CHAPTER 6

ROLE THEORY APPROACHES FOR EFFECTIVENESS OF MARKETING-ORIENTED BOUNDARY SPANNERS

Comparative Review, Configural Extension, and Potential Contributions

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Abstract

Role theory has proved remarkably promising in examining effectiveness of marketing-oriented boundary spanners. This paper reviews different approaches for examining role theory implications for boundary spanners—namely universalistic and contingency approaches—and develops the configural approach by extending configurational theory principles to role theory. Neither the contingency nor the configural approach has received much attention in the marketing literature. We compare and contrast different approaches, outlining bodies of work that have remained less accessible to marketing researchers. By triangulating across the alternative approaches, we expose underlying assumptions and press for critical assessment of their ecological validity. We identify opportunities for potential contributions by exploring promising but as yet uncharted approaches.

Marketing oriented boundary spanners such as salespeople, frontline, and customer contact employees fill critical roles that influence organizational effectiveness and sustainability. Consider the following:

- Boundary spanners are strategically important because they represent the "face" of the organization to customers and public, and are critical nodes where knowledge about markets and consumers is accumulated.
- Boundary spanning work is rarely routinized and involves significant people-oriented work. Boundary spanners are required to constantly interact with customers, undertake tasks that involve emotional labor, and provide discretion to tailor their behaviors to individual customer needs, problems, and demands.
- Boundary spanning work is sensitive to internal and external organizational environments. Variation in consumer demands (e.g., seasonal and/or economic variations in demand for products/services) and in internal operations (e.g., new product/service introductions or interface technologies) often affects boundary spanners unpredictably.

- Boundary spanners are organizationally monitored and controlled (e.g., via human supervision, electronic, audio, and video devices). Organizations are increasingly concerned about the productivity of boundary spanners, while keeping the quality of customer service delivered in focus.
- Boundary spanning work is highly stressful. Such work is likened to a "three-cornered fight" with the customer (demanding attention and service) and the organization (demanding efficiency and productivity) at the two ends and the boundary spanner "caught in the middle."
- Boundary spanning roles are profit centers. They are expected to cross-sell, up-sell, and more-sell while in the process of providing high-quality service/information. This dual accountability injects competing pressures on boundary spanners.

Of the various theories applied to study effectiveness of marketing-oriented boundary spanners, role theory is arguably the most promising so far. With its roots in sociology dating back to the fifties (Merton 1949; Rommetveit 1954), early grounded research on work organizations can be traced to the sixties. The much-cited work of Kahn et al. (1964) and Belasco's (1966) research with salespeople were important steps in translating sociological notions of role theory into meaningful and relevant constructs for the study of marketing-oriented boundary spanners. For instance, independent of Kahn et al., Belasco (1966) made some important observations on the different role demands experienced by salespeople: (a) intellectual demands that require intelligence, problem-solving skills, and job knowledge abilities, (b) emotional demands from dealing with issues such as "advocacy conflict"—internal conflict from being an advocate for the customer and the company at the same time, and (c) interactional demands that arise from the intensity and adaptability required in the diverse range of interactions. Without effective coping mechanisms, Belasco feared that salesperson effectiveness would be seriously undermined regardless of their intelligence, job knowledge, and/or skills. Although Kahn et al. and Belasco provided rich theory for probing boundary spanning roles, scientific progress lingered till Rizzo, House, and Lirtzman (1970) published validated scales of role conflict and ambiguity, and stirred up research interest in this topic. By 1985, Jackson and Schuler reported over 200 articles on role conflict and ambiguity in organizational settings that were published between 1970 and 1983; of these, 96 were original empirical studies that they meta-analyzed. A few years later, Brown and Peterson (1993) were able to locate 59 studies that focused specifically on *salesperson* role conflict and ambiguity and its influence on performance and satisfaction.

Despite this volume of research, academic and practitioner perspectives on boundary role stress are defined by convergence and contrasts. Both perspectives converge on the view that boundary role stressors incur heavy costs for the organization and individual alike because of lowered productivity, reduced motivation and commitment, and increased health costs (Cavanaugh et al. 2000; Maslach and Leiter 1997). In some professions, especially involving frontline and customer contact work, stressors have been described as reaching epidemic proportions (Marino 1997). Contrasting perspectives emerge when the influence of boundary role stressors is considered. In contrast to the convergence in the academic literature, practitioners have long argued about the potential of boundary role stressors to promote performance, enhance motivation, and spark creativity (Newton 1995; Mohrman and Cohen 1995). With regularity, the popular press has fancied workplace mantras such as, "it is better to burn out than to rust out," presumably to assure boundary spanners that they are not alone in facing stress and that stress can be turned into an opportunity to develop and enhance oneself. Paradoxically, while this notion of "eustress" has deep roots in the academic literature (Yerkes and Dodson 1908; Selye 1976), empirical studies have generally produced weak and mixed evidence. Thus, while much academic research suggests redesigning

and reconfiguring boundary work in a way that reduces, if not eliminates, critical role stressors (Tubre and Collins 2000), practitioners view such recommendations with little relevance since they hold that the nature of customer interface (e.g., people-oriented, nonroutinized work) and its unpredictability (e.g., variability in internal and external conditions) make role stress an inherent aspect of boundary roles.

To bridge these perspectives, a promising approach has been proposed by Karasek (1979) and his colleagues that views a singular focus on role stressors as myopic and misguided. Instead, it argues that the study of role stressors must simultaneously consider the job scope—the degree of autonomy, feedback, and participation afforded to boundary role employees (Karasek 1979; Xie and Johns 1995). Noting that greater job scope may make all the difference between "eustress" and "distress," and between "healthy" and "unhealthy" work, this approach is theoretically appealing because of its conceptual richness, and managerially attractive as evidenced by the popularity of empowerment programs. Unfortunately, such stressor–scope models have received limited empirical attention in the marketing literature. As such, the potential of the stressor–scope framework to provide insights and bridge perspectives is largely unrealized.

The purpose of this review is to illuminate and strengthen the preceding bridge to germinate new research ideas and directions for understanding the effectiveness of marketing-oriented boundary spanners. Specifically, we provide a review of three different theoretical perspectives on boundary role stress and effectiveness, including universalistic, contingency, and configural perspectives. The universalistic perspective reflects much current research in marketing and is grounded in the role episode model of Kahn et al. (1964). The contingency perspective is based on contributions to Karasek's model. Because many of these contributions have occurred outside the marketing literature, we provide a detailed discussion of the theory underlying this perspective, and review the associated empirical literature. Finally, we develop the configural perspective as a theoretical contribution of this paper. This perspective extends ideas from configurational approaches to posit nonlinear and higher-order effects of role theory that cannot be represented by contingency approaches. While these perspectives have competing elements, our orientation is comparative and complementary. We compare these perspectives for their theoretical distinctiveness to encourage future research that approaches the study of boundary role stress and effectiveness from multiple, not singular, perspectives to uncover convergent and anomalous ideas. Focusing on a singular theoretical perspective, as reflected in much marketing literature, limits the vision of understanding. In addition, at their boundaries, these theoretical perspectives offer opportunities for interesting and creative work that has remained as yet untapped and unexploited. We provide an outline for future research directions to this end.

Theoretical Perspectives on Role Stressors and Boundary Spanning Roles

Universalistic Perspective

This perspective posits that role stressors invariably have dysfunctional consequences for boundary spanner outcomes including performance, satisfaction, and commitment, regardless of job context, scope, and/or nature of the organization.

Theory

Rooted in Kahn et al.'s work, this perspective posits that role stressors have a linear relationship with boundary spanner outcomes. The commonly examined role stressors include role conflict,

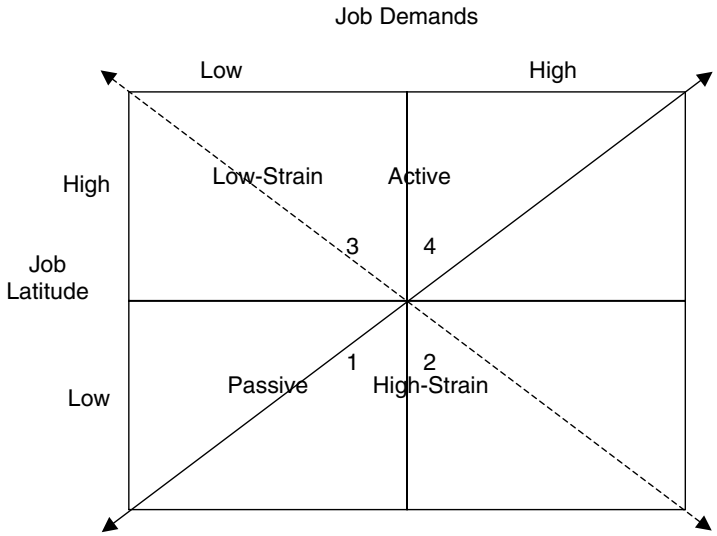
role ambiguity, and role overload (Behrman and Perrault 1984; Belasco 1966; Kahn et al. 1964). *Role conflict* occurs when a boundary spanner believes that the expectations and demands of two or more members of his or her role set are incompatible (e.g., boss and customer). *Role ambiguity* relates to the perceived lack of information needed by an employee to perform his or her role adequately and his or her uncertainty about the expectations of different role set members. *Role overload* occurs when the frontline employee perceives that the cumulative role demands exceed his or her abilities and motivation to perform a task. The influence of different role stressors on boundary spanner performance and well-being is supported conceptually by the role episode model of Kahn and colleagues (1964), which posits that (1) boundary spanners interact with different role senders (e.g., customers, boss, co-workers) in many episodes to obtain information, direction, task demands, and assistance; (2) role sender demands and expectations take the form of perceived stressors when a boundary spanner believes that there is conflict (e.g., among demands), ambiguity (e.g., about expectations), or overload (e.g., of demands and expectations); (3) perceived stressors are influenced by a person's psychological, dispositional, and sociological characteristics; and (4) persistent stressors are likely to overwhelm the person's resources and thereby have a dysfunctional impact on his or her behavioral and psychological outcomes (e.g., job performance, satisfaction). Hobfoll and Freedy (1993) have conceptualized the influence of role stressors within a conservation of resources framework. Boundary spanners are thought to regulate their behaviors to cope with role stressors in a way that conserves their valued resources; however, regulation failures occur when stressors overwhelm an individual's coping resources, resulting in impaired performance and well-being. While it allows for the possibility that different boundary spanners may perceive disparate levels of role stressors in similar work situations, this perspective is universalistic in its predictions about the linear and direct effect of perceived role stressors on outcomes.

Empirical Findings and Assessment

This perspective has produced significant empirical work summarized in several meta-analyses and reviews (Jackson and Schuler 1985; Fisher and Gitelson 1983; King and King 1990; Brown and Peterson 1993). The preponderance of evidence suggests that the influence of role stressors is consistent, compelling, and invariably dysfunctional (Singh 1993; Brown and Peterson 1993; Rhoads, Singh, and Goodell 1994; Behrman and Perreault 1984; Fisher and Gitelson 1983; Spector, Dwyer, and Jex 1988). For example, Brown and Peterson (1993), in their meta-study, found correlations of –.24, –.36, –.28, and .36 between role ambiguity and job performance, satisfaction, commitment, and propensity to leave, respectively. Likewise, the correlations between role conflict and job performance, satisfaction, commitment, and propensity to leave were –.07, –.33, –.34, and .28 respectively. Although role overload is not as frequently studied as other role stressors, in general the correlations between role overload and the different job outcomes parallel those obtained for role conflict and ambiguity in terms of both magnitude and direction. For instance, Singh et al. (1994) report correlations of –.14, –.39, .25, and .09 between role overload and job satisfaction, organizational commitment, turnover intentions, and job performance, respectively. As such, there is broad evidence supported by meta-analytical results that role stressors have significant linear and dysfunctional relationships with critical job outcomes (Fisher and Gitelson 1983; Jackson and Schuler 1985; Brown and Peterson 1993).

While researchers have called for exploring moderating variables, the majority of the empirical work has downplayed the effect of situational or contextual variability. For instance, in Brown and Peterson's meta-analysis, the influence of supervisory behaviors and job/task variables accounted for less than 10 percent of explained variance. Consequently, Brown and Peterson (p. 68) claimed

Figure 6.1 **A Graphical Representation of Karasek's Job Demands (Role Stressors)–Decision Latitude Model**



that their role stress model that *excludes* job context variables indicates "considerable robustness and generalizability . . . across relationships and study contexts." Likewise, in another meta-analysis, Churchill et al. (1985, p. 109) found that, on average, organizational context variables explain "only 1% of the variation in performance" and that this influence was the "lowest . . . among the six categories of predictors studied." These findings parallel Jackson and Schuler's (1985) meta-analysis in that contextual variables have significant, negative but rather weak (<< 15 percent shared variance) direct effects on role stressors, with marginal direct effects on job outcomes.

Contingency Perspective

In accord with this perspective, the effect of role stressors on boundary spanner outcomes is contingent on a third variable, such that this effect may be dysfunctional, neutral, or even functional, depending on the level of the contingent factor. Within this perspective, different theoretical models have been proposed that specify the contingent variable and the mechanism involved in moderating the effect of role stressors. The most commonly used theoretical frameworks are rooted in Karasek's (1979) demand–latitude model displayed in Figure 6.1.

Theory

In Karasek's model, the influence of psychological demands—or role stressors in the context of boundary spanners—on job outcomes is contingent on the availability of decision latitude to the individual (e.g., autonomy)—also referred to as job scope or job control. Karasek suggests that certain modalities of the demand–latitude interplay result in higher job outcomes than do other modalities. In particular, Karasek asserts that increasing levels of psychological job demands must be matched with increasing levels of decision latitude for maintaining or enhancing performance and psychological well-being. Utilizing "low" and "high" distinctions for demands and latitude (see Figure 6.1), Karasek developed the logic for the underlying mechanism for the differing influence

of role stressors. When latitude is low and boundary spanners have little discretion in making task decisions, Karasek hypothesized that the job context would be either "passive" or "high-strain" corresponding to a "low" or "high" level of role stressors, respectively. Specifically, when role stressors are high, a "high-strain" work context is obtained because employees lack the necessary coping resources that come from decision latitude to deal with high levels of role demands, and are easily overwhelmed (see cell 2 in Figure 6.1). In a high-strain environment, boundary spanner performance is impaired and well-being undermined. By contrast, when role stressors are at a low level, with decision latitude also at a low level, Karasek suggested that a passive work context is obtained where both performance and well-being are suboptimal (see cell 1 in Figure 6.1). *Why so?* Drawing from alienation theory (Blood and Hulin 1967), Karasek reasoned that employees generally lack the stimulation to actively engage in tasks when role stressors are low. This passive orientation toward tasks is exacerbated by low levels of autonomy that fail to provide a sense of control over decisions that affect an individual's job, thereby inhibiting employee efforts to insert challenge and growth in low-stress jobs. Consequently, boundary spanning jobs with low levels of stressors and latitude are posited to be passive and suboptimal.

Now consider the contingencies when decision latitude is high (see cells 3 and 4 in Figure 6.1). Karasek predicted that the job context would be either "active" or "low-strain" corresponding to a high or low level of role stressors respectively. Specifically, when role stressors are low, Karasek reasoned that boundary spanners possess significant resources that stem from autonomy that can be deployed to address challenging job demands. However, the low level of stressors offers little by way of challenges to channel individual resources. This abundance of underutilized resources makes for a low-strain job context. Karasek did not view such low-strain jobs favorably. Rather, he argued that such job contexts lack the potential to grow individual skills and enhance self-efficacy and, consequently, are suboptimal (cell 3, Figure 6.1). By contrast, Karasek posited a favorable perspective for job contexts with high levels of role stressors. Building from motivation theories (Csikszentmihalyi 1975; Hackman and Oldham 1976), Karasek noted that employees with high levels of task control are likely to enjoy resources needed to cope with challenging demands. When the job context supplies these demands under conditions of "high" role stressors, the boundary spanner can draw from available resources to effectively cope with the challenge. Because effectively dealing with challenging job demands is efficacious, the boundary spanner is likely to grow from this experience by being more self-confident, resourceful, and energized to tackle future challenges (Csikszentmihalyi 1975). Karasek noted that such job contexts are "active" (cell 4, Figure 6.1).

Empirical Findings

A distinctive aspect of Karasek's theory is that it depicts "interaction effects" of role stressors and decision latitude on job outcomes. As such, in most cases, Karasek's hypothesis is tested by examining the significance of the interaction term involving appropriate measures for job demands and latitude, with performance or other job outcomes as the dependent variable. In empirical tests of Karasek's (1979) theory across a wide range of work contexts using a variety of designs (see Table 6.1 for a summary), the results for the interaction effects have been mixed. For instance, studies by Landsbergis (1988), Abdel-Halim (1981), Daniels and Guppy (1994), and Kelloway and Barling (1991) both validated and extended Karasek's model. Landsbergis (1988) found that job strain (e.g., dissatisfaction, depression, and psychosomatic symptoms) and burnout were higher in health care jobs that combined high job (workload) demands and job control (decision latitude). Likewise, Abdel-Halim (1981) found support for the interactive effects of role stressors

(text continues on page 171)

Table 6.1

A Summary of Key Empirical Studies Using a Contingency Perspective for Examining Role Theory Effects for Boundary Spanners

Authors	Model/Variables Utilized	Methodological Approach	Sample	Findings
Abdel-Halim (1978)	Dependent variables: Job satisfaction Job involvement Job anxiety Independent variables: Skill variety, task identity, task significance, autonomy, and feedback from job as moderating job enrichment characteristics combined into Motivating Potential Score (MPS) Role conflict, role ambiguity, and role overload as three distinct measures of role stress	Multiple linear regression analysis using interaction terms	89 randomly selected line and staff managers from six units of a large heavy-equipment manufacturing company	Interactions of role ambiguity and MPS ($F = 5.33$, $p <. 05$) and of role overload and MPS ($F = 10.93$, $p < .01$) significantly predicted satisfaction ($R^2 = .44$, $F = 5.57$, $p < .05$). In low MPS situations (i.e., low job enrichment), increasing levels of role ambiguity and role overload reduced satisfaction. In high MPS situations, role ambiguity slightly reduced satisfaction whereas role overload considerably increased satisfaction. The interaction of role ambiguity with MPS ($F = 5.25$, $p < .05$) significantly predicted job involvement ($R^2 = .24$, $F = 5.20$, $p < .05$). Role ambiguity decreased involvement in both low and high MPS situations, but much less in the latter than in the former. Finally, the interaction of role overload and MPS ($F = 6.62$, $p < .05$) significantly predicted job anxiety ($R^2 = .26$, $F = 6.57$, $p < .05$). Role overload increased anxiety in low MPS situations but reduced it in high MPS situations.

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Authors	Model/Variables Utilized	Methodological Approach	Sample	Findings
Abdel-Halim (1981)	Dependent variable: Satisfaction with work Independent variables: Role conflict, role ambiguity, and role overload as three distinct measures of role stress Skill variety, task identity, task significance, autonomy, and feedback as five distinct measures of job design characteristics/job complexity Organizational technology (nominally measured in two categories—long-linked manufacturing technology or mediating service technology)	Three-way analysis of variance analysis with main, two-way, and three-way interaction effects	170 randomly selected managerial and non-managerial personnel—89 from a heavy equipment manufacturing firm and 81 from five small to medium size banks	Three-way interactions of role ambiguity, job characteristics, and technology ($F = 5.43$, $p \leq .02$) and role overload, job characteristics, and technology ($F = 5.73$, $p \leq .01$) were statistically significant. In simple, low-scope jobs in long-linked manufacturing technologies and in complex, high-scope jobs in mediating service technologies, the interaction of two role stressors (ambiguity and overload) and job characteristics were found to be significant. The three-way interactions involving role conflict, and all two-way interactions were nonsignificant. These results indicate that organizational technology determines the manner in which job characteristics and role stressors interact.
Payne and Fletcher (1983)	Karasek's (1979) demand-control (discretion) model Dependent variables: Satisfaction with work, headmaster/headmistress, colleagues, and with the felt pressure on the job Felt adequacy of pay Depression Anxiety Obsession Somatic complaints	Cluster analysis using Ward's method, ANOVA, and multiple regression	148 teachers from various towns in the Midlands of England	Cluster analysis based on the independent variables identified seven groups with distinct combinations of demands, control, and support. ANOVA across the seven groups indicated that there were significant differences on satisfaction with the headmaster, colleagues, pay, and the felt pressure on the job. Group 2 (low disciplinary demands, average on other demands, high support, and high discretion) was significantly ($p < .05$) more satisfied than all other groups. Overall, the demands, supports, discretion model accounted for a small proportion of the variance in the dependent variables (between 10% and 21% of the satisfaction measures). The three-way

	Cognitive impairments Independent variables: Disciplinary demands, maintaining standards, and workload demands as three distinct measures of job demands Interpersonal support Job discretion			interaction of demands, discretion, and support were not included in the multiple regression analysis. The demand/discretion interaction (as originally proposed by Karasek) did not significantly predict any of the dependent variables.
Spector (1987)	Karasek's (1979) demand-control (discretion) model Dependent variables: Total satisfaction and general satisfaction as two distinct measures of satisfaction Frustration Anxiety Health symptoms (having them and going to the doctor for these symptoms as two distinct measures) Independent variables: Discretion (control) Workload, role ambiguity, role conflict, and interpersonal conflict as distinct measures of job demands; sum of the standardized scores of these measures as a combined measure of job demands	Multiple regression analysis, using interaction terms	136 clerical employees drawn from different positions at a major state university	Each dependent variable was regressed on control, a stressor, and the interaction of control and that stressor. Out of a total of 30 regression analysis, only 2 (7%) had interaction terms that were significant, providing weak support to Karasek's original interaction hypothesis. The form of these interactions were found not to correspond to those required by Karasek's hypothesis either.

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Authors	Model/Variables Utilized	Methodological Approach	Sample	Findings
Landbergis (1988)	Karasek's (1979) demand-control model <u>Dependent variables:</u> Job dissatisfaction, sleeping problems, depression/life dissatisfaction, and physical/psychosomatic strain as four distinct measures of psychological strain Coronary heart disease (CHD) symptom indicator Frequency and intensity of emotional exhaustion, depersonalization, and personal accomplishment as six distinct measures of burnout measured by Maslach Burnout Inventory (MBI) <u>Independent variables:</u> *Job characteristics (JCS Survey)* Skill discretion, decision authority, union influence, and participation as four distinct measures of decision latitude Workload demands Supervisor support and co-worker support as two distinct measures of social support Job insecurity	MANOVA, ANCOVA (Roy/Bargmann step-down analysis), hierarchical multiple regression using interaction terms, canonical correlations, and t-tests Step 1: Examining mean differences of dependent variables across Karasek's original four configurations of demands and latitude using MANOVA and ANCOVA procedures Step 2: Predicting strain and other outcomes with workload demands, decision latitude, demand–latitude interaction, social support, job insecurity, physical exertion, and hazard exposure Step 3: Canonical correlation with demographics and job characteristics as independent variables, and the strain scales, CHD indicator, smoking, and burnout measures as dependent variables	771 employees composed of 15 different job titles in 4 bargaining units in 2 hospitals and 1 nursing home	At Step 1, MANOVA indicated that, across all the dependent measures, there were significant differences ($p < .001$, df = 33/690) between the four quadrants of Karasek's original model. ANCOVA indicated that job dissatisfaction, emotional exhaustion, and personal accomplishment differed across the four quadrants ($p < .05$; F-values ranged from 3.11 to 28.87; df ranged from 3/234 to 3/244). In particular, job dissatisfaction and emotional exhaustion were significantly higher among high-strain employees, and the active and passive quadrants did not differ in terms of psychological strain measures—but active employees did report higher emotional exhaustion than did passive ones. The active quadrant was also characterized by high personal accomplishment compared to all other quadrants. At Step 2, hierarchical regression indicated that the demand–latitude interaction did not significantly predict any of the four measures of psychological strain. The main effects of demand and latitude, as well as of social support, hazard exposure, physical exertion, and job security significantly ($p < .05$) predicted all of the four strain measures and accounted for significant portions of variation. For job satisfaction, ΔR^2 ranged from .046 to .152 and the resulting R^2 was .433 ($F = 6.28$, $p < .001$). For depression, ΔR^2

	Physical exertion Hazard exposure *Job Strain (JCS Survey)* Depression/life dissatisfaction Job dissatisfaction Physical/psychosomatic strain Sleeping problems			ranged from .020 to .065 and the resulting R^2 was .163 ($F = 4.22$, $p < .01$). For physical strain, ΔR^2 ranged from .018 to .073, the resulting R^2 was .195 ($F = 4.88$, $p < .001$). For sleeping problems, ΔR^2 ranged from .011 to .046, the resulting R^2 was .133 ($F = 2.58$, $p < .05$). The R^2 for CHD was .13 and the demand–latitude interaction did significantly increase the R^2. Similar results were obtained for the burnout scales as dependent variables. The demand–latitude interaction did not significantly predict any of the strain measures. Workload demands significantly increased R^2 for emotional exhaustion and depersonalization but not personal accomplishment. Latitude increased R^2 for all burnout scales, and union activity significantly increased R^2 except for personal accomplishment. The resulting R^2s for emotional exhaustion, depersonalization, and personal accomplishment were .40, .22 to .23, and .25 to .38, respectively.
Perrewe and Ganster (1989)	Karasek's (1979) demand-control model, and a workload-control model <u>Dependent variables:</u> Task satisfaction, measured using GM Faces Scale and Semantic Differential scale Perceived anxiety measured using Affect Adjective Check List (AACL) and	Multiple regression analysis using interaction terms	125 volunteer undergraduate students enrolled in an introductory management course	Objective demands had a significant main effect only on satisfaction ($\beta = -.94$, $F = 14.52$, $p < .001$, $R^2 = .12$) using only the Faces scale. Objective control had no significant main effects on any of the dependent variables. Perceived demands had significant negative main effects on satisfaction using both the Semantic Differential scale ($\beta = -.29$, $F = 9.46$, $p < .01$, $R^2 =$

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Authors	Model/Variables Utilized	Methodological Approach	Sample	Findings
	Subjective Stress scale Pulse rate and skin temperature as two distinct measures of psychological arousal <u>Independent variables:</u> Objective and perceived behavioral control Objective and perceived workload demands			.08) and the Faces scale (β = –.50, F = 24.45, p < .001, R^2 = .18). Perceived demands also had significant positive effects on perceived anxiety using both the Subjective Stress scale (β = .20, F = 15.56, p < .001, R^2 = .13) and AACL (β = .52, F = 45.26, p < .001, R^2 = .29). Perceived control had a significant main effect only on anxiety using the AACL (β = –.02, F = 4.06, p < .001, ΔR^2 = .03, R^2 = .32). The findings on the main effects of demand and control were largely consistent with Karasek's original postulations. As far as the interaction effects were concerned, only the perceived demand/perceived control interaction was found to have a significant effect. This effect was on perceived anxiety (β = –.07, F = 2.87, p < .10, ΔR^2 = .02, R^2 = .17). Controlling for the level of perceived control (low, medium, high), it was found that the relationship between perceived demands and perceived anxiety became weaker as perceived control got higher.

Warr (1990)	Karasek's (1979) demand-control (decision latitude) model and Warr's (1987) two-dimensional affective well-being model that includes anxiety, depression, pleasure, and arousal Dependent variables: Anxiety-contentment, depression-enthusiasm, pleasure-displeasure (job satisfaction) as three distinct measure of affective well-being Independent variables: Job demands Decision latitude	Multiple regression analyses using quadratic and interaction terms	1,686 employees of research company in 75 locations in the UK	Both job demands and decision latitude were found to have significant linear main effects on all three measures of well-being (βs ranged from .60 to 1.37, $p < .01$), except for the effect of decision latitude on anxiety-contentment. Job demands was found to have a nonlinear (quadratic) effect on job satisfaction ($\beta = -1.28$, significance of $\Delta R^2 < .01$, $R^2 = .19$), anxiety-contentment ($\beta = -.99$, significance of $\Delta R^2 < .01$, $R^2 = .29$), and depression-enthusiasm ($\beta = -.85$, significance of $\Delta R^2 < .01$, $R^2 = .12$). Decision latitude had a nonlinear effect only on job satisfaction ($\beta = -.46$, significance of $\Delta R^2 < .01$, $R^2 = .42$). Finally, the interaction of job demands and decision latitude did not have a significant effect on any of the three measures of well-being. These results provide substantial support for Karasek's original ideas and findings regarding the nonlinear effects of demand and latitude on key job outcomes. However, they provide no support for his hypothesis regarding the interactive effects of demands and control.

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Authors	Model/Variables Utilized	Methodological Approach	Sample	Findings
Dwyer and Ganster (1991)	Karasek's (1979) demand-control model <u>Dependent variables:</u> Absence, tardiness, and sick days as three distinct measures of employee withdrawal Job satisfaction (overall) and work satisfaction (aspects of the work) as two distinct measures of satisfaction <u>Independent variables:</u> Workload demands (subjective), mental demands (objective), and physical demands (objective) as three distinct job demands Control (subjective)	Multiple regression analysis, using interaction terms	115 full-time workers (blue-collar and trade occupations) in a large manufacturing plant	Four significant interaction effects were found. The interaction between control and perceived workload demands had a negative effect on absence ($\beta = -1.00$, $F_{(1,86)} = 16.12$, $p < .01$, $\Delta R^2 = .15$) and a positive effect on satisfaction ($\beta = .43$, $F_{(1,86)} = 4.05$, $p < .05$, $\Delta R^2 = .04$), indicating that at high levels of control, perceived workload is associated with low absenteeism and high work satisfaction. Under low conditions of control, however, workload tends to increase absenteeism and decrease satisfaction. The interaction between control and objective mental demands had a negative effect on both tardiness ($\beta = -3.50$, $F_{(1,86)} = 31.49$, $p < .01$, $\Delta R^2 = .26$) and sick days ($\beta = -3.98$, $F_{(1,86)} = 4.62$, $p < .05$, $\Delta R^2 = .04$), indicating that at high levels of control, mental demands are associated with lower levels of tardiness and sick days. When control is low, mental demands lead to high tardiness and sick days. The interaction of control and physical demands did not have a significant effect on any of the dependent variables.

Kelloway and Barling (1991)	Warr's (1987) model of employment and mental health, which distinguishes between job-related and context-free mental health Dependent variable: Context-free mental health (General Health Questionnaire-12 unidimensional measure) Job-related subjective competence (personal accomplishments at work) as mediating variable Work satisfaction, emotional exhaustion, depersonalization as three distinct mediating measures of job-related affective well-being Independent variables: Autonomy, task variety, task identity, feedback from job, feedback from co-workers as five distinct measures of job characteristics Role ambiguity and role conflict as two distinct measures of role stress	Structural equation modeling. A processual model where subjective competence and affective well-being mediate the effects of job characteristics and role stressors on context-free mental health	All 2,300 employees of a large hospital were included in the study. 720 usable responses were obtained. The nursing staff made up 43% of the group.	The structural equation model fit the data well ($Q = 84$, $W_{19,720} = 35.01$, $p < .01$). Context-free mental health was significantly predicted ($p < .01$) by subjective competence (–.14). It was also significantly predicted ($p < .001$) by all three dimensions of affective well-being—satisfaction (–.22), exhaustion (.37), depersonalization (.09). Subjective competence was significantly predicted ($p < .001$) by three job characteristics—variety (.27), autonomy (.23), feedback from job (.13). Dimensions of job-related well-being were significantly predicted ($p < .001$) by both role stressors: role ambiguity→ satisfaction, exhaustion, depersonalization (–.17, .10, .25); role conflict → satisfaction, exhaustion, depersonalization (–.32, .13, –.24). In addition, satisfaction was significantly predicted ($p < .01$) by autonomy (.17), task variety (.37), and feedback from co-workers (.15). These results not only confirm Warr's (1987) original contention that job and role characteristics predict job-related mental health, but also extend Warr's propositions by demonstrating that job-related mental health mediates the effects of role stressors and job characteristics on context-free mental health.

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Authors	Model/Variables Utilized	Methodological Approach	Sample	Findings
Fletcher and Jones (1993)	Karasek's (1979) demands-discretion (control) model. <u>Dependent variables:</u> Job satisfaction Life satisfaction Anxiety Depression <u>Independent variables:</u> Job demands (combination of pace of work, workload, job overload, and conflicting demands) Job discretion (combination of skill discretion and decision authority) Interpersonal supports (combination of professional competence of colleagues and support from boss, co-workers, and spouse/partner/family)	Multiple regression analysis using interaction and quadratic terms (for effects analysis), and MANOVA (for means analysis) Step 1: Replicating Karasek's model using multiple regression with main effects (three dependent variables: depression, job satisfaction, life satisfaction) Step 2: Testing Karasek's model for occupational status using MANOVA Step 3: Testing Karasek's model using multiple regression with interaction terms and controlling for occupation status Step 4: Testing curvilinear relationships using hierarchical multiple regression analysis Step 5: Testing for the effect of interpersonal support using hierarchical multiple regression	3,086 patients between the ages of 30 and 60 (1678 women, 1408 men) on the list of an NHS Health Center Practice in Hertfordshire, UK	MANOVA indicated that, for both men and women, there were significant differences ($p < .01$) in total demand and discretion scores of the two occupational groups (manual and nonmanual workers), both being significantly higher for the nonmanual workers (total differences ranged from 1.2 to 4.5; F-values ranged from 46.2 to 285.6). Multiple regressions controlling for occupational status indicated that main effects of demands and discretion were significant ($p < .05$) but again with weak explanatory power (R^2s ranged from .027 to .045). A significant effect ($p < .05$) was obtained only on job satisfaction ($\beta = .46$) and life satisfaction for men, but no significant effect on any of the dependent variables in the case of women. In general, for both men and women, the amount of variance in each dependent variable accounted for by the independent variables was very small (R^2s ranged from .018 to .095). There was no evidence of interaction and little evidence of curvilinear relationships.

Fox, Dwyer, Ganster (1993)	Karasek's (1979) demands-control model Depenedent variables: Job performance (combination of patient assessment, planning, developing patient care plans, etc.) Job satisfaction and complaints (illness and somatic) as two distinct measures of affective outcomes Arterial systolic and diastolic blood pressure at home and at work, and salivary cortisol at home and at work) as eight distinct measures of physiological outcomes (physiological data was collected after questionnaires were completed) Independent variables: Patient load, patient contact hours as percentage of total work, and number of deaths witnessed as three distinct objective measures of work demands Work load and inventory of stressful events as two distinct subjective measures of work demands Control (control over task variety, task order, pacing, scheduling, procedures, etc.)	Hierarchical multiple regression analysis with interaction terms	All of the 198 nurses employed in a medium-sized private hospital	The interaction of perceived control and perceived workload significantly predicted job satisfaction, systolic blood pressure at home and at work, diastolic blood pressure at home, and cortisol level at work (R^2s ranged from .11 to .59, F-values ranged from 4.43, df = 1128, $p < .05$ to 6.29, df = 1128, $p < .05$). In low-control situations, workload reduced satisfaction, increased systolic blood pressure at work and at home, and cortisol levels at work. In high-control situations, workload increased satisfaction, reduced systolic blood pressure at work, and diastolic blood pressure at home, and did not affect systolic blood pressure at home and cortisol levels at work. The interactions of perceived control and objective work load significantly predicted job satisfaction and cortisol levels at home (R^2s ranged from .13 to .24, F-values ranged from 3.98, df = 1146, $p < .05$ to 8.05, df = 1147, $p < .01$).Two of these interactions, control/stressful events and control/patient contact time, support the Karasek model. In low-control situations, stress events reduced satisfaction and patient contact time increased cortisol levels at home. In high-control situations, stress events did not affect satisfaction and patient contact time only slightly reduced cortisol levels at home.

(*continued*)

Authors	Model/Variables Utilized	Methodological Approach	Sample	Findings
Daniels and Guppy (1994)	Warr's (1987) model of employment and mental health, which distinguishes between job-related and context-free mental health Dependent variables: Job-related pleasure-displeasure, job-related anxiety-contentment, and job-related depression-enthusiasm as three distinct context-dependent measures of psychological well-being General Health Questionnaire-12 as the context-free unidimensional measure of well-being Independent variables: Work locus of control (WCLS) Job stressors Social support Job autonomy (combination of task independence, closeness of supervision) Participation in decision making	Longitudinal repeated measures design using multiple moderated regression analysis with interaction terms All constructs measured twice with a month gap Model 1: with participation Model 2: with autonomy Model 3: with social support In all models: Step 1: initial well-being scores Step 2: main effects Step 3: all two-way interactions Step 4: three-way interactions	244 randomly selected accountants from the Institute of Chartered Accountants of England and Wales	No significant two-way interactions were obtained for participation/stressors, autonomy/stressors, and social support/stressors. Significant three-way interactions obtained for stressors/WCLS/autonomy ($p < .05$) and for stressors/WCLS/social support ($p < .10$). The significant three-way interactions indicate that WCLS and job autonomy buffer the effects of stressors on psychological well-being such that stress compromises well-being the least when locus of control is internal and autonomy is high, and most when locus of control is external and autonomy is low.

Xie and Johns (1995)	Dependent variable: Emotional exhaustion (chronic stress) and anxiety (long-term stress) as two distinct measures of stress Independent variables: Job complexity from Dictionary of Occupational Titles (DOT) and Occupational Prestige Index (OP) as two distinct objective measures of job scope Subjective job scope (combination of skill variety, task identity, task significance, autonomy, and feedback) Perceived demands-ability fit	Curvilinear hierarchical moderated multiple regression analysis using interaction terms	415 full-time employees (professionals, managers, sales workers, clerical workers, blue-collar workers) from a random selection of 65 organizations including banks, insurance companies, high schools, hospitals, etc.	Subjective job scope, DOT, OP, task significance, and task identity significantly predicted exhaustion in a U-shaped curvilinear fashion (ΔR^2s ranged from .01 [R^2 = .11] to .04 [R^2 = .11], F-values ranged from $F_{1,403}$ = 4.55, $p < .05$ to $F_{1,409}$ = 19.09, $p < .001$). Low and high levels of these predictors were associated with high levels of exhaustion, whereas at moderate levels they predicted low levels of exhaustion. Anxiety was significantly predicted in U-shaped curvilinear fashion only by task identity (ΔR^2 = .01, [R^2 = .03], $F_{1,400}$ = 5.08, $p < .05$), indicating that low and high levels of identity were associated with high anxiety whereas moderate levels of identity predicted low anxiety. DOT/demand-ability fit and OP/demand-ability fit interactions significantly predicted both exhaustion and anxiety (ΔR^2s ranged from .009 [R^2 = .09] to .015 [R^2= .10], F-values ranged from $F_{1,409}$ = 4.03, $p < .05$ to $F_{1,401}$ = 6.86, $p < .01$). These interactions were slightly and negatively associated with exhaustion and anxiety.
Wall , Jackson, Mullarkey, and Parker (1996)	Karasek's (1979) demand-control model, and a demand–latitude model	Moderated regression analysis using interaction terms	All 1,451 production employees and support and	The interaction effects of job demands and job control were significant in predicting each dependent variable. F-

(*continued*)

Authors	Model/Variables Utilized	Methodological Approach	Sample	Findings
	Dependent variables: Job satisfaction, depression, and anxiety as three distinct measures of job strain Independent variables: Job demands (combination of monitoring demand and problem-solving demand) Job control (combination of timing control and method control) Decision latitude (Perceived Intrinsic Job Characteristics Scale, which includes measures of freedom to choose method, opportunity to use ability, amount of variety, etc.)		supervisory staff from four British manufacturing companies	values ranged from 7.81 to 13.04 ($p < .01$). The interaction effects of job demands and decision latitude were, however, nonsignificant in predicting the dependent variables. F-values ranged from .95 to 2.37 ($p < .01$). Results indicate that (psychological) job strain is caused by the interaction effect of job demands and job control, not of job demands and decision latitude as originally demonstrated by Karasek (1979).
Schaubroeck and Merritt (1997)	Karasek's (1979) demand-control model Dependent variables: Diastolic blood pressure and systolic blood pressure as two distinct measures of job stress Independent variables: Job demands Job control Self-efficacy as moderating variable	Multiple regression analysis using interaction terms Model 1: demographic variables Model 2: main effects Model 3: all two-way interactions Model 4: three-way interaction	110 randomly selected full-time health professionals at a large rehabilitation hospital	Main effects and two-way interaction effects of job demands, job control, and self-efficacy were nonsignificant in predicting diastolic and systolic blood pressures. The three-way interaction effect was, however, significant in predicting both diastolic ($p < .05$) blood pressure ($\beta = -14.6$, $\Delta R^2 = .07$, $F_{1,66} = 5.90$, $p < .018$, Total $R^2 = .24$) and systolic ($p < .01$) blood pressure ($\beta = -24.50$, $\Delta R^2 = .11$, $F_{1,66} = 9.68$, $p < .001$, Total $R^2 = .28$).

	Decision latitude (freedom to choose method, opportunity to use ability, amount of variety, etc.)			
Schaubroeck and Fink (1998)	Karasek's (1979) demands-control model; Johnson and Hall's (1988) demands-control-support model <u>Dependent variables:</u> Job performance Prosocial organizational behavior (PSOB) (altruism, attendance, conscientiousness) Physical symptomatology Supervisor and intrinsic job satisfaction Organizational commitment Sick leave (hours) <u>Independent variables:</u> Social support (supervisor consideration); Employee control (control over quality, methods); Work (demands) stressors (quantitative workload, skill underutilization, role conflict, role ambiguity)	Hierarchical multiple regression analysis using interaction terms Model 1: main effects Model 2: 2-way interaction (support/control) Model 3: 3-way interaction (support/control/demands)	214 service counselors, sales counselors, and underwriters in two large insurance companies	The key results focused on significant three-way interactions. Consistent support was obtained for the notion that both job control and social support are needed to facilitate job demands and result in positive outcomes for organizational commitment ($F = 2.28$, $p < .06$) and satisfaction ($F = 3.79$, $p < .05$). Coping difficulties were reported for workers facing job demands coupled with high control and low support or low control and high support. Both control and support need to be high for effective coping. However, counter results are obtained for a single stressor—responsibility for others.

(*continued*)

Authors	Model/Variables Utilized	Methodological Approach	Sample	Findings
Singh (1998)	Dependent variables: Job performance Job tension Job satisfaction Organizational commitment Turnover intentions Independent variables: Role conflict, role ambiguity, and role overload as three distinct measures of role stress Autonomy, participation, feedback, and task variety as four distinct measures of job characteristics	Path analysis using quadratic and interaction terms, and correcting for measurement error	518 sales and marketing personnel drawn from the members of the Association of Sales and Marketing executives, and from two different units of a Fortune-500 industrial supplier firm	Results varied by the job outcomes examined. Linear effects were supported for job satisfaction and organizational commitment. Two-way interactions involving role conflict and task variety, and role ambiguity and autonomy were supported for job performance ($p < .05$ and $p < .01$). Coping was more effective when high role conflict and high task variety, or high role ambiguity and low autonomy co-occured. Similar two-way interactions, involving role overload/task variety and role ambiguity/task variety, were significant for turnover intentions ($p < .05$). Task variety facilitated coping with role overload but hindered it when role ambiguity was high. Curvilinear effects involving two-way interactions and quadratic terms were obtained with job tension as the dependent variable. Feedback facilitated coping with role conflict but hindered coping with role ambiguity ($p < .05$).
De Jonge, van Breukelen, Landeweerd, Nijhuis (1999)	Karasek's demands-control model Dependent variables: Emotional exhaustion Job-related anxiety Work motivation	Multilevel regression analysis (VARCL) using interaction terms Model 1: Fully unconditional model only comprising of the random effects of units and institutions Model 2: All demographics	1,489 randomly selected health care workers from different functional units (intensive care, surgical unit, etc.) from eight hospitals and eight nursing homes	In predicting emotional exhaustion and job-related anxiety, aggregate-level measures of job demands and job autonomy (included in Model 3) did not explain additional variance. In both cases, Model 2 had the highest predictive power ($R^2 = .25$, $R^2 = .09$, respectively), and only the main effect of job demands was significant ($p < .05$). The higher the demands, the

Job satisfaction

Independent variables:

Job demands

Job autonomy

Demands and autonomy are measured at both the individual and aggregate levels (mean group scores of different units included in the study). Aggregate-level measurements combine judgments across individual jobs, thus removing variance due to individual differences and idiosyncratic responses.

and individual-level measurements of job demands and autonomy

Model 3: Model 2 plus aggregate-level measurements of job demands and job autonomy

A likelihood ratio test (D) is used to determine the difference of predictive power across the models

higher were exhaustion and anxiety.

In predicting work motivation and job satisfaction, aggregate-level measurements of job demands and job autonomy (included in Model 3) explained a significant amount of additional variance (R^2= .13 with ΔD = 11.71, $p < .05$., and R^2 = .13.2 with ΔD = 12.14, $p < .05$, respectively).

The individual-level interaction effect of demands and autonomy and the aggregate-level main effect of demands significantly predicted motivation ($p < .05$). The higher the interaction, the higher was motivation. The higher the aggregated demand, the lower was motivation.

Individual-level main effects of job demand and job autonomy, and their aggregate-level interaction effect, significantly predicted job satisfaction ($p < .05$). The higher the individual-level autonomy and the higher the aggregate-level interaction, the higher was satisfaction. The higher the individual-level job demands the lower was satisfaction.

(*continued*)

Authors	Model/Variables Utilized	Methodological Approach	Sample	Findings
Janssen (2001)	Karasek's demands-control model Dependent variables: Job performance (*standard* performance and *innovative* performance) Job satisfaction Both performance and satisfaction were measured by means of self-rated and leader-rated scales in addition to standard measures Independent variables: Job demands Effort-reward fairness perceptions	Hierarchical multiple regression analysis using quadratic terms Interaction terms analysis is used to detect moderation and nonlinear effects	134 randomly selected low-level and mid-level managers from a Dutch food producer	Job demands squared interacted with effort-reward fairness to predict both performance and satisfaction. The effect on standard job performance was significant ($p < .05$) with $R^2 = .30$. The effect on leader-rated innovative job performance was significant ($p < .05$) with $R^2 = .39$. For self-rated innovative job performance the effect was also significant ($p < .01$) with $R^2 = .25$. As for satisfaction, the effect was even more significant ($p < .001$) with an $R^2 = .28$. Post-hoc probing of these interaction effects indicated that the managers who perceive effort-reward fairness perform better and feel more satisfied in response to intermediate levels of job demands than managers who perceive "under-reward" unfairness.
van Yperen and Hagedoorn (2003)	Karasek's demands-control model Dependent variables: Intrinsic motivation Fatigue Independent variables: Job demands Job control Social support	Hierarchical multiple regression analysis using interaction terms Interaction terms analysis is used to detect moderation effects	555 nurses who worked at specialized units for patients with mental deficiency	Job demand–job control interaction significantly predicted fatigue ($p < .001$) with $R^2 = .27$, but not intrinsic motivation. The demand-social support interaction, on the other hand, significantly predicted intrinsic motivation ($p < .01$), but not fatigue. Finally, the demand-control-support interaction predicted motivation ($0 < .01$), but not fatigue. Under conditions of low support, demands increased motivation when control was high, and decreased it when control was low. Under conditions of high support, demands decreased motivation when control was high. There was no effect when control was low.

(e.g., role conflict, ambiguity, overload) and job scope (e.g., skill variety, autonomy, feedback) on satisfaction across different technological contexts. Several other studies (Fox, Dwyer, and Ganster 1993; Dwyer and Ganster 1991; De Jonge et al. 1999) have supported Karasek's model by differentiating between the subjective and objective aspects of job demands and job control. In general, results are consistent with Dwyer and Ganster's (1991) findings that the interaction effects are consistently significant for the subjective or perceived measures of job demands and control (however, see De Jonge et. al. 1999).

Other studies have provided evidence that either fails to support or refutes Karasek's contingency model. For instance, Spector (1987) studied the effects of demands and control on the satisfaction, frustration, anxiety, and health symptoms of clerical employees at a major university. He found that, out of thirty regressions, the interaction effect of demands and control was significant only in two, casting doubt on the validity of the demand–control model. Moreover, in these two cases of significant interaction effects, the direction of effects did not correspond to Karasek's hypothesis. Likewise, Fletcher and Jones (1993) were unable to find any significant interaction effect of demands and control on satisfaction, anxiety, and depression among patients at a health care center. Schaubroeck and Fink's (1998) study provided support for the three-way interactions of demands, control, and support, rather than the two-way interaction of demands and control as originally proposed by Karasek. Coping difficulties were found among employees facing high job demands coupled with high-control and low-support jobs. Likewise, low control coupled with high support produced coping difficulties in employees in high-demand jobs. As such, both control and support appear necessary for effective coping. In another study exploring three way effects involving demands, control, and support, Van Yperen and Hagedoorn (2003) reported that, while demand–control interaction influenced employee fatigue (but not motivation), the demand–support interaction had a significant effect on employees' intrinsic motivation (but not fatigue). In addition, a three-way interaction between demands, control, and support was significant for motivation but not fatigue. Depending on the level of job demands, control, and support, Van Yperen and Hagedoorn noted that some jobs or roles may evidence divergence between fatigue and motivation, such as when employees are highly motivated and fatigued at the same time.

Recently, researchers have modeled the curvilinear effects of job demands and job control on outcomes. For example, although he failed to find significant interaction effects of demands and control (e.g., decision latitude), Warr (1990) found that demands were nonlinearly (U-shaped) related to three separate dimensions of well-being among research employees—anxiety, depression, and displeasure. He also found that control was nonlinearly (increasing slope) related to job satisfaction. Curvilinear effects were more rigorously tested by Xie and Johns (1995), who found that job scope (e.g., task identity, task variety, autonomy, feedback)—a measure of job control—had a U-shaped relationship with job stress, measured by exhaustion and anxiety for a wide range of respondents (e.g., managers, sales workers, blue-collar workers). In other words, beyond an intermediate level, increasing levels of job scope enhance the stress level of boundary spanners instead of buffering the effects of role stressors as hypothesized by Karasek. These findings have been replicated and extended by Singh (1998).

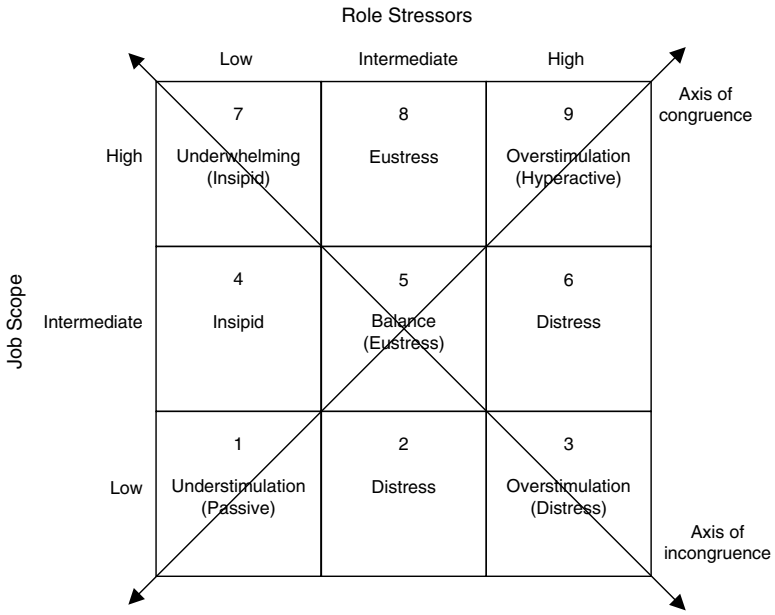
Assessment

Two themes emerge from our review of the empirical research rooted in Karasek's model. First, while the support for Karasek's model is mixed and uneven, this should be interpreted in light of the general lack of support for contingency models in organizational behavior (Tosi 1992). In many theories of organizational and human processes, interaction effects appear theoretically

plausible but fail to show up in empirical results. Researchers have indicated that this could occur for several reasons including (a) sampling, (b) measurement error, and (c) unnecessary complexity. In terms of sampling, the problem lies in the lack of heterogeneity in studies (e.g., samples from a single division/organization). Without the heterogeneity in perceived levels of job scope and role stressors, theoretical interaction effects are severely limited by the resulting restriction of range and fail to be empirically detected (Tosi 1992). In terms of measurement error, readers will note that most of the studies in Table 6.1 utilize regression analysis to examine interaction effects (Xie and Johns 1995; Champoux 1992). This is problematic because regression analysis ignores measurement error in dependent and independent variables. Because for most social science research, measurement error can be significant, ranging from 32 percent (Cote and Buckley 1988) to 50 percent (Schmidt and Hunter 1996), the regression coefficients are likely biased downward, making it difficult to empirically detect small but interesting contingency effects (Busemeyer and Jones 1983; MacCallum and Mar 1995). Finally, some researchers have argued that, despite the theoretical complexity of social science models, the empirical phenomena are governed by pragmatically simple and linear relationships. Because of random variation or unmodeled effects (e.g., contextual factors), it is plausible that some empirical studies could support interaction effects while many others refute such complexity resulting in a "mixed" pattern of results. In the context of Karasek's model, because researchers have not systematically tackled concerns due to sampling and measurement error, it is probably inappropriate to view the "mixed" evidence as support for the "unnecessary complexity" explanation at this time.

Second, empirical findings from the more recent studies suggest that Karasek's model needs to be modified to account for the curvilinear effects of job scope and role stressors on job outcomes. Both effects are supported by strong theoretical foundations. In the context of job scope, researchers draw from activation theory to posit an "overstimulation" effect so that excessive levels of job scope including feedback, participation, variety, and autonomy hinder rather help in one's performance (Singh 1998; Schwab and Cummings 1976; Champoux 1978, 1992). In turn, this overstimulation effect is based on three interrelated propositions: (1) job scope acts as a motivational force that stimulates an individual to increase effort or expend energy in task performance; (2) each individual has a "characteristic" level of stimulation that represents an optimal point of motivation; and (3) if experienced stimulation level substantially exceeds this "characteristic" level, the individual becomes overwhelmed, resulting in increased anxiety and reduced performance (Gardner and Cummings 1988; Kahn and Byosiere 1992). Consequently, both high (or excessive) and low (or inadequate) levels of job scope result in lowered performance and heightened anxiety (Xie and Johns 1995). Intermediate levels of job scope that are closer to the individual's characteristic level result in an optimal job context. Studies by Xie and Johns (1995), Champoux (1992), and others provide support for the curvilinear effects of job scope. In the case of role stressors, researchers evoke the Yerkes-Dodson law (Yerkes and Dodson 1908) drawn from early clinical and laboratory studies to posit that role stressors hold the potential for both "distress" and "eustress" (Selye 1976). According to this law, *both* at low and high levels of role stressors, an individual's job context is suboptimal. This is because performance is undermined by a lack of challenge in the "low" condition and by overactivation in the "high" condition. Moreover, both of the preceding conditions are characterized by passive coping driven by either a low level of motivation/resource activation or lack of sufficient resources to deal with overwhelming role stressors (Schaubroeck and Ganster 1993). This passive coping interferes with the individual's adaptivity to environmental demands, further deteriorating performance and eventually leading to a "distress" condition. However, performance is thought to be optimal in the *intermediate* role stress condition as the individual is energized/activated to respond and actively cope with environmental demands but is

Figure 6.2 **A Graphical Representation of the Contingency Model for the Influence of Role Stressors and Job Scope on Boundary Spanner Effectiveness**



not overwhelmed by them. Selye (1976) referred to this condition as "eustress" or "good" stress. Studies by Singh (1998), Schaubroeck and Ganster (1993), and Jamal (1984) provide support for the curvilinear effects of role stressors.

To simultaneously account for the curvilinear effects of role stressors and job scope, Karasek's model can be adapted by including an intermediate condition along both of its dimensions (see Figure 6.2). The resulting framework is a 3 x 3 model that represents nine distinct job contexts. For "low" levels of job scope, the job context is likely to be "passive," "distress," or "overwhelming" corresponding to "low," "intermediate," or "high" levels of role stressors (cells 1, 2, and 3). This is because a "low" job scope provides little to no coping resources to the boundary spanner and the distress level increases directly with role stressors, except in the event that role stressors are at a "low" level. In this instance, the job context lacks any stimulation whatsoever, resulting in a "passive" condition in accord with activation theory and Yerkes and Dodson's law. With "intermediate" level of job scope, the job context is either balanced (cell 5, scope = stressors) or unbalanced (cells 4 and 6, scope $\neq$ stressors). In the balanced condition, stressors and scope are at their optimal level and cohere with Karasek's notion of an "active" job context where stressors are high enough to provide the challenge without overwhelming the individual, and scope is high enough to aid coping with role demands without overstimulating the employee. This also accords with the inverted U-hypothesis. In the unbalanced conditions, the boundary spanner is either underwhelmed (scope > stressors) or overwhelmed (stressors > scope). In the former job context, role stressors are too low to challenge the individual, while in the latter condition, scope is probably insufficient to aid effective coping with role demands. Finally, under conditions of "high" scope, job contexts vary significantly depending on the level of role stressors ranging from a munificent and underwhelming job context (cell 7, scope >> stressors) to a highly charged, overstimulated context where both scope and stressors are high (cell 9). Both are less than optimal as

per overstimulation and activation theories. However, for "intermediate" levels of role stressors, the job context is likely to indicate "eustress" as the job is both challenging and resourceful to allow effective coping with job demands (cell 8). Note that the model in Figure 6.2 is bisected by two diagonals: (a) an axis of congruence along which the job contexts are balanced with congruent levels of job scope and role stressors (i.e., cells 1, 5, and 9); and (b) an axis of incongruence depicting job contexts that are completely unbalanced with opposite levels of job scope and role stressors (i.e., cells 3 and 7). Interestingly, only a single optimal cell (cell 5) exists where both scope and stressors are at an intermediate level. While the preceding adaptation of Karasek's model is consistent with emerging empirical evidence and grounded in strong theory, it has not been subjected to empirical investigation.

Configural Perspective

We propose a configural perspective that also examines the effects of role stressors by explicitly considering the simultaneous and interactive influence of job scope. However, compared to the contingency perspective, a configural perspective is more complex because of several reasons. First, it accounts for unique patterns of role stressors and job scope (referred to as "configurations") that represent nonlinear and higher-order interactions that cannot be represented within the traditional contingency models (Miller and Friesen 1984). Second, the configurations are defined at a group rather than individual level such that they are shared representations of boundary roles. Third, it allows consideration of equifinality, or the notion that different configurations may be equally effective (e.g., in terms of performance, satisfaction). Fourth, and finally, a configural approach affords flexibility in modeling the phenomenon using approaches that distinguish between logical plausibility (e.g., ideal types) and empirical viability (Doty and Glick 1994). Below we discuss these ideas and review the limited empirical research to date.

Theory

In accord with configural theory, we posit that a job context can be defined by *any* specific combination of perceived role stressors (e.g., "high") and job scope (e.g., "moderate") that is a valid representation of boundary roles. Specifically, it posits that only a few, dominant combinations—termed "configurations"—are plausible that represent shared interpretive schemas of job contexts (Meyer, Tsui, and Hinings 1993). That is, a configurational perspective rejects the notion that infinite combinations of role stressors and job scope are *empirically* plausible as if these factors could be varied independently. Instead, it accepts the view that factors are interdependent and often can change only discretely. For instance, boundary roles involving extreme combinations of contrasts—such as high stress, low scope (cell 3, Figure 6.2) and high scope, low stress (cell 7, Figure 6.2)—are unlikely to be obtained empirically because they would be either so unbearable or unviable to be sustained as reasonable boundary roles in modern organizations. Likewise, it may be pragmatically difficult, if not impossible, to vary job conditions finely to obtain a continuous range of gradations. As we noted at the outset, practitioner views differ from academic thought on whether boundary roles can be redesigned as low-stress jobs. Practitioners' assertions that such redesign is difficult at best due to the stress inherent in boundary roles indicate empirical limits on the viable range of role stressors in boundary jobs. However, practitioners are not passive principals (e.g., managers) unconcerned about agent (e.g., boundary spanner) stress and effectiveness. Rather, as active mangers, practitioners actively design jobs to allow boundary spanners to cope with their role stressors and effectively serve organizational goals. Such design

efforts often involve supplying job scope to match role stressors, resulting in job contexts that gravitate toward the diagonal noted as the "axis of congruence" in Figure 6.2. Taken together, the preceding considerations suggest that only a few configurations of role stressors and job scope are likely to be empirically plausible.

Moreover, each configuration represents a schema about job context that is shared by collectives of boundary spanners. That is, a configuration is not defined at the individual level of analysis. Rather, it represents characteristics of the job that are shared by groups of boundary spanners. In this sense, configurations of job context are less sensitive to individual variability than operationalizations of job context in contingency or universalistic approaches. Debates about the appropriate level of analysis for conceptualizing job contexts have focused on two competing positions. On one hand, proponents of subjective experiences of work argue that an individual-level analysis is appropriate because it captures how boundary roles are perceived by individuals who fill them and any effort to aggregate experiences denies the fundamental place of individuals in organizations. On the other hand, job design researchers take a managerial perspective to argue for an organizational unit as the appropriate level of analysis to capture largely "objective" aspects of boundary roles populated in the unit and reject subjective experiences as noisy data that is less useful for managerial efforts in designing jobs. As the subjective-objective debate continues in the literature, the configural perspective offers an intermediate position that bridges these perspectives. The configural perspective does not deny the relevance of individual perceptions of boundary roles. The starting point for a configural perspective is the boundary role occupant's perceptions of role stressors and job scope inherent in his/her job. However, in construing job contexts as combinations of role stressors and job scope, the configural approach moves forward to identify configurations that are shared by collectives of boundary spanners. *Why would cohesive collective schemas emerge?* We posit that characteristics of boundary roles are interpreted by individuals through a process of interaction with job design practices, cognitive appraisals, and sense-making, and the resulting interpretations are shared, refined, and updated through a process of social interactions among boundary spanners resulting in shared collective schemas (James, Joyce, and Slocum 1988; Young and Parker 1999). Moreover, these collective schemas need not faithfully reproduce the objective work design features nor adhere to department/unit boundaries; yet, they meaningfully capture the patterns of boundary spanner interactions and systematically relate to critical employee and organizational outcomes (Young and Parker 1999). In this sense, configurations of boundary roles are jointly determined by objective work design efforts and subjective interpretations of boundary spanners.

Using a configural perspective to study job contexts has several advantages including testing for equifinality and modeling flexibility (Meyer, Tsui, and Hinings 1993; Miller and Friesen 1984; Doty, Glick, and Huber 1993). The notion of equifinality contrasts with the linear postulate that is common to most previous studies. The linear postulate posits that, given any two job contexts, it is possible to identify a single configuration that is ideally more favorable than the other because it provides more of the desirable characteristics (e.g., satisfaction, performance), and fewer of the undesirable characteristics (e.g., burnout, turnover intentions). In contrast, the equifinality proposition argues that it is highly unlikely that any configuration is significantly superior to other plausible configurations across all dependent variables considered. Rather, the more likely scenario is that two or more configurations are equally effective for some dependent variables (e.g., performance) and differentially effective for other variables (e.g., satisfaction). In other words, an equifinal view denies the presumed superiority of any specific configuration. In this sense, the proposition of equifinality embodies the notion of nonlinear effects. Such equifinality notions are, at best, difficult to test under universalistic and contingency approaches.

Finally, a configural perspective allows considerable flexibility in obtaining valid configurations including (a) deductive, theory-driven typology, and (b) inductive, empirical-driven taxonomy (Doty and Glick 1994). Typology-based configurations draw from a strong theoretical framework that specifies the number of plausible configurations, how each configuration is defined, and the rationale for the differential influence of different configurations. Because deductive configurations may or may not be empirically viable, they are often referred to as "ideal" types. By contrast, taxonomical configurations begin with data and extract viable configurations using aggregation procedures (e.g., cluster or latent class analysis). In order to obtain valid configurations, typical aggregation procedures are flexible to allow for (a) theory-based "centroids" to guide inductive procedures, and (b) split-sample designs that reduce the confounding effect of sampling variability. In this sense, not all logically plausible configurations can be empirically viable (Meyer, Tsui, and Hinings 1993). Readers will note that this concern with obtaining valid configurations when combined with tests for equifinality allows a finer-grained study of job contexts and their influence on boundary spanner processes than possible under universalistic or contingency perspectives.

Empirical Findings

Few, if any, studies have utilized a configural perspective to study role theory effects for boundary spanners. One such exceptional study is by Payne and Fletcher (1983). Using a sample of 148 teachers in UK, Payne and Fletcher utilized inductive procedures to extract empirically viable configurations. Foreshadowing later work, Payne and Fletcher utilized multiple dimensions of demands (e.g., disciplinary demands, maintaining standards, workload demands) and discretion (e.g., interpersonal support, job discretion) to faithfully capture the richness of teachers' job context. In all, seven distinct configurations of job contexts were obtained that differed in terms of the demands, discretion, and constraints. Unfortunately, Payne and Fletcher did not compare their taxonomical configurations with theoretically developed "ideal" job contexts. Nevertheless, they found that all of the obtained configurations were equifinal—that is, there were no differences in terms of outcomes, with a single exception. One configuration with low levels of demands and high levels of discretion produced a significantly *higher* level of job satisfaction than any other job context. Payne and Fletcher did not thoroughly investigate these counterintuitive results. In addition, while Payne and Fletcher pointed out the need for studies that sample heterogeneously from a well-defined sampling frame, they appear to be unaware of the empirical problems in detecting nonlinear and interaction effects with homogenous samples. No other study could be traced that had utilized a configural perspective to examine role theory effects.

Because the configural perspective approaches the phenomenon differently than contingency and universalistic approaches, it is likely that such a pursuit will yield new insights into the influence of role stressors and job scope in boundary spanning positions. Despite its shortcomings, the Payne and Fletcher study provides an initial indication that a configural perspective may be rewarding due to its potential to reveal equifinal effects. At the minimum, a configural perspective is likely to provide findings that would be useful to triangulate with contingency and universalistic findings to yield a holistic understanding of the stress processes among boundary spanners.

Potential Contributions and Concluding Notes

Looking at the body of literature on boundary role stress and its multiple meta-analyses, one is prone to conclude that room for potential contributions is limited and the hurdle steep. Our review is intended to dispel this view. Beyond the universalistic approach, vast areas remain unexplored.

Although the contingency perspective has received some attention, the study of contingencies that modulate the effect of role stressors for marketing-oriented boundary spanners has lagged. Marketing researchers appear to be more interested in identifying the different and emergent sources of role stress (e.g., work–family conflict) than in guiding boundary role design efforts that facilitate coping with role stressors or, more boldly, transforming role stressors into an energizing force for active and fulfilling engagement in boundary roles. Possibly, the terminology is a stumbling block. Socialized interpretations of stress appear to favor negative and avoidance representations that restrict construals of stress to dysfunctional mechanisms for boundary role effectiveness. Karasek's (1979) efforts to construe stress as role demands to blunt socialized representations inseparable in the former appear to have had little impact in the marketing literature as evident from Table 6.1, where marketing studies are conspicuously absent. Alternatively, marketing researchers accept Karasek's theoretical arguments but are unmoved by his mixed empirical evidence. Lack of clear support for interaction effects does render the complexity of Karasek's contingency model unattractive. Complexity in theorizing with uncertainty in empirical payoffs poses another stumbling block.

Our review favors a view of the preceding stumbling blocks that suggests opportunities waiting to be exploited. Overriding socialized representation of stress that allows for its functional and eustress effects has considerable practitioner and theoretical appeal. To exploit this opportunity, marketing researchers might find it useful to coalesce around common terminologies that reframe the notion of stress in boundary-spanning positions. One option is to rid stress of its presumed negative or positive connotations, and to posit theoretically driven contingencies that result in its positive or negative effects. In this sense, whether stress is negative or positive is determined contextually subject to coping resources afforded by contexts and coping capabilities deployed by individuals operating in their boundary contexts.

Taking a totally different tack, another option is to develop alternative terminologies and redefine terms more precisely. A possible approach is to explicitly distinguish between *role stressors*—the degree to which boundary role characteristics pose demands on individual capabilities and resources, and require effortful coping, and *role stress*—the degree to which boundary spanners experience psychological and physiological symptoms indicating that role stressors are exceeding individual coping capabilities and resources (e.g., anxiety). As such, the concept of role stress retains its negative connotation and is indicative of job contexts that are dysfunctional for boundary role effectiveness because resources afforded by job contexts are not sufficient to facilitate boundary spanner coping with the inherent role stressors. By contrast, role stressors can take on either a positive or negative meaning—as Karasek's original notion of role demands does—given the potential for distress or eustress depending on job scope or other contextual contingencies. We see promise in this approach and, indeed, have used it throughout this paper. We suggest its serious consideration in future studies to overcome terminological blocks.

Despite the mixed results of contingency hypotheses, several reasons suggest that this is a fruitful avenue for studying effectiveness of marketing-oriented boundary spanners. First, contingency effects are contextually dependent such that what works for organizational employees may or may not work for marketing-oriented boundary spanners. Customers represent a uniquely different boundary spanning problem compared to other boundary spanning roles involving working with either internal employees in other departments or suppliers. Customers introduce considerable heterogeneity and unpredictability to boundary exchanges. As such, boundary roles involving customers can present a unique profile of role stressors, and require considerable job scope to cope with inherent challenges. What is less salient in other boundary roles may well be quite prominent in marketing-oriented boundary spanners. Second, recent methodological advances have made it

feasible to empirically detect interaction effects by providing tractable approaches for controlling measurement error and testing nonlinear effects (Marsh, Wen, and Hau 2004; Cortina, Chen, and Dunlap 2001; Ganzach 1997). Current experience with these approaches suggests that disregarding measurement error severely hinders the detection of contingent effects, thereby providing biased results and rendering much previous research problematic. Third, more recent studies have reported support for the contingency hypotheses indicating that the influence of role stressors is not only contingent on job scope but also on other job factors including support (Van Yperen and Hagedoorn 2003). Together, the preceding developments point to potential payoffs from future studies that posit theory-based contingency hypotheses and examine them using methodological approaches that control for confounding influences including measurement error.

While the contingency approach requires reconsideration by marketing researchers, the configural approach represents a new frontier of unexplored possibilities. The configural approach begins from different assumptions about boundary role contexts and construes the study of boundary role effectiveness from a different lens, one that inherently accounts for nonlinear and higher-order interactions, allows collective-level perceptions of role dynamics, incorporates the notion of equifinality—meaning that different configurations may have similar job outcomes—and affords flexibility in distinguishing between "ideal type" work contexts and "empirically viable" ones. We could not trace a single study in marketing that had utilized this approach for examining role theory effects for boundary spanners. Even in the extant body of work, empirical work on configural approach is lacking. We had traced a study by Payne and Fletcher (1983) that appeared consistent with this approach but neither explicitly nor fully considered the configural perspective. We view this gap as a significant opportunity for providing insights into role theory effects for marketing-oriented boundary spanners. To the extent that these insights compare and contrast with those obtained from universalistic and contingency perspectives, there opens a dialogue on triangulation efforts and on the ecological validity of assumptions underlying differing approaches. Exposing assumptions and pressing for a critical assessment of their empirical reasonableness holds considerable promise in advancing our understanding of role theory effects for marketing-oriented boundary spanners. Current studies locked in largely universalistic approach are incapable of raising such fundamental questions.

In closing, there is little disagreement about the burden and magnitude of individual, organizational, and societal cost of stress, especially on the boundaries that define an organization's interfaces with its customers and society at large. Disagreements arise both in identifying when role stressors exceed functional levels, and in selecting the "best" strategy for combating the consequences of boundary role stress. To bridge these disagreements and provide new insights, we provide a comparative review of different approaches, propose a configural approach that views job contexts as organizational or situational characteristics defined by specific stressor-scope combinations, and outline directions for future research that take advantage of the plurality of approaches. Overall, our review challenges marketing researchers to explicitly consider *what boundary spanners do when they face role stressors* when they aim to examine *what role stressors boundary spanners face and what are their consequences.* Examining role stressors without considering boundary spanner coping efforts is like studying water level in a bucket by observing the inflows without considering the outflows. Coping with role stressors is effortful and demands resources that either come from job scope supplied by the context or from an internal reservoir, which results in depletion afterward. It can be argued that organizations are responsible for providing a balanced job context where job scope provides sufficient resources to cope with role stressors without depleting internal reservoirs of boundary role occupants. Toward this end, our review implores marketing researchers to adopt a role design perspective that considers how job context can be configured for

optimal effectiveness. Boundary role stress is not an individual problem, nor is it just a matter to be addressed organizational design. Rather, it requires a simultaneous consideration of job context and individual factors to develop active, challenging, and resourceful jobs that fulfill Karasek's ambition for healthy work. We hope our study provides the impetus for such pursuit.

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