this, an evaluation will be made of the adequacy of the state of the art for understanding the joint and/or interacting effects of the various sources of structure.

JOB STRUCTURE

The study of job design has explored a large number of job characteristics, some of which can be viewed as sources of structure. Autonomy and variety, as measured by both the Job Diagnostic Survey (Hackman & Oldham, 1975), and the Job Characteristics Inventory (Sims, Szylagyi, & Keller, 1976), represent two examples of job-related sources of structure. In general, the job characteristics of variety and autonomy have been positively related to worker affective responses and occasionally have been related to behavioral responses (Hackman & Oldham, 1979; Aldag & Brief, 1979; Pierce & Dunham, 1976).

Complementing the examination of the effects of job characteristics there have been a limited number of studies exploring the joint effects of job characteristics singularly with each of the other three sources of structure examined

in the present paper (i.e., technology, work unit structure, and leader structure). Rousseau's (1978) investigation of the joint effects of job characteristics and technology included the sources of structure stemming from job design, as well as additional dimensions of the job. Her results indicated that technology explained only small amounts of job satisfaction variance beyond that explainable by job characteristics alone. A significant interaction effect between the two variables was also identified. Pierce, Dunham, and Blackburn (1979) examined the joint effects of job characteristics and work unit structure. Their findings also indicated that job characteristics had a more significant impact on worker responses than did the other sources of structure. A significant interaction effect between job design and work unit structure was also found by Pierce et al.

In an alternative formulation of the issue, Pierce (1979) established the role of job design as a variable which intervenes between work unit structure and employee responses. This finding has been supported in subsequent studies by Oldham and Hackman (1981), and Brass (1981).

Focusing on leader behavior and job design, Kerr and Jermier (1978) suggested that an interaction should be expected between job characteristics and leader behavior structure. Schriesheim and De Nisi (1979) empirically confirmed this relationship. They found variety and dealing with others, two task attributes, moderated the instrumental leader behavior-employee satisfaction relationship. Griffin (1980) provided additional empirical support with findings which suggested that, when there is an individual-task congruency, there is probably little that the leader can and/or should do to enhance employee satisfaction. The leader, however, may be able to enhance satisfaction when there is a poor task-individual match.

Although there has been growing interest in studying the joint and/or interacting effects of job structure and other sources of structure, to date there has been only limited empirical study of such effects. Recent commentaries on job design and redesign have noted the importance of pursuing such issues (Oldham & Hackman, 1981; Roberts & Glick, 1981).

TECHNOLOGY

Most of the recent scholarship in the area of technology has focused almost exclusively on one of two issues: 1) the dimensionality of the technology construct, or 2) the relationship between technology and organizational structure (Ford & Slocum, 1977; Pfeffer, 1978; Slocum & Sims, 1980). These studies have not examined the influence of technology on individual reactions. Although there has not been a recent comprehensive review of research on the effects of technology on employee attitudes and behaviors, several studies are representative of the state of the art.

Peterson (1975), Fullan (1970), and Shephard (1969) focused on the relationship between mass production technology and worker satisfaction. Peterson found that workers in mass production settings had lower job satisfaction (both extrinsic and intrinsic) than workers in process and small batch settings. This observation is similar to the results found by Fullan. Fullan showed that workers in mass production settings tend to have poorer relationships with co-workers, supervisors, and management and that they are less job satisfied and committed to the employing organization, tending to engage in more strikes and walkouts than their counterparts in craft and continuous process settings. Similarly, Shepherd's data suggest that there is greater job dissatisfaction and

alienation (i.e., feelings of powerlessness and meaninglessness) for mass production than for craft and process employees.

Rousseau (1977) adopted Thompson's (1967) three-fold classification of organizational technology and, as in previous research, found that employee job satisfaction varied significantly across technology sources. Job satisfaction was lowest for workers under long-linked technologies followed by those exposed to intensive and mediating technologies respectively.

The preceding observations, based on relatively recent work, are generally consistent with the findings of numerous other studies such as those by Trist and Bamforth (1951), Rice (1958), Blauner (1964), and Hage and Aiken (1969). This evidence suggests that employee attitudes and behaviors are associated with the technology of the employing organization. While employee attitudes have received the greatest research attention, the employee behavior-technology relationship has also been studied (c.f., Trist and Bamforth, 1951). The thrust of the findings from this literature has been a general comparison of criterion mean levels across different technology types which lead to the conclusion that routine, long-linked, system-controlled, mass production technologies are associated with lower job satisfaction, greater worker alienation, greater absenteeism, and lower levels of worker integration. With the exception of Rousseau's study of technology and job characteristics, these studies have not examined the joint or interacting effects of technology and other sources of structure in the employee's environment.

WORK UNIT STRUCTURE

Three major reviews of empirical studies focusing on organization structure-employee responses relationships have been published during the past two decades (Porter & Lawler, 1965; Berger & Cummings, 1979; Dalton, Todor, Spendolini,

Fielding, & Porter, 1980).[2] While none of these reviews exclusively focus on the work unit structure-employee response relationship, both the Porter and Lawler, and Berger and Cummings reviews distinguish total and organizational sub-units as determinants of employee reactions. While each of these reviews identified a number of isolated relationships between individual work unit structure variables and employee responses, the one important common theme shared by the three reviews is the need for integrative multivariate investigations of multiple sources of structure as determinants of employee responses. For example, in 1965 Porter and Lawler argued that:

> Organizations appear to be much too complex for a given variable to have a consistent undirectional effect across a wide variety of types of conditions ... there has been a tendency to oversimplify vastly the effects of particular structural variables (p. 48).

Agreeing with Porter and Lawler, Berger and Cummings also noted that such problems have continued to plague research in this area. Two examples of research which has moved in the appropriate direction included: 1) El Salmi and Cummings (1968) who examined the effects of three interactions (organizational level by line/staff positions; organization level by total organization size; and organizational level by tall/flat shape) on several indices of individual need fulfillment; and 2) Adams, Laker, and Hulin (1977) who studied the main effects of three job levels and five functional specialties as well as level-specialty interactions on four dimensions of satisfaction.

A simplified statement describing work unit structure effects on worker responses is embedded in the conceptual argument made by Porter, Lawler, and Hackman (1975) and in the empirical findings of Pierce, Dunham, and Blackburn (1979). The general conclusion of these theorists and researchers is that

employees respond more postively to organically structured work units than to work units designed in a more mechanistic fashion.

It is clear that the maladies that afflict the two previously reviewed areas are also evident in the work unit structure area. With very few exceptions, the joint or interacting effects of work unit structure and other sources of structure have not been addressed. This reinforces the need for integrative research.

LEADER STRUCTURE

The linkage between leader initiating structure and employee attitudes and behaviors has been examined both theoretically (c.f., Fiedler, 1967; House 1971) and empirically (c.f., Kerr, Schreisheim, Murphy, & Stogdill, 1974). Two relevant reviews of this literature were provided by House and Baetz (1979), and Schriesheim, House, and Kerr (1976). Together this work suggests a complex role for leader initiating structure.

House and Mitchell (1974), in their discussion of the path-goal theory of leadership, suggest that the effect of the leader's initiating structure behavior will be a function of how deficient the work environment is with regard to the provision of structure. These observations suggest that the leader's structuring behavior will not make a favorable contribution to employee attitudes and/or behavior if other aspects of the work environment (i.e., the job, the technology, or the structure of the work unit) provide sufficient structure.

Kerr (1977) has noted that current theories and models of leadership assume that hierarchical (formal) leadership is always important although the theories may differ in their conceptualization of significant situational contingency factors. Following the lead of Woodward (1973), Kerr argued that we are forced

to recognize that many individual, task, and organizational characteristics have the capacity to act as "substitutes for the leader's ability to influence work group satisfaction and performance ... in some situations hierarchical leadership per se does not seem to matter" (p. 138). As a consequence, in many situations leader structuring behavior may be irrelevant (Kerr & Jermier, 1978). A number of organizational and task-based forces may "act as substitutes for leadership tending to negate the leader's ability to either improve or impair subordinate satisfaction" (Kerr & Jermier, p. 377).

This issue was empirically addressed by Howell and Dorfman (1981). Although some factors were only "weak substitutes for leadership" (e.g., intrinsic task satisfaction, task provided performance feedback) it was observed that "The instrumental leader behavior of work assignment became nonsignificant when organizational formalization and routine work tasks were both included in the predictor set" (p. 727). It should also be noted, however, that the role of "hierarchical leadership is still important in this sample, even in the presence of potential substitutes for leadership" (p. 727).

In spite of the contingency models of leadership (Fiedler, 1967; House, 1971) Ford (1981) recently noted that much of the leadership research has been carried out with sufficient attention to the context in which it is located. Ford focused his investigation on leader behavior and various context factors. Specifically, he examined the relationship between leader behavior and: 1) dimensions of technology (i.e., technological routineness and workflow interdependence), and 2) formal work unit structure. The hypothesized inverse relationships of leader structuring behavior with both technological routineness and formal structure were not supported. Routineness had a positive association with leader initiating structure, while formal structure was not associated with

leader initiating structure. No significant relationship between workflow interdependence and leader initiating structure was found.

Existing evidence in the leadership area makes it very clear that the issue of the relative impact of leader structure on employee reactions cannot be explored on an isolated basis. Not only must the main effects of leader structure be examined, but the role of leader structure in the context of the broader organizational environment must be explored to fully understand the role of leader initiated structure.

RESEARCH QUESTIONS AND PREDICTIONS

The previous discussion examined four relatively independent streams of organizational inquiry. The four approaches share an interest in explaining variance in employee attitudes and behaviors. Each of the four approaches explores an alternative source of structure which impacts upon the employee (serving to define and constrain functioning within the organizational social system).

The perspective taken in this paper suggests that there are a number of structure-imposing agents which simultaneously send signals to employees defining their role, shaping their attitudes, and influencing their behaviors. Macro organization scholars have called our attention to structuring effects of the technology, and the structure of the organization and organization sub-components. The micro organization literature highlights structure stemming directly from job characteristics, and the structure that flows directly from the behavior of the formal leader.

The present investigation is directed toward answering the following research questions:

1. What is the relative individual impact of the four sources of structure (i.e., job design, technology, work unit, and leader) on employee attitudes and behaviors? We predict that employee affective and behavioral responses will be most strongly related to the job vis-a-vis the other three sources of structure. The rationale for this prediction is embedded in the argument made by Pierce (1977, 1979), and by Hall, Goodale, Rabinowitz, and Morgan (1978), which suggests that the job is "closer" to the worker and is experienced on a more regular and direct personal basis than work unit structural properties, work unit technology dimensions, or leader behaviors. Consequently, the cues received from the job should be more strongly associated with employee work-related responses than the cues transmitted by other structure-imposing agents of the formal work environment.

2. How much of the total variance in employee responses is attributable to the joint and combined effects of these four sources of structure?

3. Do these four sources of structure interact in their association with employee responses? If so, in what manner? As noted, research on interactions has been limited to two-way interactions among these sources of structure. Although limited, this previous research suggests that at least two-way interaction should be expected. To our knowledge, higher level interactions have not been explored to date.

4. Does leader behavior as a source of structure explain variation in employee responses beyond that attributable to the other three sources of structure? If so, under what conditions? The position taken by House and Mitchell (1974), and Kerr and Jermier (1978) is adopted. This position suggests that the effect of a leader's initiating structure behavior will be a function of how deficient the work environment is of total structure given the

other sources of structure. Thus, it is predicted that leader initiating structure will contribute insignificant amounts of variance to employee attitudes and behaviors beyond that attributed to job, technology, and work unit structure when structure is provided and uncertainty is reduced by other sources. When the combined or joint structure provided by the task, technology, and work unit design is relatively low, then leader structuring behavior will be related to employee responses.

METHOD

SUBJECTS AND DATA COLLECTION

The data for this investigation were derived from: 430 nonsupervisory employees (clerical, technical, and professional) from 19 distinct and functionally heterogeneous work units (e.g., legal, records, policy writing, liability claims, stenographic, communications); 19 first level supervisors; and a key informant from the home office of a midwest based insurance company. Additional data were obtained directly from company records. Over 90 percent of the employees working in these work units voluntarily participated in the survey which was administered on job release time. Each participant agreed to give the researcher access to company records for absenteeism data. An additional 32 nonsupervisory employees and another informant participated for the purpose of reliability checks.

MEASURES AND VARIABLE DEFINITION

I. Work Unit Structure. Four work unit structure variables were operationalized. Below we describe each variable and indicate the source of the data (in parentheses) and the source of the instrument.

A. Complexity was represented by the number of distinct job titles in the work unit standardized by work unit size (data obtained from company records) (Hage, 1974);

B. Formalization refers to the codification and expression of norms (rules, policies, and procedures) in written form to the work unit employees. The percent of work unit employees governed by such specific written documents was measured (report of the unit supervisors)(Pierce, Dunham, & Blackburn, 1979).

C. Coordination refers to the use of:

1. Group Coordination: standing committees, staff meetings, specially assembled problem-solving groups to integrate workers and activities (report of unit supervisors) (Van de Ven, Delbecq, & Koenig, 1976);

2. Impersonal Coordination: formal and informal work policies and procedures and predetermined work plans, or schedules employed to integrate workers and work activities (report of unit supervisor) (Van de Ven, et al., 1976).

These work unit structural variables were each standardized and then combined using a unit weight model. Variation on the work unit structure score depicts variation on a dimension ranging between an organic (loosely structured) work environment and a highly mechanistic (tightly structured) environment. A high score depicts the mechanistically structured work unit.

II. Technology. Consistent with the view of Hickson, Pugh, and Pheysey (1969) that technology is a multidimensional construct, operationalization of technology involved the following dimensions:

A. Operations Technology was operationalized through measures of:

1. Automaticity. The degree to which manual sources of energy are replaced by equipment used in the workflow process (Inkson, Pugh, & Hickson, 1970);

2. Workflow Rigidity. The degree of fixedness of the workflow process (Hickson etal., 1969), where the workflow follows a fixed, predetermined path and where a breakdown in one area would immediately stop the work along the entire workflow path;

3. Evaluation Specificity. The degree to which exact standards, or personal opinion and judgement are employed in assessing operations that are performed (Hickson et al., 1969);

4. Production Continuity. The continuity of objects of throughput in the workflow process (Hickson et al, 1969) (the percent of standardized versus custom output for the work unit was assessed);

5. Intra-unit Workflow Interdependence. The percent of work performed within the work unit that was performed under conditions where the unit's employees are linked to one another by pooled, sequential, reciprocal, and team forms of interdependence (Van de Ven, Delbecq, & Koenig, 1976).

B. Materials Technology was measured with Van de Ven and Delbecq's (1974) three-item scale reflecting the stability/uniformity of the input that is worked on by the focal work unit.

C. The third technology construct, knowledge technology, characterizes the knowledge used in the work transformation process.

1. Van de Ven and Delbecq's (1974) four-item scale measuring problem difficulty (i.e., the degree of logical analysis employed when exceptions or problems are encountered in the workflow process) was

employed to assess one dimension of knowledge technology.

2. Knowledge technology was also measured in terms of Thompson's (1967) categorization of long-linked, mediating, and intensive technologies. Rousseau (1978), and Mahoney and Frost (1972) suggested that the amount of discretion exercised by the "people component" in the workflow process could be employed as an operational indicator differentiating these three levels of technology:

a. Long-linked technolgies are managed by the use of standard operating procedures and consequently the people component exercises very low levels of discretion.

b. Under mediating technologies, the people component is required to survey the input along a number of prescribed dimensions and subsequently assign the work/object to one of a number of pre-programmed operating procedures.

c. The intensive technology is distinguished by the lack of the ability to create a priori standardized transformation procedures. The use of discretionary behavior in the selection, combination, and order of applications of techniques is the primary mode of operation. In addition the chosen mode of operation is determined by the consequences of previous operations and not by the application of a set of pre-programmed activities.

Each of the eight technology variables was standardized and combined via an additive model depicting the degree to which the technology is under the control of the system (high system control = high rigidity + high automaticity + high evaluation specificity + high production continuity + low material variability + low discretion + low problem difficulty + low interdependence.) A high

score on the technology scale reflects a system-controlled technology.

Descriptions of the technology employed in each of the work units was derived from an informant inside the host organization. This informant was a member of the personnel department, who worked with job analysis and related organizational development activities.

III. Job Design Structure. Two dimensions from Hackman and Oldham's (1975) Job Diagnostic Survey (JDS) were employed to measure the structural characteristics of the job:

1. Variety - defines a job that requires the performance of a number of different activities which involve the use of different skills and abilities.
2. Autonomy - defines a job which provides the employee with the opportunity to exercise personal judgement/discretion in the making of job-related decisions.

These data were obtained through self-reports of the subjects. Based upon observations made in the Pierce and Dunham (1976) review of job design measurement approaches, an additive model was employed to define job structure. A high score reflects a highly structured (routine) job since the true dimensions were "reverse scored."

IV. Leader Structure. Leader initiating structure behavior was operationalized by a 10-item scale taken from Form XII of the Leader Behavior Description Questionnaire (LBDQ) (Stogdill, 1963). The LBDQ was completed by each supervisor describing their own initiating structure behavior. Appropriate modification in LBDQ instructions and items were made to facilitate responses by supervisors. The LOQ, which was designed for Supervisory Response, was not used

here due to evidence (Schriesheim & Kerr, 1974) of inadquate psychometric properties. A high score represents leader behavior which tells employees "what, when, and how" to do their work and which defines and maintains standards.

V. Employee Responses.

A. Satisfaction

1. The Index of Organizational Reactions (IOR) (Smith, 1976; Dunham, Smith, & Blackburn, 1977) was used for self-report measures of kind of work satisfaction.

2. Satisfaction with company identification was also measured by self report with the IOR.

3. General Job Satisfaction was measured by self-report with the short form of the Minnesota Satisfaction Questionaire (MSQ) (Weiss, Dawis, England, & Lofquist, 1967).

B. Internal Motivation was measured by self-report using the Hackman and Oldham (1975) instrument.

C. Job Involvement was measured by self-report with Lawler and Hall's (1970) adaption of the Lodahl and Kejner (1965) instrument.

D. Effort refers to the amount of effort an employee expends on job performance (measured by both self-report at one point in time and by the supervisor's report at two points in time) and was measured using a five-point scale.

E. Overall Job Performance (i.e., how much the employee does and how well she/he does it) was measured by both self-report at one point in time and supervisory ratings using a five-point scale. Supervisory appraisals of performance were made at two points in time (simultaneously with the main data collection effort and three months

later).

F. Absenteeism (total time lost) was measured for the quarter during which the data collection effort was made and for the quarter following this data collection effort.

SCALE RELIABILITY

Cronbach's (1951) coefficient alpha was employed to assess the internal consistency of the multiple-item scales. The alpha values and other descriptive statistics are reported in Table 1. The alpha coefficients range between .71 for impersonal coordination and .90 for general and kind of work satisfaction.

Insert Table 1 about here

Test-retest reliability was assessed for the supervisor self-report measures of social system structure and the employee self-report measures. With the exception of one variable, intrinsic motivation (stability coefficient = .32), which had a good total sample internal consistency estimate (alpha = .85), the stability coefficients range from .80 (leader initiating structure) to .93 (effort self-appraisal).

To obtain an indication of the reliability of the technology measures (obtained from the key informant), a second informant was requested to complete the measures of the technology variables independent of the key informant's assessment. The inter-rater reliability coefficients range from a low of .65 (interdependence) to .92 (discretion). These coefficients suggest reasonable agreement has been achieved in describing the multiple dimensions of the technology employed in each of the 19 work units attesting to the reliability of

the technology scales. The technology data were collected during an earlier data collection effort (Pierce, Dunham, & Blackburn, 1979). Each work unit supervisor and the organizational informants indicated that the basic technology in the 19 work units had not changed between the two data collection periods. Thus, confidence exists that the technology measures basically represent the technology that was operational during this wave of data collection.

ANALYSES

I. Canonical correlation analysis (Cooley & Lohnes 1971) was used to "predict" the set of employee responses using the set of four sources of structure: job (J), technology (T), work unit (U), and leader behavior (L). This analysis tested the relative and joint main effects of the four sources of structure (see Research Questions 1 and 2). This analytical procedure can be described as follows:

$$\hat{Y} = (J + T + U + L)$$

A variance matrix was constructed to accompany this canonical analysis. Inspection of this matrix identifies the amount of variance in each employee response criterion variable (R^2) (and in the set of criterion variables ($\overline{R}^2$)) which can be explained given the set of independent (structure) variables. This also allows examination of the relative individual impact of each of the sources of structure.

II. Canonical analyses and variance matrices were used to test a series of sources of structure interactive models (two-way, three-way, and four-way) (see Research Question 3). These analytical models can be described as follows:

$$\hat{Y} = (J + T + U + L) + (J \times T + J \times U + J \times L + T \times U + T \times L + U \times L)$$

$$\hat{Y} = (\text{main effects}) + (\text{two-way interactions}) + (J \times T \times U + J \times T \times L + J \times U \times L + L \times T \times U)$$

$\hat{Y}$ = (main effects) + (two-way interactions) + (three-way interactions) + (J x T x U x L)

III. A final canonical analysis and variance matrix focused upon the increase in explained criterion variance attributable to leader structure once the role of the other three alternative sources of structure had been identified. Comparisons of the following two analytical models address Research Question 4 and determine if leader structure accounts for worker response variance beyond that attributable to alternative sources of structure.

$$\hat{Y} = J + T + U$$

$$\hat{Y} = J + T + U + L$$

IV. A stepwise multiple regression analysis using the four sources of structure was conducted to predict each of the employee responses. These analyses primarily address Research Questions 1 and 2 allowing examination of more specific individual and joint effects than was possible using the canonical analyses.

V. A series of zero-order correlations was conducted to establish the relationship between each individual source of structure and each employee response variable. A parallel series of part correlations was conducted to establish the relationship between each individual source of structure (controlling for all of the other sources of structure) and each employee response variable. These analyses address Research Questions 1 and 4.

VI. The zero-order correlations between leader structure and each employee response variable was obtained for each of two sub-groups. Sub-groups were based on the total amount of structure present from the job, the technology, and the work unit. These analyses addressed Research Question 4 (i.e., under what conditions does leader structure make a difference?)

RESULTS

CORRELATIONS AMONG SOURCES OF STRUCTURE

The intercorrelations among the four sources of structure are reported in Table 2. They range from a nonsignificant technology-work unit structure correlation (.06) to a correlation of .51 between technology and leader initiating structure, and a correlation of .51 between job structure and technology.

Insert Table 2 about here

RELATIVE AND JOINT IMPACTS OF SOURCES OF STRUCTURE

The canonical analysis shown in Table 3 used the four sources of structure

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Insert Table 3 about here

(job, technology, leader behavior, and work unit) to predict the complete set of 14 attitudinal and behavioral variables. Two significant canonical variates (canonical r = .73 and .47) were produced. The redundancy index ($\bar{R}^2$) indicates that an average of 15 percent of the employee response variance was accounted for by the combined set of structure variables. The set of structure variables accounted for a low of one percent of the variance for absenteeism to a high of 45 percent for both kind of work and general job satisfaction. Structure stemming from the job and technology emerge as the primary predictors of the set of employee responses.

A series of canonical analyses examined all possible two-way and three-way interaction effects for the four sources of structure. For each of these analy-

ses, either one or two significant canonical variates were produced, with canonical correlations ranging between .73 and .74 for the first significant variate, and .47 to .48 for the second variate. This pattern of correlations and the amount of criterion variance predicted is similar to the obervations of the four main effects. The final model (see Table 4) examined the four main effects, six two-way interactions, four three-way interactions, and the four-way interaction. One significant canonical variate (.75) was produced, accounting

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Insert Table 4 about here

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for an average of 14 percent of the criterion variance which is similar to the variance explained by the four main effects alone. Kind of work satisfaction ($r = .48$) and general job satisfaction ($r = .45$) were the two employee response variables best explained. Job structure was the major predictor of the employee responses.

PREDICTIONS OF BEHAVIORAL RESPONSES

Using a stepwise multiple regression procedure, each of the behavioral variables was regressed on the set of four sources of structure. The results from these stepwise multiple regression analyses are presented in Table 5.

Insert Table 5 about here

Employee <u>performance</u> (as assessed through supervisory performance appraisal) was most strongly associated with the job and technology sources of structure. The addition of work unit structure and leader structure explained less than two

percent additional variance. It should be noted that the four predictor variables together were only capable of accounting for, at most, 11 percent of this performance variance. The self-assessment of performance was most strongly associated with job and work unit structure which combined to explain 16 percent of the variance in this performance appraisal. The zero-order and part correlations (see Table 6) show that low structure jobs and a highly structured

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Insert Table 6 about here

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technology were associated with high performance. No systematic relationship between work unit structure or leader structure and employee performance was identified beyond that accounted for by the structure imposed by the job and technology.

Approximately 10 percent of the variance in supervisor assessment of employee effort was explained by job and technology sources of structure. Both leader initiating structure and unit structure add less than one percent to the remaining unexplained criterion variance. No consistant significant relationships were found between the sources of structure and the self appraisal of work related effort.

Stepwise multiple regression identified no significant relationship of structure with employee absenteeism during either of the two measurement periods. Zero-order correlations suggested only weak associations between absenteeism and each source of structure.

PREDICTIONS OF AFFECTIVE RESPONSES

The four sources of structure had their strongest associations with employee

affective responses. The multiple correlations range between .37 and .69 accounting for 14 to 47 percent of the variance in intrinsic motivation and kind of work satisfaction respectively (see Table 7). For four of the six affective response variables (i.e., job involvement, company identification satisfaction,

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Insert Table 7 About Here

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general job satisfaction, and intrinsic motivation) leader structure was the last predictor variable to enter the regression equation. Leader structure failed to enter the satisfaction with supervision regression model. For the regression analyses, leader structure accounted for less than one percent of the employee response variance. For four of the six affective response variables (i.e., job involvement, kind of work satisfaction, general job satisfication, and intrinsic motivation) job structure was the primary predictor, accounting for 13 to 38 percent of the criterion variance. Work unit structure was the primary predictor in the supervision satisfaction and company identification satisfaction regression models.

The multiple regression and zero-order correlations revealed that employees were more satisfied, motivated, and job involved when experiencing low levels of structure from each of the four sources. The part correlations lead to two additional observations: (1) when structure from job design, work unit design, and technology are statistically controlled, there is no remaining significant association between leader initiating structure and employee affective responses, and (2) when work unit structure, job structure, and leader structure are controlled for, employee satisfaction is associated with a highly structured

technology.

WHEN DOES LEADER STRUCTURE PREDICT?

A comparison of two canonical models (job, technology, and work unit versus job, technology, work unit, and leader behavior) was made to examine the role of leader initiating structure (compare Tables 3 and 8). In each case, two significant canonical variates (.73 and .46 versus .73 and .47) were produced. The

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Insert Table 8 About Here

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similar eigenvalues produced by each model, and the unchanged redundancy index ($\bar{R}^2$ = 15%) revealed that leader structure did not account for meaningful amounts of variance in employee responses beyond that explained by the other three sources of structure.

Job structure, work unit structure, and technology structure were combined using an additive model to estimate total structure from non-leader sources so that the moderating role of these alternative sources of structure on leader structure-employee response relationships could be examined. Subgroup zero-order correlations (see Table 9) reveal that when structure from the other sources is low, there is a significant negative association between leader structure and each employee affective response variable, a positive association with employee absenteeism, and a negative association with the second performance

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Insert Table 9 About Here

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and effort measures. Under conditions of high structure from the

other three sources, there are no significant leader initiating structure-employee response relationships. The correlations of leader structure with kind of work satisfaction and intrinsic motivations differ significantly when comparing the high and low sources of structure conditions.

DISCUSSION

Four major but relatively independent stream of organizational inquiry have been undertaken in the macro and micro organization literature aimed at understanding employee attitudes and behaviors. These four approaches can be seen in terms of alternative approaches to work environment structuring. Leader behavior, job design, social system design, and technology each represent a structure-imposing agent which sends signals to the employee -- defining roles, shaping attitudes, and influencing behaviors. The purpose of the present investigation was to explore the main, joint, and interactive effects of structure stemming from these four sources.

In the present study, structure from the design of the job clearly emerged as the primary predictor of employee attitudes and behaviors. These findings also suggest that the structure from the technology is quite consistently the second most important contributor to variations in employee responses. Work unit structure and structuring behavior from the immediate leader were the least powerful predictors. Neither leader structure nor work unit structure produced consistent, meaningful relationships with performance, absenteeism, effort, or most of the affective response variables.

These findings provide strong support for the prediction that the job is the most salient source of structure. This supports the contentions of Pierce (1977, 1979) and Hall et al. (1978) that the immediate content of the job should provide the greatest explanatory power in accounting for variations in employee

reactions. This finding was consistent across all measures of performance, effort, job involvement, intrinsic motivation, kind of work satisfaction, general job satisfaction, and intrinsic motivation.

The second major research question focuses on the amount of total variance in employee responses that can be attributed to the joint or combined effects of the four sources of environmental structure. In three different models examining this question, we consistently found that the combined sources of structure accounted for an average of approximately 15 percent of the variation in employee responses and as much as 45 percent of the variance for particular responses. This is a substantial amount of variation in view of the fact that individual characteristics of employees such as ability and motivation as well as more general organizational characteristics such as climate were not included in the explanatory model.

In light of previous research findings the most surprising observation from this investigation is the absence of significant contributions from the two, three, and four-way interactions. The four main effects produced two significant canonical correlations accounting for the same amount of criterion variance as was accounted for when the interaction models were added to the four main effects. Previous research has found a significant interaction between job and work unit structures (e.g., Pierce, Dunham, and Blackburn, 1979), job and leader behavior (e.g., Griffin, 1980), and job and technology (Rousseau, 1978). The data from the present investigation failed to confirm these observations. The situational forces producing these conflicting observations awaits future empirical investigation. In each of the previous studies, however, several non-structural job characteristics were included, along with the two job structure factors included in our research. Perhaps these non-structural job factors

(e.g., task identity) played important roles in the interaction effects.

It should also be noted that the present study examined a set of four main effects before exploring any of the interactions. The previous studies examined only two main effects before testing for interactions. It is possible that examination of the more complete set of main effects masked the interaction effects (or made them "unnecessary"). To explore this possibility, three additional pairs of post-hoc canonical analyses were performed. First, using the job and technology main effects, the set of employee responses was predicted and compared to an analysis in which the two-way interaction was added. In a similar fashion the job/work unit and job/leader behavior interactions were examined. Addition of the interaction term had no significant impact in any of these three tests.

A significant focus of the present investigation centered on the effects of leader structuring behavior. Except under one special circumstance, leader behavior as a source of structure did not explain additional variation in employee responses beyond that attributable to structure from the job, the technology, and the work unit. When the total amount of structure provided by the combined effects of the task, the technology, and the work unit is low, there is a much stronger relationship between structuring behavior of the leader and the attitudinal reactions of the leader's subordinates.

The findings regarding the role of leader structure can be interpreted in the context of a recent major theoretical discussion of environmental and cognitive causes of employee behaviors. To quote Naylor, Pritchard, and Ilgen (1980), "Leadership from this perspective is simply a question that is part of an even more general question relating to the issues of how one should structure the individual's environment to produce specific kinds of behaviors" (p. 273).

The position taken by Naylor, et al., provides an interpretive framework within which to argue that there are various sources or dimensions of structure in an individual's work environment. The question of the importance of a leader's influence becomes a significant question only when the leader's influence is examined relative to other environmental influences. These environmental influences, through their combined effects, provide a structuring of the cues and stimuli to which individuals respond in their work environment. Our findings clearly indicate that in the work environment studied, which was quite diverse in terms of the kinds of work units and the qualifications of employees studied, leadership structuring behavior does not provide a significant explanation for variations in employee reactions when the rest of the environment is highly structured. However, when the structuring cues and stimuli from the rest of the environment are relatively slight, it can be expected that the employee will experience substantial uncertainty about appropriate behaviors and attitudes and about performance expectations. Under these conditions, our data clearly indicate that leader behaviors which provide environmental structuring in the form of goals, norms, appropriate procedures, and appropriate role clarification, do significantly impact employee attitudes and behaviors.

Katz and Kahn (1978) noted that the importance of leadership should be assessed and evaluated as "the influential increment over and above mechanical compliance with the routine directives of the organization," (p. 528). It is our contention that the so-called "routine directives of the organization" come from sources like job design, technology, and work unit structure. These are all relatively fixed sources of cues or stimuli to the performer. They are not, however, reactive to short-run variations in employee attitudes and behaviors.

On the other hand, leader behavior is likely to be more capable of being varied in response to variations of employee attitudes and behavior.

This line of reasoning would suggest that leader behavior should be related more strongly to employee reactions than are other less reactive sources of structure. Why would this be the case? Theoretically, reinforcement theory, social modeling theory, and behavioral theories of change would all suggest that quick and appropriate reactive responses are most likely to bring a behavior (of the employee in this case) under the control of the stimuli and cues which are responsive to the employee's reactions. If this reasoning is accurate, the order of reactiveness of the sources of structure should be from most to least reactive: 1) leader behavior, 2) task design, 3) work unit structure, 4) technology.

The preceding interpretation of the relative importance of sources of structure is not empirically supported in the present study. Rather, it appears that the Pierce (1977, 1979) and Hall, et al. (1978) argument of the "closeness" of the source of structure is a more viable explanation.

Future research should be directed at assessing the conditions under which these two alternative and competing explanations hold. It may well be that in conditions of close proximity (both physically and socially) between superior and subordinate, the reactivity hypothesis will hold. This would be the case when leader and subordinate are in close and frequent contact with one another. Here the supervisor has the opportunity to closely observe variations in subordinate responses and to react quickly with changes in directives, consideration, support, rewards, and punishments. On the other hand, in cases where the supervisor is either physically and/or socially distant from the subordinates, the supervisor may not be permitted by the environment to observe

short-run variations in subordinate responses and, therefore, may not be aware of the occasion for appropriate reactive behaviors on his/her part. It is possible that two additional explanations for non-reactive behavior on the part of the supervisor may exist. First, the supervisor may not have the ability (skill) to react appropriately. Second, the supervisor may not be motivated to respond appropriately. In each of these cases, the "closeness" hypothesis should hold.

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FOOTNOTES

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[2] We exclude James and Jones (1976) from this enumeration since their review focused exclusively on the dimensionality of organizational structure and the conceptual relationship of structure with individual reactions.

Table 1

Descriptive Statistics & Reliability Coefficients

	No. Items	Mean	Std Dev	n	Alpha	Stability
Variety	3	14.54	4.93	429	.77	.87
Autonomy	3	14.12	4.67	428	.80	.82
Leader Initiating Structure (LIS)	10	38.19	4.10	19	.80	.80
Formalization	4	16.60	2.31	19	.74	.85
Complexity		431.47	93.79	19	NA	DNC
Coordination						
Impersonal	2	5.12	1.90	19	.71	.70
Group	3	11.37	2.77	19	.74	.73
Performance-Superior 1	1	3.27	.89	388	NA	DNC
Performance-Superior 2	1	3.33	.91	364	NA	DNC
Performance-Self	1	3.62	.66	430	NA	.93
Effort-Superior 1	1	3.25	.96	384	NA	DNC
Effort-Superior 2	1	3.29	.97	365	NA	DNC
Effort-Self	1	3.80	.73	429	NA	.90
Absenteeism 1	1	1.29	1.65	389	NA	DNC
Absenteeism 2	1	1.68	2.96	372	NA	DNC
Kind of Work Satisfaction	6	21.34	5.11	428	.90	.90
Company Identification Satisfaction	5	16.72	3.30	428	.86	.89
General Job Satisfaction	20	70.69	11.77	425	.90	.85
Intrinsic Motivation	4	16.50	2.20	429	.88	.32
Job Involvement	5	12.21	3.30	429	.77	.86
Supervision Satisfaction	1	4.79	1.68	430	NA	.82
						Interrater Reliabili
Interdependence	1	209.83	50.42	19		.65
Rigidity	1	3.81	1.32	19		.86
Evaluation Specificity	1	3.78	1.07	19		.74
Automaticity	1	3.16	1.60	19		.71
Materials Variability	3	9.13	1.84	19		.87
Difficulty	4	12.21	3.18	19		.80
Production Continuity	1	7.73	2.57	19		.80
Discretion	1	3.37	1.68	19		.92

NA = Not Applicable
DNC = Means data not collected though verbal statements indicated no change after 14 weeks

Table 2

Sources of Structure Intercorrelations

		1	2	3	4
1.	Job	--			
2.	Technology	.51**	--		
3.	Work Unit	.13**	.06	--	
4.	Leader	.43**	.51**	.17	--

** $p \leq .01$

Table 3

Canonical Correlations

MODEL: Job, Technology, Work Unit, Leader Initiating Structure

Canonical Correlations	Eigenvalue	Chi Square	D.F.	Sig.
.73	.53	203.59	56	.000
.47	.22	71.87	39	.001

Variance Matrix

Predictor Variables	PVS 1	PVS 2	CVS 1	CVS 2
Job	.88	.15	.46	.02
Technology	.08	.74	.01	.10
Work Unit	.13	.20	.04	.06
Leader Structure	.11	.11	.03	.00

Criterion Variables					R^2
Performance-Superior 1	.04	.01	.08	.02	.05
Performance-Superior 2	.04	.00	.06	.02	.04
Performance-Self	.02	.01	.04	.06	.03
Effort-Superior 1	.04	.01	.06	.03	.05
Effort-Superior 2	.06	.00	.05	.01	.06
Effort-Self	.02	.00	.02	.00	.02
Absenteeism 1	.01	.00	.03	.00	.01
Absenteeism 2	.00	.03	.00	.07	.03
Kind of Work Satisfaction	.45	.00	.83	.00	.45
Company Identification Satis.	.17	.03	.19	.14	.20
General Job Satisfaction	.45	.00	.83	.04	.45
Intrinsic Motivation	.18	.03	.28	.07	.21
Job Involvement	.21	.01	.31	.06	.22
Supervision Satisfaction	.14	.09	.23	.52	.23

$\bar{R}^2 = .146$

Table 4

Canonical Correlations

MODEL: Full Model *

Canonical Correlations	Eigenvalue	Chi Square	D.F.	Sig.
.75	.56	335.69	210	.000

Variance Matrix

Predictor Variables	PVS 1	CVS 1
Job	.86	.46
Technology	.07	.01
Work Unit	.07	.04
Leader Initiating Structure	.07	.03
Job X Work Unit	.00	.00
Job X Technology	.20	.10
Job X Leader Initiating Structure	.03	.03
Work Unit X Technology	.00	.01
Work Unit X Leader Initiating Structure	.00	.00
Technology X Leader Initiating Structure	.01	.00
Job X Technology X Work Unit	.04	.05
Job X Technology X Leader Initiating Structure	.30	.18
Technology X Work Unit X Leader Initiating St	.06	.04
Work Unit X Job X Leader Initiating Structure	.10	.02
Job X Work Unit X Technology X Leader Initiating Structure	.03	.02

Criterion Variables			R^2
Performance-Superior 1	.04	.08	.04
Performance-Superior 2	.05	.05	.05
Performance-Self	.02	.04	.02
Effort-Superior 1	.03	.05	.03
Effort-Superior 2	.07	.05	.07
Effort-Self	.03	.04	.03
Absenteeism 1	.00	.02	.01
Absenteeism 2	.01	.00	.01
Kind of Work Satisfaction	.48	.84	.48
Company Identification Satisfaction	.17	.22	.17
General Job Satisfaction	.45	.79	.45
Intrinsic Motivation	.20	.31	.20
Job Involvement	.22	.35	.22
Supervision Satisfaction	.11	.20	.11
			$\bar{R}^2 = .135$

* Four main effects, 6 2-way interactions, 4 3-way interactions and 1 4-way interaction were included in this model.

Table 5

Stepwise Multiple Regression - Behavioral Variables

Performance-Superior 1

Variable Order	R	R^2	ΔR^2	F	Sig
1. Job	19174	03676	03676	5.23	024
2. Technology	31473	09905	06229	7.48	001
3. Leader	33569	11269	01363	5.71	001
4. Work Unit	33657	11328	00059	4.28	003

Performance-Superior 2

Variable Order	R	R^2	ΔR^2	F	Sig
1. Job	15927	02537	02537	3.57	061
2. Technology	28828	08311	05774	6.16	003
3. Work Unit	30127	09077	00766	4.49	005
4. Leader	30304	09184	00107	3.39	011

Performance-Self

Variable Order	R	R^2	ΔR^2	F	Sig
1. Job	33383	11144	11144	17.18	000
2. Work Unit	38460	14791	03647	11.80	000
3. Leader	39650	15721	00930	8.39	000
4. Technology	39769	15816	00095	6.29	000

Effort-Superior 1

Variable Order	R	R^2	ΔR^2	F	Sig
1. Job	20442	04179	04179	5.97	016
2. Technology	30183	09110	04932	6.82	002
3. Leader	30959	09584	00474	4.77	003
4. Work Unit	31138	09696	00112	3.60	008

Effort-Superior 2

Variable Order	R	R^2	ΔR^2	F	Sig
1. Job	26336	06936	06936	10.21	002
2. Technolgoy	29744	08847	01912	6.60	002
3. Leader	29984	08990	00143	4.45	005
4. Work Unit	30050	09030	00040	3.33	012

Effort-Self

Variable Order	R	R^2	ΔR^2	F	Sig
1. Job	11704	01370	01370	1.90	170
2. Technology	19544	03820	02450	2.70	071
3. Work Unit	22066	04869	01049	2.30	080
4. Leader	22247	04949	00080	1.74	144

Absenteeism 1

Variable Order	R	R^2	ΔR^2	F	Sig
1. Technology	16070	02582	02582	3.63	059
2. Leader	17008	02893	00310	2.03	136
3. Work Unit	17436	03040	00147	1.41	242
4. Job	17466	03051	00010	1.05	382

Absenteeism 2

Variable Order	R	R^2	ΔR^2	F	Sig
1. Technology	22038	04857	04857	6.99	009
2. Work Unit	22550	05085	00228	3.64	029
3. Leader	22702	05154	00069	2.45	067
4. Job	22796	05197	00043	1.84	125

Table 6

Predictor-Criterion Zero-Order and Part Correlations

Criterion Variables	Predictor Variables: Job	Job Part	Unit	Unit Part	Tech	Tech Part	LIS	LIS Part
Performance-Superior 1	-15**	-18**	-03	03	04	12**	-00	05
Performance-Superior 2	-14**	-19**	00	04	05	13**	-08	-03
Performance-Self	-16**	-10*	06	06	-09	-02	-06	00
Effort-Superior 1	-10**	-17**	-01	02	10	15**	00	-00
Effort-Superior 2	-12**	-16**	-05	-02	01	08	-07	-02
Effort-Self	-07	-15**	07	06	09	12**	04	-00
Absenteeism 1	15**	04	10*	04	08	- 01	16**	06
Absenteeism 2	10*	04	02	-06	16**	07	12**	07
Kind of Work Satisfaction	-62**	-47**	-18**	-05	-12*	13**	-15**	05
Company Identification	-25**	-26**	-23**	-19**	01	17**	-15**	-06
General Job Satisfaction	-59**	-45**	-31**	-18**	-12*	14**	-19**	02
Supervision Satisfaction	-23**	-21**	-38**	-26**	11*	20**	-10*	-04
Job Involvement	-41**	-28**	-10*	-09*	-21**	02	-17**	-02
Intrinsic Motivation	-42**	-27**	-14**	-03	-23**	00	-17**	00

*$p \leq .05$

**$p \leq .01$

decimals have been omitted

Table 7

Stepwise Multiple Regression - Affective Variables

Job Involvement

Variable Order	R	R^2	ΔR^2	F	Sig
1. Job	46045	21201	21201	36.86	000
2. Technology	46824	21925	00724	19.10	000
3. Work Unit	47401	22468	00543	13.04	000
4. Leader	47521	22582	00114	9.77	000

Supervisor Satisfaction

Variable Order	R	R^2	ΔR^2	F	Sig
1. Work Unit	37929	14386	14386	23.02	000
2. Job	42231	17835	03448	14.76	000
3. Technology	46975	22066	04232	12.74	000

Kind of Work Satisfaction

Variable Order	R	R^2	ΔR^2	F	Sig
1. Job	61705	38075	38075	84.23	000
2. Technology	67756	45909	07835	57.71	000
3. Leader	68250	46581	00672	39.24	000
4. Work Unit	68630	47100	00519	29.83	000

Company Identification Satisfaction

Variable Order	R	R^2	ΔR^2	F	Sig
1. Work Unit	33964	11535	11535	17.86	000
2. Job	41909	17564	06029	14.49	000
3. Technology	48024	23063	05499	13.49	000
4. Leader	48119	23155	00092	10.09	000

General Job Satisfaction

Variable Order	R	R^2	ΔR^2	F	Sig
1. Job	57865	33483	33483	68.36	000
2. Work Unit	64858	42065	08582	49.37	000
3. Technology	67851	46038	03973	38.39	000
4. Leader	68199	46511	00473	29.13	000

Intrinsic Motivation

Variable Order	R	R^2	ΔR^2	F	Sig
1. Job	36393	13245	13245	20.92	000
2. Technology	36813	13552	00307	10.66	000
3. Work Unit	36909	13623	00071	7.10	000
4. Leader	36938	13644	00021	5.29	000

Table 8

Canonical Correlations - Model 1

MODEL 1: Job, Technology, Work Unit

Canonical Correlations	Eigenvalue	Chi Square	D.F.	Sig.
.73	.53	191.45	42	.000**
.46	.22	60.75	26	.000**

Variance Matrix

Predictor Variables	PVS 1	PVS 2	CVS 1	CVS 2
Job	.86	.13	.45	.02
Technology	.05	.71	.00	.11
Work Unit	.14	.24	.04	.06

Criterion Variables	PVS 1	PVS 2	CVS 1	CVS 2	R^2
Performance-Superior 1	.04	.01	.08	.02	.05
Performance-Superior 2	.04	.00	.06	.01	.04
Performance-Self	.01	.01	.04	.07	.02
Effort-Superior 1	.04	.02	.07	.02	.06
Effort-Superior 2	.06	.00	.05	.00	.06
Effort-Self	.02	.00	.02	.00	.02
Absenteeism 1	.01	.00	.04	.01	.01
Absenteeism 2	.00	.02	.00	.09	.02
Kind of Work Satisfaction	.45	.00	.83	.00	.45
Company Identification Satisfaction	.18	.04	.21	.12	.22
General Job Satisfaction	.46	.00	.83	.03	.46
Intrinsic Motivation	.17	.02	.28	.08	.19
Job Involvement	.20	.00	.31	.08	.20
Supervision Satisfaction	.14	.10	.25	.49	.24

$\overline{R}^2 = 14.6$

Table 9

Sub-Group Correlations

Criterion Variable	Leader Initiating Structure: Alternative Source of Structure - Low	Leader Initiating Structure: Alternative Source of Structure - High
Performance-Superior 1	-04	-03
Performance-Superior 2	-15^{x}	-05
Performance-Self	-09	-06
Effort-Superior 1	-01	-04
Effort-Superior 2	-11^{x}	-01
Effort-Self	06	-06
Absenteeism 1	17^{xx}	11
Absenteeism 2	16^{xx}	-00
Kind of Work Satisfaction	-21^{xx}	-02 +
Company Identification Satisfaction	-16^{xx}	-12
General Job Satisfaction	-24^{xx}	-06
Intrinsic Motivation	-21^{xx}	-00 +
Job Involvement	-15^{xx}	-13
Supervision Satisfaction	-10^{x}	-14

* $p \leq .05$

** $p \leq .01$

decimals have been omitted

Alternative source of structure--high signals structure stemming from job, mechanistic work unit, and a system controlled technology.

+ Significant ($p \leq .05$) difference between r's.