

Chapter 2

Does Job Control Control Job Stress?

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INTRODUCTION

The purpose of this chapter is to review and discuss research that addresses the link between 'stress' and personal control in work settings. The review is limited to three topical areas: participative decision making and related managerial styles, research on the job characteristics model of Hackman and Oldham (1975, 1976) and locus of control. First a review of the relevant literature is presented. Then, a conceptual framework is presented for examining the role of control in work settings. The framework highlights the need to consider stress symptoms as responses to environmental control, and the need to consider attempts to increase control as responses to experienced stress. In the third and final section of the chapter, topics are suggested for future research on control in organizations.

EMPIRICAL LITERATURE ON STRESS AND CONTROL IN WORK SETTINGS

Variables Included in this Review

For the purposes of summarizing the empirical literature, I will use the constructs of 'stress' and 'control' as loosely defined conceptual nodes that help to organize a large nomological net comprising numerous variables. The specific variables included as indicators of stress are: emotional distress, emotional exhaustion, feelings of conflict and ambiguity, anxiety, and physical symptoms of poor health (see Frese, 1985, and House *et al.*, 1986 for evidence regarding the assertion that job stress is associated with poor physical health). In addition to these physical and mental stress indicators, several behavioral outcomes are also described in this review, including performance, absenteeism and turnover. These behaviors are included not because they are thought to be measures of stress per se, but because they are generally assumed to be

partly determined by experienced job stress (see Hendrix, O'valle and Troxier, 1985). Note that for the purposes of this review 'stress' is used to refer only to phenomena measured at the individual level of analysis. In the second and third sections of this chapter, the value of expanding the analysis to include group and organizational level phenomena will be discussed.

Compared to the number of variables used to represent 'stress' phenomena, the number of variables used as indicators of control is much more limited, reflecting the paucity of research on this topic by organizational psychologists. Research relevant to the control-stress link in the context of work settings almost always treats the job environment as the independent variable, with 'stress' as the dependent variable. Two general aspects of the environment that reflect the amount of control employees experience are managerial style and job/task design. Regarding managerial styles, the dimension of interest here is the extent to which managers are participative/democratic versus non-participative/authoritarian. A participative style presumably allows employees to take control, while an authoritarian style requires employees to accept control. Regarding job/task design, the dimension of interest is autonomy. High-autonomy jobs allow employees to choose how tasks are completed, when tasks are completed, and/or which tasks are completed. Low-autonomy jobs impose routine procedures for completing tasks; employees are controlled by rules that determine task priorities and sequencing. In addition to studies that examine the job environment (management style and job design) as indicators of the amount of control employees experience are a few studies that examine stable personality differences related to perceived control. Specifically, locus of control has been hypothesized by some to have a main effect on stress-related outcomes, and others have hypothesized that locus of control moderates employees' reactions to stress (e.g. Thoits, 1987).

Research Designs and Assumed Causal Models

A major constraint of the present review is its focus on research conducted in work settings. A consequence of this constraint is that the research design most frequently encountered is the correlational study. Few true experiments or quasi-experiments are conducted in work settings. Furthermore, measures of both 'control' and 'stress' are frequently based upon self-reports; the two variables are usually assessed via a written survey completed at one point in time; identical or similar response formats are often used to measure both stress and perceived control; and the reliability and validity of these measures are often unknown or questionable. In addition, the construct of control usually is not isolated from other aspects of a participative managerial style or an autonomous job design.

These features expose organizational researchers to numerous criticisms (e.g. Beehr and O'Hara, 1987) and emphasize the need for caution when

interpreting results. The field's reliance on non-experimental designs is particularly troublesome because it precludes rigorous testing of causal relationships. Recognizing that causes and effects are empirically indistinguishable in their studies, organizational researchers nevertheless generally assume that environmental conditions (e.g. control) determine individual reactions (e.g. stress). To date, organizational psychologists have paid little theoretical or empirical attention to alternative causal models. Thus, the labelling of variables as 'independent' and 'dependent' reflects the theoretical models assumed to explain demonstrated empirical relationships.

Managerial Style and Stress

The merits of a participative managerial style have long been argued in the management literature, and the debate continues still (Sashkin *et al.*, 1987). One consequence of the high interest in this topic is a plethora of relevant reviews of the literature (House and Baetz, 1979; Jackson and Schuler, 1985; Locke and Schweiger, 1979; Schweiger and Leanna, 1985; Spector, 1986), which I rely upon here.

Definitional issues

By definition, participative decision making (PDM) refers to the extent to which employees are given opportunities to control or influence their job environments. Such control can take a variety of forms. Three dimensions of participation that may be particularly important because of their effects on experienced control are: formal-informal, forced-voluntary, and direct-indirect. Although measures of managerial style typically ignore these dimensions, a brief discussion of them will illustrate the breadth of phenomena that might be considered 'participative management'.

Employees' opportunities to exercise control in the workplace vary in the extent to which they are formalized (Mechanic, 1962). When the organization is the unit of analysis, formalized participation in decision making is reflected in the creation of official decision-making bodies, such as unions or councils (Locke and Schweiger, 1979), and in the hierarchical structure of the organization (Marino and White, 1985). Within organizations, an individual's formal power is closely linked to his or her status or level in the organization, but informal power can be gained by a lower-ranking member to the extent he or she possesses expertise, is attractive, is willing to exert effort and is centrally located (Mechanic, 1962). Survey measures of participation in decision making seldom distinguish between formal and informal access to decision-making processes (cf. Marino and White, 1985; Nightingale, 1981), although it is probably safe to assume that both types of opportunities to exercise control are tapped by such measures.

Locke and Schweiger (1979) identified two additional dimensions along which participative management varies: *forced versus voluntary* participation and *direct versus indirect* participation. The distinction between forced and voluntary participation is important for understanding the affective context in which participation occurs. If participation is forced, the force is likely to be applied to management by law, decree or contract. Examples of contractually mandated participation are rare in the US but are common in many European countries. Although neither the government nor unions have imposed participative management on US firms, it is likely that some middle- and lower-level US managers feel they are being forced into a participative style by top-level managers who wish to effect a culture change. Similarly, non-managerial employees may feel pressured to participate more than they would prefer. In such cases, the attitudes of both management and non-management personnel may be more antagonistic than when participation in decision making is practiced voluntarily. Generally, studies of PDM provide little information about whether PDM is mandated or voluntary. Yet the context in which employees are given control may be extremely important.

A maximally participative management system would allow for direct input from all individuals (one member, one vote); alternatively, employees might be allowed to participate only indirectly through selected representatives. In considering participation as a potential way for employees to gain control, distinguishing between direct and indirect participation could be quite important. When participation is direct, all employees at a given level in the organization should have relatively equal control over their work environment. In contrast, when participation is indirect, experienced control may be greater among representatives than among constituents. In addition, experienced control may be greatly influenced by the integrity of the system by which representatives are chosen and the fidelity with which representatives speak for their constituency. Again, few studies provide information about this aspect of participatory management styles.

Clearly, a participative management style should not be equated with full control for all employees. As Vroom and Yetton (1973) describe, supervisors who seek input from subordinates seldom are bound by the expressed preferences of subordinates. This becomes an especially important point when using the literature on managerial styles and stress to draw inferences about the relationship between control and stress because measures of PDM generally ask whether employees are *consulted* by their supervisor, not whether employees can fully determine decisions.

Empirical Findings

Given the caveats that the nature of participative managerial styles may vary

greatly across studies and that 'participation' may be only loosely linked to individuals' feelings of control, the empirical results of several studies can be interpreted as supporting the hypothesis that control and stress are correlated, especially when stress is operationalized as experienced conflict and ambiguity. In their meta-analytical review, Jackson and Schuler (1985) report that across 14 studies and 2287 respondents, the average correlation between employees' perceptions of the extent to which their supervisors encourage them to participate in job-related decision making (PDM) and role conflict is $-.37$. The comparable correlation for role ambiguity is $-.55$, based upon 18 studies and 2880 respondents.

Studies in which stress is operationalized more narrowly are less supportive, however. For example, Spector's (1986) meta-analytical review located only four studies relating PDM to 'emotional distress'; the average correlation across these studies was $-.18$. Similarly weak correlations have been reported between PDM and emotional exhaustion, an aspect of job burnout (Jackson, Schwab and Schuler, 1986; Jackson, Turner and Brief, 1987). Spector (1986) found a slightly higher correlation ($r = -.34$) between PDM and self-reported physical symptoms, but this result is based upon only three studies and a total of 213 respondents. No relationship was found between PDM and a ratio of total serum cholesterol divided by high-density lipoprotein cholesterol (Hendrix, Ovale and Troxler, 1985).

It is worth noting that although PDM is only weakly related to measures of self-reported stress indicators, PDM appears to be more strongly related to measures of job satisfaction and morale. For example, Spector (1986) reviewed 17 studies and found an average correlation of $r = .44$ between PDM and general job satisfaction. Locke and Schweiger (1979) reviewed 18 field studies and found that greater PDM was related to higher job satisfaction in 13 of the studies. Locke and Schweiger also examined the relationships between PDM and satisfaction in 7 laboratory experiments; in 5 of these, greater participation was associated with higher satisfaction. Similar results are reported by Schweiger and Leanna (1985).

Given the weak relationship often found between PDM and self-reported stress, it should not be surprising that behavioral indicators of stress are also not strongly linked to PDM. Across 6 studies and 1343 respondents, Spector (1986) found a correlation between PDM and job performance of $r = .23$. Intention to quit was correlated at $r = -.20$ (4 studies, 1451 respondents), but actual turnover was correlated at $r = -.38$ (3 studies, 358 respondents). Locke and Schweiger (1979) reviewed studies that examined the link between PDM and performance, including 14 laboratory experiments and 15 field studies. Their review indicated that no reliable improvements in performance occurred when PDM was increased.

Conclusions and Future Directions

In conclusion, across studies conducted in organizational settings, support for the hypothesis that a participative management style is associated with experienced stress is moderate, at best, although PDM does appear to improve general morale and satisfaction. Interpreting this pattern of results is problematic, however. Weak results might be caused by: (a) the true absence of any relationships; (b) reliance on research designs that are not sensitive enough to detect true relationships; and/or (c) inadequate theoretical models used in designing the research.

It is premature to conclude that psychological stress and physical health are unrelated to differences in the personal control employees experience as a consequence of their supervisors' managerial style. Much more (and much better) research is needed before conclusions can be drawn with confidence. From a scientific perspective, the ideal organization studies of the future would be carefully designed field experiments that permit conclusions to be drawn about cause-effect relationships among precisely defined constructs. In contrast to this ideal, organizational research on participation seldom employs experimental designs, and constructs are broadly defined.

In the context of research on participative management, one consequence of broad definitions is that very diverse operationalizations of 'the same' independent variable (i.e. participation) are treated as equivalent. When a construct is narrowly defined, diverse operationalizations (multiple methods) can increase one's confidence that a consistent pattern of results provides a basis for meaningful conclusions. But when a construct is broadly defined, diversity of operationalizations is a liability because each study can be attacked for not controlling the effects of potentially significant, confounding variables. Locke and Schweiger's (1979) critique of the classic studies on participative management (e.g. Coch and French, 1948; Emery and Trist, 1960; Frost, Wakeley and Ruh, 1974; Marrow, Bowers and Seashore, 1967; Rice, 1953; Roethlisberger and Dickson, 1956; Trist and Bamforth, 1951) provides a formidable list of potential confounding variables that might be responsible for creating the beneficial outcomes often claimed to result from giving employees control in their work setting.

Despite the lack of perfectly controlled field experiments, however, many organizational researchers interpret the available evidence as supporting the conclusion that participative management styles enhance employee morale, and perhaps health as well. But even these researchers probably would admit that we know very little about why, and under what conditions, PDM is beneficial (House and Baetz, 1979; Mitchell, 1973). Three major questions which future research on PDM needs to address are described below.

Do subjective and objective control have the same effects? Some theoreticians

argue that it is the mere *belief* in personal control that determines a person's reactions. In at least one study, perceived discretion was found to have an effect on depression symptoms and dissatisfaction independent of differences in objective control (Parkes, 1982), supporting the assertion that participation in decision making should decrease physiological, psychological and behavioral symptoms of strain, regardless of the actual amount of influence the workers command, as long as the workers perceive they have influence.

An alternative argument is that participation in decision making is effective because it gives workers the power they need to remove obstacles to effective performance, thereby reducing frustration (Hamner and Tosi, 1974; Karasek, 1979; Tosi, 1971). One example of an obstacle to performance is role conflict. Kahn *et al.* (1964) define role conflict as 'the simultaneous occurrence of two (or more) sets of pressures such that compliance with one would make more difficult compliance with the other'. One use of influence, then, would be to persuade others to change their conflicting role expectations for one's own behavior, thereby reducing one's frustration level. The repeated interchanges required by participative decision making could help members of the organization gain a better understanding of the demands and constraints faced by others (Schuler, 1979). When the conflicts which workers face become clear, perhaps for the first time, negotiation is likely to begin over which expectations should be changed in order to reduce inherent conflicts. (It should be noted, however, that increased communications might heighten experienced role conflict temporarily, since existing conflicts may be made more salient.)

Another common obstacle to performance is lack of resources. If participative management increases employees' opportunities to acquire needed resources, it may decrease stress levels because it in effect increases one's ability to perform successfully. Whether or not control must be functionally useful for improving one's performance at work in order to have an impact on stress and health is an open question, given the literature.

Can a participative style be beneficial when it gives employees only small amounts of control? Measures of participative styles emphasize the amount of communication that occurs between workers and their supervisors, with more communication being associated with participativeness. Frequent communication seems to be a necessary component of PDM. From this communication may come additional and/or more accurate knowledge about the formal and informal expectations held by others for the worker, the formal and informal policies and procedures of the organization, and discrepancies among these. Thus, greater role clarity should occur as a result of the increased communication that accompanies participative decision making. In a sense, participation in decision making can serve to socialize workers into the organization and teach them effective strategies for accomplishing goals by giving them access to information.

Better access to information may be one reason for the finding that managers experience less strain than their subordinates (cf. Zaleznik, Kets de Vries and Howard, 1977). Upper-level managers are more likely to be involved in decision making. As a result of this participation, upper-level managers know more about the informal workings of the organization (Davis, 1953). Access to informal communications may be especially important in organizations undergoing rapid change (Mechanic, 1974). When change is occurring or anticipated, knowledge gained through informal communications may enable the worker to engage in effective coping strategies (such as developing new skills or finding another job) in anticipation of reorganization.

It seems likely, then, that some of the beneficial consequences of PDM result simply from increasing the amount of information available to people—information that enables employees to perform effectively while minimizing failures. Some authors have included information as a type of control (Thompson, 1981) because in some laboratory paradigms the availability of information is very closely linked to subjects' control over aversive events. In organizational settings, the constructs of control and information are clearly distinct. If effective organizational interventions are to be designed, the effects of increased information and/or control must be more clearly understood.

Are there conditions that moderate the consequences of a participative management style? House and Baetz (1979) described several factors that may moderate the effectiveness of PDM. They concluded, based on their review of the literature, that PDM is less beneficial when: (a) tasks are routine, highly structured, or mechanized; (b) subordinates lack adequate knowledge; (c) tasks are not ego-involving; and/or (d) employees have a predisposition against participation, e.g. they are authoritarian or have low needs for independence.

Locke and Schweiger (1979) also provide a list of potential contextual factors that may affect the effectiveness of participation; it includes: (a) the amount of knowledge employees have; (b) the relevance of their knowledge; (c) the type of decisions employees participate in making; (d) employees' amount of experience with participative management; (e) employees' levels of job involvement, commitment and need for achievement; (f) task routineness and complexity; (g) the amount of coordination required by the task; (h) the amount of agreement that exists among group members; (i) the attitudes and interpersonal skills of managers who are attempting to be participative; and (j) group and organization size.

The lengths of the above lists of factors that might moderate the relationship between managerial style and employee outcomes reflect the complexity of organizational settings and emphasize the importance of having a sound theory that can guide one's research efforts. Such theory is badly needed before researchers invest additional resources in studies of the effects of participative management styles.

Job Autonomy

Research findings

Measures of participation in decision making emphasize the opportunities employees have to provide input during decision making; the focus is on upward influence, where influence is generally achieved through direct interpersonal contacts, especially with one's supervisor. In contrast to PDM, measures of job autonomy emphasize the amount of freedom employees have over their own work behaviors. Whereas PDM tends to reflect a management philosophy and style, autonomy refers more specifically to the design of one's job. In low-autonomy jobs, employees have little ability to control either the processes through which tasks are completed or the timing of their activities. Highly autonomous jobs are relatively unstructured; employees determine procedures, pacing, time lines for task completion, and perhaps even the priorities they will give to various job tasks.

A major impetus for research on job autonomy has been Hackman and Oldham's (1975, 1976) job characteristics model. According to this model, level of autonomy is one of five key job characteristics that influence motivation, job satisfaction, absenteeism and turnover. Presumably, autonomy influences these behavioral outcomes through its impact on the psychological state of 'feelings of responsibility'.

Recent reviews of the numerous (more than 30) studies designed to test the Hackman and Oldham model generally support the conclusion that high levels of job autonomy are associated with high levels of job satisfaction (Loher *et al.*, 1985; Spector, 1986; Stone, 1985). For example, when Stone (1985) reviewed several field studies involving a total of 12 285 participants, he found an average correlation of .56 between task autonomy and general job satisfaction. The correlation between autonomy and satisfaction with the work itself was .67, based on studies involving a total of 10 523 participants.

In contrast to the many studies that assess satisfaction, very few studies of the job characteristics model include measures of stress. Spector (1986) located only 4 studies (N 1083) that assessed both autonomy and emotional distress. Across these studies, the average correlation was $r = -.37$. Slightly lower correlations have been reported between autonomy and emotional exhaustion (Jackson, Schwab and Schuler, 1986; Jackson, Turner and Brief, 1987). Jackson and Schuler (1985) reported that when role conflict is used as a measure of job stress there is no evidence that autonomy helps reduce stress: the average correlation across 8 studies involving 3275 participants was zero. However, when role ambiguity is used as a measure of stress, greater autonomy is associated with lower ambiguity: the average correlation across 12 studies and 4196 respondents is $-.39$.

Finally, Spector's (1986) review suggests there is at least a weak relationship

between job autonomy and both self-reported physical symptoms ($r = -.33$; $N = 1228$) and behavioral measures such as turnover ($r = -.25$; $N = 7283$) and performance ($r = .26$; $N = 6291$).

Conclusions

Three aspects of research testing Hackman and Oldham's job characteristics model make drawing conclusions about the link between job control and stress difficult. First, very few studies include stress-related outcomes because the model specifies job satisfaction and productivity as the dependent variables of primary interest. Secondly, Hackman and Oldham's model includes task autonomy among a set of several job conditions believed to impact on responses to work, including amount of task variety, feedback, working on a complete task (rather than on only a small part of a large task) and task significance or importance. Given Hackman and Oldham's model, it would be inappropriate to attempt to separate the effects of autonomy from the other four work characteristics of interest. Instead, good tests of the job characteristics model require that all five job characteristics be simultaneously varied and their combined impact measured. Intercorrelations among the five job characteristics are acceptable and even expected. Therefore, the correlations reported between autonomy and various outcomes probably reflect differences in the 'dependent' variables that are due in part to aspects of the job other than autonomy. Third, and finally, research on the job characteristics model shares with research on PDM numerous design flaws (noted above) that preclude the confident drawing of conclusions.

There is at least one quite important contribution that research on the job characteristics model has to offer to researchers interested in studying control, which should be noted. In contrast to the breadth of meaning that accompanies 'participative managerial style', Hackman and Oldham's concept of job autonomy refers specifically to what Averill (1973) has labeled decision control, i.e. the extent to which one has freedom to choose which actions to engage in. Furthermore, the validity and reliability of their measure of autonomy has been repeatedly examined and is considered to be acceptable (Cook *et al.*, 1981). Future studies of control in organizations might find this measure useful, even if they are not testing the Hackman and Oldham model in particular.

Locus of Control

Overview

Research on both PDM and the job characteristics model emphasizes the role of the environment ('objective' or 'perceived') as a determinant of employee reactions. In contrast, research on internal-external locus of control emphas-

izes the determining role of employees' personalities. The dimension of personality assessed by Rotter's (1966) Internal-External Locus of Control Scale, which is almost always the measure used in organizational studies, is the tendency to view outcomes as being under one's personal control (internal locus) rather than to make the attribution that outcomes are caused by environmental forces that one cannot control (external locus). For example, internals are more likely than externals to believe that their own actions lead to getting a job (Roark, 1978) and that their decisions to change jobs are volitional (Hamner and Vardi, 1981).

The concept of locus of control has inspired dozens of psychological studies (see Lefcourt, 1982), but only about two dozen of these have been conducted in organizational settings (see Spector, 1982, for a full review). Studies relevant to the topic in hand can be organized according to which of three general hypotheses they examine. The two simplest hypotheses are that locus of control has a direct, main effect on: (a) perceptions of the job; and (b) job-related outcomes. A third type of hypothesis posits an interaction effect such that locus of control moderates the relationship between environmental conditions and employees' reactions to the environment. Results relevant to each type of hypothesis are reviewed below.

Locus of control and perceptions of the work setting

The construct of locus of control has been of some interest to researchers interested in explaining differences in employees' levels of work motivation. One of the most prominent general theories of work motivation is expectancy theory, which was originally proposed by Vroom (1964) and has since been developed and elaborated by numerous people. Expectancy theory asserts that work motivation is a function of two expectancies: that effort will lead to performance and that performance will lead to valued outcomes. Both types of expectancies can be interpreted as beliefs about one's level of control. Several studies have found support for a positive correlation between having an internal locus of control and the perceptions that one's effort will lead to better job performance and that performance will be rewarded with valued rewards (e.g. Broedling, 1975; Kimmons and Greenhaus, 1976; Lied and Pritchard, 1976; Mitchell, Smyser and Weed, 1975; Szilagyi and Sims, 1975). These studies can be interpreted as supporting a main effect of locus of control on perceived job-related control.

Locus of control and work-related outcomes

The results from research on expectancy theory described above indicate that job performance should be higher for internals than for externals because internals should be more motivated to exert effort on the job. Several studies

support this notion, including those by Broedling (1975), Hersch and Scheibe (1967), Lawler (1968), Lied and Pritchard (1976), and Majumder, MacDonald and Greever (1977). Closely related to these studies are several studies reporting a correlation between internal locus of control and indicators of long-term career success, such as promotions, raises and rewards received (Andrisani and Nestel, 1976; Heisler, 1974; Valecha, 1972). Presumably, long-term career success follows effective short-term job performance.

It is possible that the tendency for internals to be more successful at work accounts for the often-observed correlation between internal locus of control and job satisfaction (Anderson, 1977; Andrisani and Nestel, 1976; Gemmill and Heisler, 1972; Mitchell, Smyser and Weed, 1975; Munoz, 1973; Organ and Greene, 1974; Satmoko, 1973; Singh, 1978). Alternative explanations for this finding are that internals are more likely to leave jobs they find unsatisfying and/or they are more likely to make efforts to change those aspects of their jobs they dislike. In other words, differences in observed satisfaction may actually reflect differences in coping styles.

Although coping styles are seldom considered as explanations for improved job performance, it is plausible that the higher job performance of internals reflects a tendency to search for the reward contingencies in the environment and then select behaviors that will be rewarded. In contrast, if externals assume they are unable to affect their own success they may engage less in active information search, processing and choice (Anderson, 1977). Unfortunately, there is far too little evidence available to draw any conclusions about why internal locus of control is related to either job performance or job satisfaction.

Finally, a few organizational studies suggest that internals experience less job strain and anxiety than do externals (Batlis, 1980; Gemmill and Heisler, 1972; Organ and Greene, 1974) but again theoretical explanations for these results are lacking.

Locus of control as a moderator

Sims and Szilagyi (1976) hypothesized that differences in employees' locus of control would lead to differences in their responses to job characteristics, including job autonomy. Their study supported their prediction, but an attempted replication failed (Kimmons and Greenhaus, 1976).

Marino and White (1985) predicted an interaction effect between locus of control and job specificity (a concept similar to low autonomy) on job stress. Their hypothesis was supported in a study of 278 medical personnel working in 30 different medical service departments: for internals, higher levels of job specificity were associated with lower levels of job stress, but externals found higher levels of job specificity to be less stressful.

Thus there is some evidence to suggest that locus of control moderates employees' reactions to jobs characterized by low control, but too few studies

address this relationship to allow firm conclusions to be drawn. Yet, as will be discussed further in a later section of this chapter, the hypothesis that locus of control moderates stress reactions because it affects the coping strategies people choose follows logically from an integrated model of organizational stress.

CONCEPTUALIZING THE ROLE OF CONTROL IN ORGANIZATIONAL BEHAVIOR

As the preceding review of the empirical literature on job stress and control reflects, the construct of control has been central to research in organizations in only two corners: research on participation in decision making and research on job design. Furthermore, even when control can be inferred as a central construct, as in the PDM and job design literatures, researchers have typically not concerned themselves with control-stress or control-health relationships. Instead, the construct of control has received attention because of its potential implications for affecting: (a) job satisfaction and its related consequences such as turnover and absenteeism; and (b) motivation and performance. The primary exceptions to this generalization are studies of the relationship between PDM and role conflict and role ambiguity.

Looking ahead, it seems likely that organizational research focusing on control will increase in coming years. As Greenberger and Strasser (1986) have noted, the construct of control is implicit in many theories of organizational behavior. Greenberger and Strasser (1986) recently developed a coherent model of personal control that draws from traditional research in organizational behavior (i.e. research on goal-setting, leadership and expectancy theory). The central assumption of Greenberger and Strasser's model is that individuals seek to maintain a state of balance between actual and desired amounts of control. Their model specifies both antecedents and reactions to imbalance and is likely to stimulate new research on personal control in organizational settings. Unfortunately for our discussion here, however, Greenberger and Strasser do not elaborate the conditions under which some reactions (e.g. stress) are more likely to occur than others (e.g. cognitive reappraisal). Thus, while their model will probably stimulate research on control, it is unlikely to stimulate research on the link between control and stress or health in the workplace.

Despite the extensive discussions about the control-stress relationship that have appeared in the general psychological literature (e.g. Averill, 1973; Folkman, 1984; Miller, 1979; Thompson, 1981), workplace-specific models of stress and control are needed to stimulate research on this topic by organizational psychologists. Recent attempts to develop a model for understanding uncertainty in organizational settings are relevant to this issue. Therefore, I would like to use the remainder of this chapter briefly first to describe a model

of uncertainty in organizations, and then to raise several researchable questions about control-stress relationships that follow from the model and are relevant to organizational psychologists. A full discussion of the model is presented elsewhere (Jackson, Schuler and Vredenburgh, 1987); for the sake of space, I will not include descriptions of the literature upon which the model is based. My purpose is simply to describe the model sufficiently to provide a context for developing a series of questions for organizational researchers interested in stress and control to address in future studies.

An Uncertainty Framework for Understanding Stress in Organizations

McGrath (1976) argued that perceived uncertainty is a key determinant of both physiological and behavioral stress reactions, a formulation that has gained wide acceptance. For example, in their edited volume, Beehr and Bhagat (1985) show how job stress research can be usefully reformulated and integrated by defining stress to be a function of the uncertainty of outcomes in a situation, the importance of those outcomes and the duration of the situation. Contributors to Beehr and Bhagat's edited volume were able to reformulate a variety of topics using an uncertainty framework, including the person-environment fit model of job stress (Van Harrison, 1985), reactions to budget cuts (Jick, 1985), dual-career couples (Gupta and Jenkins, 1985), retirement (McGoldrick and Cooper, 1985), and the career experiences of minority professionals (Ford, 1985). Can a better understanding be gained of some phenomena labeled job stress by focusing on the more narrow construct of uncertainty?

Although not all job stress phenomena can be covered by a definition of stress as uncertainty, the cost of narrowing the scope of phenomena to be explained may be recovered by a significant gain in our ability to examine phenomena that cut across several levels of analysis, including individuals, groups and organizations. In other words, defining stress as uncertainty can facilitate a systems theory perspective. A systems theory perspective is particularly important because it allows us to recognize and treat job stress as a true organizational phenomenon.

Guiding Ideas Relevant to the Uncertainty Framework

McGuire (1983) describes guiding-idea theories as incomplete, and admittedly inadequate, pictures of human behavior. Guiding ideas are useful assumptions upon which a set of integrated assertions can be built. Two guiding-idea theories form the foundation for the uncertainty framework: systems theory and an information-processing view of human nature.

Two primary assumptions comprising a systems perspective are: (1) that any acting agent, such as a person, a group or an organization, exists within and

seeks survival through a surrounding environment; and (2) that any agent can be conceived of as a system embedded within other subsystems. In the context of organizational psychology, three subsystems (or levels of analysis) are typically recognized as agents: the individual, the group and the organization. The systems theory perspective is important to the uncertainty framework because it emphasizes the interdependence between uncertainty at any one level of analysis (e.g. the individual) and concurrent conditions at other levels of analysis (the group and the organization). Another important aspect of systems theory is its explicit recognition that a system is *both* embedded in larger systems and comprised of 'smaller' subsystems. Subsystems within the same larger system are assumed to be interdependent. Thus, groups within organizations affect each other in addition to affecting and being affected by the larger organization; individuals within groups are similarly linked together. Furthermore, subsystems *within* the individual (such as cognitive and physiological systems) can be assumed to be interdependent. For stress researchers, the interface between a person's cognitive and physiological subsystems has been of primary interest.

The second guiding idea underlying our uncertainty framework is a view of people as problem solvers whose actions are both reasoned (Fishbein, 1980) and goal-oriented (Lewin, 1951). Viewing people as problem solvers emphasizes the information-processing activities of a person that are initiated when a 'problem' is posed to the person (Howard and Scott, 1965). This view of people as problem solvers helps define the boundary conditions for application of the uncertainty framework. Put simply, the necessary condition for activating the model is that a person be considering the question, 'What will I do now?' When action is *not* needed, the uncertainty framework may not be relevant for understanding the person's responses. An implication of this boundary condition is that uncertainty is *not* viewed as a condition to be resolved, alleviated or reduced whenever it exists.

The Taxonomic Component of the Uncertainty Framework

Taxonomic theories are simplistic representations for organizing a large set of variables into a manageable number of categories (McGuire, 1983). Recently, several such theories have been developed by stress researchers (e.g. Beehr and Newman, 1978; Cooper and Marshall, 1978). These provide useful checklists of independent and dependent variables to consider when conducting research on job stress. The taxonomic component of the uncertainty framework is shown in Table 1.

The purpose of the taxonomy is to direct researchers to thinking about the myriad of variables that must be considered in attempting to understand uncertainty in organizational settings, including the unit of analysis, sources of uncertainty, attributes of information, potential moderating variables and

Table 1 Components of a model of uncertainty

Levels of analysis	Origins of uncertainty	Responses to uncertainty
Organization	Environment (e.g. suppliers, clients, competitors, creditors, government agencies, unions)	Strategy (e.g. marketing, personnel, financial production, public relations) Inter-organizational structure (e.g. mergers, interlocking directorates, joint ventures) Intra-organization design
Unit	Technology (e.g. operations workflow, input characteristics, knowledge) Organizational politics	Strategy (e.g. bargaining, competition, coalition formation) Organizational design (e.g. allocation of authority, coordinating mechanisms, rules)
Group	Interaction patterns (e.g. roles, norms, status, hierarchy, leader behaviour)	Cohesiveness Rules enforcement Influence attempts
Individual	Tasks Rewards Roles Job qualities Individual qualities	Psychological states (e.g. satisfaction, perceived threat, anxiety, tension) Physiological symptoms (e.g. heart rate, blood pressure, gastrointestinal disorders) Cognitive information processing (e.g. use of heuristics, biases)
Dimensions of uncertainty		
Number of elements		
Rate of change		
Heterogeneity of elements		
Clarity of elements		
Relationship among elements		
Predictability of change		
Moderators of the experience of and reactions to uncertainty		
Relative power		Ambiguity tolerance
Time pressure		Field dependence
Importance of issue		Availability of feedback
Individual ability		Task interdependence
Locus of control		Group cohesiveness

The dimensions of uncertainty are common to all units of analysis (i.e. organization, group, individual)

From Schuler and Jackson (1986).

short- and long-term reactions. Although not depicted in Table 1, uncertainty is posited as the central 'black-box' variable that links a system's environment (stimulus) to the system's responses.

The Process Component of the Uncertainty Framework

Process theories attempt to map the intermediate steps that link together categories of variables (McGuire, 1983). When process theories and taxonomies are combined, the result can be a sophisticated representation of a complex domain of knowledge. The resulting representation can both facilitate integration of new knowledge and illuminate existing gaps in our knowledge. It may also serve as the basis upon which axiomatic theories are eventually developed. The process component of the uncertainty framework is illustrated in Figure 1. It describes a partial model of human activity that combines systems theory and an information-processing view to provide a logic from which to develop testable hypotheses about the relationships among the variables included in our taxonomy (Table 1).

Uncertainty

As Figure 1 shows, the uncertainty construct is centrally positioned in the process model. It is the variable linking objective environmental conditions to the response of individuals, groups and organizations.

Because it has been used in a variety of research arenas, definitions of uncertainty differ greatly. When the unit of analysis is the organization, uncertainty is most often used to refer to an objective characteristic of the environment. These definitions emphasize the difficulties of problem solving when information is unavailable, unstructured, vague or untrustworthy (e.g. Burns and Stalker, 1961; Galbraith, 1977; Lawrence and Lorsch, 1967; Lorenzi, 1980; McCaskey, 1979; Pfeffer and Salancik, 1978; Thompson, 1967). Here the focus is on the difficulties uncertainty creates for identifying and formulating problems. When the unit of analysis is the group, the term ambiguity is preferred over uncertainty. Specifically, role ambiguity denotes lack of clarity about others' expectations for one's behavior, the consequences linked to one's behavior, and the means through which others' expectations can be fulfilled (Graen, 1976; Kahn *et al.*, 1964; Rizzo, House and Lirtzman, 1970). Finally, when the unit of analysis is the individual, both ambiguity and uncertainty are used to describe characteristics of information available to a person, with ambiguity being used more often in the context of personality research (e.g. Ball-Rokeach, 1973; Budner, 1962; Frenkel-Brunswik, 1949) and uncertainty being used more often in the context of research on cognitive processes and decision making (e.g. Beach and Mitchell, 1978; Einhorn and Hogarth, 1981).

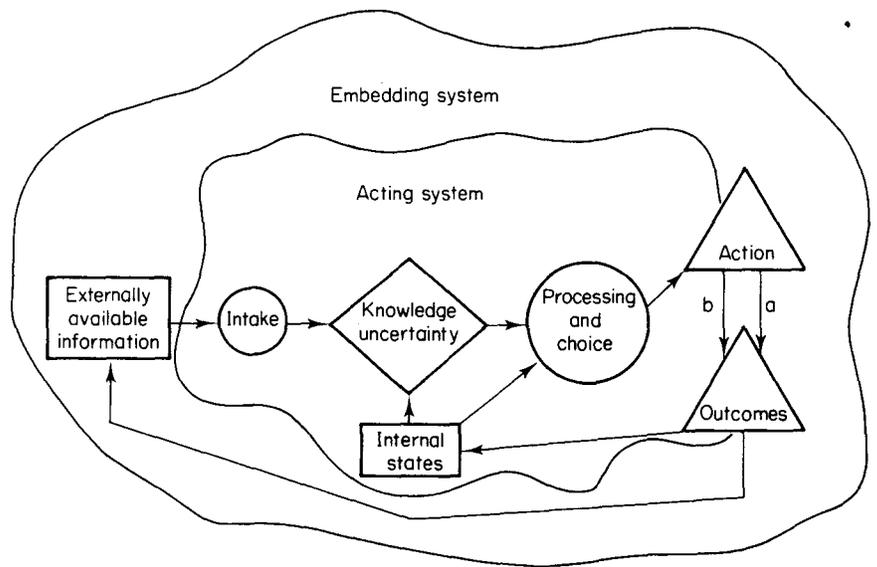


Figure 1 Process component of the uncertain framework (Susan E. Jackson, Randall S. Schuler and Donald J. Vredenburg, 'Managing stress in turbulent times', in *Occupational Stress and Organizational Effectiveness*, Anne W. Riley and Stephen J. Zaccaro, eds (Praeger Publishers, New York, a division of Greenwood Press, 1987), p. 146. Copyright (D 1987 by Virginia Tech Foundation, Inc. Reprinted with permission)

The inconsistencies in the meanings given to uncertainty cannot be resolved here. For the purpose of discussion, I will use the following definition of uncertainty: uncertainty exists to the extent that knowledge about an event or condition that requires action or resolution is experienced as inadequate. The term 'knowledge' is used to ground the experience of uncertainty in the acting system. Uncertainty is not viewed here as an objective environmental condition. Knowledge is assumed to result from the intake of available information. A decision-making perspective implies that three types of relevant knowledge are: (1) knowledge about current states; (2) knowledge about future states; and (3) knowledge about the cause-effect relationships between actions and future states.

Inputs and Outputs of the Process

Figure 1 represents inputs as boxes and outputs as triangles. In accordance with the guiding view of people as problem solvers, information is the relevant input. Information may pertain to phenomena external or internal to the acting system. The sources of uncertainty are varied. They include individuals such as supervisors, as well as large social entities, such as businesses competing in

one's industry. Despite this diversity, the sources of uncertainty can be described as information generators. The information generated can, in turn, be described as having various abstract dimensions that are meaningful at all three levels of analysis. These are listed in Table 1 as 'dimensions of uncertainty'. In general, the more characteristic these dimensions are of the information generated by a source, the more uncertainty the source is perceived as producing. Furthermore, the more sources characterized by uncertainty, the more total uncertainty a system is likely to experience.

The system's responses and outcomes are represented in Figure 1 as two distinct triangles to emphasize the importance of analyzing both short- and long-term changes in the system. Of course, time is a continuous dimension and the distinction between immediate responses and long-term consequences is not clear-cut. Note also that responses and outcomes are positioned to span the boundary between the acting and embedding systems, which emphasizes two assumptions: (1) that actions are 'visible' to both the acting and embedding systems; and (2) that actions can change the previously existing states of both the acting and embedding systems. Although 'stress' is not listed as a response in Table 1, many of the specific short- and long-term responses listed in Table 1 are responses traditionally studied by stress researchers, e.g. information distribution, avoidance, anxiety, withdrawal and level of performance.

Intake and Processing of Information

The model locates the experience of uncertainty in the acting system and locates the primary sources of uncertainty in an external, embedding system. This is comparable to distinguishing between 'subjective' and 'objective' states. Making such a distinction assumes imperfect fidelity of information transmission between systems. In Figure 1 the *intake* circle represents those phenomena that affect information transmission from the embedding system to the acting system. Such phenomena partially determine what information becomes available to the acting system. At the individual level of analysis, relevant intake phenomena would include common cognitive biases and errors of information processing (Kahneman and Tversky, 1973). At the group level of analysis, relevant phenomena include mind guards (Janis, 1975) and boundary spanners (Miles, 1976). At the organization level of analysis, political action committees and formal environmental scanning activities would be relevant.

The model acknowledges that once information is received internal *processing* of the information occurs before observable outputs are produced. The complexities of this processing are not fully explicated by our framework. However, a few factors that the literature suggests may be particularly relevant to this processing phase are listed in Table 1 as 'moderators of the experience of and reactions to uncertainty'. It is at this point that the construct of control appears in the model.

IMPLICATIONS OF THE UNCERTAINTY FRAMEWORK FOR ORGANIZATIONAL STUDIES OF CONTROL

Taken together, Table 1 and Figure 1 create a complex view of uncertainty in organizations and highlight the need for organizational researchers interested in stress and control to think carefully about several issues when designing studies to test the relationship between control and health in work settings. Perhaps most important is the need for careful operationalization of the control variable.

Control in Multiple Domains should be Assessed

Systems theory suggests the distinction between acting and embedding systems. The embedding systems typically represent a unit of analysis that is one level above (i.e. more abstract than) the acting system. When the acting system is an individual, the embedding system(s) will be one or more groups (e.g. the family, the work group); when the acting system is a group, the embedding system is the larger organization within which the group exists. Finally, an organization can also be considered as an acting system, embedded within a larger political or economic system. An individual's experience of control may differ tremendously in reference to these multiple embedding systems. By implication, then, studies of how people respond to changes in levels of control must take into account *control profiles* in order to capture the multiple domains with respect to which control might vary. In the context of work it is easy to imagine, for example, that interventions designed to give employees greater control over the speed of their assembly line may have little impact upon their overall experienced control if they believe their job performance is unrelated to whether their job will be eliminated as a result of budget cuts made necessary by intense foreign competition in their industry. These employees may be happy to negotiate away their right to control the speed of their assembly line if in exchange they are able to achieve control in the form of job security. An example of a study that assessed employees' influence across several domains is Koopman *et al.*'s (1981) study of worker councils in four Dutch organizations.

Table 1 suggests there are many important aspects of organizational life to consider when identifying the many domains of potential employee control: the job or task one is responsible for; relationships with subordinates, peers, and supervisors; intra-organizational politics; and organization-environment relationships. Other job-related domains of control could easily be added to this list. For example, Latack's (in press) discussion of career-related stress highlights the importance of including one's career (versus job) as an aspect of organizational life within which control perceptions might be studied. Also, because work-related constraints often affect the control a person has over non-work aspects of life, organizational studies of control also should include assessments of control in the non-work domain.

Individuals' Feelings of Control are Determined in part by the Control Levels of Embedding Social Systems

The job design studies reviewed in the earlier sections of this chapter dealt with control over one's immediate job or task. The studies of managerial style also emphasize the amount of control employees are allowed to have over their immediate job; in addition, participative management styles might allow employees to gain control over decisions, policies and procedures that are not directly task-related. However, organizational researchers have typically *not* considered how employees are affected by the amount of control their larger work unit has within the organization. Neither have they studied how people are affected by their perceptions of the organization's control *vis a vis* its economic and political environment, unless the study participants are top-level executives whose jobs explicitly require attending to the organization's external environment (e.g. Cooper, 1984).

The uncertainty model suggests that employees' experience of control probably reflects not only their perceptions of their own personal control but also their perceptions concerning the control exercised by the larger systems of which they are members. In organizational settings, then, employees' feelings of control should vary as a function of their department's power within the organization and their organization's dominance among competitors. Indeed, it seems likely that a person who believes his department is a target for workforce reductions, or one who believes that her employing organization is unlikely to compete successfully in a major industry shake-out, would gain little sense of control as a consequence of being allowed to schedule the timing and/or sequencing of job tasks.

Alternative Forms of Control need to be Distinguished

In addition to expanding the domains of organizational life that might determine people's feelings of control, organizational researchers need to distinguish more carefully among the types or forms of control people can experience. Several typologies of control have already been suggested in the psychological literature, including the works of Averill (1973), Folkman (1984), Miller (1979) and Thompson (1981). In considering these typologies, I believe none can be adopted 'as is' by organizational researchers. With the possible exception of Folkman's work, these typologies represent views of the control construct that are closely linked to experimental laboratory paradigms for studying people's reactions to aversive stimuli. Laboratory settings and organizational life are quite dissimilar, however. For example, laboratory studies almost always examine aversive events only, ignoring neutral and positive events. Usually, individuals are studied in isolation, so intra- and inter-group processes are ignored. Furthermore, the impoverished laboratory setting gives subjects little opportunity to explore alternative methods for gaining

control. Finally, laboratory studies have generally ignored phenomena that unfold over extended periods of time.

Because of the differences between laboratory and organizational settings, adopting the existing control typologies for organizational studies would likely result in deficient research designs. Instead, a new typology of forms of control should be developed for use in organizational research. Developing such a typology is beyond the scope of this chapter, but below are listed several distinctions that such a typology might incorporate:

1. Control over processes versus outcomes versus events.
2. Control over whether something happens versus how or when it occurs.
3. Personal control versus control through association with others.
4. Control that limits loss versus control that facilitates gains.
5. The standard against which control is evaluated (e.g. total control; relative to others; relative to the past; relative to an ideal).
6. The extent to which control is finite within a social system (i.e. in order for one person or unit to gain control someone else must lose it).

The 'Control-health' Relationship is probably not a simple 'Cause-effect' Relationship

A common bias among organizational researchers seems to lead them to frame hypotheses of the general form: objective or subjective situational conditions cause individual outcomes, or, specifically, increasing control improves health. When considering control and health, several interesting alternative types of hypotheses suggest themselves, for example:

1. *Increasing control can be an unhealthy thing to do.* Evidence suggesting that this may be true was presented by Bazerman (1982), who found that increased outcome control was detrimental for individuals in situations that did not permit them to use their control. Comparable situations can easily occur in organizations that base personnel decisions on performance and also give individuals the responsibility of performing tasks for which they lack the necessary resources (e.g. ability, time, budget).

OR

2. *Organizations can improve employee outcomes such as stress reactions (psychological and behavioral) through interventions that enhance feelings of control in non-work domains.* For example, physical fitness programs might enhance perceived control if they are designed to ensure and make salient increased levels of skill and physical health. The assumptions here are: (a) that feelings of mastery are equivalent to perceived control; and (b)

,that *overall* control, not simply work-related control, is the operative independent variable. Thus, fitness programs and any other activities that provide opportunities for mastery outside of work (e.g. involvement in professional societies or community programs) should enhance perceived control.

OR

3. *The variable of control is important in understanding health outcomes primarily because it partially determines the reactions people have to uncertainty (and perhaps other 'stressors').* In other words, control may be an important moderator in the stressors-health relationship. This view of control has been advanced recently by Feldman and Brett (1983), Latack (in press), and Thoits (1987), among others. When faced with the stressor of uncertainty, people who feel 'in control' should be more likely to use proactive problem-solving (cf. Folkman, Schaefer and Lazarus, 1979)-a relatively effective coping strategy (Latack, 1986; Pearlin and Schooler, 1978)-rather than emotion-focused coping.

To date, very few organizational studies have considered control as a moderator variable. The few studies that have done so have used individual differences in locus of control perceptions to operationalize control. Completely unexplored to date are the impact of situational control variables on reactions to uncertainty. In organizational settings characterized by uncertainty, problem-focused coping is almost always going to be the reaction that is most beneficial to the organization's effective functioning. If having a workforce that feels a sense of control does encourage problem-solving behavior, then management practices that enhance feelings of control could be advocated as beneficial to achieving organization goals, as well as to improving employee health. Given the long tradition among US managers of minimizing their subordinates' control levels, demonstrating the link between increased control and organizational effectiveness may be the only way to convince management to consider interventions that enhance employee control.

Interdisciplinary Studies of the Link between Control and Health are needed

Organizational psychologists seldom include measures of health among their dependent variables. I believe this state of affairs reflects the fact that organizational psychology puts a premium on studying *behavior*. Thus, while health is usually assumed to be linked, for example, to stress, studies of stress use measures of absenteeism rather than measures of health as the outcome variable.

It seems obvious from reading the research in organizational psychology that

people in this area have not been trained to be knowledgeable about issues related to measuring health (although their knowledge about measurement in general is quite sophisticated). Neither do our theories typically address the link between environmental conditions and physiological reactions. Consequently, while it is likely that organizational psychologists will begin focusing more on the construct of control, it is unlikely that they will examine the link between control and health unless they become involved in interdisciplinary research.

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