THE EFFECTS OF PERSONALITY AND ORGANIZATIONAL VARIABLES ON TEACHER JOB STRESS

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CHAPTER I

THE RESEARCH PROBLEM

Statement of the Problem

In spite of Kurt Lewin's[1] theory of behavior as a function of the interaction between personality and environment and the systems model of J. W. Getzels and E. G. Guba[2] with its institutional and individual dimensions, researchers continue to emphasize one or the other dimension when attempting to explain behavior.[3] With few exceptions this unidimensional approach is prevalent in empirical research relating to job stress. According to Ahmed Abdel-Halim,[4] this tendency to utilize a singular dimension might explain the inconsistent results of various job stress studies.

It is possible, for example, that the results of a study incorporating a specific variable to explain job stress will be modified by either the omission of the other dimension or an interaction of both the stated organizational and unstated individual characteristics. To exclude one or the other components is to diminish the potential for understanding job stress. To ignore the dynamics of the two factors is not to eradicate

their impact. Consequently when the original study is repeated with another sample, the unique personality characteristics associated with individuals in the second sample may differ from those in the original group to such a degree that the results of both studies are inconsistent.

Accordingly, the purpose of this study is to determine the significance of specific individual and organizational variables as they influence job stress in both joint and interaction combinations.

Significance of the Study

Research relating job stress to various negative personal and organizational outcomes abounds. Evidence has established a link between stress and such variables as physical health, job satisfaction, performance ratings, and exit or absenteeism withdrawal behaviors.

That there appears to be a relationship between stress/stressor variables and physical health is a conclusion documented by numerous studies. In a review by Terry A. Beehr and John E. Newman,[5] several studies were reported which correlated stress with specific physical conditions: blood pressure, cholesterol level, pulse rate, electrocardiogram abnormalities, levels of uric acid, blood sugar, and peptic ulcer.

Although not all studies confirm a significant relationship between stress/stressor and job satisfaction,[6,7] the

vast majority validate a significant negative relationship between the aforementioned variables.[8-12]

Job performance is another area adversely affected by stress. Two studies link job stress with low job performance.[13,14]

While research relating withdrawal behavior with stress/stressors is limited, there are several studies which confirm a relationship between stress/stressor variables and intention to turnover, voluntary turnover, and absenteeism. Both T. F. Lyons[15] and J. R. Rizzo et al.[16] established a relationship between role ambiguity and expression of desirability and likelihood of leaving the job.[17] Lyons[18] and J. Weitz[19] determined that a relationship existed between role stressors and voluntary turnover. And, finally, Nina Gupta and Terry Beehr[20] reported a significant correlation between four role stressors; role ambiguity, role overload, minimal skill utilization and resource inadequacy; and both absenteeism and intention to turnover.

The relationship between stress and intention to leave the organization is not limited to industry. There is some indication that withdrawal behavior is accelerating among teachers. According to an NEA poll completed in May, 1980, and reported in Today's Education, 41 percent of the 1,738 public school teachers responding to the interview reported that they would not enter the teaching profession again if they were given a second chance.[21]

In addition to intent, there is some evidence to support teacher withdrawal from the profession. Willard H. McGuire[22] reported that the number of teachers with 20 or more years experience has been reduced by almost 50 percent over the past 15 years. In part he attributed this exit behavior to burnout, a condition brought about by stress, tension and anxiety.

It is possible to conclude that job stress is associated with numerous negative outcomes which affect all aspects of the educational system. An understanding of the phenomenon will facilitate and accelerate stress control with concomitant benefits going first to those dimensions most directly affected, the individual and the institution, and finally rippling out to the larger environs of both profession and society.

Definition of Terms

Organizational Structure

Jerald Hage's[23] axiomatic theory postulates two ideal types of organizational structures based on four structural variables and four functional variables. The organizational types, each an extreme point on a continuum, are categorized according to their structural components in the following way:

Organic Model (Emphasis on adaptiveness)	Mechanistic Model (Emphasis on production)
High complexity	Low complexity
Low centralization	High centralization
Low formalization	High formalization
Low stratification	High stratification

For the purposes of this study, organization structure will be defined in terms of organic/mechanistic and will consist of the following structural components:

Centralization. One of the four structural variables delineated by Hage's axiomatic theory and defined in two ways:[24]

a. Participation in decision making refers to the degree of occupant participation in decisions about the allocation of resources and the determination of organizational policies which affect the organization as a whole.[25]

b. Hierarchy of authority refers to the degree of decision making related to the work associated with the position and affecting only the specific social position.[26]

Formalization. One of four structural variables which represents the application of rules by an organization and consists of two subcategories:[27]

a. Job codification refers to a definition of role via job descriptions.[28]

b. Rule observation refers to the degree to which the standards established by job codification are applied.[29]

Complexity. One of four structural variables which includes three subcategories:[30]

a. Number of occupational specialties,

b. Professional activity, and

c. Professional training.[31]

Interaction Effect. Michael S. Lewis-Beck states that "an interaction effect exists when the impact of one independent variable depends on the value of another independent variable."[32]

Locus of Control. Locus of control is a term relating to the degree to which an individual attributes a reinforcement for any given behavior as being within his control, an internal orientation; or outside his control as in the realm of luck, chance, fate, or powerful others, an external orientation.[33]

Role Stressor. A general categorical term for role ambiguity and role conflict.

Role Ambiguity. A condition of uncertainty caused by a lack of necessary information which is not available to a given organizational position.[34]

Job Stress. A term which refers to the degree of psychological or physiological departure from normal functioning, which results from an interaction between job-related factors and the worker.[35]

Background

In an attempt to understand and explain the dynamics of job

stress, this study will incorporate the following three existing theories: axiomatic, role and locus of control. Although definitions pertaining to each construct have been presented, some additional explanation is required to establish a network of connections and interconnections between the variables as they relate to job stress. The following section will provide a theoretical synthesis to explain interaction effects of specific constructs on job stress. The order of presentation will be: (a) axiomatic theory, (b) role theory, (c) locus of control as a moderator of role ambiguity and (d) locus of control as a moderator of structure.

Axiomatic Theory and Job Stress

Hage's[36] axiomatic theory postulates two ideal types of organizations which are then linked to the dual structural model of Tom Burns and G. M. Stalker.[37] While Hage's[38] axiomatic theory is quite useful for operationalizing the organic/mechanic model, Burns and Stalker's[39] model provides a better description of the construct's continuum in terms of the differentiating characteristics. To facilitate understanding, the characteristics of each organizational type will be delineated as follows:

> A mechanistic management system is appropriate to stable conditions. It is characterized by:
>
> a. the specialized differentiation of functional tasks into which the problems and tasks facing the concern as a whole are broken down;

b. the abstract nature of each individual task, which is pursued with techniques and purposes more or less distinct from those of the concern as a whole; i.e., the functionaries tend to pursue the technical improvement of means rather than the accomplishment of the ends of the concern;

c. the reconciliation for each level in the hierarchy of these distinct performances by the immediate superiors who are also, in turn, responsible for seeing that each is relevant in his own special part of the main task.

d. the precise definition of rights and obligations and technical methods attached to each functional role;

e. the translation of rights and obligations and methods into the responsibilities of a functional position;

f. hierarchic structure of control, authority and communication;

g. a reinforcement of the hierarchic structure by the location of knowledge of actualities exclusively at the top of the hierarchy where the final reconciliation of distinct tasks and assessment of relevance is made;

h. a tendency for interaction between members of the concern to be vertical; i.e., between superior and subordinate;

i. a tendency for operations and working behavior to be governed by the instructions and decisions issued by superiors;

j. insistence on loyalty to the concern and obedience to superiors as a condition of membership;

k. a greater importance and prestige attaching to internal (local) than to general (cosmopolitan) knowledge, experience, and skill.

The organic form is appropriate to changing conditions, which give rise constantly to fresh problems and unforeseen requirements for action which cannot be broken down or distributed automatically arising from the functional roles defined within a hierarchic

structure. It is characterized by:

a. the contributive nature of special knowledge and experience to the common task of the concern;

b. the 'realistic' nature of the individual task which is seen by the total situation of the concern;

c. the adjustment and continual redefinition of individual tasks through interaction with others;

d. the shedding of 'responsibility' as a limited field of rights, obligations and methods (problems may not be posted upwards, downwards or sideways as being someone else's responsibility);

e. the spread of commitment to the concern beyond any technical definition;

f. a network structure of control, authority, and communication. The sanctions which apply to the individual's conduct in his working role derive more from presumed community of interest with the rest of the working organization in the survival and growth of the firm, and less from a contractual relationship between himself and a non-personal corporation represented for him by an immediate superior;

g. omniscience no longer imputed to the head of the concern, knowledge about the technical or commercial nature of the here and now task may be located anywhere in the network; this location becoming the ad hoc center of control, authority and communication;

h. a lateral rather than vertical direction of communication through the organization, communication between people of different rank, also resembling consultation rather than command;

i. a content of communication which consists of information and advice rather than instructions and decision;

j. commitment to the concern's task and to the 'technological ethos' of material progress and expansion is more highly valued than loyalty and obedience;

> k. importance and prestige attach to affiliations and expertise valid in the industrial and technical and commercial milieux external to the firm.[40]

Although Burns and Stalker[41] do not dwell on possible dysfunctions of either of their structural genres, they do refer to one negative consequence associated with the organic model. Stress, they postulate, might emanate from job ambiguity and its concomitant organic context.

Hage[42] hypothesizes that the greater the concentration of specialists and variety of occupations, the greater the role conflict. He further hypothesizes that centralization and stratification, that is the differences in powers and rewards among members of an organization, are two structural variable negatively associated with role conflict. Hage concludes with the following statement:

> In organic organizations one would expect a considerable amount of role conflict. In contrast, in mechanical organizations there should be little role conflict. To use the words of Burns and Stalker, the network of authority with a shifting center in the organic form only adds to the ambiguity and expectations, whereas the strict hierarchy with clear justifications in the mechanical organization resolves many of the potential sources of role conflict.[43]

Role Theory and Job Stress

Although Kahn et al.[44] established two subcategories of role ambiguity, Rizzo, House and Lirtzman[45] were unable to operationalize both dimensions. After factor analysis one form emerged which is defined as follows:

> The existence or clarity of behavioral requirements, often in terms of inputs from the environment, which would serve to guide behavior and provide knowledge that the behavior is appropriate.[46]

That dimension of role ambiguity, associated with task uncertainty, is related to increased tension and anxiety as well as reduced trust in role senders.[47] It may occur as a result of nonexistent information or inadequate communication of existing information.[48]

Locus of Control as a Moderator of Role Ambiguity

The combination of these two additional theoretical perspectives in a state of interaction increases the potential for explaining the phenomenon of job stress. Although Kahn et al.[49] do not specifically designate locus of control as a moderator of stress, they do propose that certain personality traits might influence the degree of tolerance an individual displays toward role ambiguity. After examining the mediating effects of a personality measure, need for cognition, the authors conclude:

> The emotional consequences of ambiguity cannot, therefore, be fully appreciated without a consideration of the motivational characteristics of the individual experiencing the ambiguity.[50]

At this point the reader is reminded of the salient features of these two constructs in order that a theoretical synthesis might be presented to explain the phenomenon of job stress. Locus of control is an individual's perception

of the control origin of reinforcement and/or behavior.[51] Although an internal assumes responsibility for behavior and/or reinforcements, an external transfers that responsibility to outside reference points. Role ambiguity, on the other hand, is a state of uncertainty resulting from environmental conditions which do not reinforce or guide behavior.[52]

Accordingly, if an individual with an internal locus of control works under conditions of high role ambiguity, the contextual opportunities for self-definition of behavior and/or reinforcements are congruent with a perceived need for internalized control. Conversely, those environmental conditions which produce high role ambiguity are not compatible with the external's need for control of behavior and/or reinforcements by outside referents. Congruency between context and personality results in a high tolerance for stress incongruency, a low tolerance for stress.

Thus an interaction between role ambiguity and locus of control appears to be supported by the logic inherent in the respective theories. When the criteria for interaction prescribed by Lewis-Beck[53] are applied to the theoretical synthesis, it suggests that the effect of role ambiguity on job stress in dependent on locus of control.

Locus of Control as a Moderator of Structure

Both the structural properties of organistic/mechanistic

polarities described by Burns and Stalker[54] and the construct of locus of control defined in terms of internality and externality by Rotter[55] appear theoretically consonant. A synthesis of both the contextual and individual dimensions results in patterns of congruence. These specific patterns and the predicted behavioral consequences are discussed in the paragraphs which follow.

Congruence should result both for an internal with needs for autonomous control of behavior and/or reinforcement in a deregulated context, and the external with a dependency need for environmental definitions of behavior and/or reinforcements in a mechanistic structure with multiple organizational controls. These specific configurations should significantly reduce job stress.

If, however, incongruence exists between structural and personality characteristics, the possibility for stress should be high. Therefore, an organic structure paired with an externally oriented teacher, and a mechanistic structure coupled with an internally oriented teacher, should be associated with high levels of job stress.

Theoretically it is possible to explain the impact of structure on job stress in terms of various levels of locus of control. In that locus of control moderates the effect of context on job stress, the criteria of interaction established by Lewis-Beck[56] have been satisfied.

Summary

Because job stress is often associated with numerous negative outcomes for both the individual and the organization, it is important to gain a consistent understanding of this complex phenomenon. Analysis is difficult, however, when empirical studies incorporating either contextual or individual variables yield different results.

The purpose of this study is to determine the main effects of both contextual and individual variables on job stress as well as the potential moderating effects of a personality variable on several contextual properties. With this information it might be possible to build a reliable model of job stress as well as modify or confirm relevant theoretical systems.

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CHAPTER II

REVIEW OF THE LITERATURE

A review of the literature yields five distinct clusters: stressor and stress, organizational structure and stress/stressor, locus of control and stressors, organizational structure and alienation, and interaction effects of person/environmental variables on role ambiguity. These groupings will serve as a configuration for the organization of this chapter.

Studies of Relationships Between Stressors and Stress

Although there is some disagreement in determining which stressor, role ambiguity or role conflict, contributes more to the variance in job stress, a positive relationship between role stressors and anxiety is reported consistently in the literature.

In an early study by Kahn, Wolfe, Quinn, Snoek and Rosenthal,[1] a positive correlation was established between job tensions and role ambiguity. Three additional studies by Rizzo, House and Lirtzman,[2] House and Rizzo,[3] and Robert Miles and William Perreault, Jr.[4] confirmed the positive

relationship between role stressors and anxiety or job-related tension.

Additional refinements to the previously mentioned relationship study culminated in two research studies by Miles[5] and House and Rizzo.[6] Both inquiries determined that role ambiguity explained more variance in employee anxiety than role conflict, with the latter contributing significantly but weakly to employee anxiety.

In a more recent study with a sample of 469 classroom teachers, R. S. Schwab and E. S. Iwanicki[7] concluded that both role conflict and role ambiguity accounted for a statistically significant degree of variance in two of three categories of teacher burnout, emotional exhaustion and depersonalization. In addition, role ambiguity also contributed significantly, although minimally, to variance in the third category of burnout, minimal personal accomplishment.

Studies of Relationships Between Structure and Stressors/ Stress

Studies relating to role theory and organizational structure yield inconsistent results. The studies presented in this section, therefore, will be grouped according to their conclusions: an organic structure reduces stress; a mechanical or bureaucratic structure reduces stress; and certain specific structural characteristics, in some cases associated with mechanistic genres and with organic in

others, reduce stress.

Organic Structure and Stress

Although Tom Burns and G. M. Stalker[8] relate the organic dimension to role ambiguity, most research incorporates characteristics of the genre, as opposed to the entire genre, into the design. Accordingly, this section relates specific structural characteristics, associated with the organic dimension, to job stress.

Kahn et al.[9] in the most extensive study of stress to date included an examination of the effects of functional dependence; that is a structural division of labor for which an effective performance of one position is contingent on an adequate performance of a second; and role stress on amount of employee strain. It was concluded that when functional dependence is high; a mechanistic context, with concomitant high role conflict; strain is increased. Conversely, when functional dependence is minimal, an organic context, and role conflict is high; strain is reduced because the employee has the option of using avoidance as a coping mechanism.

In addition to the dependency variable, Kahn et al.[10] considered the level of perceived conflict under conditions of high power and high levels of objective conflict. A higher level of strain was associated with a high-power/high-conflict condition than a condition of low-power/high-conflict. Thus a low-power or organic context results in

minimal levels of stress even under difficult circumstances.

According to studies by Abdel-Halim[11] and Beehr,[12] certain situational characteristics associated with organic structure, such as autonomy, feedback and skill variety, increase tolerance for role ambiguity. A greater tolerance for role ambiguity results in reduction of strain and anxiety.

Mechanical Structure and Stress

Several studies support, either directly or indirectly, the conclusion that characteristics associated with a mechanical structure reduce stress. The studies in this section relate hierarchical authority and formalization to stress.

William Evans,[13] Norman Kaplan[14] and Todd LaPorte[15] reported results which confirm high stress levels for professionals in organic structures. Multiple authority conditions which exist in professional organizations, that is the authority of the position and the authority of collegial expertise, create conflict for the professional who is often placed in an uncomfortable, middle position. The implication is that a structure which incorporates a unitary chain of command, more specifically a mechanistic characteristic, reduces stress levels for employees.

Similarly, House and Rizzo[16] concluded that formalized practices, a movement toward mechanistic structure, would indeed reduce both role conflict and ambiguity. Their

conclusion was based on a study of a large, heavy equipment manufacturing firm with a sample of 200 managerial and professional/technical employees. The hypothesis, which predicted a negative correlation between formal organizational practice and the previously mentioned role stressors, was confirmed in the predicted direction with 12 out of a possible 14 scale correlations beyond chance at a .05 probability level.

Relationship of Special Organic/ Mechanistic Characteristics to Role Ambiguity

In a study conducted by J. H. Morris, I. M. Steers and J. L. Kock,[17] it was determined that the relationship between specific structural characteristics and role ambiguity differs somewhat when the sample is considered as a totality (n=252) and as separate occupational groupings: professional (n=55), secretarial (n=127), and blue collar (n=70). When considered as a totality, participation in decision making and formalization correlated negatively with role ambiguity. When considered between occupational groupings, only participation in decision making contributed significantly to variance in role ambiguity for all three groups. Formalization contributed significantly to explained variance of role ambiguity for the secretarial classification.

The two structural characteristics incorporated in this study, participation in decision making and

formalization, are associated with independent generic structures. Therefore, the results indicate that specific generic characteristics are more important in explaining variance in role ambiguity than the generic forms themselves.

Studies of Relationship Between Locus of Control and Stress/Stressors

The literature dealing with stressors, anxiety and locus of control does not present a cohesive, consistent statement. The arrangement of these studies will be according to the following organization: the relationship between locus of control and degrees of anxiety; the relationship between locus of control and stressors; the degree of contribution to negative personal outcomes by personality versus stressor variables; and the interaction effect of personality variables and stressors on negative personal outcomes.

Relationship Between Locus of Control and Degree of Anxiety

Numerous studies report that externals perceive a higher level of anxiety than internals. Reviewing several research studies, V. C. Joe[18] concluded that a positive relationship exists between externality and anxiety. Confirming Joe's[19] conclusion in an educational setting, Chris Kyriacou and John Sutcliffe[20] conducted a study with 130 randomly selected teachers in England to determine the

relationship between teacher stress and locus of control. They reported a positive correlation between teacher stress and external orientation.

In contrast to studies supporting a positive relationship between anxiety and externality, J. M. Siegel and R. Mayfield[21] conducted a study in which a positive relationship was established between anxiety and internality. The subjects in the study, male students enrolled in an introductory psychology class at Vanderbilt University, were given a very difficult experimental task in which success or failure was predetermined for each group. After the first series of tasks, the subjects were asked about their feeling of anxiety for the next series of tasks. Moderate anxiety was reported by internals and externals who were labeled as successful. Internals designated as failures were anxious while their external counterparts were not.

Siegel and Mayfield[22] interpret their results theoretically in this way:

> Internals may actually become more anxious in threatening situations than externals because they lack the external's belief that forces outside themselves are responsible for their fate and, therefore, cannot resign themselves to the situation as the externals presumably do.

R. D. Stolorow[23] suggests that anxiety may have different sources for the internal and external. For the internal a loss of personal or environmental control or the potential for loss of control might produce feelings of distress. For the external a loss or potential loss of support systems,

either objects or people, might yield a stressful reaction.

Relationship Between Locus of Control and Stressor

Two studies are reported in the literature which produce results inconsistent with each other. Both designs included identical constructs, locus of control and role ambiguity.

Organ and Greene[24] determined, with a sample of 94 senior scientists and engineers working for a large manufacturer of electronic equipment, that a significant relationship existed between locus of control and role ambiguity. High role ambiguity was associated with an external orientation.

Extending the Organ and Greene[25] study to include role conflict, Andres Szilagyi et al.[26] reported their failure to confirm a relationship between locus of control and role ambiguity with a sample of 857 subjects from a midwestern medical center. They did, however, in three out of five occupational classifications establish a positive relationship between externality and role conflict.

Personality Versus Stressor Variables in Determining Variance in Negative Personal Outcomes

A stated purpose of both studies in this clustering was to determine whether individual variables or stressor

variables contributed the most to variance of negative personal outcomes. The conflicting results will be reported in the following paragraph.

When role ambiguity was controlled, Organ and Greene[27] determined that locus of control contributed significantly to job satisfaction. Conversely, Szilagyi et al.[28] attributed more variance in satisfaction and performance to role stressors than locus of control.

Interaction Effects of Personality and Role Stressors on Personal Outcomes

Several studies indicate that not all individuals respond negatively to role ambiguity and role conflict. Stressors appear to be moderated by certain personality characteristics.[29-31]

Three studies confirm the role of locus of control as a moderator of individual reactions to role stressors. Although total consensus is not reached, those studies incorporating interaction approach a state of consistency.

A. K. Korman[32] noted that in highly ambiguous situations, low self-control students, externals, perceived less satisfaction than their internal peers. In two other studies conducted at the same time, however, no relationship was established between the previously mentioned variables.

A. Keenan and G. D. McBain,[33] in a study using 90 middle managers with a large public organization in Great Britain, investigated the effects of personality on the

relationship of role stress and job tension. They reported that, although role stress was related to high levels of tension, personality characteristics such as locus of control moderated the relationship. More specifically role ambibuity was significantly associated with high tension for externals, but not internals.

Abdel-Halim[34] noted that under high role ambiguity conditions, internals are more satisfied than their external counterparts. The author concludes that this study provides strong support for including job scope and personality characteristics in determining negative response to role ambiguity.

Relationship of Structure to Alienation

Research studies dealing with locus of control and organizational structure do not proliferate. Perhaps the tendency to maintain a distinction between organizational and individual variables accounts for this curious vacuum in the literature.[35] Nevertheless there are a few studies which incorporate structure and alienation, a construct remarkably similar to locus of control but with a sociological perspective as opposed to a psychological perspective. More specifically M. Seeman[36] defines one aspect of alienation, powerlessness, as the "...expectancy or probability held by the individual that his own behavior cannot determine the occurrence of the outcomes or reinforcements he seeks." It is possible, therefore, to conceptualize a sense

of powerlessness as the external end of the locus of control continuum. More specifically, the individual perceives his behavior or reinforcements for same as outside of his control.

As with a great deal of the literature reported thus far, three studies will be presented according to their inconsistent conclusions; alienation is negatively related to bureaucracy and alienation is positively related to mechanistic characteristics.

G. H. Moeller and W. W. Charters[37] studied the effects of bureaucratization on one aspect of alienation, sense of power, with 662 classroom teachers in 20 school systems. The data indicated that there was indeed a significant difference between structural types and degree of alienation. The difference, however, was in the opposite direction of the stated hypothesis; more specifically, higher levels of bureaucratization were associated with teachers who perceived a significantly higher sense of power than their counterparts in a less bureaucratized school system.

In direct contrast to the previously mentioned study, two studies support conclusions which attribute high levels of alienation to mechanistic structures. These studies are reported in the following paragraphs.

G. H. Allen and W. R. LaFollette[38] attempted to determine the relationship of perceived organizational structure and alienation among 68 past and present management trainees employed by a midwestern rubber company. Alienation from

work was defined by Aiken and Hage[39] as "... a feeling of disappointment with career and professional development, as well as the disappointment over the inability to fulfill professional norms."

The results of the study supported the original hypothesis, that alienation is directly related to high levels of hierarchy of authority and job codification and inversely related to the level of participation in decision making. Accordingly, an organic structure with both low hierarchy of authority and job codification and a high level of participation in decision making, should have employees with low alienation from work. The mechanistic structure, on the other hand, with both high levels of hierarchy of authority and job codification and a minimal degree of participation in decision making should yield employees with high alienation from work.

A study conducted by G. F. Isherwood and W. K. Hoy[40] using a sample of 13 secondary schools in New Jersey supports the conclusion of the Allen and LaFollette[41] study in an educational context. More specifically teachers in an authoritarian school, one with high hierarchical control and centralized decision making, perceived a significantly higher degree of sense of powerlessness than teachers in collegial schools, those with decentralized authority structures and an emphasis on teacher enterprise.

Interaction Effects of Person/ Environmental Variables on Role Ambiguity

Although there have been many interaction studies relating either personality variables with stressors or structural variables with stressors, the number of studies examining the interaction effects of personal and environmental variables on stressors and personal outcomes is minimal.[42]

Abdel-Halim[43] suggests that the lack of agreement in the literature relating to structural, stressor, and personality variables is the result of separating personality characteristics from contextual variables. Recommending the integration of personality and contextual variables to determine the interaction effects, Abdel-Halim[44] states:

> ... that mechanisms of dealing effectively with ambiguous, stressful role demands may be found either in forces within the individual (high-achievement or internality orientations) or in properties of the job itself (autonomy, feedback, and variety) or both. The stress management capabilities of high-achievement or internal control individuals is greatly curtailed if the job itself does not allow them to utilize fully their personal qualities and the freedom of dealing with stressful situations. However these individuals (because of their personal qualities) would perhaps do better dealing with ambiguous, stressful role demands than their low-achievement or external-control counterparts operating in the same job situation.
>
> Indeed the individual capability to handle stressful situations is magnified when forces within the individual combine with properties of the job.

The purpose of the Abdel-Halim[45] study was twofold. First it attempted to determine the interaction effects of specific personality variables, locus of control and need for achievement, or job scope characteristics on employee response to role ambiguity. Sequentially the next step was to examine the joint interaction effects of personality and contextual variables on employee responses to role ambiguity.

The results of the study provided support for the stated hypotheses. The person/situation interaction explained a greater amount of variance in employee response to role ambiguity than either factor alone. Further, personality and job variables did interact with role ambiguity according to predictions. More specifically, employees with an external control orientation who work on unenriched, low-scope jobs respond most negatively to role ambiguity. The employees with internal orientation and enriched, high-scope jobs react with significantly greater satisfaction to conditions of high role ambiguity.[46]

A Rationale and Hypotheses

Although research dealing with the directionality of the relationship between structure and job stress is inconsistent, the fact that there is a relationship is well substantiated.[47-52] Furthermore the same generalization applies to the relationship between locus of control and stress/stressors: while it is difficult to determine the

direction of the relationship, nevertheless several studies confirm a correlation between locus of control and stress or anxiety.[53-55] Therefore:

H.1.a. Structure and locus of control will make significant independent contributions to the explained variance of teacher job stress.

Structure and locus of control combine with ease to promote and enhance an expanded explanation for job stress. Characteristics of organizational genre proposed by Hage[56] as well as a description of mechanistic/organic structural theory postulated by Burns and Stalker[57] establish a continuum of acceptance or assignment of control by the organization. Rotter's[58] theory of locus of control, on the other hand, establishes a continuum of acceptance or assignment of control by the individual. Accordingly, an internal with high acceptance of control criteria will establish congruency in a context with high assignment of control, an organic response.

Studies which incorporate structural variables as well as perceptions of individual control yield inconsistent results. One study by Moeller and Charters[59] reported a positive relationship between bureaucracy and sense of power. Another study conducted by Isherwood and Hoy[60] concluded that bureaucracy and sense of power are inversely related. Such a result lends support to an interaction statement. Personality characteristics do not exist exclusively in one surrounding as opposed to another. As a result, the specific

combination of locus of control or sense of power and contextual genre will vary with each sample being tested.

The question then is not which context has the greater relationship with externality or internality, rather what are the effects of environmental/personality interactions on behavior. One research study cited earlier studied the interaction effects of specific personality and contextual variables. The role ambiguity and locus of control interaction significantly increased the amount of explained variance in job satisfaction.[61]

The impact of locus of control on structure accelerates or decelerates the degree of stress according to the level of combination. It logically follows then that:

H.1.b. The interaction of structure and locus of control will have a significant effect on the explained variance of teacher job stress.

As characteristics of the organic/mechanical model, centralization, formalization and complexity share the same theoretical rationale as the structural variable in the preceding section. The hypotheses are as follows:

H.2.a. Centralization and locus of control will make significant contributions to the explained variance of teacher job stress.

H.2.b. The interaction of centralization and locus of control will have a significant effect on the explained variance of teacher job stress.

H.3.a. Formalization and locus of control will make

significant contributions to the explained variance of teacher job stress.

H.3.b. The interaction of formalization and locus of control will have a significant effect on the explained variance of teacher job stress.

H.4.a. Complexity and locus of control will make significant contributions to the explained variance of teacher job stress.

H.4.b. The interaction of complexity and locus of control will have a significant effect on the explained variance of teacher job stress.

Studies which confirm a relationship between role ambiguity and stress proliferate.[62-66] In that there is great evidence of relationships between role ambiguity and stress, as well as locus of control and stress, the linear combination of these variables should make significant incremental increases in the variance of teacher job stress. Therefore:

H.5.a. Role ambiguity and locus of control will make significant contributions to the variance of teacher job stress.

The respective theories of locus of control and role ambiguity appear compatible in terms of explaining job stress. The individual who perceives control as internal to the context will not be bothered by uncertain role definition. On the other hand, if a given position imposes tight controls, an internal might experience stress as the

result of conflict between both sources of control. For the external, who seeks and depends upon sources outside self for definition and reinforcement of behavior, a highly defined role could result in low stress levels. If external sources of control were uncertain in a given role, however, the externally oriented individual might respond to the ambiguity with stress.

Theoretically a perception of control might increase or decrease tolerance for uncertainty, but it does not in effect eradicate or increase the existence of role ambiguity. Internals or externals may or may not perceive their positions as being ambiguous. Locus of control does not cause or create role ambiguity.

Therefore, studies which attempt to determine a relationship between role ambiguity and locus of control will yield results specific to the situation. In a study by Organ and Greene,[67] there was established a positive relationship between role ambiguity and locus of control, with the scoring in the direction of increasing externality. Conversely, Szilagyi et al.[68] reported that with their medical sample no significant relationship existed between locus of control and role ambiguity. In the former study, externals perceived higher levels of role ambiguity than their internal counterparts; in the latter, no such pattern emerged.

Interaction between role ambiguity and locus of control can be used to explain additional inconsistencies in the

literature. Stress studies, which attempt to describe anxiety/burnout in terms of role ambiguity, lack a cohesive conclusion. In two studies, it was reported that role ambiguity contributed more to the variance in anxiety than role conflict.[69,70] Schwab and Iwanicki[71] on the other hand concluded that role conflict contributed more than role ambiguity to the variance in burnout.

The previously mentioned studies did not take locus of control into consideration. If, for example, subjects in a given sample were more internally oriented, reported levels of anxiety/burnout would be lower under conditions of organic structure than those reported by externally oriented individuals.

Studies which use interaction to explain personal behavior in terms of locus of control and role ambiguity report consistent results. Internals are more satisfied and less anxious under conditions of high role ambiguity.[72-74]

It is possible to postulate a statement based on a rationale which includes a theoretical synthesis, an interaction explanation of inconsistent research studies and results of interaction studies. Thus:

H.5.b. The interaction of role ambiguity with locus of control will have a significant effect on the explained variance of teacher job stress. Under conditions of high role ambiguity, externals will experience higher levels of stress than will their internal counterparts.

Summary

A review of the literature produced studies with inconsistent and sometimes contradictory results. Although the nature and direction of relationships among the variables researched are often unclear, there is substantial empirical evidence to support the existence of a relationship between role ambiguity and stress, structural characteristics and stress/stressors, and locus of control and stress.

Only one cluster of relationships exhibited consistent results. These studies included the interaction effect of personality and role stressors on behavior as well as interaction effects of person/environment variables on personal outcomes.

Empirical evidence and theoretical considerations directed the formulating of hypotheses, which in turn brought this chapter to a close. These statements of relationships serve as guidelines for the remainder of this study.

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CHAPTER III

RESEARCH DESIGN

Introduction

In that the purpose of this inquiry is to determine the interaction relationship of specific personality and contextual variables as they influence the variance in the criterion construct, job stress, this study conforms to the characteristics of a multivariate, correlational design. According to Gay,[1] this particular design incorporates the collection of scores for each member of the sample for each variable of interest. The resulting correlation determines the extent of the relationship between the constructs.

A description of the implementation of a correlational design is the objective of this chapter. More specifically, the explanation will include a definition and depiction of the population from which the sample was drawn, a delineation of the sampling techniques employed, a description of the instruments utilized, a narration of data collection procedures, and a brief recounting of the statistical methods used in the data analysis.

Population

Prior to the sampling procedure, it was determined that

the population for this study would consist of all the secondary instructors in the State of Oklahoma with educational positions classified as middle school, junior high school, high school, vocational agriculture and vocational home economic teachers. Excluded from this population at a secondary level were positional roles classified as special education teachers, librarians, administrators, counselors, psychometrists, school nurses, psychologists, and other highly specialized personnel.

As of March 1, 1982, the aforementioned population consisted of 14,466 teachers with 53 percent of the total group classified as females, 47 percent as males. The percentages of the population, computed according to job position classification, were as follows: middle school teachers, 15 percent; junior high teachers, 24 percent; high school teachers, 55 percent; vocational agriculture teachers, 3 percent; and vocational home economic teachers, 3 percent.[2]

Sampling

Since the sampling procedure relies heavily on teacher certificate numbers, a brief history and description of the certification numbering system in the State of Oklahoma will be presented. This description will be followed by a detailed accounting of sampling techniques.

The current practice of assigning in numerical sequence an identification number to every individual who applies

and qualifies for a teacher certificate began in 1964. Although the practice originated in 1964, the act of assigning a numerical code to teachers who were currently teaching in the State was initiated in 1949-50.[3] The earliest records for teacher certification numbers appear to be during the 1949-50 school year. Further, numbers issued to teachers between 1949 and 1963 are still identified with the same instructors.[4] Apparently then, the consecutive numbering system was initiated in 1949-50 for teachers who were currently practicing in the State and expanded in 1964 to include all individuals who applied for and were qualified to teach in the State.

Every teacher who applies and qualifies for a teaching certificate is issued a six digit number. This numerical grouping is random in that it has no coded meaning other than teacher identification and is assigned serially using the number following the previously assigned digit. Regardless of the number of certificates held by an individual teacher, each instructor is assigned only one number which is associated exclusively with that instructor. Thus, an issued number is generally not reassigned in the event of retirement or death.[5]

In the early spring of each year, the teacher personnel section of the State Department of Education receives a computer listing of all the teachers in the State who are teaching in that current academic year. This master list, arranged both alphabetically and numerically by consecutive

certificate number, is based on the annual school personnel report which is prepared by each school district and submitted to the State Department of Education by October 15 of each year. Information which can be obtained from this master list includes name of the teacher, certificate number, the county in which the teacher's school is located, the school district in which the teacher practices, and the school site code which designates the teaching location as being an elementary, middle, junior high, or high school building. The annual personnel report, from which the master list is compiled, contains considerable demographic information about each teacher, including current teaching position, and is arranged by county number in files maintained by the teacher personnel section.

The procedure for sampling from the population utilized both the master list, which contained approximately 40,000 entries, with numbers ranging from 000001 to 139831, and the various annual personnel reports. A number between 1 and 100 was selected at random. Any certificate number ending in those digits was included in the sample if it survived two criteria. First, any certificate number which was associated with a non-secondary school site was eliminated. Second, a teacher identified by the target number must have been assigned to one of the previously defined positions.

This process continued until 800 subjects were selected. Although the sample size was set at 750, five percent of the total population, an additional 50 names were drawn as replacements for the original group.

Instrumentation

Structural Properties Questionnaire

The Structural Properties Questionnaire (SPQ) was developed originally by Bishop and George[6] and later modified by Murphy, Bishop and George[7] to operationalize in a school setting the structural characteristics set forth by Hage[8] in his axiomatic theory. Consisting of 45 items, this measurement is composed of 11 factors, each related to one of three structural characteristics.[9] The format of each item consists of a statement such as, "Teachers attend professional conferences during the school year," which is followed by a four point categorical response pattern ranging from "rarely" to "very frequently". A copy of this instrument is located in Appendix A.

Three major categories operationalized by the SPQ are centralization, formalization and complexity. In the following section each major structural characteristic to be measured will be described in terms of its component parts.

Degree of centralization, which is described as power distribution among social positions, is measured by two classifications of generic powers. Participation in decision making refers to power as it relates to effecting school policy. The second dimension, hierarchy of authority, describes the power to influence classroom and curriculum decisions.[10]

Degree of formalization, the use of rules in an

organization, consists of two descriptors, job codification and rule observation. Job codification is defined in terms of rule specificity and standardization; rule observation refers to the degree of supervision and the level of tolerance for behavior which deviates from established standards.[11]

Complexity, or the degree of required professional activity, is operationalized with three factors. Professional training refers to college or professional training for each organizational role; whereas professional activity relates to involvement in professional associations as evidenced by number of meetings attended and offices held; while specialization conveys the type and number of occupational specialties within a given organization.[12]

Because of a delay in obtaining factor analytic information relating to this instrument, the 45 original items were factor analyzed using the Statistical Package for the Social Sciences with an orthoganal, varimax principal component solution.[13] Incorporating the same factor loading criterion of .300 or greater as that established by the authors resulted in the inclusion of only 37 of the original 45 items.[14] Eight of the items failed to load at a level of .300 or higher.

In addition to a reduction of question items, there is a difference in the scoring of the modified instrument and the original Form III. Murphy[15] recommends a complete estimation method of scoring, a procedure which multiples

item Z scores by respective factor coefficients. Although there are advantages resulting from the use of the complete estimation method, it does not allow the computation of a reliability index. Because the original instrument was reduced by eight items, the need for a reliability score assumed a greater significance. Thus, all statistical calculations in this study use raw scores in lieu of weighted Z scores.

The 11 subscales of each major category are summed to obtain a raw score for formalization, centralization and complexity. The composite structural variable is a total of formalization, centralization and reversed complexity scores. Consequently, the higher the overall score is, the greater the degree of mechanistic structure; the lower the score, the greater the degree of organic structure.

Although it has not been possible to obtain a reliability measure of Form III due to revised scoring procedures, Bishop and George[16] reviewed several studies which incorporated an earlier version of the SPQ and reported reliabilities ranging from .54 to .84. In this study, reliabilities for the modified instrument vary from .68 to .80. Descriptive statistical information as well as realiability indexes specific to each variable are located in Table I.

Role Ambiguity

Rizzo, House and Lirtzman[17] developed an instrument to measure both role conflict and role ambiguity. Based on

TABLE I

VARIABLE CHARACTERISTICS, MEANS, STANDARD DEVIATIONS AND RELIABILITIES

	Variable	No. of Items	Possible Range	Range in Study	Mean	Standard Deviation	Alpha Reliability
1.	Centralization	11	11-14	13-44	26.77	6.68	.80
2.	Formalization	18	18-72	22-70	46.74	7.98	.76
3.	Complexity	8	8-32	8-32	23.29	4.12	.68
4.	Structure	37	37-148	55-125	91.93	12.85	.80
5.	Job Stress	10	30-40	30-40	34.08	3.10	.84
6.	Locus of Control	22	44-66	43-61	50.32	3.70	.76
7.	Role Ambiguity	6	6-42	6-40	14.71	6.02	.86
8.	Structure X Locus of Control	--	--	2,745-6,750	4,625.49	726.05	--
9.	Centralization X Locus of Control	--	--	602-2,552	1,350.48	365.85	--
10.	Formalization X Locus of Control	--	--	1,100-3,510	2,349.13	421.46	--
11.	Complexity X Locus of Control	--	--	400-1,710	1,168.39	207.63	--
12.	Role Ambiguity X Locus of Control	--	--	258-2,360	746.91	330.55	--

the theoretical framework of role theory, questions were formulated and processed with factor analytic techniques. Of the 15 original items developed to measure role ambiguity, six survived the filtering criteria.

The pilot instrument was administered to two samples which originated from the same firm. Sample A, 199 in number, was randomly selected from the central office and main plant staff; sample B, which numbered 91, consisted of the entire staff of the research and engineering division. After applying the Kuder-Richardson internal consistency reliability formula with Spearman-Brown corrections, the authors reported a reliability of .78 for Sample A and a .81 for sample B.[18]

Based on a Likert-type response scale ranging from a one, definitely true of my job, to a seven, definitely not true of my job, the range of potential response is 6 to 42. An example of a test item is as follows: "I feel certain about how much authority I have." For further examples, consult Appendix B where a copy of this instrument is located. The reliability, mean, range and standard deviation for this variable are reported in Table I.

Locus of Control

Rotter's[19] Locus of Control is the instrument selected to measure perception of control location. The original measurement consisted of 23 forced choice pairs of items and six filler declarations with a total yield of 29

statements. In this study, both filler item elimination and an unintentional typographical omission resulted in a 22 statement total. Since the scoring is in the direction of externality, a high score would be indicative of an external perspective and a low score, internality.

Each item consists of a pair of statements from which the respondent must select one. An example of this duality is as follows: "Without the right breaks one cannot be an effective leader," and "Capable people who fail to become leaders have not taken advantage of their opportunities." The instrument is included in Appendix C.

Rotter[20] reported reliabilities ranging from .69 to .76. All descriptive statistical information relating to this variable is reported in Table I.

Although factor analytic studies of the scale have yielded more than one factor,[21] according to Moursand[22] there is some value in considering the broader discrimination potential of the Rotter's[23] scale. In that the purpose of this study is to assess the contributions of both individual and organizational characteristics operating in interaction to influence stress behavior, a global approach to locus of control is a more appropriate measure than one which delineates and refines the broader concept.

Job Stress

In this inquiry, job stress is measured by an instrument, which was incorporated into a questionnaire used by

House and Rizzo[24] to study role conflict and ambiguity. Processing responses to 26 true-false statements through factor analytic computations, House and Rizzo[25] reduced the original pool to 17 items and three factors: job induced stress, somatic tension and general fatigue and uneasiness.

Using the Kuder-Richardson measure of consistency corrected for length with the Spearman Brown Prophecy Formula, House and Rizzo[26] reported the following reliabilities: job induced stress, .825; somatic tension, .759; and general fatigue and uneasiness, .724. The reliability coefficient for the study is reported in Table I.

Item presentation consists of a statement proposal such as, "Problems associated with my job have kept me awake at night," which in turn is followed by a true-false response set. High scores are indicative of high job stress. A copy of the instrument is located in Appendix D.

Since the factor loading of the House and Rizzo[27] instrument was not published with the journal article, it was necessary to apply factor analytic techniques to the current data to obtain an item association with the various factors. The original 26 items were analyzed with an orthogonal, varimax principal component solution.[28] The criteria for inclusion of an item are a factor loading of .400 or greater on only one factor and compatibility with the conceptual connotation of job stress. Ten items survived the criteria for inclusion.

Data Collection

On April 5, 1982, booklets consisting of 127 items[29] were mailed to a selected sample of 750 Oklahoma secondary teachers at their respective school sites. Each questionnaire was accompanied by a cover letter and a self-addressed, stamped envelope to facilitate the return. A copy of the cover letter is included in Appendix E.

Each first mailing questionnaire was coded with a number which corresponded to a master code list containing the booklet number, the teacher's name, school site, county and teacher certification number. This information allowed the researcher to eliminate the return group from a follow-up mailing as well as to contact respondents who returned incomplete questionnaires to obtain additional information.

When the return rate of the original correspondence diminished sufficiently to warrant a second mailing, 290 teachers from the non-return group were randomly sampled for purposes of a second mailing. It was decided to send the second round correspondence without a number to induce a response from those individuals who wanted an even greater assurance of anonymity than that provided in the original mailing. Accordingly, on April 28, 1982, 290 uncoded booklets were mailed out to the previously described sample. A copy of the cover letter which accompanied the questionnaire is located in Appendix F.

Incomplete questionnaires from the original mailing

were processed according to the type of omission in one of three ways. The following section will include a description of attempted methods for obtaining additional information from the respondents.

In a number of instances booklets were returned with two or three consecutive pages unanswered. Because the questionnaire was fully completed otherwise, it seemed highly possible that the omission was unintentional. Accordingly, the original questionnaire was returned to the respondent along with a note requesting that the teacher complete and return the packet as soon as possible. All questionnaires in this group were returned with the omitted pages completed.

Several respondents omitted one or two items in various sections. If the omission was in the demographic section of the booklet, the information would sometimes be acquired by consulting the Oklahoma Educational Directory,[30] an annual publication of the State Department of Education, or from the records maintained at the State Department of Education, teacher personnel section.

If the omission involved non-demographic items, the respondent was contacted at the school site during non-teaching time and asked to respond to the incomplete statements over the telephone. If the omission was unintentional, the respondent usually provided the information; if the omission was the result of response uncertainty, the questionnaire was eliminated from the sample.

The rate of return for the first mailing was 373 booklets or a 50 percent yield; the second mailing resulted in a return of 98 questionnaires or 13 percent of the total mailed and 34 percent of the second round of correspondence. The combined rate of receipt for both sets of questionnaires was 472 or 63 percent; of this number there were 460 completed and timely cases which translates into a 61 percent usable total. Twelve questionnaires were eliminated either because they were incomplete or arrived after the data had been entered into the computer.

Tables II and III compare and contrast the coded sample group with the population from which it was drawn. The demographic information, used as a basis for contrast and comparison, includes a quantitative distribution of teachers both by county and positional classifications. Table IV compares and contrasts the entire sample with the population on the basis of gender.

Treatment of the Data

A moderated hierarchical multiple regression model was constructed for each hypothesis to be tested.[31-33] A hierarchical F test was used to determine whether or not the independent variable contributes significantly to the amount of explained variance in the dependent construct.[34] In the event that an interaction effect was significant, an analysis of the slope coefficients was initiated to determine the nature of the interaction.[35]

TABLE II

A COMPARISON OF THE CODED SAMPLE WITH POPULATION BASED ON QUANTITATIVE DISTRIBUTION OF TEACHERS BY COUNTY

County	No. of Teachers in Population*	Percent of Total	No. of Teachers in Sample Responding	Percent of Total
1	133	.007	0	.0
2	65	.004	0	.0
3	73	.004	0	.0
4	64	.004	1	.003
5	128	.007	2	.005
6	141	.008	2	.008
7	199	.01	3	.008
8	252	.01	4	.01
9	402	.02	6	.02
10	335	.02	5	.01
11	137	.008	3	.008
12	110	.006	3	.008
13	32	.002	1	.003
14	829	.04	14	.04
15	55	.003	0	.0
16	576	.03	11	.03
17	73	.004	1	.003
18	112	.006	0	.0
19	351	.02	6	.02
20	191	.01	5	.01
21	178	.01	2	.005
22	64	.004	1	.003
23	55	.003	1	.003
24	355	.02	9	.02
25	198	.01	4	.01
26	212	.01	6	.02
27	75	.004	3	.008
28	47	.003	2	.005
29	39	.002	1	.003
30	49	.003	1	.003
31	90	.005	1	.003
32	102	.006	3	.008
33	197	.01	4	.01
34	60	.003	1	.003
35	64	.004	3	.008
36	277	.01	6	.02
37	161	.009	5	.02
38	125	.007	2	.005
39	64	.004	1	.003
40	299	.02	4	.01
41	189	.01	2	.005
42	141	.008	5	.02
43	48	.003	0	.0
44	82	.005	0	.0
45	81	.005	1	.003
46	203	.01	5	.01
47	191	.01	3	.008
48	261	.01	2	.005
49	98	.005	5	.01
50	81	.004	3	.008
51	433	.02	7	.02
52	91	.005	3	.008
53	85	.005	5	.01
54	100	.005	2	.005
55	2,746	.15	43	.11
56	254	.01	6	.02
57	156	.009	5	.02
58	218	.01	3	.008
59	93	.005	1	.003
60	263	.01	7	.02
61	299	.02	9	.02
62	228	.01	4	.01
63	341	.02	5	.01
64	72	.004	1	.003
65	45	.002	2	.005
66	333	.02	9	.02
67	203	.01	8	.02
68	239	.01	6	.02
69	236	.01	6	.02
70	151	.008	6	.02
71	87	.005	3	.008
72	2,386	.13	59	.16
73	185	.01	3	.008
74	286	.02	11	.03
75	92	.005	1	.003
76	91	.005	3	.008
77	131	.007	2	.005
Total	18,188		Total 373	

*Based on statistical information contained in the 1981-82 Oklahoma Educational Directory, Bulletin No. 110-A. Issued by the State Department of Education, Oklahoma City, Oklahoma.

TABLE III

A COMPARISON OF THE CODED SAMPLE WITH POPULATION BASED ON QUANTITATIVE DISTRIBUTION OF TEACHERS BY POSITIONAL CLASSIFICATION

Position	No. of Teachers in Coded Sample Holding the Position	No. of Teachers in Population Holding the Position	Percent of Sample in Position	Percent of Population in Position
Middle School Teachers	47	2,175	13	15
Junior High School Teachers	87	3,471	23	24
Senior High School Teachers	205	7,988	55	55
Vocational Agriculture Teachers	19	455	5	3
Vocational Home Economic Teachers	15	377	4	3
Totals	373	14,466		

*According to information released by Pat Crist of the Data Center Section of the Oklahoma State Department of Education. These figures were as of March 1, 1982.

TABLE IV

A COMPARISON OF THE TOTAL SAMPLE
WITH POPULATION BY GENDER

Gender	No. of Teachers in Sample	No. of Teachers in Population	Percentage in Sample	Percentage In Population
Female	272	7,667	59	53
Male	188	6,799	41	47

Summary

From the population of secondary teachers in Oklahoma, a random sample of 750 teachers was selected. A questionnaire containing items for the measurement of organizational structure, role ambiguity, locus of control and job stress was returned by 472 teachers or 63 percent of the total sample. To test the hypotheses, moderated multiple regression analysis was applied to the data.

ENDNOTES.

[1]L. R. Gay, "Educational Research: Competencies for Analysis and Application (Ohio: Charles E. Merrill, (1976), p. 143.

[2]Pat Crist, Telephone Conversation, Data Center Section, Oklahoma State Department of Education, Oklahoma City, Oklahoma, August 1982.

[3]H. B. Mitchell, Telephone Conversation, Teacher Certification Section, Oklahoma State Department of Education, Oklahoma City, Oklahoma, June 1982.

[4]Nadine Mays, Telephone Conversation, Teacher Personnel Section, Oklahoma State Department of Education, Oklahoma City, Oklahoma, August 1982.

[5]Jan Wilson, Telephone Conversation, Teacher Certification Section, Oklahoma State Department of Education, Oklahoma City, Oklahoma, August 1982.

[6]L. K. Bishop and J. R. George, "Organizational Structure: A Factor Analysis of Structural Characteristics of Public Elementary and Secondary Schools," Educational Administration Quarterly, 9 (1973), pp. 66-80.

[7]Michael J. Murphy, Lloyd K. Bishop and Julius R. George, "Defining Organizational Properties of Schools: A Focus on Structure" (Paper Presented at the Annual Meeting of the American Educational Research Association, Washington, D. C., 1975).

[8]Jerald Hage, "An Axiomatic Theory of Organizations," Administrative Science Quarterly, 10 (1965), pp. 289-320.

[9]Although Hage (1967) proposed a fourth means of his Axiomatic Theory, according to information conveyed in a telephone conversation with Dr. Michael Murphy, the authors of this instrument have, after repeated attempts, been unable to operationalize the fourth means--stratification. Consequently, Dr. Murphy is beginning to regard with skepticism the association of this structural characteristic with educational organizations.

[10]Michael J. Murphy, "Structural Characteristics and Organizational Design Decisions" (Paper Presented at the Annual Meeting of the American Educational Research Association, San Francisco, California, 1979).

[11]Ibid.

[12]Ibid.

[13]Norman H. Nie et al., Statistical Package for the Social Sciences (New York: McGraw-Hill, 1975).

[14]Murphy, Bishop and George, p. 4.

[15]Murphy, p. 4.

[16]Bishop and George.

[17]J. R. Rizzo, R. J. House and S. I. Lirtzman, "Role Conflict and Ambiguity in Complex Organizations," Administrative Science Quarterly, 15 (1970), pp. 150-163.

[18]Ibid.

[19]J. B. Rotter, "Generalized Expectancies for Internal Versus External Control of Reinforcement," Psychological Monographs, 80 (1966), pp. 1-28.

[20]Ibid.

[21]G. Gurin, R. C. Lao and M. Beattie, "Internal/External Control in the Motivational Dynamics of Negro Youth," Journal of Social Issues, 25 (1969), pp. 29-54.

[22]Janet P. Moursand, Learning and the Learner (California: Brooks/Cole, 1976), p. 328.

[23]Rotter.

[24]Robert J. House and John R. Rizzo, "Role Conflict and Ambiguity as Critical Variables in a Model of Organizational Behavior," Organizational Behavior and Human Performance, 7 (1972), pp. 467-505.

[25]Rizzo, House and Lirtzman.

[26]House and Rizzo, p. 484.

[27]Ibid., pp. 467-505.

[28]Nie et al.

[29]Although 127 items were included in the booklet, 22 of those items do not pertain to this study.

[30]Oklahoma Educational Directory (Oklahoma City, Oklahoma: State Central Printing Services, Bulletin #110-A, 1981-82).

[31]J. Cohen and P. Cohen, Applied Multiple Regression/ Correlation Analysis for the Behavioral Science (Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1975).

[32]D. R. Saunders, "Moderator Variables in Prediction," Educational and Psychological Measurement, 16 (1956), pp. 209-222.

[33]S. Zedeck, "Problems With the Use of 'Moderator' Variables," Psychological Bulletin, 76 (1971), pp. 295-319.

[34]Nie et al., pp. 337-338.

[35]William S. Peters and Joseph E. Champoux, "The Use of Moderated Regression in Job Redesign Decisions," Decision Sciences, 10 (1979), pp. 85-95.

CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

Introduction

The determination of significance or nonsignificance of the moderating effect of an individual measure of personality on specific organizational variables, as they jointly influence the amount of explained variance in teacher job stress, as well as the significance or nonsignificance of the main effects of contextual and personality variables on job stress, have been the major thrusts of this study. Accordingly, data relating to the problem were collected from 460 of the original sample of 750 secondary teachers in the state of Oklahoma. The results of that analysis are the topic of this chapter.

The presentation includes both the computation of zero order correlation coefficients for all the variables used in the study as well as the results of the statistical analyses. For each hypothesis tested, a moderated regression model is constructed to determine the degree and significance of contributions to explained variance

of job stress by the independent variables. In the event that an interaction variable is significant, an additional analysis will be required. This second phase involves an examination of the slope coefficients at various levels of the moderator variable to determine directionality.

Intercorrelations Among All Variables Considered in This Study

Since multicollinearity between the independent variables in a given study has the potential to contribute to difficulties relating to the interpretation of the results, an initial step in the regression analysis is the computation of zero order correlation coefficients. All the variables in this study are included in the correlational matrix in Table V.

Testing of the Hypotheses

H.1.a. Structure and locus of control will make significant independent contributions to the explained variance of teacher job stress.

This hypothesis is partially supported. According to the statistical synopsis in Table VI, the only variable which contributes significantly to job stress is locus of control.

TABLE V

CORRELATION MATRIX FOR ALL VARIABLES IN THE STUDY

	Centralization	Formalization	Complexity	Structure	Job Stress	Locus of Control	Role Ambiguity	Structure X Locus of Control	Centralization X Locus of Control	Formalization X Locus of Control	Complexity X Locus of Control	Ambiguity X Locus of Control
Centralization	--	.30	-.18	.71	.22	.14	.20	.70	.96	.35	-.12	.20
Formalization		--	.32	.84	-.09	-.10	-.27	.70	.25	.91	.27	-.26
Complexity			--	.22	-.20	-.22	-.40	.09	-.22	.21	.91	-.41
Structure				--	.04	-.01	-.13	.88	.65	.79	.21	-.12
Job Stress					--	.28	.31	.16	.28	.02	-.10	.34
Locus of Control						--	.29	.45	.40	.32	.18	.44
Role Ambiguity							--	.02	.26	-.14	-.29	.98
Structure X Locus of Control								--	.77	.85	.27	.10
Centralization X Locus of Control									--	.41	-.06	.31
Formalization X Locus of Control										--	.33	-.07
Complexity X Locus of Control											--	-.24
Role Ambiguity X Locus of Control												--

TABLE VI

RESULTS OF THE MODERATED REGRESSION EQUATION FOR STRUCTURE AND LOCUS OF CONTROL ON JOB STRESS

Variables	Moderated Regression $\hat{y} = a + bx_1 + bx_2 + bx_3$ R^2	B	Beta
Structure (x_1)	.001	.0157	.0650
Locus of Control (x_2)	.080	.2452	.2932**
Interaction Term (x_3)	.080*	.0001	.0267

* The final R^2 is significant at the .01 level of confidence.

** Significant at the .01 level of confidence.

H.1.b. The interaction of structure and locus of control will have a significant effect on the explained variance of teacher job stress.

Although the correlational results of the three variable regression models indicate a significance greater than zero, the interaction term does not make a significant contribution to the variance in job stress. According to the statistical synopsis in Table VI, the only variable which contributes significantly to job stress is locus of control. Because the hypothesis is not supported by the data, further statistical analysis is not warranted.

H.2.a. Centralization and locus of control will make

significant contributions to the explained variance of teacher job stress.

This hypothesis is completely supported by the data as reported in Table VII. Both centralization and locus of control make significant contributions to the amount of explained variance in job stress.

TABLE VII

RESULTS OF THE MODERATED REGRESSION EQUATION FOR CENTRALIZATION AND LOCUS OF CONTROL ON JOB STRESS

Variables	Moderated Regression $\hat{y} = a + b_1x_1 + b_2x_2 + b_3x_3$ R^2	B	Beta
Centralization (x_1)	.049	-.1065	-.2300**
Locus of Control (x_2)	.112	.1109	.1326**
Interaction Term (x_3)	.113*	.0038	.4491

* The final R^2 is significant at the .01 level of confidence.

** Significant at the .01 level of confidence.

H.2.b. The interaction of centralization and locus of control will have a significant effect on the explained variance of teacher job stress.

Although the interaction variable is associated with the highest standardized partial regression

coefficient, .449, it nevertheless does not make a significant contribution to the amount of explained variance in teacher job stress. Because the hypothesis is not supported by the data, further statistical analysis is not warranted.

H.3.a. Formalization and locus of control will make significant contributions to the explained variance of teacher job stress.

This hypothesis is completely supported by the data in Table VIII. Both locus of control and formalization contribute significantly to the amount of explained variance in teacher job stress.

TABLE VIII

RESULTS OF THE MODERATED REGRESSION EQUATION FOR FORMALIZATION AND LOCUS OF CONTROL ON JOB STRESS

Variables	Moderated Regression $\hat{y} = a + bx_1 + bx_2 + bx_3$ R^2	B	Beta
Formalization (x_1)	.009	.0125	.0322**
Locus of Control (x_2)	.083	.2649	.3167**
Interaction Term (x_3)	.083*	-.0008	-.1056

* The final R^2 is significant at the .01 level of confidence.

** Significant at the .01 level of confidence.

H.3.b. The interaction of formalization and locus of control will have a significant effect on the explained variance of teacher job stress.

Although the multiplicative term is associated with the second highest beta weight, the contribution of this variable does not reach significance. In that the interaction variance does not attain a level of significance, the hypothesis is not supported and further statistical analysis is not required.

H.4.a. Complexity and locus of control will make significant contributions to the explained variance of teacher job stress.

This hypothesis is completely supported by the data in Table IX. Both locus of control and complexity make significant contributions to the amount of explained variance in teacher job stress.

H.4.b. The interaction of complexity and locus of control will have a significant effect on the explained variance of teacher job stress.

This hypothesis is supported by the data. The interaction term contributes significantly to the amount of explained variance in teacher job stress.

Because the hypothesis is supported by a significant interaction term, further analysis is required to interpret the effects of the interaction on job stress.

TABLE IX

RESULTS OF THE MODERATED REGRESSION EQUATION FOR COMPLEXITY AND LOCUS OF CONTROL ON JOB STRESS

Variables	Moderated Regression $\hat{y} = a + bx_1 + bx_2 + bx_3$ R^2	B	Beta
Complexity (x_1)	.042	.5880	.7833**
Locus of Control (x_2)	.10	.5218	.6239**
Interaction Term (x_3)	.105*	-.0138	-.9281***

* The final R^2 is significant at the .01 level of confidence.

** Significant at the .01 level of confidence.

*** Significant at the .05 level of confidence.

Accordingly, Tables X and XI illustrate a technique proposed by Peters and Champoux[1] for examining several of the regressions at various levels of the moderator variable.

TABLE X

COEFFICIENTS FOR THE REGRESSION OF JOB STRESS ON COMPLEXITY AND LOCUS OF CONTROL

Dependent Variable	$\hat{y} = a + b_1x_1 + b_2x_2 + b_3x_3$ a	b_1	b_2	b_3
Job Stress	10.29	.5880	.5218	-.0138

TABLE XI

SLOPE COEFFICIENTS AND PREDICTED SCORES FOR JOB STRESS ON COMPLEXITY AT GIVEN LEVELS OF LOCUS OF CONTROL

Levels of Locus of Control*	Intercepts	Slopes	Predicted Score By Increasing Complexity 8 Points	32 Points
46.12	34.36	-.0485	33.97	32.81
48.00	35.34	-.0744	34.74	32.96
49.64	36.19	-.0970	35.41	33.09
51.93	37.39	-.1286	36.36	33.27
53.79	38.36	-.1543	37.13	33.42

Point of intersection is established at 37.81.

* These levels represent the 16 2/3, 33 1/3, 50, 66 2/3, and 83 1/3 percentiles of locus of control if said variable were distributed normally.

As complexity increases, job stress decreases across all levels of locus of control. It is apparent, however, that stress reduction is greater for externals, those with higher scores, than internals, those with lower scores. For the internal at the sixteen and two-thirds percent level of locus of control, the differential between stress under conditions of low and high complexity is 1.16 units. The external at the eighty-three and one-third percentile of locus of control achieves a 3.71 unit

differential between low and high conditions of complexity. Figure 1 depicts the direction of this relationship graphically.

H.5.a. Role ambiguity and locus of control will make significant contributions to the variance of teacher job stress.

The results reported in Table XII support a relationship between the independent and dependent variables which is significantly greater than zero. In addition, both role ambiguity and locus of control contribute significantly to the variance of job stress.

TABLE XII

RESULTS OF THE MODERATED REGRESSION EQUATIONS FOR ROLE AMBIGUITY AND LOCUS OF CONTROL ON JOB STRESS

Variables	Moderated Regression $\hat{y} = a + bx_1 + bx_2 + bx_3$ R^2	B	Beta
Role Ambiguity (x_1)	.097	-.1635	-.3177**
Locus of Control (x_2)	.136	.0853	.1020**
Interaction Term (x_3)	.138*	.0057	.6098

* The final R^2 is significant at the .01 level of confidence.

** Significant at the .01 level of confidence.

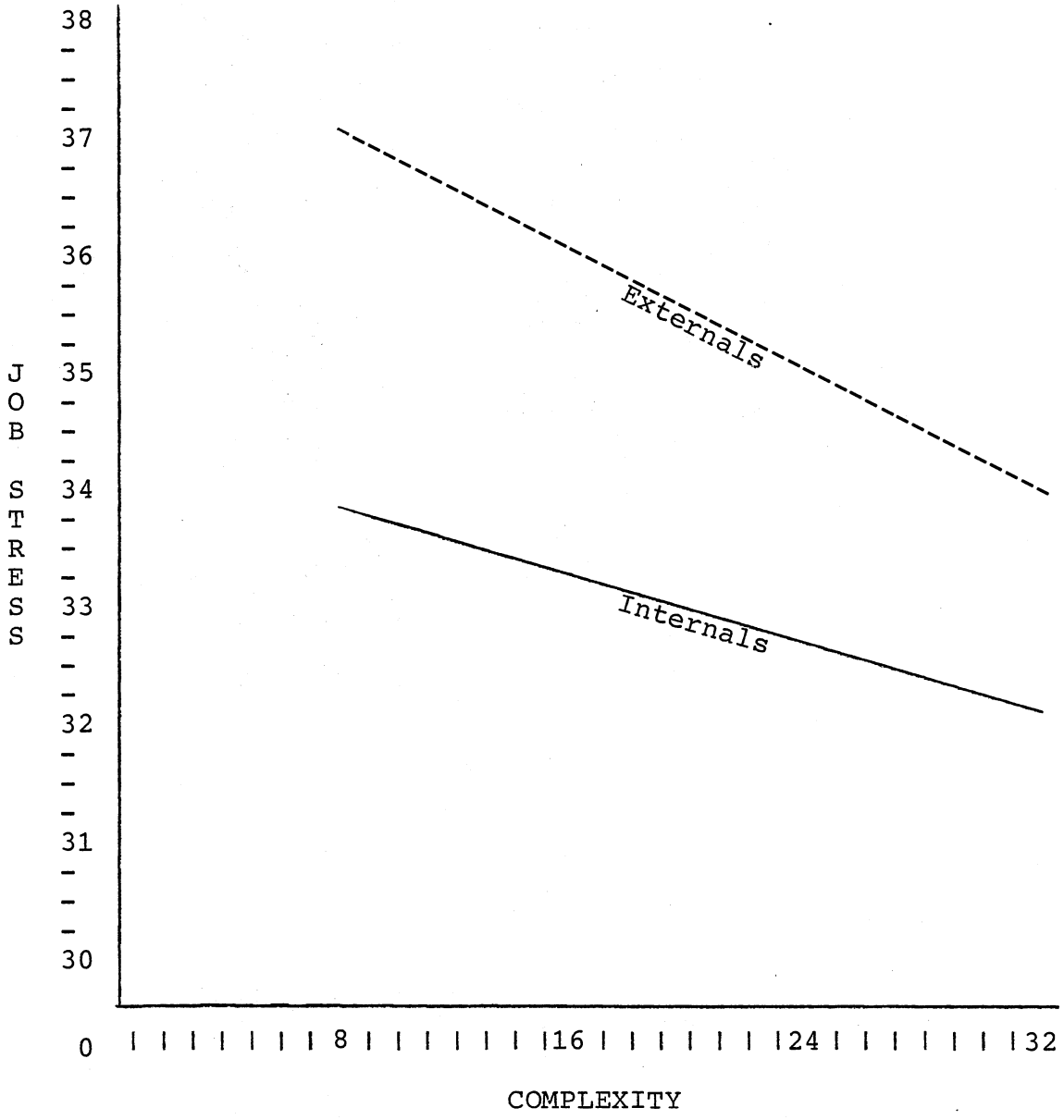

Figure 1. A Significant Ordinal Interaction Between Complexity and Locus of Control.

H.5.b. The interaction of role ambiguity with locus of control will have a significant effect on the explained variance of teacher job stress. Under conditions of high role ambiguity, externals will experience higher levels of stress than will their internal counterparts.

Although the interaction term contributes the most to the variance of job stress, .61 of a unit for each unit of increase in the interaction variable, said influence does not reach significance. Consequently, further statistical analysis is not warranted.

Summary

For each hypothesis tested, a hierarchical moderated regression model was constructed. All the regression equations yielded relationships between respective independent and dependent variables which are significantly greater than zero.

With the exception of the composite structural model, all hypotheses relating to a significant contribution to explained variance in job stress by both structural and personality variables are supported. To increase the power of prediction, both contextual and personality variables are important.

In the five moderated regression equations, three of five interaction terms contributed more to the variance

in job stress than their parental counterparts. Of these three interaction variables, with their concomitant high beta weights, only one attained significance.

ENDNOTE

[1]William S. Peters and Joseph E. Champoux, "The Use of Moderated Regression in Job Redesign Decisions," Decision Sciences, 10 (1979), pp. 85-95.

CHAPTER V

DISCUSSION

The major purpose of this section is to explain the results of the study as well as formulate conclusions. In order to accomplish this goal, it is necessary to approach the task from the following directions: a theoretical explanation of results, a statistical explanation of results, a rationale for additional statistical analyses, and a presentation of additional analyses.

Theoretical Explanation of Results

Five groupings of hypotheses emerged from a synthesis of role theory, axiomatic theory, locus of control and the findings of previous empirical studies. The projected relationships between the independent variables in each cluster were arranged to reflect existing theoretical and empirical information and to stabilize inconsistent and conflicting data. A discussion of the results of the various combinations of independent variables as they affected job stress is the next order of presentation.

Composite Structure, Locus of Control and Interaction

The analysis of the data relating to organizational

structure; that is the composite scores of centralization, formalization, and complexity; locus of control, and the interaction of structure and locus of control, does not support the theories which generated the hypothesis. Burns and Stalker[1] stated that organic contexts would be conducive to high uncertainty and anxiety. Rotter[2] established a construct of locus of control in which internals rely upon self for reinforcement of behavior and externals shift perceptions of control of reinforcements to outer sources. Synthesizing these two dimensional theories yields several patterns of congruence and incongruence. Incongruent patterns, high-structure/high-internality and low-structure/high-externality, should contribute to higher levels of stress than a congruent combination.

The zero order correlations between structure and job stress and structure X locus of control and job stress are .04 and .02 respectively. It is, therefore, logical that the regression model incorporating these variables would contain insignificant betas. The question, however, is why the whole, which consists of parts which correlate .22, -.09, and -.20 with job stress, is not a greater reflector of its components.

Although Hage[3] advances an organic and mechanistic categorical model in his Axiomatic Theory, he analyzes each model according to the combination of four means and four ends general variables. In a later book he explains

the relationship between a structural category and a general variable in the following excerpt:

> The reader might immediately ask, is not bureaucracy measurable, and are not some organizations more bureaucratic than others? A yes answer is true but misleading. What is frequently measured is not bureaucracy but a series of dimensions such as size, formalization, or proportion of administrative staff; an organization that scores high on one or more of these is then labeled bureaucratic. Despite the use of general dimensions, the idea of categorizing something as bureaucratic or not still remains even though the scaling is more subtle.[4]

The data in this study supports Hage's[5] conclusions. The structural concept is a composite of centralization, formalization, and complexity, all continuous measurements. When these variables are clustered into a total sum, the construct is in effect dichotomized. The result of converting a concept from a continuous variable to a categorical one is a loss of accuracy. The whole, then, is a far cruder instrument and thereby different than its more accurate component parts.

Centralization, Locus of Control and Interaction

The analysis of the data relating to centralization fails to support the congruence pattern or theoretical synthesis described earlier. It is logical to expect that an individual with perceptions of control by an outer reference group should feel very comfortable in transferring decision making responsibilities to others. And yet

this congruence pattern, as well as the other patterns, is not supported by the data. Locus of control does not moderate the effects of centralization on job stress.

It is possible that a perception of professionalism moderates the perception of locus of control. Among teachers there is a widespread belief, instilled by colleges of teacher education as well as peers and others associated with the task of instructing, that teaching is a professional activity engaged in by professionals. Therefore, to be excluded from the decision making process is to be denied a professional right. This belief in professionalism may therefore neutralize the moderating effects of locus of control.

Formalization, Locus of Control and Interaction

If then a perception of professionalism exists among teachers and if theoretical synthesis supports an incongruence pattern among internals in a highly centralized context, why does formalization reduce job stress for both internals and externals? The necessity for applying organizational rules and regulations does not appear consonant with the autonomous professional.

One explanation for the aforementioned inconsistency is described by K. E. Weick[6] in his concept of loose coupling. The author suggests that schools have tight control over the selection of those who do the work, but

loose control over how well the work is done. Consequently, as long as the rules and regulations do not interfere with classroom autonomy, even teachers with a belief in professionalism or internal locus of control do not experience conflict.

Furthermore, in that many of the organizational rules pertain to control of the client or students, formalization actually reduces job stress for the teacher who fears the undisciplined student. Thus, a formalized context, which does not impose upon classroom autonomy and at the same time supports a disciplined student population, is associated with reduced levels of teacher job stress.

Complexity, Locus of Control and Interaction

Analysis of that data which concerns complexity, locus of control and the interaction of both supports the theoretical synthesis. Increased complexity decreases levels of job stress for both internals and externals, but there is a much greater reduction in job stress for those teachers with an external orientation.

This conclusion appears compatible with theory. By increasing professional activity and training, the externals gain information relevant to their field, which might otherwise not be obtained. This is, in effect, a form of contextual support which reduces stress for teachers with external orientations.

Furthermore, the results of the data are consistent with empirical studies which support the notion that individuals with internal orientations are more capable of obtaining information which is instrumental to their jobs.[7,8] Internals appear more stress resistant than externals in low complexity situations.

Role Ambiguity, Locus of Control and Interaction

The data indicate a positive relationship between role ambiguity and job stress; the greater the perceived role ambiguity, the higher the level of job stress. This relationship is not moderated to a significant degree by locus of control; thus both internals and externals are adversely affected by high levels of role ambiguity.

Both theoretical synthesis and empirical evidence support a moderating effect of locus of control on the relationship between role ambiguity and job stress.[9] Although it is possible to speculate that the environment controls individual behavior, the agrument is countered by the statistically significant contribution of locus of control to explained variance job stress. At this point there does not appear to be an alternative theory or a verbal rationale to explain the lack of interaction. Thus, a statistical explanation is in order.

Statistical Explanation of Results

It is possible to explain the lack of significance

of four of the five interaction variables in terms of several statistical problems associated with the use of product variables. Several authors, Althauser,[10] Glass,[11] and Kerlinger and Pedhauser,[12] advise great caution in their use and interpretation. Althauser[13] states that:

> It would appear, in short, that including multiplicative terms in regression models is not an appropriate way of assessing the presence of interaction among our independent variables. This is not altogether an original finding.

Althauser[14] supports his conclusion with a statistical examination of the means and variances of the parent variables and their respective correlations. He argues that if $r_{12} \neq 0$, the means of x_1 and x_2 will control the size of r_{13} in that neither of the relationships is independent of r_{12}. If $r_{12} = 0$, the use of deviation scores will reduce multicollinearity between the parent and product variables. Thus, the greater the positive r_{12}, the greater the likelihood that r_{13} and r_{23} will be higher than r_{12}. Accordingly, if r_{13} and r_{23} are greater than r_{12}, the b_3 or beta interaction regression coefficient will be smaller than the beta associated with the parent variables (b_1 or b_2).

In addition to a reduced unstandardized regression coefficient, Althauser[15] argues that the unstandardized coefficient of the interaction term is smaller, relative to its standard counterpart, than the unstandardized coefficient of the parent variable, relative to its standardized counterpart. The reason this condition exists

is that the standard deviation of the interaction variable is greater than the standard deviation of either parent variable. This, in turn, increases the denominator in the computation of the beta (standard deviation$_y$/standard deviation$_3$). Since the unstandardized regression coefficient is used in the computation of R^2, the influence of the interaction term is diminished.

In a summarized form in Table XIII, the correlation coefficients between the independent variables are displayed. Applying Althauser's[16] criteria to the data, it is generally true that the correlations between a parent variable and a product variable, r_{13} and r_{23}, are higher than the correlation between the two parent variables. The one exception to this generalization involves the complexity, locus of control and complexity X locus of control triad. The only relationship among the variables, which is close to zero, is that of structure and locus of control.

The standard deviations associated with each independent variable incorporated in the study are summarized in Table XIV. The pattern is congruent with Althauser's[17] statement; all standard deviations associated with product terms are greater than those associated with the parent variables.

When Althauser's[18] criteria are applied to the data in this study, it is possible to explain statistically why three interaction terms did not achieve a level of

TABLE XIII

A COMPARISON OF THE CORRELATION COEFFICIENTS ASSOCIATED WITH ALL COMBINATIONS OF INDEPENDENT VARIABLES IN THIS STUDY

r_{12}	Coefficient	r_{13}	Coefficient	r_{23}	Coefficient
Structure, Locus of Control	-.01	Structure, Structure X Locus of Control	.88	Locus of Control, Structure X Locus of Control	.14
Centralization, Locus of Control	.14	Centralization, Centralization X Locus of Control	.96	Locus of Control, Centralization X Locus of Control	.40
Formalization, Locus of Control	-.10	Formalization, Formalization X Locus of Control	.91	Locus of Control, Formalization X Locus of Control	.32
Complexity, Locus of Control	-.22	Complexity, Complexity X Locus of Control	.91	Locus of Control, Complexity X Locus of Control	.18*
Role Ambiguity, Locus of Control	.29	Role Ambiguity, Role Ambiguity X Locus of Control	.98	Locus of Control, Role Ambiguity X Locus of Control	.44

* The only interaction correlation coefficient which is less than the associated r_{12} correlation coefficient.

TABLE XIV

STANDARD DEVIATIONS ASSOCIATED WITH ALL THE INDEPENDENT VARIABLES IN THIS STUDY

Variables	Standard Deviations
Structure	12.85
Centralization	6.68
Formalization	7.98
Complexity	4.12
Locus of Control	3.70
Role Ambiguity	6.02
Structure X Locus of Control	726.05
Centralization X Locus of Control	365.84
Formalization X Locus of Control	421.46
Complexity X Locus of Control	207.63
Role Ambiguity X Locus of Control	330.54

significance and a fourth one did. The correlation between centralization and locus of control, formalization and locus of control, and role ambiguity and locus of control prevented the means of x_1 and x_2 from controlling the size of both r_{13} and r_{23} as evidenced by the high correlation coefficients associated with each. In all the regression triads, the correlation coefficients of both r_{13} and r_{23} are greater than their r_{12} counterparts. In only one triad, more specifically that of complexity, locus of control, and complexity X locus of control, was a correlation coefficient associated with an interaction variable less than its r_{12} counterpart. The interaction term associated with this combination was the only product variable in five to achieve a level of significance.

One model, that of structure, locus of control and structure X locus of control, has a coefficient associated with its x_1 and x_2 which is close to zero. According to Althauser[19] if $r_{12} = 0$, it is possible to reduce multicollinearity by using deviation scores. Because this study did not control multicollinearity by incorporating deviation scores, it is possible that the insignificant beta associated with this interaction term is the result of a faulty statistical technique rather than theoretical considerations.

The high standard deviations associated with the product variables reduce the weight of the respective regression coefficients which, in turn, limits the potential

for reaching a level of significance. Furthermore, this statistical phenomenon also explains why the standardized regression coefficient associated with the interaction variable in Tables VII, VIII and XII is greater than the unstandardized counterpart.

A Rationale for Additional Statistical Analyses

Much of the research incorporating a product variable adheres to the procedures established by Cohen and Cohen,[20] Saunders[21] and Zedeck.[22] These procedures involve the construction of two regression models and the testing of both for significance. The first model to be constructed includes two independent variables; the second, the same two independent variables and an interaction variable which is the product of the two preceding constructs. Finally a statistical test is employed to determine whether or not the addition of the interaction variable in the moderated regression model is statistically significant.

When an interaction variable enters a moderated regression model, Champoux[23] states that a statistically significant increment in R^2 is necessary to establish a moderator effect. According to the author the reason for this criteria is not that it establishes magnitude, but rather reliability.

Reliability refers to a consistency or stability of the results of a measurement.[24] By examining the formula

used in this study to determine statistical significance, it is possible to gain a clearer understanding of what determines reliability. Thus, the formula is as follows:[25]

$$F = \frac{r^2_y \ (3.12) \ / \ 1}{(1 - R^2_y \ .123) \ / \ (N - k - 1)}$$

Accordingly, to increase reliability, it is necessary to increase r^2, R^2, or the size of the sample. It is important to understand that small samples must produce interactions of tremendous magnitude to overcome the effect of size of sample. Conversely, an interaction may be of low magnitude, and both significant and reliable, if the sample is large enough.

Cronbach[26] states the case well:

> The investigator who employs a factorial design can detect some interactions of those conditions he allows to vary, but sizable interactions are likely to be suppressed, just because any interaction that does not produce a significant F ratio is treated as nonexistent. Unfortunately, enormous volumes of data are required to pin down higher interactions as significant, unless one is guided by strong prior knowledge. When the facets of the design have more than two levels, the sample size required for establishing complex interactions, at least in instructional research, becomes prohibitive.
>
> The time has come to exorcise the null hypothesis. We cannot afford to pour costly data down the drain whenever effects present in the sample 'fail to reach significance.' Originally the psychologist saw his role as the scientific observation of human behavior. When hypothesis testing became paramount, observation was neglected and even actively discouraged by editorial policies of journals. Some authors now report nothing save F ratios. Hereafter, let us see regression coefficients instead.

> Confidence intervals will serve adequately to keep us cautious. Let the author file descriptive information, at least in an archive, instead of reporting only those selected differences and correlations that are nominally 'greater than chance.' Descriptions encourage us to think constructively about results from quasi-replications, whereas the dichotomy significant/non-significant implies only a hopeless inconsistency.
>
> The canon of parsimony, misinterpreted, has led us into the habit of accepting Type II errors at every turn, for the sake of holding Type I errors in check. There are more things in heaven and earth than are dreampt of in our hypotheses, and our observations should be open to them. From Occam to Lloyd Morgan, the canon has referred to parsimony in theorizing, not in observing. The theorist performs a dramatist's function; if a plot with a few characters will tell the story, it is more satisfying than one with a crowded stage. But the observer should be a journalist, not a dramatist. To suppress a variation that might not recur is bad observing.

The rationales, which support additional statistical analyses of a descriptive nature, are as follows:

1. In the social sciences most effects of one variable or another are interactive.[27]
2. In that interaction variables are often highly correlated with their parent variables, high multicollinearity obviates an interaction variable from achieving significance.[28]
3. In that the social sciences lack the controls of the physical sciences, statistical standards established for the social sciences must be more flexible and less constraining.
4. To bind the social scientist to the same conservative conditions of the physical scientist is to limit discoveries to the obvious and impede

studies of complex phenomenon.

It is intended therefore that the remainder of this section serve as an archive for those data which did not achieve significance but did meet the criteria of having a high standardized regression coefficient relative to the other variables in the model. The results of the statistical analysis will be descriptive in nature, and as such, will not be used to generalize about the population.

A Presentation of Slope Analysis

Three regression models meet the criteria established in the previous section. The standardized beta associated with centralization X locus of control is the highest in its respective triad; the standardized beta associated with formalization X locus of control is the second greatest in its respective grouping; and the beta associated with role ambiguity X locus of control is the highest in its respective triad. A slope analysis will establish the intercepts and slope for five levels of locus of control. The highest and lowest levels will establish a point of intersection, that point at which the regression lines intersect. The research range of interest will be a band 10 points above or below the range of the continuous structural variable. If then a point of intersection falls within the research range of interest, a visual graph of intersection will be constructed for that model.

According to the slope analysis presented in Table XV, increased centralization is associated with greater levels of job stress for both internal and externals. Although the point of intersection, -29.11, falls beyond the research range of interest, the beginning of a pattern is established. At higher levels of centralization, externals experience a relatively higher degree of job stress than their internal counterparts. For all conditions of centralization, externals report higher levels of stress than internals.

TABLE XV

SLOPE COEFFICIENTS AND PREDICTED SCORE FOR JOB STRESS ON CENTRALIZATION AT GIVEN LEVELS OF LOCUS OF CONTROL

Levels of Locus of Control*	Intercepts	Slopes	Predicted Score by Increasing Centralization by: 13 Points	44 Points
46.12	31.33	.0688	32.22	34.36
48.00	31.54	.0759	32.53	34.88
49.64	31.72	.0821	32.79	35.33
51.93	31.98	.0908	33.16	35.97
53.79	32.18	.0980	33.45	36.49

Point of intersection, -29.11 is below established criteria.

*These levels represent the 16 2/3, 33 1/3, 50, 66 2/3, and 83 1/3 percentiles of locus of control if said variable were distributed normally.

The point of intersection for job stress on formalization is so far removed from the researcher's range of interest that it is possible to conclude that the interaction effect is of very low magnitude. The slope analysis displayed in Table XVI indicates that increased formalization results in reduced job stress for all teachers. Further, under both low and high conditions of formalization, internals experience less stress than externals.

TABLE XVI

SLOPE COEFFICIENTS AND PREDICTED SCORES FOR JOB STRESS ON FORMALIZATION AT GIVEN LEVELS OF LOCUS OF CONTROL

Levels of Locus of Control*	Intercepts	Slopes	Predicted Score by Increasing Formalization by: 22 Points	70 Points
46.12	34.21	-.0198	33.77	32.83
48.00	34.70	-.0211	34.24	33.22
49.64	35.14	-.0222	34.65	33.59
51.93	35.75	-.0239	35.22	34.08
53.79	36.24	-.0251	35.69	34.48

Point of intersection established at -383.02 is below established criteria.

* These levels represent the 16 2/3, 33 1/3, 50, 66 2/3, and 83 1/3 percentiles of locus of control if said variable were distributed normally.

According to the results displayed in Table XVII, greater role ambiguity is associated with higher levels of stress for all teachers. Further, under conditions of both low and high role ambiguity, externals experience higher levels of stress than internals. Stress, however, is moderated by perception of locus of control under conditions of high role ambiguity. As role ambiguity increases, stress accelerates to a far greater degree for the teacher with an external orientation. This relationship is illustrated graphically in Figure 2.

TABLE XVII

SLOPE COEFFICIENTS AND PREDICTED SCORES FOR JOB STRESS ON ROLE AMBIGUITY AT GIVEN LEVELS OF LOCUS OF CONTROL

Levels of Locus of Control*	Intercepts	Slopes	Predicted Score by Increasing Role Ambiguity by: 6 Points	40 Points
46.12	31.86	.0993	32.46	35.83
48.00	32.08	.1101	32.74	36.48
49.64	32.16	.1194	32.88	36.94
51.93	32.35	.1325	33.14	37.65
53.79	32.51	.1431	33.37	38.23

Point of intersection established at -4.8 is within the established criteria.

* These levels represent the 16 2/3, 33 1/3, 50, 66 2/3, and 83 1/3 percentiles of locus of control if said variables were distributed normally.

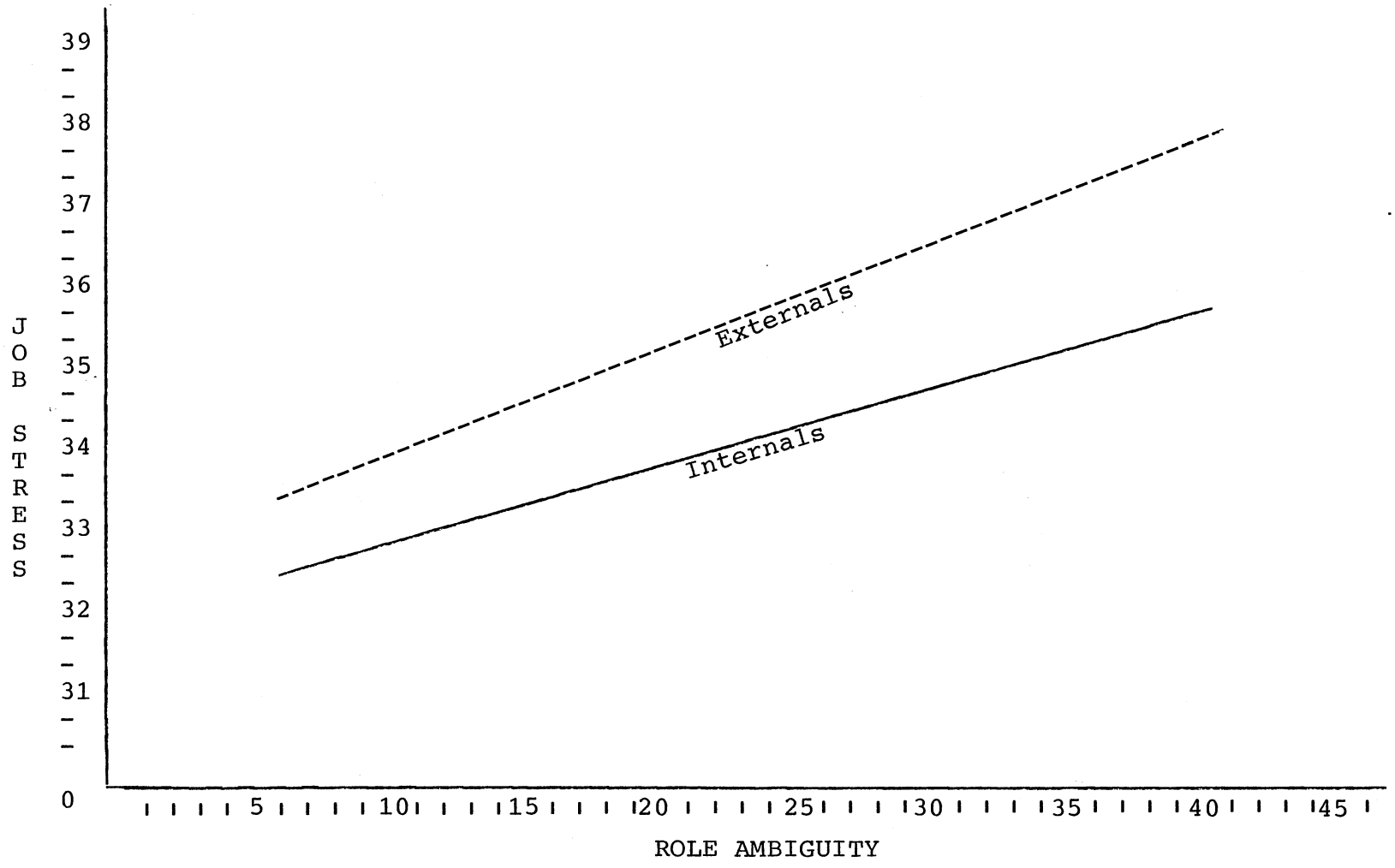

Figure 2. An Ordinal Interaction Between Role Ambiguity and Locus of Control.

At this juncture, it is possible to synthesize the various results of the slope analyses into a generalized statement which describes the subjects of this sample. Without exception, externals experience greater stress than internals under all contextual conditions. However, under conditions of high role ambiguity, levels of stress increase dramatically for externals relative to the increase of that of internals.

Implications

From its inception, the purpose of this study was to understand and explain sources of teacher job stress. Consequently, the implications derived from the empirical inquiry circle back to the need for the study, as well as the theory which generated the rationale.

Implications for the Practitioner

Organizations which encourage professional activity and professional training are associated with lower levels of stress than organizations which minimize those activities. Furthermore, teachers with external orientations of locus of control benefit from organizations with a complex structure to a greater degree than their internal counterparts. Consequently, administrators and supervisors can reduce levels of job stress by arranging professional developmental programs for those teachers who perceive control as emanating from an outer source.

High levels of teacher job stress are associated with high levels of centralization. This condition is not greatly moderated by locus of control; thus all teachers are affected adversely by a context in which decision making activity is monopolized by the administration. The administrator who wishes to reduce job stress, therefore, should decrease centralization by encouraging teacher participation in decision making.

Staffing organizational positions which are highly ambiguous can present problems for the administrator. It is helpful, then, to know that teachers with internal locus of control orientation experience minimal stress in a high role ambiguity contexts. Further, internals appear to be highly context-free; in that this is true, internals will be more stress resistant than externals in change agent roles.

Theoretical Implications

Throughout this study there was an ever present conflict between Rotter's[29] theoretical construct and some empirical studies: are internals context-free or does a structured context accelerate an internal's level of stress?

The results of this study would support an integrated modification of theory and empirical evidence. More specifically, only those contexts which prevent self-control would be conducive to increased levels of stress for the

internal. For example, an internal can withstand a context of high formalization as long as that condition does not impede autonomy. High centralization, on the other hand, interferes with the internal's perception of control in that it prevents participation in decision making in areas important to the internal teacher. Nevertheless, there can be no doubt that the teacher with an internal orientation experiences greater freedom from context than his external counterpart. Thus context is a source of anxiety or stress for an internal only if it infringes on the internal's perception of control.

The study supports the theoretical dimensions of Getzels and Guba[30] and Lewin.[31] It appears that both institutional and individual descriptors make significant contribution to behavior. However it is not possible, on the basis of this study, to conclude that both dimensions interact in such a way that one variable moderates the effect of the other on a given behavior. The evidence gathered in this study, which relates to interaction, is inconclusive.

Recommendations for Further Study

The recommendations relating to this study are somewhat unwieldy as a result of the number of unrelated issues to be addressed. The organization of this section, eclectic in nature, will discuss recommendations for the following areas: continuation of a multivariate,

multidimensional interaction approach; suggestions relating to specific variables in this study; and ways to reduce multicollinearity or circumvent its effects.

In the discipline of educational administration, most concerns involve complex phenomenon. Accordingly, a univariate approach to a multifaceted issue results in minimal understanding. Furthermore, those approaches which ignore either the organizational or individual dimensions do not accurately reflect the reality of a social system. In that both the individual and the organizational context interact continuously, studies which disregard the dynamics of that combination contribute information which cannot be generalized to another organization. Thus, future studies should build into the design several variables, which include organizational and individual dimensions, in dynamic interaction.

Studies which incorporate a structural variable should avoid using a dichotomized, categorical measurement. More specifically, labels such as mechanical, bureaucratic, professional or organic are terms too broad to measure with accuracy. It is more useful to break those categories down into general variables, that is to measure concepts such as centralization, formalization and complexity.

Research, which continues to probe sources of teacher job stress, might consider defining those situations which create high stress levels for teachers with internal locus of control orientations. This would provide alternatives

for those who are concerned with the identification of strategies for reducing job stress for this specific group.

If the researcher wishes to attempt a study which utilizes inferential statistics, that is one in which it is possible to generalize back to the population, then the following suggestions are in order:

1. Use a very large sample to counteract the effects of high multicollinearity.
2. To the degree possible, select independent variables with minimal intercorrelations.
3. Include several personality constructs in the design.
4. Use deviation scores in regression models.

Since interaction regression research depends upon a product term, there is almost always a condition of high multicollinearity. Thus, it might be preferrable, at least until regression analysis is modified to account for this state, to approach interaction from a descriptive perceptive. Such an approach would concentrate on one or two organizations with an emphasis on those observations and interviewing techniques which facilitate an understanding of contextual and individual dimensions, in interaction, as they influence behavior.

A Final Statement

Much of the literature related to this study contained inconsistent and contradictory statements of results.

Although most of the studies reported sound sampling techniques and the use of measurements both valid and reliable, the conclusions drawn from one study were not congruent with those preceding or following it. What then could account for the numerous variations in results?

Several authors attribute a lack of consistency to unidentified interactions, Cronbach,[32] McGuire[33] and Mischel.[34] General statements about the effects of a context on a given behavior are deceptive because that variable is moderated by numerous personality factors of the individual. Therefore, interaction provides an explanation for the inconsistent findings in the literature whether it is identified or not.

One of the purposes of this study was to determine the effects of interaction on job stress. Consequently, it was decided to incorporate a statistical technique, moderated multiple regression, which, according to the literature, had the greatest potential for establishing interaction relationships. Unfortunately, regression models are adversely influenced by a condition of multicollinearity, a concomitant consequence of a multiplicative product variable.[35] Thus the strength of the interaction term cannot be assessed without forfeiting reliability because the F test is rendered impotent by the condition of multicollinearity.

A very interesting pattern is revealed. Consistent and generalizable information appears to be dependent on

the identification of the interaction. Cronbach[36] states that:

> Typically the investigator delimits the range of situations considered in his research program by fixing many aspects of the conditions under which the subject is observed. The interactions of any fixed aspect are thereby concealed, being pulled into the main effect or into the interactions of other variables. The concealed interaction may even wipe out a real main effect of the variable that chiefly concerns the investigator.

These interactions appear to be confined to the boundaries of descriptive statistics, thus preventing a generalization of the results beyond the specific sample. Thus, reliable studies are dependent on the identification and control of interactions which cannot be generalized, due to the effects of multicollinearity.

As difficult as the problem appears, it is one which must be addressed by researchers. Accepting and controlling what cannot be seen is indeed perplexing. And yet, with or without controls, interactions between man and his environment will continue to exert influence on the best of designs.

It is hoped that this study is more than a statement of a relationship between variables. It is intended to serve as a reminder of the intricate balance existing between the individual and the context. This complexity must be approached with flexible expectations which are tempered by both the limitations of analytic techniques and the magnitude of the task.

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APPENDICES

APPENDIX A

MEASUREMENT OF STRUCTURAL VARIABLES

DIRECTIONS: The items in this questionnaire describe structural characteristics that may be present in your school. Please do not evaluate these characteristics in terms of being desirable or undesirable, but respond in terms of how accurately the statement describes your school.

Circle the number which best indicates your feelings about the behavior described by the item.

	Who has the greatest influence in decision about:	TEACHERS	DEPARTMENT OR GRADE CHAIRMAN	CONSULTANTS OR SPECIALISTS	ADMINISTRATORS
# 1.	The instructional program?	1	2	3	4
2.	Teaching methods?	1	2	3	4
3.	Textbook selection?	1	2	3	4
# 4.	Curricular offerings?	1	2	3	4

		RARELY	SOMETIMES	OFTEN	VERY FREQUENTLY
# 5.	Teachers are required to follow suggested instructional sequences and unit plans as closely as possible.	1	2	3	4
# 6.	Principals in your district must refer most non-routine decisions to someone higher up for the final O.K.	1	2	3	4
# 7.	Rules and regulations concerning teacher behavior are uniformly applied.	1	2	3	4

* Reversed Scores.
# This item was included in this study.

		RARELY	SOMETIMES	OFTEN	VERY FREQUENTLY
# 8.	Days in the school calendar are allotted exclusively to teachers for professional activities.	1	2	3	4
# 9.	Academic degrees are an important consideration in recruitment of administrative staff.	1	2	3	4
#10.	Teachers are required to follow an adopted course of study.	1	2	3	4
#11.	Vice-principals and department chairmen in your school must refer most non-routine decisions to someone higher up for a final O.K.	1	2	3	4
#12.	Teachers' responsibilities and lines of authority within the school are well defined.	1	2	3	4
*#13.	Teaching in your school is a good job for someone who likes to be "his own boss."	1	2	3	4
14.	Teachers receive help from an instructional media specialist in the use of audio-visual equipment.	1	2	3	4
15.	Teachers make visitations to schools outside of the district.	1	2	3	4
#16.	Advanced degrees are an important consideration in promotion.	1	2	3	4
17.	Teachers are evaluated according to a formalized procedure.	1	2	3	4
#18.	Even small matters often have to be referred to someone higher up for a final answer.	1	2	3	4

* Reversed Scores.
# This item was included in this study.

		RARELY	SOMETIMES	OFTEN	VERY FREQUENTLY
#19.	At this school, procedures for disciplining students are well defined.	1	2	3	4
*#20.	How things are done is left up to the person doing the work.	1	2	3	4
#21.	Teachers attend professional conferences during the school year.	1	2	3	4
#22.	Academic degrees are an important consideration in recruitment of instructional staff.	1	2	3	4
23.	Teachers are allowed to teach only those subjects which are included in the course-of-study.	1	2	3	4
#24.	There can be little action taken here until a superior approves a decision.	1	2	3	4
#25.	Teachers' activities are governed by written rules and regulations.	1	2	3	4
*#26.	Most people here make their own rules on the job.	1	2	3	4
27.	Teachers are required to do paper work which could be done by a school office staff.	1	2	3	4
#28.	Teachers are allowed to teach outside of their major area of study.	1	2	3	4
#29.	Teachers are required to maintain lesson plans.	1	2	3	4
*#30.	People here are allowed to do almost as they please.	1	2	3	4

* Reversed Scores.
# This item was included in this study.

		RARELY	SOMETIMES	OFTEN	VERY FREQUENTLY
#31.	Teachers are allowed to teach outside of their major and minor area of study.	1	2	3	4
#32.	Teachers in your school must refer most non-routine decisions to someone higher up for a final O.K.	1	2	3	4
#33.	Administrators strictly follow established rules and regulations in dealing with the teaching staff.	1	2	3	4
#34.	The principal's activities are governed by written rules and regulations.	1	2	3	4
*#35.	A teacher can make his own decisions concerning instructional problems without checking with anybody else.	1	2	3	4
#36.	Teachers here teach out of their field of specialization.	1	2	3	4
#37.	Any decision I make has to have my superior's approval.	1	2	3	4
#38.	Teachers are required to submit lesson plans.	1	2	3	4
*#39.	The principal is willing to by-pass regulations to help teachers.	1	2	3	4
#40.	Teachers are required to go through channels (chain of command) for routine decisions.	1	2	3	4
*#41.	The principal is willing to by-pass regulations to help pupils.	1	2	3	4
#42.	Teachers' daily activities must have the approval of a superior.	1	2	3	4

* Reversed Scores.
# This item was included in this study.

		RARELY	SOMETIMES	OFTEN	VERY FREQUENTLY
#43.	Teachers in this school are closely supervised.	1	2	3	4
*#44.	Teachers are allowed to violate minor rules and regulations.	1	2	3	4
45.	Rules requiring teachers to sign in and out are strictly followed.	1	2	3	4

* Reversed Scores.
# This item was included in this study.

APPENDIX B

MEASUREMENT OF ROLE AMBIGUITY

INSTRUCTIONS: The statements listed below may describe some specific characteristics about your job. For each statement please rate how true the characteristic is of your particular job.

	DEFINITELY NOT OF MY JOB	TRUE	SLIGHTLY TRUE	UNCERTAIN	SLIGHTLY NOT TRUE	NOT TRUE	DEFINITELY NOT TRUE OF MY JOB
1. I feel certain about how much authority I have.	1	2	3	4	5	6	7
2. There are clear, planned goals and objectives for my job.	1	2	3	4	5	6	7
3. I know that I have divided my time properly.	1	2	3	4	5	6	7
4. I know what my responsibilities are.	1	2	3	4	5	6	7
5. I know exactly what is expected of me.	1	2	3	4	5	6	7
6. Explanation is clear of what has to be done.	1	2	3	4	5	6	7

APPENDIX C

MEASUREMENT OF LOCUS OF CONTROL

INSTRUCTIONS: This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives numbered 1 or 2. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief; obviously there are no right or wrong answers.

Your answer, either 1 or 2 to each question on this inventory, is to be reported beside the question.

Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice. For each numbered question make an X on the line beside either the 1 or 2 whichever you choose as the statement most true.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

Remember:

Select that alternative which you personally believe to be more true.

I more strongly believe that:

* 1. (1) Many of the unhappy things in people's lives are partly due to bad luck. 1._____

(2) People's misfortunes result from mistakes they make. 2._____

2. (1) One of the major reasons why we have wars is because people don't take enough interest in politics. 1._____

(2) There will always be wars, no matter how hard people try to prevent them. 2._____

3. (1) In the long run people get the respect they deserve in this world. 1._____

(2) Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries. 2._____

*Reversed Scores

4. (1) The idea that teachers are unfair to students is nonsense. 1._____

(2) Most students don't realize the extent to which their grades are influenced by accidental happenings. 2._____

* 5. (1) Without the right breaks one cannot be an effective leader. 1._____

(2) Capable people who fail to become leaders have not taken advantage of their opportunities. 2._____

* 6. (1) No matter how hard you try some people just don't like you. 1._____

(2) People who can't get others to like them don't understand how to get along with others. 2._____

* 7. (1) I have often found that what is going to happen will happen. 1._____

(2) Trusting to fate has never turned out as well for me as making a decision to take a definite course of action. 2._____

8. (1) In the case of the well prepared student there is rarely if ever such a thing as an unfair test. 1._____

(2) Many times exam questions tend to be so unrelated to course work that studying is really useless. 2._____

9. (1) Becoming a success is a matter of hard work, luck has little or nothing to do with it. 1._____

(2) Getting a good job depends mainly on being in the right place at the right time. 2._____

10. (1) The average citizen can have an influence in government decisions. 1._____

(2) This world is run by the few people in power, and there is not much the little guy can do about it. 2._____

* Reversed Scores.

11. (1) When I make plans, I am almost certain that I can make them work. 1._____

(2) It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow. 2._____

12. (1) In my case getting what I want has little or nothing to do with luck. 1._____

(2) Many times we might just as well decide what to do by flipping a coin. 2._____

*13. (1) Who gets to be the boss often depends on who was lucky enough to be in the right place first. 1._____

(2) Getting people to do the right thing depends upon ability; luck has little or nothing to do with it. 2._____

*14. (1) As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control. 1._____

(2) By taking an active part in political and social affairs the people can control world events. 2._____

*15. (1) Most people can't realize the extent to which their lives are controlled by accidental happenings. 1._____

(2) There really is no such thing as "luck." 2._____

*16. (1) In the long run the bad things that happen to us are balanced by the good ones. 1._____

(2) Most misfortunes are the result of lack of ability, ignorance, laziness, or all three. 2._____

17. (1) With enough effort we can wipe out political corruption. 1._____

(2) It is difficult for people to have control over the things politicians do in office. 2._____

* Reversed Scores.

*18. (1) Sometimes I can't understand how teachers arrive at the grades they give. 1._____

(2) There is a direct connection between how hard I study and the grades I get. 2._____

*19. (1) Many times I feel that I have little influence over the things that happen to me. 1._____

(2) It is impossible for me to believe that chance or luck plays an important role in my life. 2._____

20. (1) People are lonely because they don't try to be friendly. 1._____

(2) There's not much use in trying too hard to please other people, if they like you, they like you. 2._____

21. (1) What happens to me is my own doing. 1._____

(2) Sometimes I feel that I don't have enough control over the direction my life is taking. 2._____

*22. (1) Most of the time I can't understand why politicians behave the way they do. 1._____

(2) In the long run the people are responsible for bad government on a national as well as on a local level. 2._____

*Reversed Scores

APPENDIX D

MEASUREMENT OF JOB STRESS

DIRECTIONS: Many people experience some strain or ill health as a result of working hard at their jobs. The finding of some surveys show that this is an important factor to understand when studying people at work. For this reason, the following statements have been included. Read each statement and circle the "1" for those that tend to be TRUE of you and the "2" for those which are definitely NOT TRUE of you.

		TRUE	FALSE
1.	I would consider myself in good or excellent health	1	2
2.	I would consider myself in fair health.	1	2
3.	I do not have very good health.	1	2
* 4.	I feel restless and uneasy more often than I probably should.	1	2
5.	I am often bothered by acid indigestion or heartburn.	1	2
6.	I sometimes feel weak all over.	1	2
7.	I wake up with stiffness or aching in joints or muscles.	1	2
8.	I have had trouble getting to sleep or staying asleep.	1	2
* 9.	My job tends to directly affect my health.	1	2
*10.	I work under a great deal of tension.	1	2
*11.	I have felt fidgety or nervous as a result of my job.	1	2
*12.	I get irritated or annoyed over the way things are going.	1	2
13.	I have an ulcer condition.	1	2
14.	I have fairly frequent headaches.	1	2

* Indicates that this item was included in the study. All item scores were reversed.

		TRUE	FALSE
*15.	If I had a different job, my health would probably improve.	1	2
*16.	I seem to tire quickly.	1	2
*17.	Job worries sometimes get me down physically.	1	2
*18.	I have felt down and out fairly often.	1	2
19.	I have had arthritis or rheumatism.	1	2
*20.	Problems associated with my job have kept me awake at night.	1	2
21.	I have worried, after making a decision, whether I did the right thing.	1	2
22.	I may now have an ulcer but I am not sure of it.	1	2
23.	I have felt nervous before attending meetings in the company.	1	2
24.	I often "take my job home with me" in the sense that I think about it when doing other things.	1	2
25.	I have trouble with my digestion.	1	2
26.	I find I am inclined to "take things hard."	1	2

* Indicates that this item was included in the study. All item scores were reversed.

APPENDIX E

INITIAL COVER LETTER

OKLAHOMA PUBLIC SCHOOL RESEARCH COUNCIL
OKLAHOMA STATE UNIVERSITY
Stillwater, Oklahoma
74074

Dear Oklahoma Educator:

Congratulations! The statistical probability of your being selected to participate in this research study on teacher job stress was one in twenty! This means that your perceptions of job stress and related causes are very special and important in gaining a clearer understanding of this complex problem.

In an article in Today's Education, Willard McGuire reported that the number of teachers with twenty or more years experience has been reduced by almost fifty percent over the past fifteen years. Part of this dropout rate is attributed to burnout, a condition brought about by stress, tension and anxiety. If our profession is to retain the contributions of its experienced members, it is important to investigate the causes so that we might eliminate or reduce the effects.

Although the enclosed questionnaire is rather lengthy, the questions themselves are easy to understand and conducive to a spontaneous response. Indeed a pilot sample of teachers completed the entire questionnaire in just thirty minutes!

You will notice that your questionnaire is coded with a number. This marking will allow the researchers the option of a second mailing, thus increasing the probability of a valid study. Complete confidentiality and anonymity are assured; the coded list will be destroyed as soon as the follow-up procedure is completed.

In the questionnaire booklet, you will find several types of questions. Specific instructions will be given at the beginning of each section. In general, however, remember that there are no "trick" questions or "right" or "wrong" answers. All that is requested is your honest and spontaneous opinion. Don't spend too much time laboring over a question; your first, immediate response is usually the more accurate one.

For your convenience a self-addressed, stamped envelope is enclosed. Please contribute to our knowledge about teacher job stress by returning your completed questionnaire on or before April 12.

In advance we thank you for your professional assistance in this research effort.

Sincerely,

Kenneth St. Clair,
Professor

Lynn K. Arney,
Research Associate

Enclosure

APPENDIX F

FOLLOW-UP COVER LETTER

OKLAHOMA PUBLIC SCHOOL RESEARCH COUNCIL
OKLAHOMA STATE UNIVERSITY
Stillwater, Oklahoma
74074

Dear Oklahoma Educator:

Recently you were given the opportunity to participate in a study on teacher job stress. Because we have not yet received your completed questionnaire, we are concerned that the correspondence may have been lost in the mail or inadvertently misplaced. We are sending you another questionnaire, because your contributions to this study are too valuable to forfeit.

There is no identifying information on the questionnaire; thus you are assured of complete anonymity.

Please complete the questionnaire and return it to us by April 19, so that we may have adequate time to analyze the results.

Your participation in and contributions to this study are greatly appreciated. It is through your cooperation that we all advance our understanding of the phenomenon of teacher job stress.

Sincerely,

Kenneth St. Clair,
Professor

Lynn Arney,
Research Associate

Enclosure

VITA

Lynn Kramer Arney

Candidate for the Degree of

Doctor of Education

Thesis: THE EFFECTS OF PERSONALITY AND ORGANIZATIONAL VARIABLES ON TEACHER JOB STRESS

Major Field: Educational Administration

Biographical:

Personal Data: Born in New York City, New York, March 22, 1942, the daughter of Mr. and Mrs. Philip L. Kramer.

Education: Graduated from Central High School, Tulsa, Oklahoma in May, 1960; received Associate of Arts degree from Stephens College in 1962; received Bachelor of Science in Education degree from the University of Tulsa in 1969; received Master of Education degree from Northeastern Oklahoma State University in 1977; completed requirements for Doctor of Education degree at Oklahoma State University, Stillwater, Oklahoma, in December, 1982.

Professional Experience: Taught language arts at Owasso High School, Owasso, Oklahoma, 1969-70; taught language arts and remedial reading at Catoosa Middle School, Catoosa, Oklahoma, 1970-73; taught language arts and remedial reading at Cleveland High School, Cleveland, Oklahoma, 1974-75; Middle School Assistant Principal at Catoosa, Oklahoma in 1979; County Superintendent of Schools, Pawnee, Oklahoma, 1979-82; Visiting Instructor at Oklahoma State University, Stillwater, Oklahoma, 1982 to present.