

CHAPTER 20

Work Design

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In the late 1990s, when the first version of this chapter was written, we sought to comprehensively review past work design research with an eye toward identifying potentially fruitful areas of future research (Morgeson & Campion, 2003). Our intent was to try and stimulate interest in work design research. At that point, despite having had an enormous impact on organizational success and individual well-being, research on the topic appeared to be waning in industrial–organizational (I-O) psychology circles (Campion, 1996). As highlighted by Humphrey, Nahrgang, and Morgeson (2007), starting in the late 1980s work design publications in top-tier journals significantly declined. Since the publication of our chapter, however, the field seems to have rediscovered work design research. This is exemplified by a number of review and conceptual articles on work design (Grant, 2007; Grant & Parker, 2009; Morgeson & Humphrey, 2008; Parker & Ohly, 2008), a meta-analysis of hundreds of studies (Humphrey et al., 2007), a meaningful increase in the number of top-tier academic journal publications on the topic, and a *Journal of Organizational Behavior* special issue dedicated to work design research (Grant, Fried, Parker, & Frese, 2010). We are thrilled about this renewed interest in work design and any potential role our chapter may have played in helping reenergize research in this area. The goal of the present chapter is to update our previous chapter by incorporating some of the most recent contributions made in the field of work design.

Work design continues to be an essential area of research for several reasons. First, it resides at the intersection of I-O psychology and thus represents an important

synthesis between these two domains. Because work design theory draws heavily from motivational theories in organizational psychology and incorporates such central industrial psychology topics as the analysis of jobs and their requirements, it is fundamentally integrative in nature. Second, work design has great practical significance to organizations as they try to attain such diverse outcomes as efficiency and satisfaction. Because a major part of every manager's job involves the design of a subordinate's work, it is an area that has considerable practical implications. Finally, the nature of work has a profound influence on those performing it, and attention to the design aspects of work can yield insight into individual outcomes. This is an area of research where there are clear and meaningful individual, organizational, and societal implications. Thus, it is not surprising that work design is once again a vibrant area of research.

We took on the revision of this chapter with the goal of providing readers with the latest developments in work design research and offering a comprehensive review of the work design literature. Our focus is primarily on the content and structure of jobs individuals perform and the broader context within which work is performed. This broadened focus on work design not only enables us to capture the range of research conducted under the auspices of job design, but also allows us to expand our focus somewhat to incorporate research that extends beyond what has traditionally been studied in the domain. We will concentrate primarily on research that has appeared in the I-O and organizational behavior literatures (because of space constraints), but readers should recognize that

a number of different disciplines have also investigated work design issues (e.g., industrial engineering, operations management, ergonomics).

In keeping with the structure of the earlier chapter, we use the integrated work design framework (Figure 20.1) as a guide. This framework has been slightly updated to reflect recent progress made (Morgeson & Humphrey, 2008). We begin the chapter with a review of the major work design perspectives that have been investigated in I-O psychology and organizational behavior realms. This serves as the basis for the remaining sections, outlining the history of work design research and its theoretical underpinnings. We then consider the variety of contextual influences on work, including social and structural factors. Next, we examine characteristics of work that have been identified in the literature. This includes questions about the structure of work, whether incumbent self-reports of work characteristics reflect objective properties of the job or subjective perceptions, and potential measurement concerns.

Based on current work design research, we identify a range of mediating mechanisms assumed to underlie work design effects. This helps explain how work design influences outcomes. We then examine the empirical relationships between work design features and attitudinal, behavioral, cognitive, and well-being outcomes. We discuss how work redesign impacts outcomes and consider the evidence for individual differences in work design. Finally, we conclude the chapter with a discussion of the updated work design framework provided in Figure 20.1 and identify several trends that are likely to influence work design in the future.

MAJOR WORK DESIGN PERSPECTIVES

This section introduces the major perspectives on work design. Critical evaluation of these approaches will be presented in subsequent sections where the major issues in work design research are reviewed.

Scientific Management

The works of Smith (1776) and Babbage (1835) serve as the foundation for contemporary work design theory. These theorists discussed how the division of labor could increase worker efficiency and productivity. They noted that breaking work into discrete jobs enables specialization and simplification, allowing workers to become highly skilled and efficient at performing particular tasks.

Additional efficiency gains occur because: (a) workers do not switch between tasks as much; (b) distractions are reduced due to fewer work elements; and (c) workers recognize a variety of small ways to further increase efficiency.

The first systematic attempt documented in the literature to design jobs utilizing these principles occurred in the early part of the twentieth century through the efforts of Taylor (1911) and Gilbreth (1911). Dubbed “Scientific Management” by Taylor (1911), these efficiency-oriented approaches focused on principles such as specialization and simplification as a means of easing staffing difficulties and lowering training requirements. Critical to these approaches is the notion that management should decide how to divide and design work, and then institute control mechanisms (e.g., training, incentive systems, supervision) to ensure work is completed in accordance with management’s wishes. Although the problems associated with scientific management have been well documented, many of its principles still underlie modern work design (Cherns, 1978; Wall & Martin, 1987).

Job Enrichment Approaches

One of the problems with designing work to maximize efficiency is that it commonly ends up being repetitive, tedious, and boring. Partly as a reaction to the reductionistic nature of efficiency-oriented work design, and partly as an acknowledgment of human potential and higher-order needs, organizational theorists began to focus on the characteristics that could enhance worker satisfaction and provide for intrinsic needs (e.g., Herzberg, Mausner, & Snyderman, 1959; Likert, 1961; McGregor, 1960). Two primary theoretical models have been developed under the auspices of job enrichment: Herzberg’s Motivator-Hygiene Theory and Hackman and Oldham’s Job Characteristics Theory.

Motivator-Hygiene Theory

Motivator-Hygiene Theory (Herzberg et al., 1959) codified how work could serve to motivate employee behavior. In brief, this theory distinguished between aspects of work that are satisfying and motivating (“motivators”) and those that are dissatisfying (“hygiene factors”). Such things as recognition, achievement, and advancement are intrinsic to the work and were termed motivators. Such things as salary, company policies, and working conditions are external to the work itself and were considered to be hygiene factors. According to Motivator-Hygiene Theory, only job changes that impact motivators will improve

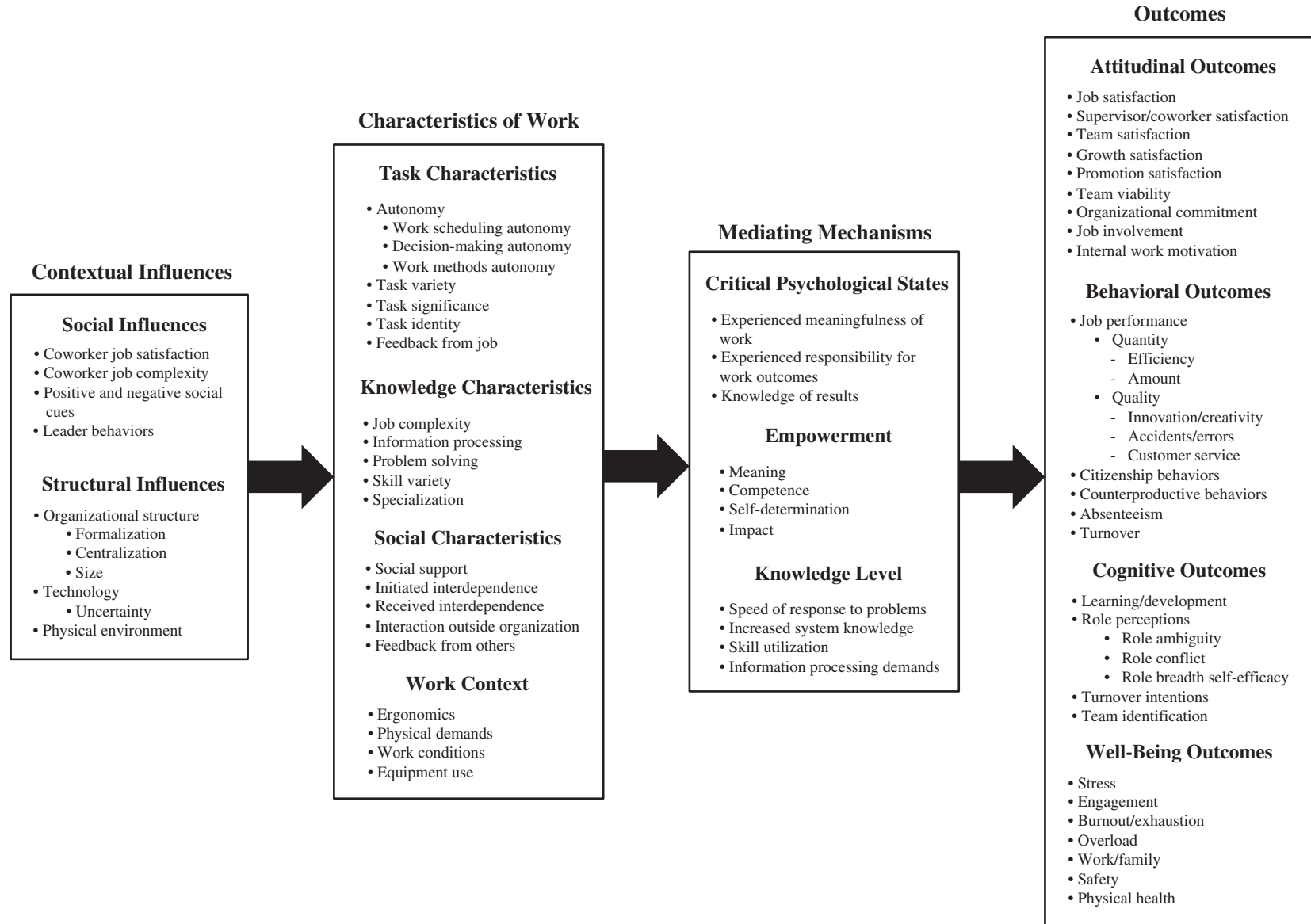


Figure 20.1 Integrated work design framework

satisfaction and motivation. Changes aimed at hygiene factors will reduce dissatisfaction, but will not affect satisfaction or motivation. Although research generally failed to confirm this and other key aspects of this theory (Locke & Henne, 1986), it remains important because it represents an early attempt to understand how the content of work can impact worker motivation and marks the beginning of interest in job enrichment.

Job Characteristics Theory

Although Motivator-Hygiene Theory stimulated research and served as the foundation for a number of work redesign efforts (Herzberg, 1976), it was beset by a number of significant weaknesses (Oldham, 1996). Research by Turner and Lawrence (1965) and Hackman and Lawler (1971) sought to address these weaknesses and understand how job characteristics relate to individual reactions to work. This research directly led to the job characteristics theory, most fully articulated by Hackman and Oldham (1975, 1976, 1980).

The job characteristics approach suggested that five job characteristics produce critical psychological states in the job holder, which ultimately results in a set of positive work outcomes. First, skill variety involves the use of a wide variety of the worker's skills and abilities. Second, task identity involves the extent to which the worker feels he or she is responsible for a meaningful and whole part of the work. Third, task significance involves the impact the job has on the lives of others. Together, these three job characteristics are presumed to increase the meaningfulness of work.

Fourth, autonomy involves the amount of freedom and independence an individual has in terms of carrying out his or her work assignment. This was expected to increase experienced responsibility for work outcomes. Fifth, feedback concerns the extent to which the job duties provide knowledge of the results of the job incumbent's actions. This was expected to provide knowledge concerning the results of work activities. It is important to note that this explicitly refers to feedback obtained directly from the job itself. This differs, however, from the manner in which Hackman and Lawler (1971) conceptualized feedback. They posit that feedback may come from the task itself, or it may come from supervisors or coworkers. This difference becomes important later when we discuss the social environment of work.

These five job characteristics are presumed to influence critical psychological states. In turn, these psychological states are posited to directly influence four outcomes: (a) internal work motivation, (b) growth satisfaction, (c) general satisfaction, and (d) work effectiveness. It was

hypothesized that there are three moderators of the job characteristics/critical psychological states relationship and the critical psychological states/outcomes relationship. The most commonly examined moderator has been growth need strength (GNS). It was suggested that individuals high in GNS (e.g., the need for personal accomplishment) would react more favorably to enriched work. The two other moderators (individual knowledge and skill and context satisfaction) have been much less frequently studied.

Job characteristics theory and the motivational approach it represents rose to become the dominant perspective for research on job attitudes (Staw, 1984). Although some aspects of the model have failed to accumulate research support and there have been a number of criticisms (Roberts & Glick, 1981), these job characteristics have generally been found to have positive relationships with a variety of affective outcomes, and smaller relationships to behavioral outcomes (Fried & Ferris, 1987; Humphrey et al., 2007; Loher, Noe, Moeller, & Fitzgerald, 1985).

Sociotechnical Systems Theory

The sociotechnical systems approach arose from work conducted at the Tavistock Institute in Great Britain that focused on the use of autonomous groups to accomplish work (Trist & Bamforth, 1951). This perspective suggested that organizations are composed of people interacting with each other and a technical system to produce products or services. This interaction had a reciprocal and dynamic influence on the operation and appropriateness of the technology as well as the behavior of the people that operate it (Pasmore, Francis, Haldeman, & Shani, 1982). Given the interdependence between human and technical systems, sociotechnical systems theory suggested that productivity and satisfaction could be maximized via joint optimization. In other words, optimal organizational functioning would occur only if the social and technical systems were designed to fit each other (Trist, 1981).

Cummings (1978) suggested that sociotechnical design is appropriate when three conditions are satisfied. First, there must be adequate task differentiation such that the task(s) performed are autonomous and form a self-completing whole. This suggests a certain minimum of interdependence within the tasks themselves. Second, employees must have adequate boundary control, so they can influence and control transactions within the task environment. Finally, employees must be able to control the immediate task environment so they can regulate their behavior and convert raw materials into a finished product.

If these conditions for self-regulation are satisfied, Cherns (1978) suggests how to design work according to sociotechnical principles. First, the design process must be congruent with the design outcomes. For example, if increased participation and empowerment is one of the hoped-for outcomes of the work design, the process by which the work is designed should be participative and involve key stakeholders. Second, it is important to identify which tasks and objectives are essential, and that no more than is absolutely necessary be specified. Such minimal critical specification enables flexibility and the ability to respond to unanticipated circumstances. Third, the possibility of unexpected events suggests that if variance cannot be eliminated, it should be controlled as close as possible to its origin, suggesting that work be designed with sufficient autonomy or control. Fourth, in order to control variance at its source, workers must be multifunctional, have some level of control over “boundary tasks,” and have access to enough information to make decisions. Finally, from an organizational perspective, sociotechnical systems theory suggests that organizational systems should be congruent with the work design chosen. For example, if teams are employed, it might be important to have a compensation system that is based, in part, on team performance.

As these design principles suggest, the sociotechnical approach has a great deal in common with the job enlargement approach (Rousseau, 1977) in that it focuses on such things as autonomy, task feedback, and completing a whole piece of work. It differs, however, largely by focusing on the team level of analysis. In addition, although sociotechnical systems theory has a relatively long history, its key principles have not been completely tested and validated (e.g., such as joint optimization and controlling variance at its source). In fact, some have suggested that “it remains exceedingly difficult to specify propositions of the theory that are empirically disconfirmable” (Hackman, 1981, p. 80). Notwithstanding the foregoing, the sociotechnical approach is important because it formalized a focus on the group level of analysis and still exerts a strong influence on contemporary work design research and theory.

Social Information Processing Perspective

The social information processing approach of Salancik and Pfeffer (1978) arose from dissatisfaction with the need–satisfaction and expectancy models of motivation and job attitudes. Its importance for work design comes from the fact that it called attention to the effects of context and the consequences of past choices as opposed

to individual predispositions and rational decision-making processes.

The theoretical model was developed by Salancik and Pfeffer (1978) and subsequently examined in a number of studies in the 1970s and 1980s. The fundamental premise of the social information processing perspective is that individuals adapt their attitudes, behaviors, and beliefs to their social context as well as their past and present behavior and situation. This implies that the characteristics of work are not given but are constructed from social information. It also suggests that perceptions of job characteristics and reactions to work redesign may be influenced by factors besides objective features of work.

As summarized by Pfeffer (1981), the social information processing approach has four basic premises:

First, the individual’s social environment may provide cues as to which dimensions might be used to characterize the work environment . . . Second, the social environment may provide information concerning how the individual should weight the various dimensions—whether autonomy is more or less important than variety of skill, whether pay is more or less important than social usefulness or worth. Third, the social context provides cues concerning how others have come to evaluate the work environment on each of the selected dimensions . . . And fourth, it is possible that the social context provides direct evaluation of the work setting along positive or negative dimensions, leaving it to the individual to construct a rationale to make sense of the generally shared affective reaction. (p. 10)

Thus, the social environment impacts individuals in two ways. First, it helps individuals construct meaning about uncertain organizational features and events. It emphasizes what the socially acceptable beliefs and norms are, as well as the permissible forms of action given the organization’s broader context. Second, the social environment can direct attention by making certain information more salient. This provides information about expectations for individual behavior as well as the likely consequences of behavior. Generally speaking, research has found that social cues influence perceptions of and reactions to work, although there has been some debate about the magnitude of those effects (Kilduff & Regan, 1988).

Job Demands–Control–Support and Job Demands–Resources Models

Although perhaps most commonly discussed within the context of work stress and well-being, the Job Demands–Control–Support model (Karasek, 1979; Karasek & Theorell, 1990) and the Job Demands–Resources model

(JD-R; Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) have gained momentum in work design research. Originally developed by Karasek (1979), the job demands–control model attempts to shed light on the relationship between job demands and employee well-being outcomes, including physical illness, stress, strain, and burnout. The model proposes that job demands (i.e., any part of the job that requires sustained physical, psychological, or emotional effort) and job control (i.e., the amount of decision latitude one has) play a central role in determining the relationship between stressors and strain, such that job control buffers individuals from the negative effects of job demands. The model was later revised to include social support after researchers found that it, too, could play a buffering role in the stressor–strain relationship (Karasek & Theorell, 1990; Van Yperen & Hagedoorn, 2003). Research evidence testing the model has produced some conflicting results, with evidence suggesting that individual differences, including self-efficacy, proactive personality, and locus of control, can also play a key moderating role in the job demands–control relationship (Meier, Semmer, Elfering, & Jacobshagen, 2008; Parker & Sprigg, 1999; Salanova, Peiro, & Schaufeli, 2002). In addition, empirical results concerning the effects of social support have been similarly mixed. Although some studies have reported that social support reduces the impact of job demands on negative health effects, others have found no evidence supporting social support as a buffer to these negative outcomes (van der Doef & Maes, 1999).

Drawing from the tradition established by the Job Demands–Control–Support model, the Job Demands–Resources model was developed. This model recognizes both job demands and job resources as central tenets present in all organizational contexts. In contrast to the demands–control–support model, the JD-R model proposes that social support is but one type of job resource that, along with other types of resources (e.g., autonomy, feedback), can reduce employee disengagement and depersonalization by motivating workers, reducing job demands and their associated costs, and stimulating personal growth, learning, and development. In contrast, job demands (e.g., unfavorable physical environment, work pressure) increase emotional exhaustion (Bakker & Demerouti, 2007; Demerouti et al., 2001). Several studies have found evidence for the buffering effects of job resources. For example, Bakker, Demerouti, and Euwema (2005) found that employees high in autonomy, feedback, or social support did not experience the anticipated burnout associated with high levels of work overload,

emotional demands, physical demands, and work–home interference. Xanthopoulou and colleagues (2007) found similar results in a sample of employees working in home care organizations. Specifically, they found that high levels of job resources buffer the effects of job demands on burnout, with autonomy appearing to be the most important buffer, followed by support. Most recently, Nahrgang, Morgeson, and Hofmann (2011) meta-analytically tested the relationship between job demands and job resources, and burnout, engagement, and safety outcomes. They found that job demands in the form of complexity and risks and hazards were significantly related to burnout ($r_c = 0.24$ and $r_c = 0.28$, respectively), and negatively related to engagement ($r_c = -0.52$ and $r_c = -0.67$, respectively). In contrast, job resources in the form of knowledge, social support, leadership, and safety climate were significantly related to engagement (ranges of r_c from 0.47 to 0.80), and significantly and negatively related to burnout (ranges of r_c from -0.24 to -0.39).

Interdisciplinary Model of Job Design

Recognizing that work design research in I-O psychology was focused almost exclusively on motivationally oriented approaches, Campion outlined an interdisciplinary model of job design (Campion 1988, 1989; Campion & Thayer, 1985). This perspective suggests that different scientific disciplines have produced several distinct approaches to job design and research in each approach has been conducted relatively independently of other approaches. The interdisciplinary job design perspective highlights this fact and suggests that there are at least four basic approaches, each focusing on a distinct set of outcomes.

Grounded in classical industrial engineering research (e.g., Barnes, 1980; Gilbreth, 1911; Taylor, 1911), the *mechanistic model* evolved largely to deal with the pressures for efficiency that arose during the industrial revolution. This approach recommended increased simplification, specialization, and repetition of work. These changes were intended to result in increased efficiency, easier staffing, reduced training costs, and lowered compensation requirements.

Proceeding primarily from research in organizational psychology (e.g., Hackman & Oldham, 1980; Herzberg et al., 1959), the *motivational model* evolved in response to job dissatisfaction, the deskilling of industrial jobs, and alienation of workers that resulted from the over-application of the mechanistic model. The approach usually provides “job-enriching” recommendations such as increasing the variety of tasks performed or the autonomy

with which they are executed. The intended benefits of this model include increased job satisfaction, intrinsic motivation, retention, and customer service.

Based on human factors and experimental psychology research (e.g., Fogel, 1967; McCormick, 1976; Meister, 1971), the *perceptual model* arose from increases in technological complexity and a shift in many jobs from manually performing work to operating and monitoring. This approach is primarily concerned with reducing the information processing requirements of work in order to reduce the likelihood of errors, accidents, and mental overload.

Emerging from ergonomics and medical sciences research (e.g., Astrand & Rodahl, 1977; Grandjean, 1980), the biological model sought to alleviate physical stresses of work. Reductions in physical requirements and environmental stressors and increased consideration of postural factors are common recommendations. Taking these factors into account when designing jobs can reduce physical discomfort, physical stress, and fatigue.

CONTEXTUAL INFLUENCES ON WORK DESIGN

As noted by Morgeson, Dierdorff, and Hmurovic (2010, p. 351), “despite nearly 100 years of scientific study, comparatively little attention has been given to articulating how the broader occupational and organizational context might impact work design.” Morgeson and colleagues suggest that this failure to recognize the broader occupational and organizational environment is unfortunate for two main reasons. First, as indicated by recent empirical findings, work roles, and as a result their related work designs, are susceptible to a variety of contextual elements (Dierdorff & Morgeson, 2007; Dierdorff, Rubin, & Morgeson, 2009). Second, given that different work contexts are likely to influence individual needs and behaviors, they are also likely to impact the relationships between work design features and outcomes.

Recent meta-analytic findings by Humphrey et al. (2007) support the idea that contextual work design features are an important yet understudied area in work design research. They found that physical demands were negatively related to job satisfaction ($r_c = -0.17$), whereas work conditions were positively related to job satisfaction ($r_c = 0.23$) and negatively related to stress ($r_c = -0.42$). Despite a limited number of studies that looked at the work context, results from their hierarchical regression provide evidence for the incremental prediction of the contextual characteristics above and beyond motivational and social characteristics. Impressively, work

conditions alone explained an incremental 16% of the variance in stress. Collectively, these results suggest that contextual elements are indeed fruitful areas for research in work design. In the following sections, we highlight several elements of the social and structural context and discuss their implications for work design.

Social Influences

Spurred on by the social information processing model of Salancik and Pfeffer (1978), a host of researchers have examined the influence social information might have on work design perceptions and outcomes. The first research was conducted in laboratory settings and served to demonstrate that social information could impact task perceptions and task satisfaction. Although some found stronger effects for task enrichment (Weiss & Shaw, 1979), others suggested that social cues were more important for affective outcomes (O'Reilly & Caldwell, 1979; White & Mitchell, 1979). Of course, in this lab research the strengths of task and social cue manipulations are experimentally controlled. Thus, discussions about relative importance in fixed effects designs are not warranted.

Using a more extensive and complex within-subjects design, Griffin, Bateman, Wayne, and Head (1987) found that enriched tasks, coupled with positive social information cues, were the most motivating. This suggests that both objective facets of the work environment and social information determine perceptions and affect. Similarly, Seers and Graen (1984) found that including both task and leadership characteristics improved prediction of performance and satisfaction outcomes.

Other research has sought to define the range of situations under which social information can influence work design. Caldwell and O'Reilly (1982) found that an individual's job satisfaction is related to perceptions of task characteristics. Adler, Skov, and Salvemini (1985) reached a similar conclusion when they found that manipulating job satisfaction affects perceptions of task scope. Using an equity theory perspective, Oldham and colleagues (Oldham et al., 1982; Oldham, Kulik, Ambrose, Stepina, & Brand, 1986; Oldham & Miller, 1979) have sought to understand the consequences of different social comparisons in the workplace. Oldham et al. (1982) found that individuals do make comparisons to others in the work setting, and they tend to select more complex jobs as their referent. Oldham et al. (1986) then found that employees who felt disadvantaged relative to their referents were typically less satisfied and less internally motivated but employees who felt advantaged or equitable relative

to their referents performed at higher levels, were absent less frequently, and withdrew from the organization less frequently.

Two final studies in this area deserve attention. First, Vance and Biddle (1985) not only looked at the influence of social cues on task attitudes, but also investigated the timing of the social cues. They found that task-related attitudes were influenced by social cues, but the impact of those social cues was lessened with experience with the task. This suggests that social cues are more important before subjects have the opportunity to acquire many "objective" cues. Second, Kilduff and Regan (1988) found that although positive and negative cues impacted perceptions of task characteristics, they had no influence on actual behavior. They concluded that although ratings of tasks were responsive to information cues, actual behavior was responsive to direct experience with the task.

To test congruency model predictions, Pierce, Dunham, and Blackburn (1979) conducted a field study looking at the relative impact of social system design (organic or mechanistic) and job design on job satisfaction. They found that workers had the highest satisfaction when they had complex jobs in organic organizational structures (i.e., participative, few rules). Interestingly, the second highest levels of satisfaction were from workers who had complex jobs in mechanistic organizational structures. This suggests that features of the work itself are more important than social system factors for affective reactions.

In a field experiment, Griffin (1983) directly examined the relative impact of social cues and task changes. He found that social cues had a greater impact on social outcomes (e.g., friendship opportunities, dealing with others) and that the task manipulation had a greater effect on task characteristics. Both social cues and task changes impacted intrinsic, extrinsic, and overall satisfaction, although the task changes had a larger effect. Only the task changes, however, impacted productivity.

Structural Influences

Work occurs within the context of a larger organizational system, where many aspects of these systems influence the ways in which it is designed. For example, organizations that are highly decentralized are likely to design work to be more autonomous given the philosophy that underlies decentralized work structures. Because of this, researchers have continued to gain a better understanding of the mechanisms through which structural factors impact work design.

Early work on organizational structure found that such things as formalization and centralization were negatively

related to perceptions of several job characteristics (e.g., autonomy, variety, feedback, and identity; Pierce & Dunham, 1978a). Similar results were obtained in a study by Rousseau (1978a), who found negative relationships between several aspects of departmental structure (size, centralization, and formalization) and job characteristics and satisfaction. Rousseau (1978b) also found that job characteristics such as variety and autonomy mediated the relationship between the technological and structural context of the organization and employee outcomes like satisfaction and motivation. Evidence for mediation has been supported in a number of different studies (e.g., Brass, 1981; Oldham & Hackman, 1981; Pierce, 1979). For example, Oldham and Hackman (1981) found that job characteristics mediated the relationship between organizational structure and employee reactions of growth, pay, and supervisory satisfaction.

Over the course of a three-year quasi-experimental field study, Parker (2003) found that the use of three lean production practices (i.e., lean teams, assembly lines, and workflow formalization and standardization) negatively impacted employees. Results indicated that although workers in all three lean production groups were negatively impacted, with all groups reporting poorer quality work design, this was especially true for assembly-line workers. This group showed a decrease in organizational commitment as well as an increase in job depression. Based on results from meditational analyses, Parker also showed that the negative effects of lean production were at least partly due to a decline in employee perceptions of positive work characteristics (e.g., autonomy, skill utilization, participation in decision-making).

Another important structural element is that of the physical environment. In their quasi-experiment, Oldham and Brass (1979) examined how the physical environment affected job characteristics in a sample of workers at a newspaper organization who moved from a traditional office setting to an open-plan office arrangement (i.e., offices with no interior walls or partitions). Even though there were no changes to the jobs themselves, moving to a new office decreased the perception of several job characteristics (e.g., task significance, task identity). As in other studies, Oldham and Brass (1979) found that job characteristics mediated the relationship between the physical setting and reduced worker satisfaction and motivation. They suggested that the physical setting influences employee motivation and satisfaction by changing perceptions of specific job characteristics.

The technological environment is another potentially important structural feature of the work environment. In

a direct test of the relative influence of job design, structure, technology, and leader behavior, Pierce, Dunham, and Cummings (1984) found that job design (particularly autonomy and variety) was the primary predictor of employee attitudes and behavior and that technology was the second most important. They suggested that job design is most important because it is much “closer” to the worker and is experienced on a more direct and regular basis.

Recent meta-analytic evidence supports the notion that technology can influence work design and individual-level outcomes. Gajendran and Harrison (2007) found that telecommuting (a type of virtual work arrangement) increased perceived autonomy, job satisfaction, and performance. In addition, it reduced work–family conflict, turnover intentions, and role stress. More recently, Gibson, Gibbs, Stanko, Tesluk, and Cohen (2011) found that the effects of motivating job characteristics (e.g., task significance, autonomy, and feedback) on experienced meaningfulness, responsibility, and knowledge of results were dependent on workplace virtuality (i.e., electronic dependence and a lack of copresence). They found that virtual features of work enhanced the relationship between task significance and experienced meaningfulness but decreased the relationship between autonomy and responsibility. Similar results were found for the relationship between feedback and knowledge of results, with the relationship being weaker in highly electronically dependent settings. Taken together, these results suggest that technological aspects of the organizational context merit additional research attention.

Another component of the organizational context that seems especially relevant, but that has failed to receive attention in work design research, is that of error criticality. Error criticality represents the extent to which incorrect task performance can result in negative consequences (Brannick, Levine, & Morgeson, 2007). Although all roles contain some degree of error criticality, it is especially salient in jobs where incorrect task performance has negative implications to the self or others. For example, if a nurse incorrectly administers a dose of medication, the outcome could be disastrous, potentially resulting in the death of a patient. As highlighted by Morgeson and Humphrey (2008), employees in high error criticality contexts are more likely to focus on preventing errors rather than on obtaining positive outcomes. Regulatory focus research suggests that when one focuses on prevention rather than promotion, the predominant motivational state will be to avoid making mistakes (Liberman, Molden, Idson, & Higgins, 2001). Because the potential

consequences are so great when error criticality is high, its discrete contextual influence can shift an individual’s focus to that of preventing errors. When motivated to prevent errors, individuals also are likely to seek to minimize personal accountability, leading to further risk avoidance (Tetlock & Boettger, 1994; Weigold & Schlenker, 1991). This suggests that as an element of the task context, error criticality may constrain employee reactions to work design features such that when error criticality is high, typically positive work characteristics that increase responsibility and accountability (e.g., autonomy, problem solving, job complexity) may be seen as less desirable.

CHARACTERISTICS OF WORK

A large body of research has investigated the ways in which work can be described and the issues that arise when attempting to describe work. This section begins with a discussion of the structure of work, followed by a consideration of whether objective features or subjective perceptions of work are being measured in work design research, and concludes with a consideration of potential measurement problems in the research literature.

Structure of Work

Perhaps one of the most important aspects to designing and redesigning work revolves around understanding its structure. This importance is best illustrated in the literally thousands of studies looking at work design issues. Despite such efforts, research on the measurement of work characteristics has been narrow, incomplete, and problematic (Morgeson & Humphrey, 2006). To address such weaknesses Morgeson and Humphrey (2006) undertook an extensive review of the literature, and in so doing identified an extended list of work characteristics. Based on their findings, they developed a new measure of work design (called the Work Design Questionnaire [WDQ]) that assesses a wide range of work characteristics. Their efforts and the resulting WDQ are discussed in detail below.

Toward a Comprehensive Measure of Work Design

The WDQ was developed in part to address the narrow set of work characteristics measured in traditional work design research. As suggested by Parker, Wall, and Cordery (2001), “Consideration of modern forms of work and employment indicates the need to encompass a wider

range of work characteristics” (p. 422). Morgeson and Humphrey (2006) argue that a measure of work design that includes a variety of work characteristics is needed for several reasons. First, prior measures have been either too specific (e.g., task measures) or too general (e.g., attribute measures), failing to capture the middle ground in between them. Second, by including only a limited number of motivational job characteristics, work design efforts are likely to be highly restricted. By looking at an expanded set of characteristics more fine-grained changes can be made to the design of work (Morgeson & Campion, 2002). Finally, a measure of work that recognizes motivational, social, and work context elements may help encourage researchers to pursue new theoretical models.

For example, the Job Diagnostic Survey (JDS; Hackman & Oldham, 1980), the most commonly used work design measure, looks at only five motivational work characteristics: skill variety, task identity, task significance, autonomy, and feedback from the job. This is problematic for two main reasons. First, reliance on a measure with such a narrow set of work characteristics has resulted in work design research that neglects other potentially important work elements. Second, despite considerable efforts to replicate the five-factor structure, most studies have reported inconsistent factor solutions and have identified several problems with the factor structure of the JDS (Dunham, 1976; Dunham, Aldag, & Brief, 1977; Harvey, Billings, & Nilan, 1985; Idaszak & Drasgow, 1987; Kulik, Oldham, & Langer, 1988). Subsequent work by Sims, Szilagyi, and Keller (1976) resulted in the job characteristics inventory (JCI). Although findings indicated that this measure was superior to the JDS in terms of internal consistency and dimensionality (Pierce & Dunham, 1978b), it was largely based on items taken from the work of Hackman and Lawler (1971). As a result, the six factors (variety, feedback, dealing with others, task identity, and friendship) were quite similar to those in the JDS.

Recognizing the parochial nature of work design research, Campion (1988; Campion & Thayer, 1985) developed the Multimethod Job Design Questionnaire (MJDQ) to explicitly include other views of work in addition to the commonly measured motivational perspective. Although it measured a greater variety of work characteristics, the MJDQ suffered from measurement issues and gaps in construct measurement (Edwards, Scully, & Brtek, 1999, 2000). Edwards et al. (1999) found that in contrast to the four-factor structure (corresponding to the four distinct job design approaches) proposed by Campion (1988), a 10-factor model best fit the data, achieved discriminant validity, and produced adequate reliabilities. The

mechanistic approach included specialization and task simplicity scales; the motivational approach included feedback, skill, and rewards scales; the perceptual-motor approach included ergonomic design and cognitive simplicity scales; and the biological approach included physical ease, work conditions, and work scheduling scales. Despite such efforts, the MJDQ was still limited because the 10 scales did not fully represent the dimensions relevant to each work design approach. In addition, because some of the items from the MJDQ are the sole indicators of a given work dimension (e.g., a single item is used to represent autonomy), they cannot be used to form scales. As a result, additional items would need to be developed so these dimensions of work could be measured.

In addition to these specific measures—JDS, JDI, and MJDQ—other research has attempted to clarify and expand our understanding of numerous work characteristics (e.g., Kiggundu, 1983; Stone & Gueutal, 1985; Wong & Campion, 1991). Despite such efforts, it remains unclear how these work characteristics relate to other work elements, thus limiting our understanding of work design. The WDQ was developed to address the limitations present in existing measures.

The Work Design Questionnaire (WDQ)

With a consideration of the strengths and weaknesses of past measures, Morgeson and Humphrey (2006) set out to develop and validate a comprehensive measure of work design. This process began with a thorough search for all articles related to job or work design followed by a review of the Occupational Information Network (O*NET) job analysis database. Based on their findings, the authors identified 107 different work characteristics. Using a structured sorting and classification process, this original list was shortened to 18 work characteristic categories (see Morgeson and Humphrey, 2006, for a detailed explanation of the methodology used). These 18 work characteristics were then placed into one of four major categories: task, knowledge, social, and contextual. Each of these categories and the subsequent work characteristics within each are discussed below. See Table 20.1 for a brief definition of each of the 18 work characteristics.

Task Characteristics

Typically the most commonly investigated motivational work design characteristic, task characteristics focus on how the work itself is accomplished. It involves understanding the range and nature of the tasks associated with a given job. Of the task characteristics, autonomy has

TABLE 20.1 WDQ Work Characteristic Definitions

WDQ Category	Dimension	Definition
Task Characteristics	Autonomy	Extent to which a job allows freedom, independence, and discretion over work scheduling, decision making, and work methods.
	Task Variety	Degree to which a job requires employees to perform a wide range of tasks on the job.
	Task Significance	Degree to which a job influences the lives or work of others, whether inside or outside the organization.
	Task Identity	Degree to which a job involves a whole piece of work, the results of which can be easily identified.
	Feedback from Job	Degree to which the job provides direct and clear information about the effectiveness of task performance.
Knowledge Characteristics	Job Complexity	Extent to which the tasks on a job are complex and difficult to perform.
	Information Processing	Amount of information processing needed at work reflects the degree to which a job requires attending to and processing data or other information.
	Problem Solving	Degree to which a job requires unique ideas or solutions and reflects the more active cognitive processing requirements of a job.
	Skill Variety	Extent to which a job requires an individual to use a variety of different skills to complete the work.
	Specialization	Extent to which a job involves performing specialized tasks or possessing specialized knowledge and skill.
Social Characteristics	Social Support	Degree to which a job provides opportunities for advice and assistance from others.
	Interdependence	Degree to which the job depends on others and others depend on it to complete the work.
	Interaction Outside the Organization	Extent to which the job requires employees to interact and communicate with individuals external to the organization.
	Feedback from Others	Degree to which others in the organization provide information about performance.
Contextual Characteristics	Ergonomics	Degree to which a job allows correct or appropriate posture and movement.
	Physical Demands	Degree of physical activity or effort required in the job.
	Work Conditions	Elements of the environment within which a job is performed.
	Equipment Use	Variety and complexity of the technology and equipment used in a job.

garnered the most research attention (Morgeson & Humphrey, 2006). Based on the work of Wall and colleagues, autonomy has been operationalized as multifaceted, reflecting the degree of freedom one has over one's work scheduling, decision-making, and work methods (Breugh, 1985; Wall, Jackson, & Davids, 1992). *Work scheduling autonomy* reflects the ability to control the timing of one's work. *Decision-making autonomy* reflects the ability to make decisions at work. *Work methods autonomy* represents the ability to control how the work is performed. Meta-analytic evidence suggests that autonomy is indeed a key workplace characteristic, reducing anxiety, stress, and burnout ($p = -0.10$, $p = -0.23$, and $p = -0.30$, respectively; Humphrey et al., 2007). In addition, it is related to several important attitudinal outcomes, including job satisfaction, organizational commitment, and work

motivation ($p = 0.48$, $p = 0.37$, and $p = 0.38$, respectively).

Task variety is similar to that of task enlargement as defined in prior research (Herzberg, 1968; Lawler, 1969), with the notion being that jobs that involve a number of different work activities are more enjoyable and interesting (Sims et al., 1976). Thus, not surprisingly, Humphrey et al. (2007) found task variety to be related to job satisfaction, and subjective ratings of performance ($p = 0.46$ and $p = 0.23$, respectively).

Task significance reflects the impact one's work has on others. Recent work by Grant has brought renewed attention to task significance (Grant, 2008a, 2008b). As with other task characteristics, task significance is related to several important outcomes, including job satisfaction, organizational commitment, and work motivation ($p = 0.41$,

$p = 0.44$, and $p = 0.45$, respectively; Humphrey et al., 2007). In addition, task significance has a negative relationship with burnout ($p = -0.29$), and a positive relationship with perceptions of overload ($p = 0.38$). Morgeson and Humphrey (2008) suggest that the link between task significance and overload may indicate that workers high in task significance are overloaded by the weight of their responsibilities.

Task identity centers on the importance of being able to complete an entire unit of work versus completing only a small part of the task. Early research suggested that the ability to complete a piece of work from beginning to end leaves workers with a sense of pride and provides a source of motivation (Hackman & Oldham, 1976). Although meta-analytic evidence has found smaller effect sizes for task identity and worker motivation, organizational commitment, and job satisfaction ($p = 0.26$, $p = 0.19$, and $p = 0.31$, respectively), future research is warranted given its relationship to burnout and subject performance evaluations ($p = -0.28$ and $p = 0.17$, respectively; Humphrey et al., 2007). Recent work by Christian, Garza, and Slaughter (2011) found a strong relationship between task significance and employee work engagement ($p = 0.51$). This would suggest that organizations interested in increasing employee engagement may want to consider designing or redesigning jobs to include a greater amount of task identity.

Feedback from the job focuses on feedback obtained from either the job itself or knowledge of one's work activities (Morgeson & Humphrey, 2006). In line with goal-setting theory (Locke & Latham, 1990), feedback plays a central motivational role by helping workers adjust their behaviors based on the goals that they hold (Vancouver, 2005). Thus, not surprisingly, meta-analytic results (Humphrey et al., 2007) found that feedback from the job has a strong positive relationship with work motivation ($p = 0.42$) and job satisfaction ($p = 0.43$). Humphrey et al. (2007) also found that feedback from the job was negatively related to a handful of outcomes, including anxiety ($p = -0.32$).

Knowledge Characteristics

Knowledge characteristics encompass knowledge, skill, or ability demands placed on a worker as a result of the job (Morgeson & Humphrey, 2006). As suggested by Campion and McClelland (1993), separating task and knowledge characteristics acknowledges that a job can be designed or redesigned to increase either task demands, knowledge demands, or both.

Job complexity (the inverse of job simplicity; Campion, 1988) was originally conceptualized as an aspect of mechanistic job design. Morgeson and Humphrey (2006), however, found that job complexity was a distinct construct with varying effects on work outcomes. They suggest that work high in job complexity involves the use of high-level skills and is more mentally and physically challenging. Meta-analytic results would seem to suggest that this is indeed the case. Humphrey et al. (2007) found a positive relationship between job complexity and job satisfaction ($p = 0.37$), job involvement ($p = 0.24$), and perceptions of overload ($p = 0.59$).

Information processing derives from the work of Wall and colleagues (Martin & Wall, 1989; Wall & Jackson, 1995; Wall, Jackson, & Mullarkey, 1995). This stream of research suggests that information processing and monitoring vary across jobs, with knowledge requirements highest in jobs that have information processing requirements. This would seem to fit with evidence demonstrating that information processing increases compensation and training requirements ($r = 0.37$ and $r = 0.33$, respectively). Thus, Morgeson and Humphrey (2008) suggest that although information processing may likely lead to greater worker learning and development, it may also serve to increase the skill requirements needed on the job.

Problem solving involves generating unique or innovative ideas, solving nonroutine problems, and preventing or recovering from errors (P. R. Jackson, Wall, Martin, & Davids, 1993; Morgeson & Humphrey, 2006; Wall et al., 1995). This is similar to the idea of creativity. Although limited empirical research has been conducted in the area, recent meta-analytic evidence found that problem solving was related to work engagement ($p = 0.28$; Christian et al., 2011).

Skill variety differs from task variety in that it reflects the use of multiple skills versus the performance of multiple tasks (Morgeson & Humphrey, 2006). Hackman and Oldham (1976) suggested that the use of multiple skills is more challenging and thus more engaging to perform. Humphrey et al. (2007) found that skill variety is related to worker motivation ($p = 0.42$), job involvement ($p = 0.30$), and job satisfaction ($p = 0.42$). Yet, skill variety was not related to any of the behavioral, cognitive, or well-being outcomes examined in the meta-analysis.

Specialization is conceptually distinct from both task and skill variety in that it refers to the depth of knowledge and skill required to complete a job (Morgeson & Humphrey, 2008). Despite only a handful of studies having looked at specialization (e.g., Campion, 1988; Edwards et al., 2000; Morgeson & Humphrey, 2006),

work by Morgeson and Campion (2002) seems to suggest that it is related to both efficiency and job satisfaction.

Social Characteristics

Social characteristics represent the broader social environment within which work is performed. Although historically these dimensions of work have been less studied than motivational characteristics, scholars have emphasized the importance of giving more serious consideration to social and relational elements (Grant & Parker, 2009). Researchers suggest that social elements are deserving of more attention given the increasingly important role of workplace social relationships, the collaborative nature of teams, and growth in the service sector requiring employees to interact with customers, clients, and patients (Grant & Parker, 2009).

Social support includes supervisor and coworker social support (Karasek, 1979; Karasek et al., 1998) as well as friendship opportunities at work (Sims et al., 1976). Past research has discussed the role of social support in terms of its ability to buffer employees from negative work outcomes (Johnson & Hall, 1988; Karasek et al., 1998), with empirical results suggesting that social support plays a critical role in employee well-being (Ryan & Deci, 2001; Wrzesniewski, Dutton, & Debebe, 2003). This was supported by recent meta-analytic evidence, which found a small to moderate negative relationship with well-being outcomes (Humphrey et al., 2007). Not surprisingly, Christian and colleagues (2011) found that social support was moderately related to work engagement ($p = 0.32$). In addition, Humphrey et al. (2007) found that social support was strongly related to organizational commitment, job satisfaction, and turnover intentions ($p = 0.82$, $p = 0.56$, and $p = -0.32$, respectively). Finally, they found that social support is negatively related to role perceptions, including role ambiguity ($p = -0.32$) and role conflict ($p = -0.31$).

Interdependence is a multifaceted construct reflecting the structural “connectedness” of jobs to each other. This involves the extent to which a job has tasks that flow to other jobs (i.e., initiated interdependence) and the extent to which a job obtains or receives tasks from other jobs (i.e., received interdependence; Kiggundu, 1981). Previous research has looked at combinations of initiated and received interdependence and the extent to which this creates more complex forms of interdependence. Thompson (1967) looked at sequential interdependence, described as a unidirectional flow of initiated and received interdependence, whereas Van de Ven, Delbecq, and Koenig (1976)

explored the role of intensive interdependence in which the flow of behaviors goes to and from all team members. Another important consideration is whether interdependence takes place between jobs, teams, or organizations. Depending on the parties involved, more complex coordination, information sharing, and resource exchange issues may arise. Although interdependence has been shown to mainly affect attitudinal outcomes such as satisfaction and organizational commitment (Campion, Medsker, & Higgs, 1993; Humphrey et al., 2007), because interdependence requires higher levels of implicit coordination (Rico, Sanchez-Manzanares, Gil, & Gibson, 2008), it often causes workers to also perceive higher levels of overload (Humphrey et al., 2007). Yet, it is important to acknowledge that often as a result of interdependence tacit job knowledge is transferred (Berman, Down, & Hill, 2002), resulting in higher job performance (Humphrey et al., 2007; Saavedra, Earley, & Van Dyne, 1993).

Interaction outside the organization differs from other social characteristics because it focuses on communication between organizational members and nonorganizational members rather than solely on within-organization information exchange. In this way, interaction outside the organization encompasses a much broader social environment, with interactions taking place between suppliers, customers, or any other numerous external parties. Much less is known about this particular social characteristic in contrast to other social elements. Although recent work by Humphrey et al. (2007) has shown that it is related to higher job satisfaction, Morgeson and Humphrey (2006) have also shown that it is related to increased compensation requirements.

Feedback from others differs from feedback from the job in that it recognizes that feedback often comes from multiple sources, including other individuals (Hackman & Lawler, 1971). This distinction is important given recent work by Morgeson and Humphrey (2006), which shows that feedback from the job and feedback from others are only moderately related. Because feedback from others arises out of the larger social context, two potentially important sources of feedback are coworkers and supervisors. For example, role theory research suggests that supervisory feedback can reduce ambiguity by helping to establish and clarify role expectations (Biddle, 1979; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). It follows, then, that this element is positively related to a host of beneficial outcomes, including well-being, satisfaction, and work motivation, and is negatively related to turnover intentions and stress (Humphrey et al., 2007).

Contextual Characteristics

Contextual characteristics represent the physical and environmental context within which the work is performed. Early work by Campion (1988) highlighted the importance of *ergonomics* (i.e., the extent to which work allows for correct posture and movement) as an element of the context. Researchers have continued to look at the role of ergonomics, with results indicating that it is related to job satisfaction (Morgeson & Humphrey, 2006) and efficiency (Edwards et al., 2000). As noted by Morgeson and Humphrey (2008), both *physical demands* and *work conditions* (e.g., health hazards, noise, temperature, and cleanliness of the work environment) are often identified as having a key influence on outcomes. For example, Humphrey et al. (2007) found that whereas physical demands have a negative impact on job satisfaction ($p = -0.17$), work conditions have a positive influence ($p = 0.23$). Recent meta-analytic findings show that physical demands and work conditions are negatively related to employee work engagement ($p = -0.23$ and $p = -0.22$, respectively; Christian et al., 2011), and risks and hazards (e.g., noise, dust, heat, chemicals, and hazardous tools and equipment) are positively related to burnout but negatively related to engagement ($r_c = 0.28$ and $r_c = -0.67$, respectively; Nahrgang et al., 2011). The last of the contextual characteristics, *equipment use*, has not been previously assessed by other job design measures. However, previous research has suggested the importance of giving more attention to the equipment and technology used at work (Goodman, 1986; Harvey, Friedman, Hakel, & Cornelius, 1988). Hopefully its inclusion within the WDQ will provide researchers with the tool to explore this largely unrecognized contextual characteristic.

Summary

Until recently, past measures of work design considered only a narrow set of work characteristics, limiting work design researchers' ability to explore a wider range of work elements. As discussed above, the Work Design Questionnaire (WDQ) attempts to remedy this issue by providing the most exhaustive and comprehensive measure consisting of 18 work characteristics. Morgeson and Humphrey (2006) validated the WDQ in a sample of 540 incumbents across 243 different jobs. They found that the WDQ demonstrated excellent reliability and convergent and discriminate validity. In addition, although only recently published, the WDQ or subsets of the measure have been used in several empirical studies (e.g., Chung-Yan, 2010; Grant, 2008a; Grant & Sonnentag, 2010)

and it is beginning to be translated into other languages (Stegmann et al., 2010). We are hopeful that the WDQ will continue to play a role in future work design research that seeks to explore a wide range of work characteristics.

Objective Characteristics Versus Subjective Perceptions

Having described the various dimensions included in both past and recent measures of work design, we now move to concerns around the validity of job incumbent self-reports. That is, when job incumbents provide ratings about their job, do these ratings reflect objective properties of the job, or are they fundamentally subjective perceptions that may or may not be isomorphic with the actual job duties and responsibilities (Shaw, 1980)? As we have seen, a variety of factors can impact work design perceptions. Although early work in this area suggested that employee perceptions "are causal in affecting the reactions of employees to their work" (Hackman & Lawler, 1971, p. 269), it has always been assumed that these perceptions converge with an objective reality. In fact, Hackman and Oldham (1975) suggested that their Job Diagnostic Survey provides a measure of objective job dimensions when completed by job incumbents. In any event, it is presumed that objective task properties are related to perceived task properties (Taber & Taylor, 1990). This question has been investigated in two different ways.

Convergent Validity

The first way researchers have investigated this question is by examining the convergence between different sources of job information. This includes convergence between job incumbent self-reports and ratings made by others (e.g., supervisors, observers, job analysts) as well as convergence with published job information (e.g., job analysis databases). Presumably, ratings made by individuals who are not currently performing the job would be less subject to biases or perceptual distortions, and convergence with existing job analysis databases would reflect convergence to a more objective reality.

A large number of studies have investigated this issue (Algera, 1983; Birnbaum, Fargh, & Wong, 1986; Brass, 1981; Brief & Aldag, 1978; Gerhart, 1988; Gould, 1979; Griffin, 1981; Hackman & Lawler, 1971; Hackman & Oldham, 1975; Hackman, Pearce, & Wolfe, 1978; Jenkins, Nadler, Lawler, & Cammann, 1975; Kiggundu, 1980; Oldham, 1976; Oldham, Hackman, & Pearce, 1976; Spector, Dwyer, & Jex, 1988; Spector & Jex, 1991; Stone, 1975,

1976; Stone & Porter, 1975, 1978). Several have found relatively strong relationships between employee and supervisory ratings. For example, Oldham et al. (1976) found job-level correlations between supervisors and employees up to 0.85. Hackman and Lawler (1971) also found relatively high convergence between employees, supervisors, and researchers on the job dimensions of variety and autonomy (correlations in the 0.80s and 0.90s). Lower convergence was found with respect to feedback and dealing with others.

Others have found smaller convergence. For example, Birnbaum et al. (1986) found moderate to low correlations between incumbents and supervisors, ranging from 0.20 to 0.62. Again, variety and autonomy evidenced the highest convergence. Hackman and Oldham (1975) examined convergence between employees and supervisors, employees and observers, and supervisors and observers. The median correlations at the job level were 0.51, 0.63, and 0.46, respectively. Although there was moderate convergence across the sources, some job dimensions had low or negative relationships.

Several researchers (Campion, 1989; Dunham, 1977; Gerhart, 1988; Morgeson & Humphrey, 2006; Rousseau, 1982; Schneider, Reichers, & Mitchell, 1982; Taber, Beehr, & Walsh, 1985) have investigated the convergence between incumbent perceptions of job characteristics and other job information (e.g., job analysis databases, job evaluation systems). They found modest convergence between these sources, again suggesting that incumbent self-reports are anchored in some level of objective reality. Spector and Jex (1991) compared employee perceptions to the Dictionary of Occupational Titles (DOT)-derived complexity ratings, as well as ratings made by independent raters. Although they found moderate convergence between DOT measures and independent raters, there was smaller convergence between employee perceptions and the other two sources of information. Spector, Fox, and Van Katwyk (1999) found very little convergence between incumbent ratings and job analyst or supervisor ratings. Only 4 of 10 comparisons were significant, and the strongest correlation was 0.27.

In their meta-analysis of job design research, Fried and Ferris (1987) concluded that there was moderate to good overlap between incumbent ratings of job characteristics and those made by other raters. Spector (1992) conducted a more focused meta-analysis of 16 convergence studies, separating studies that assessed individual level (where the incumbent was the unit of analysis) versus aggregate-level (where the job was the unit of analysis) convergence. In general, convergence was greater at the job level, which

might be expected given that idiosyncratic differences between incumbents would be eliminated by aggregating. At the job level, the mean correlation was 0.59, with autonomy and variety evidencing the highest relationships (0.71 and 0.74, respectively). At the individual level, however, convergence was considerably lower. The mean correlation was 0.22, with autonomy and variety again evidencing the highest relationships (0.30 and 0.46, respectively). Across both the individual and aggregate level, however, incumbents and observers generally fail to converge in their ratings of feedback. Given this evidence, Spector (1992) suggested a conservative lower bound estimate of 10% to 20% as the amount of variance that could be attributed to the objective job environment.

There are three additional points to understand with respect to the studies that demonstrate convergence between different sources. First, higher levels of convergence at the aggregate level may be inflated because of aggregation bias (James, 1982). Correlations computed at the job level will typically be much higher than those computed at the individual level, regardless of actual levels of convergence. This increased convergence at the job level results from increased reliability, which is a function of the number of respondents, the correlation between respondents, and between-job variance.

Second, because convergence is indexed through correlations between different sources, it reflects patterns of covariance. That is, when a job incumbent rates autonomy high, so too does his or her supervisor. Issues of covariance, however, are independent of the absolute level of agreement across raters. In other words, although incumbents and supervisors may evidence distinct patterns of covariation in their ratings, the correlation between their ratings does not index the extent to which raters make similar mean-level ratings (Kozlowski & Hattrup, 1992). This suggests that high convergence may not reflect high agreement. This is an issue that has received some research attention (Sanchez, Zamora, & Viswesvaran, 1997).

Third, a lack of convergence may be due to real changes workers make to their jobs. Some workers may expand their job so that they integrate additional task elements into their role (Ilgen & Hollenbeck, 1991; Morgeson, Delaney-Klinger, & Hemingway, 2005). For example, Campion and McClelland (1993) found that incumbents often made their work more mechanistic. Such job crafting (Wrzesniewski & Dutton, 2001) would attenuate the relationship between self-reports and other reports because workers may change their jobs in ways known only to them.

Manipulation of Job Properties

The second way researchers have sought to determine whether self-reports of job characteristics reflect an objective reality or are simply subjective perceptions has been to alter or modify aspects of work, and then look for corresponding changes in incumbent perceptions. To the extent that job incumbents recognize objective changes in their work, we can be confident that their perceptions are anchored in reality. It is important to recognize, however, that such changes can provide only an approximate estimate of the degree to which variance in incumbent perceptions is caused by objective differences in jobs. This is due to the fact that the manipulated job characteristics in the literature tend not to be representative of the full range of characteristics in the work environment (i.e., a true random effects design; Taber & Taylor, 1990). Nonetheless, both laboratory (Farh & Scott, 1983; Ganster, 1980; Gardner, 1986; Griffin et al., 1987; S. E. Jackson & Zedeck, 1982; Kilduff & Regan, 1988; Kim, 1980; O'Reilly & Caldwell, 1979; Terborg & Davis, 1982; Umstot, Bell, & Mitchell, 1976; Weiss & Shaw, 1979; White & Mitchell, 1979) and field (Billings, Klimoski, & Breugh, 1977; Campion & McClelland, 1991, 1993; Champoux, 1978; Frank & Hackman, 1975; Griffeth, 1985; Griffin, 1983; Lawler, Hackman, & Kaufman, 1973; Luthans, Kemmerer, Paul, & Taylor, 1987; Morgeson & Campion, 2002; Morgeson, Johnson, Campion, Medsker, & Mumford, 2006; Orpen, 1979) studies have examined how changes in job properties were perceived by incumbents.

Although many of the laboratory studies have been conducted under the auspices of testing the social information processing approach to work design, one aspect of these studies has been to manipulate task characteristics and look for corresponding changes in perceptions. Research participants are randomly assigned into one of two conditions, one with an enriched task and one with an unenriched task. Without fail, research participants identify the enriched task as higher on motivational properties. In other research, within-subject designs have been employed, where the same research participant performs both enriched and unenriched tasks (e.g., Griffin et al., 1987; Terborg & Davis, 1982; Umstot et al., 1976). Again, strong differences have been found between the task enrichment conditions. Although there are a number of concerns with this research (see Taber & Taylor, 1990), it does serve to illustrate a key point: Individuals' perceptions of work design are influenced by objective differences between tasks.

The method used in field studies has also been relatively consistent. Typically, two groups are identified, one

whose job is redesigned and the other whose job is left unchanged. Several studies have found that job incumbents perceive their jobs as having increased in motivational job properties following a redesign (Griffeth, 1985; Griffin, 1983; Luthans et al., 1987; Morgeson & Campion, 2002; Orpen, 1979). Billings et al. (1977) found that those closest to the change reported differences in task variety, importance, and interdependence, but some of these changes in perceptions actually occurred before the actual technological change occurred. This suggests that something else in the environment is partly responsible for task perceptions. Although not as uniform as laboratory research, field research also suggests that incumbent perceptions are anchored in objective features of the task.

Measurement Concerns

Common Method Variance

It has long been recognized that data collected through a single method can lead to problems with common method variance (Campbell & Fiske, 1959; Cook & Campbell, 1979; Fiske, 1982). When data are collected with the same instrument, there can be spurious covariation among responses. As a result, observed correlations reflect shared method and trait variance (Spector, 1992). Because this can inflate observed relationships between various job dimensions and outcome measures, work design research that relies on self-reported survey questionnaires has been heavily criticized (Roberts & Glick, 1981; Schwab & Cummings, 1976).

Salancik and Pfeffer (1977) suggest that consistency and priming are the underlying causal mechanisms for common method variance. Consistency refers to the tendency of individuals to remember and maintain consistency with prior responses; whereas priming refers to the influence a questionnaire can have in orienting an individual's attention to certain responses. Thus, when responding to a job design questionnaire, the respondent may attempt to maintain logical consistency between various items. For example, because there is an intuitive relationship between having job autonomy and internal work motivation, if a respondent rates autonomy as high, he or she may also feel that internal work motivation should be rated highly, if only to maintain consistency. Priming effects are likely to occur as well because most work design questionnaires collect information on a relatively narrow set of motivational job features (e.g., autonomy, variety) that, in turn, can influence or direct subsequent responding. Such psychological processes can have a profound influence on self-reported beliefs, attitudes, intentions, and behaviors

because they can result in self-generated validity (Feldman & Lynch, 1988; Tourangeau & Rasinski, 1988).

There has been a good deal of debate as to the magnitude of common method variance effects in organizational research. Some have downplayed its influence (Fried & Ferris, 1987; Spector, 1987), whereas others have been very critical (Buckley, Cote, & Comstock, 1990; Mitchell, 1985; Roberts & Glick, 1981). For example, in examining previous studies, Buckley et al. (1990) estimated mean variance due to common method variance at over 21%, with a range of 3.6% to 56.3%.

Two studies provide more direct evidence concerning the extent of common method variance in work design research. The first is a meta-analysis conducted by Cramp-ton and Wagner (1994). They investigated the degree to which self-report methods have produced percept–percept inflation in organizational behavior research. One of the broad categories they investigated was termed *job scope*, and included most of the job characteristics typically assessed in work design research (e.g., autonomy, variety, task identity, and so on). They found statistically significant levels of inflation in relationships between self-reported job scope and job satisfaction.

The second study was conducted by Glick, Jenkins, and Gupta (1986). They used structural equation modeling to investigate the relative influence of job characteristics and method effects on outcome measures. They found that the impact of method effects depended on the outcome measure they were trying to predict. For example, job characteristics accounted for two-thirds of the variance in job satisfaction when method effects are not removed, but the predicted variance dropped to 2 percent when method effects are removed. A similar, although not as great, decrease was observed for challenge satisfaction (from 77% to 15%). The ability of job characteristics to predict effort, on the other hand, actually increased when method effects were removed (from 19% to 20%). This suggests that common method variance is more likely to bias affective outcomes than behavioral outcomes.

In total, this evidence suggests that common method variance is a problem in work design research. Because of this, a variety of strategies have been used to avoid it. For example, researchers have: (a) varied survey question order (e.g., Campion, 1988; Spector & Michaels, 1983); (b) collected data from multiple sources (e.g., supervisors and incumbents; Algera, 1983; Campion & McClelland, 1991; Glick et al., 1986; Johns, 1978; Oldham et al., 1976); (c) used separate subsamples per job (Campion, 1988); (d) collected data longitudinally (Campion & McClelland, 1993); and (e) used archival measures

(e.g., objective productivity; Griffin, 1983). It would be good scientific practice to engage in some of these strategies to avoid the problems associated with common method variance.

Levels of Analysis

A final measurement concern in the work design literature concerns level of analysis issues. Although work design theorizing has typically occurred at the job level, the majority of empirical tests have occurred at the individual level (see Morgeson & Humphrey, 2006, for an exception). Thus, in many instances, the level of measurement and the level of theory are different. By itself, this is not necessarily a problem. Differences in level of measurement and level of theory are common, and choosing a level for empirical testing should be guided by one's theoretical model (Klein, Dansereau, & Hall, 1994; Morgeson & Hofmann, 1999). Individuals could be considered informants about their jobs and therefore the best judge of a job's properties.

When data are analyzed at the individual level, however, one is dealing with the perceptions of incumbents, and it is unclear how much these perceptions agree with the perceptions of other incumbents in the same job (the convergence research reviewed above did not examine within-job convergence). Although some degree of variability would be expected, work design theories rely on the assumption that there is a high level of agreement among incumbents. There is reason to believe there is a lack of convergence in a large amount of work design research.

For example, much empirical work design research has been conducted with a single job title. Given that incumbents are performing the same job, one would expect there to be little variability in reports about various job characteristics. If there is no variance in job characteristics, then it is statistically impossible for these characteristics to be significantly related to any other variable. But this research typically finds significant relationships with a host of measures, including satisfaction and motivation. This suggests that there is variance within a job and this within-job variability is responsible for many significant results. Because this is inconsistent with work design theory, caution should be exercised in interpreting findings based on a single job.

It is likely there are both job-level and individual-level influences on work design outcomes. For example, workers will perceive the amount of autonomy designed into the job itself similarly, but some workers are also likely to be given greater discretion depending on their relationship with their supervisor. Thus, the amount of autonomy

reported by an incumbent will be a function of both individual and job-level factors. Existing work design theory, however, does not clearly identify individual versus job-level sources of variation in job design.

Another level of analysis issue concerns when data should be aggregated from the individual to the job level. First, theorizing should refer to the job, not the individual. Most work design theory does refer to the job (or team) level. Second, the measures should reference the job, not the individual (Morgeson & Hofmann, 1999). This will indicate to the respondent that ratings should be made about the job, not individual reactions to the job. Third, empirical support for aggregation to the job level should always be provided. This would include the calculation of interrater reliability via the intraclass correlation (Bartko, 1976) as well as an examination of interrater agreement (James, Demaree, & Wolf, 1984). If the r_{wg} statistic is used (James et al., 1984), a normal or negatively skewed distribution should be assumed, not a rectangular distribution.

MEDIATING MECHANISMS IN WORK DESIGN

A key conceptual question in work design concerns the underlying psychological mechanisms through which work design influences affective and behavioral outcomes. Hackman and Lawler (1971) suggested that jobs must (a) allow workers to feel responsible for a meaningful and identifiable part of the work; (b) provide outcomes that are intrinsically meaningful; and (c) provide feedback about performance success. Subsequent work by Hackman and Oldham (1976, pp. 256–257) referred to these three critical psychological states as experienced meaningfulness, experienced responsibility, and knowledge of results. They suggested that changes in work design influenced affective and behavioral outcomes because they altered these critical psychological states. Early evidence exploring the intervening role played by the psychological states was mixed (Fried & Ferris, 1987; Johns, Xie, & Fang, 1992; Oldham, 1996). For example Johns, Xie, and Fang (1992) found that of the three psychological states, experienced meaningfulness captured the majority of the mediation effects. Similar results were obtained in Humphrey et al.'s (2007) meta-analytic test of the job characteristics–critical psychological states–outcomes mediation model.

Two mediating mechanisms that follow from experienced meaningfulness are perceived social impact and social worth. Drawing from earlier work by Hackman (1990) and Hackman and Oldham (1980) that suggested

that contact with clients could impact employee outcomes, Grant and colleagues have explored the role of perceived social impact (i.e., “the degree to which employees feel that their actions benefit other people”; Grant, 2008a, p. 110) as a mediator between work design characteristics and important organizational outcomes. Specifically, they have looked at the mediating role perceived social impact plays between the task significance–job performance relationship (Grant, 2008a) and between the contact with beneficiaries–persistence behavior relationship (Grant et al., 2007). For example, in a sample of university fundraisers, Grant et al. (2007) found that contact with beneficiaries increased employee persistence (i.e., the number of fundraising calls made) by increasing employee perceptions of perceived social impact. Similarly, work by Grant and Gino (2010) has examined the intervening role that social worth (i.e., “the degree to which employees feel that their contributions are valued by other people”; Grant, 2008a, p. 110) plays in the relationship between contact with beneficiaries and prosocial behaviors. Across two laboratory studies, they found that workers who received a written expression of thanks were more likely to assist the beneficiary that wrote the letter as well as other beneficiaries. Using a field experiment, they also found that when managers expressed gratitude, university fundraisers made more fundraising calls. Together these results suggest that designing or redesigning jobs to include interactions with others may help expose workers to their beneficiaries, increasing feelings that their actions matter in other people's lives. This research is important because it offers empirical evidence in support of new meditational mechanisms.

Morgeson and Campion (2003) suggested that psychological empowerment might provide a more parsimonious description of the motivational benefits of enlarged work. Empowerment has been described as an active motivational state characterized by four distinct cognitions: (a) meaning, (b) competence, (c) self-determination, and (d) impact (Spreitzer, 1995). Thus, Morgeson and Campion (2003) argued that many of the motivational work characteristics highlighted earlier would seem to be logically related to the experience of empowerment (Gagne, Senecal, & Koestner, 1997; Kraimer, Seibert, & Liden, 1999).

The mediating role of empowerment was examined by Liden, Wayne, and Sparrowe (2000) in a study that assessed the extent to which it mediated the relationship between motivational job characteristics, leadership, and quality of coworker relationships and work outcomes. Although not solely testing work design factors, Liden et al.

(2000) found that some of the empowerment dimensions partially mediated the relationship between work design and satisfaction, commitment, and job performance. Other research has looked at the link between psychological empowerment and several attitudinal and behavior outcomes, including job satisfaction, intrinsic motivation, commitment, job performance and productivity, and proactivity and innovation (Gagne et al., 1997; Kirkman & Rosen, 1999; Kirkman, Rosen, Tesluk, & Gibson, 2004; Liden et al., 2000; Spreitzer, 1995).

There are, however, potential discriminant validity problems with the notion that work design increases psychological empowerment. This is due to the fact that at least one popular measure of empowerment utilizes the job characteristic of autonomy as an indicator of empowerment (labeled “self-determination”; see Spreitzer, 1995). Thus, at some level it is not clear the extent to which motivational features of work (e.g., autonomy) are separable from the psychological experience of work.

Self-efficacy is also a potentially important mediating mechanism that has received recent attention. Parker and Ohly (2008) suggest that enriched jobs help promote self-efficacy by increasing one’s enactive mastery experiences (i.e., repeated performance success) and perceived controllability over one’s tasks. This is supported by recent evidence that shows that job enrichment is indeed related to self-efficacy (Axtell & Parker, 2003; Burr & Cordery, 2001; Parker, 1998; Sprier & Frese, 1997). In a series of studies, Parker and colleagues (Griffin, Neal, & Parker, 2007; Parker, Williams, & Turner, 2006) have looked at a more specific type of self-efficacy, mainly role-breadth self-efficacy (i.e., “feeling capable of taking on a more broad and proactive set of responsibilities”; Parker & Ohly, 2008, p. 432). They argue that autonomy increases one’s sense of role-breadth self-efficacy, which in turn leads to more proactive behaviors. In early work, Parker (1998) found that across two field studies, autonomy was an important facilitator of role-breadth efficacy. Later, in a sample of U.K. wire makers, Parker et al. (2006) found that workers higher in role-breadth self-efficacy were more likely to engage in proactive work behaviors (e.g., proactive idea implementation and proactive problem solving).

All of the preceding formulations have relied on motivational explanations for how work design impacts affective and behavioral outcomes. In other words, they suggest that work design enhances work satisfaction and job performance by encouraging greater effort. However, there are other potential mediating mechanisms that are worth mentioning. One such mediator is the speed at which an individual can respond to problems. This idea of “quick

response” (Parker & Wall, 1998, 2001; Parker et al., 2001; Wall & Martin, 1987) suggests that when individuals have control over the decisions they make on the job, they will be able to quickly, effectively, and efficiently handle problems that arise (Morgeson & Humphrey, 2008).

Wall and Jackson (1995) offer a knowledge-based explanation. They suggest that changes in work design may improve organizational outcomes because increases in such things as autonomy not only tap into the existing knowledge of the workforce but also allow further learning on the job. In essence, there are logistical advantages associated with greater job control. If workers have the knowledge and authority to deal with problems as they arise, they may be able to respond more quickly to the problem. In addition, greater job control promotes workers’ understanding of the work system, thereby enhancing learning. If they learn more about the system, they are better able to anticipate and avoid problems (Wall et al., 1992). Similarly, autonomy can facilitate learning and development, and this increased knowledge can have beneficial effects on job performance (Parker, Wall, & Jackson, 1997).

Such a knowledge-based explanation is given further support in the research of Campion and McClelland (1993). They distinguished between task enlargement and knowledge enlargement and examined the effects of both on a variety of outcomes. Task enlargement involved adding requirements for doing other tasks on the same product, whereas knowledge enlargement involved adding requirements to the job for understanding procedures or rules relating to different products. They found that simply increasing the tasks resulted in a variety of negative outcomes over time (e.g., more mental overload, lower job efficiency). Increasing the knowledge component of the work, however, resulted primarily in benefits over time (e.g., satisfaction, less mental overload, better customer service). This converges with research that suggests that mental demands account for the effects of motivational job design (Campion, 1988; Campion & Thayer, 1985). But as Morgeson and Humphrey (2008) highlight, however, learning alone may not be sufficient, noting that it is important for workers to make use of the knowledge and skills that they develop. As such, they propose exploring the role of skill utilization (i.e., “the extent to which individual and team skills are effectively utilized”; Morgeson & Humphrey, 2008, p. 75). They suggest that when work is designed to tap into existing knowledge and skill bases (e.g., by enhancing autonomy), then one can also tap into formal and tacit knowledge and skills (Morgeson et al., 2006; Parker et al., 2001; Wall & Jackson, 1995).

Recently, researchers have called more attention to the role that self-regulation may play in relation to work design (Parker & Ohly, 2008). Morgeson and Humphrey (2008) note that self-regulation theories may serve as a way to integrate prior work on many of the mediating mechanisms discussed above. Similarly, Parker and Ohly (2008) highlight the role of motivational processes, including goal generation and goal striving in their extended framework. One specific mediating mechanism, promotion and prevention focus, seems particularly promising. Parker and Ohly (2008) suggest that enriched jobs will help stimulate a promotion focus (i.e., focus on advancement and growth) instead of a prevention focus (i.e., focus on security, safety, and responsibility). Based on Meyer, Becker, and Vandenberghe's (2004) integrated model of commitment and motivation, which looks at both internal (needs, values, and personal dispositions) and external (rewards, punishments) forces of behavior, Parker and Ohly (2008) propose that narrow job designs with low autonomy will lead to a sense of external control, whereas enriched jobs will lead to feelings of internal control, which is related to a promotion focus. In addition, both promotion and prevention focus have been shown to influence different behaviors, with promotion focus influencing creative processes (Friedman & Förster, 2001, 2005). In contrast, researchers have suggested that prevention focus is associated with satisfying behaviors that are limited in scope. Thus, not surprisingly Wallace and Chen (2006) found that prevention focus was negatively related to productivity (i.e., work quantity and speed). However, it is important to highlight that prevention focus was an important predictor of safety performance (i.e., adherence to rules and regulations), whereas promotion focus was negatively related. Thus, although more evidence is needed in this area, self-regulation theories seem to provide an additional lens through which we can look at work design and its impact on various outcomes.

OUTCOMES OF WORK DESIGN

In their meta-analysis, Humphrey et al. (2007) look at an extended list of work design outcomes ranging from role ambiguity to organizational commitment. Using this as a framework, we incorporate additional outcomes identified in Morgeson and Humphrey's (2008) expanded discussion of work outcomes. The result is the following four domains of work design outcomes: attitudinal, behavioral, cognitive, and well-being. Given space constraints, we discuss only a few of the categories within each of these

larger outcome domains (Figure 20.1 provides a more extensive list of the categories within each of the four outcome domains). As noted by Morgeson and Humphrey (2008; p. 47), "To begin to understand work design, it is important to articulate the different outcomes that may result from different work design features." With this in mind, we proceed with our discussion on work design outcomes.

Attitudinal Outcomes

Attitudinal outcomes center on one's feelings toward the job, team, or organization. Researchers have looked at numerous attitudinal outcomes such as satisfaction (including job, supervisor, coworker, team, growth, and promotion satisfaction; Hackman & Oldham, 1976; Warr, Cook, & Wall, 1979), team viability (Hackman, 1987; Sundstrom, DeMeuse, & Futrell, 1990), organizational commitment (Meyer, Stanley, Herscovitch, & Topolnysky, 2002), job involvement (Brown, 1996), and internal work motivation (Ryan & Deci, 2001).

Humphrey et al.'s (2007) meta-analysis shed light on the relationship between various work characteristics and attitudinal outcomes. For example, they found that autonomy, skill variety, task significance, task identity, and feedback from the job were all related to multiple facets of satisfaction. Specifically, they found that these five characteristics were related to job satisfaction (mean $p = 0.41$), supervisor satisfaction (mean $p = 0.30$), compensation satisfaction (mean $p = 0.19$), growth satisfaction (mean $p = 0.55$) and promotion satisfaction (mean $p = 0.21$). Autonomy demonstrated the strongest relationship with each of the satisfaction outcomes (with the exception of promotion satisfaction, in this case feedback from the job had the strongest relationship). These five characteristics were also related to organizational commitment, job involvement, and internal work motivation (mean of $p = 0.34$, $p = 0.29$, and $p = 0.39$, respectively). They also found that task variety was related to job satisfaction, supervisor satisfaction, compensation satisfaction, and promotion satisfaction (range of $p = 0.19$ to 0.46). Both information processing and job complexity were related to job satisfaction ($p = 0.38$ and $p = 0.37$, respectively). Job complexity was also related to job involvement ($p = 0.24$). In addition, social support, interdependence, interaction outside the organization, and feedback from others had a moderate relationship with job satisfaction (mean $p = 0.36$). Interestingly, social support was highly related to organizational commitment ($p = 0.77$), suggesting that work design efforts aimed at increasing an employee's

commitment to the organization may want to focus on this component of the social environment.

Behavioral Outcomes

Behavioral outcomes focus on the actions of workers. Although traditionally researchers have concentrated on the quantity (i.e., amount) and quality (i.e., accuracy, innovation, or customer service) of job performance, there are numerous other ways in which work design can impact workers' behaviors, including innovation (Axtell, Holman, Unsworth, Wall, Waterson, & Harrington, 2000), creativity (Shalley, Zhou, & Oldham, 2004), citizenship behaviors, counterproductive behaviors, absenteeism, and turnover.

For example, Oldham and Cummings (1996) found that employees who worked in enriched jobs were more likely to have higher ratings of creativity, produce more patents, and offer more suggestions. Elsbach and Hargadon (2006) took a unique perspective, suggesting that organizations use a new framework of "workday design" to enhance employee creativity. They argue that organizations should focus on designing an entire workday rather than designing a particular work task. Specifically, they suggest that to enhance creativity among chronically overworked professionals, organizations should design a workday to include a mix of cognitively challenging work as well as mindless work (i.e., work that is low in both cognitive difficulty and performance pressure). Their argument rests on the idea that by alternating between challenging tasks and mindless tasks, employees can achieve a balance of pressure and relaxation that may help them achieve greater creativity and lower stress.

An additional behavioral outcome that has received increasing research attention of late is that of proactivity. Although different construct labels have been used by different research teams, each focuses on the dynamic role that employees play in altering and enacting their own jobs. This focus on proactivity can be found in Wrzesniewski and Dutton's (2001) work on job crafting. In their influential article, the authors define job crafting as "the physical and cognitive changes individuals make in the task or relational boundaries of their work" (p. 179). Changes can include altering the number and types of tasks (Morgeson et al., 2005), reframing views of one's tasks, or altering how and whom one interacts and communicates with at work. Central to their model is the idea that employees engage in job crafting in order to instill a greater sense of control, meaning, positive identities, and interpersonal connection into their work. As an example,

the authors describe how a group of hospital cleaners may craft their jobs to include interacting with and caring for patients and family members despite it not being a part of their formal job description. Finally, Rousseau, Ho, and Greenberg (2006) have presented the idea of "i-deals," in which supervisors and employees agree to a unique job arrangement that differs from those given to other employees. Taken together, these different perspectives clearly mark a move away from the idea of jobs as static in nature, and instead recognize the critical role that employees play as "shapers" of their own jobs.

Meta-analytic evidence suggests that work characteristics do in fact impact employee behaviors. Humphrey et al. (2007) found that autonomy was related to objective performance ($p = 0.17$), and that autonomy, task identity, task significance, and feedback from the job were all related to subjective performance (mean $p = 0.18$). Task variety was also related to subjective performance ($p = 0.23$) as were the social characteristics of interdependence and feedback from others ($p = 0.18$ and $p = 0.28$, respectively). In addition, autonomy, task identity, feedback from the job, and social support were all negatively and significantly related to absenteeism (range of $p = -0.09$ to -0.15). Surprisingly, they found no studies that looked at the relationship between social characteristics and objective performance. Future research may want to explore this gap to help us gain a better understanding of this relationship.

Cognitive Outcomes

Cognitive outcomes consist of two components: (a) one's thoughts about one's job, and (b) the developmental outcomes of one's work. Within this broader category, we see research that has looked at learning and development (Edmondson, Bohmer, & Pisano, 2001), role perceptions (including role ambiguity, role conflict, role breadth self-efficacy, and flexible role orientation; Rizzo, House, & Lirtzman, 1970; Parker, 1998; Parker et al., 1997), turnover intentions (Lee & Mitchell, 1994), and team identification (Van der Vegt & Bunderson, 2005).

Based on Humphrey et al.'s (2007) meta-analysis, we have a clearer picture of how different work characteristics relate to some of the cognitive outcomes outlined above. For example, they found that autonomy was related to both role ambiguity and role conflict ($p = -0.23$ and $p = -0.17$, respectively). Similar results were found for feedback from the job, which demonstrated a strong negative relationship with both role ambiguity and role conflict ($p = -0.43$ and $p = -0.32$, respectively). One interesting finding was that none of the traditionally motivating

work characteristics (i.e., autonomy, skill variety, task significance, task identity, and feedback from the job) were related to turnover intentions. However, the opposite was true for social characteristics. Interdependence, feedback from others, and social support were found to have a negative relationship with turnover intentions (range of $p = -0.17$ to $p = -0.34$).

Well-Being Outcomes

Well-being outcomes include both physiological as well as psychological reactions to the job. This set of outcomes includes stress (e.g., Sprigg, Stride, Wall, Holman, & Smith, 2007), anxiety (e.g., Sprigg & Jackson, 2006), engagement (e.g., Christian et al., 2011), burnout or exhaustion (e.g., Bakker et al., 2005; Le Blanc, Hox, Schaufeli, Taris, & Peeters, 2007), overload, work/family issues (e.g., Valcour, 2007), occupational safety (e.g., Barling, Kelloway, & Iverson, 2003), and physical health outcomes (e.g., Aboa-Éboulié et al., 2007).

One well-being outcome that seems particularly important is that of safety outcomes. Given the extreme financial and human costs associated with workplace fatalities, injuries, and illnesses, work design researchers should look at how jobs can be designed or redesigned to increase workplace safety. For example, Barling et al. (2003) showed high-quality jobs (i.e., jobs that are composed of extensive training, variety, and autonomy) affect occupational injuries. Using data from the Australian Workplace Industrial Relations Survey, they found in a sample of 16,466 employees that high-quality jobs had a direct effect on workplace injuries and an indirect effect through the mediating influence of job satisfaction. More recently, Nahrgang et al. (2011) have reasserted the importance of looking at safety outcomes in their meta-analysis that looks at the role of job demands and resources. Interestingly, they found that job demands (i.e., risks and hazards, physical demands, complexity) and job resources (i.e., knowledge, autonomy, supportive environment) operate through a health impairment process and a motivational process to influence safety outcomes. In particular they found that job resources were negatively related to burnout, and that burnout was negatively related to safe work behaviors. They also found that job demands had a negative relationship with engagement, and that engagement was in turn positively related to safe work behaviors.

Humphrey et al. (2007) highlight several interesting meta-analytic findings in regard to well-being outcomes that are worth mentioning. First, although autonomy and feedback from the job were both negatively related to

anxiety ($p = -0.10$ and $p = -0.32$ respectively) and stress ($p = -0.23$ and $p = -0.21$, respectively), neither was related to overload. However, in line with arguments posed by Morgeson and Humphrey (2008), task variety, task significance, and information processing were each positively related to overload ($p = 0.38$, $p = 0.38$, and $p = 0.58$, respectively). Second, four characteristics (i.e., autonomy, skill variety, task significance, and task identity) were negatively related to burnout/exhaustion (mean $p = -0.26$), suggesting that additional research should look at that the Job Demands–Resources model (Bakker & Demerouti, 2007; Demerouti et al., 2001) as a way to explore this link. Third, work conditions explained an incremental 16% of the variance in stress, more than the five motivational characteristics or the social characteristics. This finding highlights the significance of work conditions specifically and the larger organizational context more generally as impacting important well-being outcomes.

Summary

Work design research has moved beyond the traditional focus on attitudinal and behavioral outcomes, to a focus that now recognizes work designs' impact on both cognitive and well-being outcomes. Meta-analytic results (Humphrey et al., 2007) have given us a greater understanding of the relationship between numerous work characteristics and outcomes. These results provide evidence for the importance of looking at an extended list of work characteristics given the different relationships to various attitudinal, behavioral, cognitive, and well-being outcomes. These findings also point to potential areas of future research given that many of the relationships have yet to be explored empirically.

WORK REDESIGN INTERVENTIONS

A large amount of work design research has been cross-sectional in nature. This is problematic because it severely limits the kinds of causal conclusions one can reach. Coupled with the fact that much of the cross-sectional research is plagued with common method bias, research on work redesign interventions offers the opportunity to determine how actual changes to jobs impact worker outcomes. As such, work redesign research allows us to have a more veridical understanding of the work design phenomena discussed throughout this chapter.

Many studies suggest that when interventions are guided by motivational approaches, job satisfaction increases.

Positive results have been found for a variety of different jobs, including telephone service representatives, key punchers, clerks, and operators (Ford, 1969); insurance key punchers (Hackman, Oldham, Janson, & Purdy, 1975); government clerks (Graen, Scandura, & Graen, 1986; Orpen, 1979); university receptionists (Griffeth, 1985); garment manufacturing jobs (Coch & French, 1948); telephone installers, connectors, and engineers (Ford, 1969); product inspectors (Mather & Overbagh, 1971); technicians, salespersons, engineers, and supervisors (Paul, Robertson, & Herzberg, 1968); clinical research information systems workers (Morgeson & Campion, 2002); machine shop workers (Griffin, 1983); insurance paperwork processors (Campion & McClelland, 1991, 1993); and blue-collar petrochemical jobs (Ondrack & Evans, 1987). These positive results, however, should be tempered by other research that has been less than supportive (Bishop & Hill, 1971; Frank & Hackman, 1975; Griffin, 1991; Lawler et al., 1973; Locke, Sirota, & Wolfson, 1976; Luthans et al., 1987).

Other change efforts not guided by the motivational approach have also been studied. These changes have typically occurred when new technology, operating procedures, or work locations are implemented. As one might imagine, these types of changes have had a number of different effects on employee outcomes. For example, Billings et al. (1977) examined the implications of a change from batch to mass production in the dietary department of a hospital. Although decreases in satisfaction and attendance were expected because of negative changes to work characteristics, none were found. Hackman et al. (1978) investigated the installation of office automation. They found that when motivational job characteristics were increased, internal work motivation (i.e., positive internal feelings when performing effectively) and satisfaction increased. When motivational job characteristics were decreased, internal work motivation and satisfaction decreased.

In the Oldham and Brass (1979) study mentioned earlier, although there were no objective changes to the work, perceptions of job characteristics changed and satisfaction and motivation decreased. Wall, Clegg, Davies, Kemp, and Mueller (1987) studied the shift from manual to automated assembly. They found little evidence that increased automation results in deskilling of work. Wall, Corbett, Martin, Clegg, and Jackson (1990) examined the impact of increased operator control. They found that increased control resulted in reduced levels of downtime, particularly for high-variance technologies. Increases in job satisfaction and reductions in job pressure were also observed.

Morgeson and Campion (2002) conducted a longitudinal quasi-experiment in which jobs were differentially changed in terms of their motivational and mechanistic properties. They found that satisfaction, efficiency, training requirements, and work simplicity could be differentially affected, depending on the changes made to the jobs.

Finally, drawing from an important conceptual article (Grant, 2007), in a series of field and lab studies Grant and colleagues (Grant 2008a, 2008b; Grant et al., 2007) have explored how social elements of the job can be structured to enhance employee prosocial motivation. In the first of these studies, Grant et al. (2007) looked at this relationship in a longitudinal field experiment of university fund-raising call center employees. They found that workers who had contact with a scholarship recipient (in order to learn how the recipient benefited from his or her scholarship) spent more time making phone calls and raised more money. This is in contrast to callers in two control groups, who showed no significant changes. Similar results were found in a field experiment of lifeguards. Grant (2008a) found that lifeguards who read stories about how their work could benefit swimmers showed a significant increase in job dedication and helping behavior. Lifeguards in the control condition, who read stories about the potential personal benefits of their work, did not show an increase in either area.

INDIVIDUAL DIFFERENCES IN WORK DESIGN

Individuals differ in terms of the attitudes and beliefs they hold, what they value, and how they respond to their environment. Research has investigated how these individual differences may influence responses to work design.

Early Research

Turner and Lawrence (1965) initiated research into individual differences. They found evidence that urban/rural background moderated the relationship between job characteristics and satisfaction, with those from rural backgrounds responding more positively to enriched work. At about the same time, other researchers (Blood & Hulin, 1967; Hulin & Blood, 1968) investigated “alienation from middle-class norms” and found limited evidence for the moderator among blue-collar respondents. Others also found significant moderating effects for job involvement (Ruh, White, & Wood, 1975) and need for achievement (Steers, 1975). Additional research on such things as community size (Shepard, 1970) and Protestant Work Ethic

(Stone, 1975, 1976), however, found little to no evidence (White, 1978).

Growth Need Strength

The most commonly studied moderator of the work design–work outcome relationship is Growth Need Strength (GNS). GNS is the preference or need individuals have for stimulating and challenging work. The basic premise is that motivation and satisfaction will result from a fit between the task characteristics and the needs of the employees, where the relationship between motivating job design and job satisfaction will be strongest for high-GNS individuals, although the validity of such need-based explanations has been questioned (Salancik & Pfeffer, 1977).

Meta-analytic studies have summarized this research and have reached optimistic conclusions about the moderating role of GNS. For example, Fried and Ferris (1987) suggested that GNS moderated the relationship between motivational job design and job performance, although they found only five studies had actually examined this relationship. After conducting a meta-analysis of 28 studies, Loher et al. (1985) concluded that GNS was useful as a moderating variable of the job design–job satisfaction relationship. Unfortunately, this conclusion was based on comparing correlations for high- and low-GNS workers. As we have come to understand, comparing subgroup correlations is analytically inferior to more sophisticated regression techniques (Stone & Hollenbeck, 1984).

More recent research, however, has reached less optimistic conclusions. Using a large sample of jobs and respondents (876 jobs, 6,405 total respondents), Tieg, Tetrick, and Fried (1992) comprehensively tested the moderating influence of GNS and context satisfaction. They found virtually no support for any moderating effect. Similarly, Rentsch and Steel (1998) found no moderating effect of competence or need for achievement, suggesting that growth needs do not act as moderators.

Additional Individual Differences

The mixed evidence in support of GNS as a moderator has led to the consideration of other individual differences. For example, Morgeson and Campion (2003) suggested that an employee's ability level may influence their reactions to job redesign efforts. They suggest that if the cognitive ability required by the job is beyond that which the individuals possess, they may react less positively to the change. Schneider et al. (1982) and Dunham (1977) found

significant relationships between motivational characteristics of jobs and various ability requirements. From the multidisciplinary perspective, Campion (1989) found that motivational job design has a positive relationship with a wide range of mental ability requirements and that jobs designed from a mechanistic or a perceptual perspective were negatively related to mental ability requirements. More recently, Morgeson and Humphrey (2006) found that knowledge characteristics (e.g., job complexity, information processing, and problem solving) were all related to an underlying cognitive ability component. This suggests that workers high in cognitive ability would perform better in jobs with high levels of these knowledge characteristics. In addition, Morgeson and Humphrey (2008) propose that jobs high in skill variety or specialization will also be best performed by individuals with high cognitive abilities. Although it remains an important research question, there is a dearth of research specifically investigating the moderating role of employee abilities (Fried & Ferris, 1987).

Despite the dominance of the Big Five personality traits across other research domains it has remained largely absent from the work design literature. Morgeson and Humphrey (2008) called attention to conscientiousness, agreeableness, and extraversion as potential moderators, suggesting that these individual differences would be especially important in jobs with high social or interpersonal demands. Recent empirical results would seem to support their view. In a sample of new fundraisers, Grant (2008a) found that conscientiousness moderated the relationship between task significance and performance such that the relationship was stronger for individuals high in conscientiousness. Additional research exploring the role of other Big Five traits is needed to help explicate the moderating role they might play.

Research has also examined whether negative affectivity (the stable tendency to experience negative emotions) and positive affectivity (the stable tendency to experience positive emotions) are related to incumbent perceptions of job characteristics. This research has been prompted by suggestions that negative affectivity may seriously bias self-report measures (Brief, Burke, George, Robinson, & Webster, 1988; Burke, Brief, & George, 1993). In directly testing the impact of negative and positive affectivity on job characteristics ratings, both Munz, Huelsman, Konold, and McKinney (1996) and Spector et al. (1999) found little evidence that negative affect had any impact on ratings. More recently, Fortunato and Stone-Romero (2001) found that positive affect, but not negative affect, moderated the relationship between task enrichment and task

perceptions. They suggested that these individual dispositions may indeed play a moderating role on perceptions of situational characteristics that are ambiguous.

Another potentially critical individual difference discussed in recent work is psychological flexibility. Psychological flexibility represents an ability to focus on the present moment and to persist with or change one's behavior in the pursuit of goals and values (Bond, Flaxman, & Bunce, 2008). Core to the idea of psychological flexibility is that individuals deliberately assess their internal experiences in a mindful manner (i.e., nonjudgmental and noncontrolling manner; Hayes, Luoma, Bond, Masuda, & Lillis, 2006), redirecting their attentional resources to that of the present moment. Thus, they are more able to effectively notice and respond to goal-associated opportunities that exist in the present situation (Bond et al., 2008), making it an important individual difference for a variety of outcomes, including job performance, motivation, absenteeism, and well-being (Bond & Hayes, 2002). In their recent quasi-experiment in a call center, Bond et al. (2008) found that psychological flexibility moderated the effects of a control-enhancing work redesign intervention. Compared to a control group, workers who underwent the intervention showed improvements in terms of mental health and absenteeism, such that this relationship was stronger for individuals high in psychological flexibility. Results indicated that these effects were mediated through enhanced job control.

In a somewhat related vein, another individual difference construct that could be potentially useful to explore in work design research is temporal focus. Temporal focus is defined as the extent to which an individual devotes his or her attention to perceptions of the past, present, and future (Bluedorn, 2002). As noted by Shipp, Edwards, and Lambert (2009), temporal focus is an important construct because "thinking about the past, present, and future affects current attitudes, decisions, and behaviors" (p. 1). This is supported by evidence from goal-setting, motivation, performance (Bandura, 2001; Cottle, 1976; Fried & Slowik, 2004; Nuttin, 1985), and affect (Wilson & Ross, 2003) research. There is recent evidence that suggests that individuals high in a given temporal focus may experience jobs differently. Shipp et al. (2009) found that when individuals were high in future temporal focus (i.e., a tendency to think about things in the future) their current job satisfaction was positively related to the anticipated levels of job characteristics (i.e., autonomy, recognition, and opportunities for advancement). The opposite was true when future focus was low. Similar results were shown for organizational commitment, such that organizational

commitment was positively related to anticipated autonomy when future focus was high, but not when future focus was low. Interestingly, they found that when past temporal focus (i.e., a tendency for individuals to focus on the past) was high, turnover intent was positively related to past levels of autonomy, recognition, opportunities for development, and pay. Together, these results suggest that the extent to which past and future job characteristics influence attitudinal outcomes depends on the degree to which individuals focus on past, present, or future time periods. For example, focusing on past job characteristics could affect current job satisfaction in ways that mimic the effects of current job characteristics such that feelings associated with those past characteristics are carried over into current job satisfaction. Although this represents a first step toward looking at the role of temporal focus, the results do seem to suggest that one's perception about the past, present, and future may impact the way one experiences current job characteristics.

Summary

After a long period where GNS was the primary individual difference studied, research has begun to explore other potentially important individual differences. We are encouraged by this trend and look forward to future research that enhances our understanding of how individual differences influence reactions to different features of work. Yet, any future research should be guided by three observations about past research and the practical implications of any differences found. First, much of the early work design research that found evidence for moderation employed inappropriate analytic techniques. Subgroup analyses were commonly conducted, where samples were divided into the top and bottom thirds on the measure of interest (e.g., GNS). Correlations between job design measures and outcomes for each group were then compared and differences in the magnitude of these correlations were offered as evidence for moderation. It is doubtful that more rigorous analytic techniques (i.e., moderated multiple regression) would yield the same conclusions.

Second, in most instances where jobs are being designed for multiple employees, it is best to design jobs in accordance with the average or typical employee. If jobs are tailored to the individual preferences of each current incumbent, the jobs may not be well suited for future incumbents who might possess different preferences. Furthermore, redesigning the job for each new employee is impractical, and predicting the preferences of future employees is likely to become more difficult with changes in labor market demographics.

Third, the relationships between the job design models and their outcomes tend to be positive for all employees, even if they differ in magnitude between employees. For example, although some employees may respond more positively to the motivational approach than others, the relationship is rarely negative. That is, typically all employees respond positively to motivating work, but some respond more positively than others (White, 1978). Research on GNS is a good illustration. Even those employees low in GNS showed small increases in job satisfaction in response to motivating job characteristics (Loher et al., 1985). In addition, there is evidence that people generally prefer work that is designed to be motivating. Campion and McClelland (1991) found that individuals generally preferred jobs designed from the motivational perspective and not the perceptual perspective (i.e., job design that seeks to reduce the information processing requirements of work), but were ambivalent about jobs designed from the mechanistic or biological perspective.

AN INTEGRATED WORK DESIGN FRAMEWORK

As this chapter has illustrated, a wide range of issues have been investigated in work design. Although informative, there exists no overall framework integrating this research. Figure 20.1 provides an integrative framework that summarizes the issues that have been investigated in the literature. It is not a formal model in the sense that it provides testable hypotheses. Instead, it is a heuristic device that quickly and economically conveys the major work design factors that have been investigated.

Contextual Influences

Contextual influences define the left-most side of the model. These include the range of social factors identified in the testing of social information processing theory, such as coworker job satisfaction and job complexity, as well as leader behavior. Although these social influences have commonly been viewed as biasing factors in the perception of work characteristics, they may instead represent important inputs into the social environment of work.

Structural influences such as organizational structure, technology, and the physical environment are the other main types of contextual influence. These factors have been much less widely studied, but they are likely to serve as important boundary conditions for the design of work. For example, the range of possible work design choices

will be limited by the formalization and centralization of the organization or the primary technology that is used. These structural influences do not dictate the design of work; they just place important limits on it.

Characteristics of Work

Characteristics of work constitute the next major element in the model. The bulk of evidence from the research conducted in the work design literature and elsewhere suggests that work can be divided into (a) task, (b) knowledge, (c) social, and (d) contextual domains. The task domain reflects the range of task characteristics commonly investigated (e.g., variety, autonomy). The knowledge domain reflects the more recently identified characteristics of mental demands, types of job control, specialization, and work responsibility. In essence, increases in these work features tend to make work more complex to perform, thereby increasing the mental demands placed on the worker.

The social domain has historically received less research attention than the task or knowledge domain, but recent research has begun to address this gap. More work is clearly needed into other features of the social environment, such as how feedback from others and social support relate to important work design outcomes. The contextual domain has all but been ignored in contemporary work design research (but has a strong tradition in other domains). This is unfortunate, because such things as physical activity, working conditions, technology used, and ergonomic design have been shown to have important relationships with worker outcomes. Clearly, more research is needed to integrate contextual features into work design research.

Mediating Mechanisms

There is considerable evidence that the aforementioned characteristics of work are directly related to outcome measures. There is at least some reason to believe, however, that several factors mediate between work characteristics and outcomes. The critical psychological states outlined by Hackman and Oldham (1975) have received only limited support as a mediating mechanism. Psychological empowerment has been forwarded as another possible mediating mechanism, and appears to offer a more parsimonious account of the motivational benefits of enriched work.

Knowledge-based explanations for the benefits of enriched work have only recently been forwarded, but they

provide a compelling alternative perspective. It may be that positive outcomes (particularly behavioral outcomes) are simply due to increased knowledge of the organizational system and the ability to anticipate and respond to problems more quickly. Although not discussed in the literature, two other knowledge-level mechanisms become apparent. First, jobs might be designed or redesigned to better take advantage of the skills possessed by employees. Second, work complexity is directly related to the information processing demands of the work. It may be that positive relationships between work characteristics and behavioral outcomes are due to their shared relationship with mental ability.

Outcomes

A host of attitudinal, behavioral, cognitive, and well-being outcomes have been investigated in the work design literature. Such psychological outcomes as job satisfaction and internal work motivation have been very heavily researched, whereas mental overload and underload have received less research attention. Relatively few of the behavioral outcomes have been studied, and only absenteeism has been found to be a consistent work design outcome. It seems clear that work design has some fairly predictable human resource outcomes, with skill requirements, training demands, and compensation levels all being related to different forms of work design.

TENSIONS IN WORK DESIGN

Although a great deal of work design research has been conducted over the past 50 years, many issues still remain unresolved. One issue that may pose a challenge to job design and redesign efforts involves how specific configurations of work characteristics can produce different outcomes (Morgeson & Humphrey, 2008). When work is designed or redesigned, there are inherent tensions between different work design approaches (Campion, Mumford, Morgeson, & Nahrgang, 2005). For example, changes aimed at increasing the satisfying aspects of work often make it less efficient. Similarly, changes aimed at making work more efficient generally make it less satisfying and motivating (Campion, 1988; Campion & Thayer, 1985). Until recently, it was thought that these kinds of tradeoffs were impossible to resolve (Campion & McClelland, 1993). Recent research suggests that it may be possible to eliminate (or at least minimize) these tradeoffs (Edwards et al., 2000; Morgeson & Campion, 2002).

As noted in the discussion of work redesign, most redesign efforts could be classified as either attempting to increase the motivational properties of work, or altering the technical or physical environment (typically to make work more efficient). Morgeson and Campion (2002) conducted a longitudinal quasi-experiment that sought to increase both satisfaction and efficiency in jobs at a pharmaceutical company. They found that when jobs were designed to increase only satisfaction or only efficiency, the common tradeoffs were present (e.g., increased or decreased satisfaction, training requirements). When jobs were designed to increase both satisfaction and efficiency, however, these tradeoffs were reduced.

Morgeson and Campion (2002) suggested that a work design process that explicitly considers both motivational and mechanistic aspects of work is key to avoiding the tradeoffs. Edwards et al. (2000) provide another possible explanation. They noted that the negative relationship typically found between motivational and mechanistic design is almost entirely due to a negative relationship between skill demands and task simplicity. Thus, as task simplicity increases, skill usage decreases, leading to the common tradeoffs between motivational and mechanistic design. But they also found that task simplicity and specialization, two key components of a mechanistic approach, were negatively related. This suggests that different aspects of mechanistic approaches are not necessarily consistent with one another. For example, task specialization may actually require high levels of certain skills. Thus, it may be possible to avoid the common tradeoffs by increasing task specialization because it makes work more efficient while at the same time increasing skill utilization (which makes work more motivating).

Campion et al. (2005) offer several different approaches that could be used when considering the potential tradeoffs of different work designs. The *compromise approach* involves “a direct judgment about the outcomes that are chosen as the focus of the work-redesign intervention” (p. 371). In this type of approach the desired outcomes drive the type of work design that is selected. The *level-separation approach* involves “designing different levels of the organization using different models” (p. 371). Unlike the compromise approach, the level-separation approach suggests looking at the organizational structure and hierarchy as a way to determine the appropriate work design. The *sequential approach* requires first implementing one model before implementing another, different model. Campion et al. (2005) offer several examples of how this could occur. For example, an organization may choose to use the mechanistic model to make jobs more

efficient, followed by applying the motivational model to make jobs more satisfying. The *synthesis approach* focuses on “specifying areas in which gains can be made based on one model without sacrificing the other models” (p. 371). The emphasis is placed on carefully examining the benefits of a model that can be gained without incurring its costs. Other approaches include the *team approach* (i.e., the use of team-based designs) and the *sociotechnical systems approach* (i.e., incorporating both changes to technological as well as human systems). Work design research would benefit from a closer examination of these types of approaches and the tradeoffs incurred in each.

CONCLUSION

As this review indicates, a large amount of research has been conducted under the auspices of work design. Although recently we have seen several extended work design frameworks, the majority of the research continues to use the model developed by Hackman and Oldham (1975, 1976). This has had a curiously narrowing effect that is best highlighted in Humphrey et al.’s (2007) meta-analysis. Although some topics have been investigated in great detail (e.g., the five-factor structure of the JDS), other topics have been all but neglected (e.g., nonmotivational explanations for the effect of work design). We have attempted to integrate past and current research on work design in an effort to highlight where we have been and where we stand as a field.

With this in mind, we highlight some potentially important work design areas that are in need of attention. First, as evidenced by recent meta-analytic findings, prior work design research has largely failed to acknowledge the work context. This is unfortunate given that the results show that contextual characteristics can impact important employee outcomes above and beyond the traditional motivating characteristics (Humphrey et al., 2007). Work design research would benefit from a better understanding of how employees react to different work characteristics in various contexts. For example, how do individuals respond to work design and redesign efforts in contexts with high levels of error criticality (i.e., consequences of failure)? Additional research is clearly needed in this area to help address these types of questions.

Work design research would also benefit from looking at the ways in which cultural differences impact employee perceptions and or reactions to changes in their work. Erez (2010) discusses both U.S. and Japanese approaches to work design and suggests that culture may act as a

moderator of the work design–outcome relationship. Research by Spector and colleagues (Spector et al., 2004, 2007) has empirically tested the moderating role of culture across multiple countries. For example, in a comparison of individualistic (U.S.) and collectivistic (Asia, East Europe, and Latin America) countries, they found that this cross-national difference moderated the relationship between work demands and both job satisfaction and turnover intentions. Such findings are promising and we look forward to additional research in this area. As discussed earlier, researchers have begun to translate the WDQ (Morgeson & Humphrey, 2006) into other languages. Hopefully this will help further work that intends to look at the impact of an extended set of work characteristics across different cultures and countries. By acknowledging the role of culture, we also acknowledge that work is embedded within a larger environment that extends beyond the organization.

A wider range of moderators of the work design–outcome relationship should be investigated. Research into Growth Need Strength has not yielded much support. Other important individual differences could include ability and personality. Surprisingly little work has been done that focuses on the moderating role of personality. In addition to the commonly studied Big Five personality traits, we have attempted to highlight some new individual differences that have yet to be largely explored within the work design domain. For example, how might one’s focus on the past, present, or future impact the ways in which one reacts to and experiences current job design features? Are individuals high in psychological flexibility better suited for certain types of jobs than others? Additional research may help shed light on these areas.

Finally, we are interested in exploring the idea of what makes “good” work. Barling et al. (2003) describe “high-quality work” as consisting of extensive training, variety, and autonomy; however, this label was prescribed by the authors. We believe that workers have different values, needs, and aspirations. As a result of these fundamental differences, they are likely to see their work in different ways and as such will have different definitions of what makes a “good” job. For example, a recent college graduate entering her first full-time job and a single mother who tries to balance both home and work will likely have very different definitions of what a good job entails. However, it may also be the case that there are some features of the job that are universally viewed as “good.” These perceptions around “good” work are likely to impact a wide range of employee attitudinal, behavioral, cognitive, and well-being outcomes.

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