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Work Design: Still Going Strong

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The basic tenet of traditional industrial engineering is that a factory worker can be manipulated, through time and motion study procedures and other techniques, into enriching his company at the expense of himself. The truth is that a man on the job can outfox the company almost every time. Nobody is going to work faster or better if it means cutting his own throat…. People – and their brains – are the most precious resource we have in our shop… Our most valuable partners in cutting waste are the people on the production floor, who know their jobs better than anyone.

The above quotation comes from Clair Vough's (Vough and Asbell, 1975: 6–7) introduction to a book about increasing productivity through redesigning the assembly lines at IBM in the 1950s and 1960s. At the time that this redesign was being implemented, the Taylorism and job simplification prevalent in the early 1900s was giving way to a new philosophy on jobs; one that emphasized how employees experienced their work and recognized that the way work was designed mattered to them, and should therefore matter to the organization. The understanding of how people experience and shape their jobs remains a salient issue today, especially given the multitude of management practices that have work design issues at their core, such as just-in-time inventory control, total quality management, integrated management, lean production, concurrent engineering, empowerment, job enrichment, job enlargement, and self-managing teams.

The changing nature of organizations makes such understanding even more important. Work design theory and practice must keep pace with the greater number of employees employed in the service sector, an increase in the use of contingent work, preferences by many for a more boundaryless career, a knowledge-based economy with increased competition over human resources, and other changes (Mirvis and Hall, 1994). Responses to the new organizational environment include expanding the core characteristics of work that are considered, identifying ways to design work to achieve broader outcomes, and recognizing that employees affect how work is designed as much as work design

influences employees. Work design research is also beginning to widen its focus away from the task and towards the situated and social context in which the task exists. We discuss these and other important developments in work design theory and research later in this chapter.

First, however, we review classic studies and existing models of work design. Because work design is a vast and heavily studied field, any review must be partial. Here we place emphasis on the characteristics of the job, the outcomes of these job characteristics, and the mediators and moderators to the relationship between characteristics and outcomes. In-depth discussions of many other important topics, such as antecedents of work design, can be found elsewhere (e.g. Morgeson and Campion, 2003; Parker et al., 2001; Torraco, 2005).

CLASSIC WORK DESIGN STUDIES AND WORK DESIGN MODELS

Scholars have long recognized the importance of work design in relation to both individuals and groups; a multi-level focus that continues today. While the individual and group level research often overlap and draw from each other, we address them separately here.

Individual level work design

At the dawn of the Industrial Revolution, early attempts to design jobs for optimal performance focused on simplifying jobs by dividing labor amongst workers so that each job required less skill on the part of the worker (Babbage, 1835; Smith, 1776). Empirical work on the impact of these simplified jobs, designed according to principles of 'scientific management' (Taylor, 1911), showed that they were experienced as dissatisfying, tiring, and boring, and that they reduced mental health and increased employee turnover and absence (Fraser, 1947; Walker and Guest, 1952).

Researchers then began focusing on what employees brought to their jobs and how to jointly optimize employees' working experiences and organizational productivity. One theory concerned with how employees respond to their working conditions was Herzberg's Two-Factor theory (Herzberg, 1968; Herzberg et al., 1959). According to this theory, the elements of the job that could be satisfying and motivating ('motivators') were different than the factors that could be dissatisfying and demotivating ('hygiene factors'). While subsequent research has provided disconfirming evidence for the two-factor theory (e.g. King, 1970; Schneider and Locke, 1971), the focus on how employees respond to their working conditions paved the path for later work on job enrichment that remains relevant.

The next wave of interest in job design was in response to Hackman and Oldham's (1976) job characteristics model (JCM). In the JCM, the authors identified five job characteristics (skill variety, task significance, task identity, feedback, and autonomy) that constitute enriched jobs, and proposed that these affect outcomes such as motivation, performance, satisfaction, absenteeism, and turnover. By averaging the first three characteristics then multiplying by the last two, these job characteristics can be aggregated into a 'motivating potential score' (MPS) for each job. The authors further predicted that employees high in growth need strength would respond more positively to the job characteristics than those low in growth need strength. Despite some inconsistencies with the model (Johns et al., 1992; Parker and Wall, 1998), much of the JCM has received ample support (Fried and Ferris, 1987), and it remains one of the most influential work design models. It has even been elaborated to better align its core aspects to the changes occurring in the wider organizational context (Parker et al., 2001).

Much research has also been stimulated by related theoretical models of individual work design from the stress literature, most notably the demand-control model of strain (Karasek, 1979). This model proposes that high job demands and low control cause strain, and, in the long-term, stress-related illnesses such as heart disease. Many studies have

tested, with mixed support (e.g. de Jonge and Kompier, 1997), the buffering role of job control; if high demands occur in the presence of high control, then strain will not accrue. The core model has also been elaborated by adding social support as an influence on strain, and proposing that work design affects strain via dynamic spirals of learning and behavior (Karasek and Theorell, 1990). For example, over time, the learning experiences that arise from an active job promote a sense of mastery and confidence, which in turn helps people to cope with further strain, thereby freeing up their capacity to accept even more challenging situations that promote yet more learning.

Several other models with distinct contributions can be identified. First, the job demands-resources model of burnout (Demerouti et al., 2001) proposes that job demands lead to exhaustion, whereas a lack of job resources (e.g., job control and social support) leads to disengagement. Second, Warr's (1987) vitamin model of the work environment's influences on well-being is unique in proposing non-linear relationships between work characteristics and well-being outcomes. It suggests that some characteristics of work (e.g. physical security), like vitamins C and E, are damaging in their absence, but beyond a certain level add no benefit. In contrast, other work characteristics (e.g. opportunity for personal control and externally generated goals), like vitamins A and D, as well as being damaging in their absence, can be toxic in very large quantities. Finally, the research on psychological empowerment has embraced similar mediating mechanisms to the JCM (meaning, impact, competence, and choice), although it does not posit these experiences as mediators per se but rather as the defining features of empowerment (Thomas and Velthouse, 1990).

Group level work design

Since the onset of research and thinking on work design, scholars have been interested in how work can be redesigned not only for individuals, but for groups of employees. Drawing on socio-technical systems approach, which originated at the Tavistock Institute of Human Relations in London during the 1950s, Trist and Bamforth (1951) investigated 'long-wall' coal mining methods in Durham, England. They studied how redesigning the group structure in a coalmine from autonomous groups to large, disconnected departments lowered the morale of the workers. In the new structure, employees had difficulty communicating, and the high level of task interdependence led to rigid performance constraints. The redesign led to a decrease in productivity, although interestingly, over time, employees learned to cope with the new conditions and morale and performance improved.

Most of the work that followed this early research on group work design focused on the impact of introducing autonomous workgroups. Autonomous work groups were thought to be ideal for meeting socio-technical design criteria (Cherns, 1976) that were developed at Tavistock. Criteria include, for example, that methods of working should be minimally specified and that variances in work processes should be handled at the source. Wall and Clegg (1981) found that when two previously segregated teams were integrated, with a consequent increase in autonomy and task identity, there were increases in motivation, satisfaction, performance, mental health and retention. Reviews of other such studies (e.g., see the study by Cordery et al., 1991) typically conclude that autonomous work groups consistently enhance job satisfaction and related attitudinal outcomes, but the effects on behavioral outcomes such as performance and absence are less consistently demonstrated (Parker and Wall, 1998).

In contrast to these studies showing mostly benefits of group work design, Barker's (1993) ethnographic study of self-managed teams demonstrated some drawbacks. In the case investigated, the self-managed teams that replaced the hierarchical structure developed sets of normative rules that actually meant stricter control over employee behaviors due to the monitoring of team mates. Barker's research suggests that it is important to

understand not only the group structure but also the group dynamics. This premise is reflected in team effectiveness models which, as well as highlighting group work design elements as important for team performance and morale, also identify aspects such as group processes, group synergy, and group norms (e.g., Cohen and Ledford, 1994; Hackman, 1987).

Other work design models

Up to this point, our review has primarily emphasized motivational approaches to work design which focus on how to design jobs in order to promote optimal motivation on the part of employees. However, there are a variety of other perspectives on work design that come from different disciplines (Campion and McClelland, 1991; 1993). A second approach, the mechanistic perspective—a product of both Taylor's scientific management and industrial engineering—focuses on simplifying tasks. This perspective has the purported benefit of facilitating staffing and training. The biological model, stemming from ergonomics, is a third perspective that emphasizes how tasks can be designed in order to maximize employees' comfort and physical health. Fourth, the perceptual-motor model of work design, derived from experimental psychology and human factors, takes into consideration the attentional and informational demands that employees can handle in their work.

Campion and McClelland's (1991) interdisciplinary framework is helpful in practice because it highlights contrasting professionals' assumptions about how to design jobs. It can also be used to evaluate work designs from multiple perspectives (e.g. see Campion and McClelland, 1993). Nevertheless, it might be most useful to view these disciplines as categories and focus on the dimensions within them rather than the perspectives as a whole. Edwards et al. (2000) showed that work design was best characterized by ten factors, rather than the four used by Campion and McClelland, and that these different dimensions were differentially related to

job satisfaction, efficiency, comfort, and reliability. In a similar vein, Parker and Wall (1998) suggested that the interdisciplinary approach to work design results in a somewhat oversimplified characterization of the motivational approach and its outcomes.

CHARACTERISTICS, OUTCOMES, MEDIATORS AND MODERATORS

In this section we discuss the core elements of the job characteristics approach to work design.[1] Thus, we consider the key work characteristics, outcomes, mediating processes, and moderators or contingencies.

Work characteristics

Work characteristics are the heart of job design research and practice, so it is important to identify those that are most important for the situation and measure them effectively.

In terms of identifying key characteristics, there are many to consider beyond the five originally identified in the Job Characteristics Model. In Edwards et al. (2000), the ten featured factors were:

- feedback;
- skill;
- rewards;
- specialization;
- task simplicity;
- physical ease;
- work scheduling;
- work conditions;
- ergonomic design; and
- cognitive simplicity.

In their meta-analysis, Morgeson and Humphrey (2006) identified 21 distinct work characteristics within four broad categories:

- task motivation work characteristics (e.g., autonomy);
- knowledge motivation characteristics (e.g., job complexity, problem solving);
- social work characteristics (e.g., interdependence, feedback); and
- contextual characteristics (e.g., work conditions).

Time pressure, role conflict, role ambiguity, and work load can be added to this list, as can characteristics that are more salient in the changing work context, such as emotional demands and electronic performance monitoring. To ascertain which characteristics are most relevant to a particular study or intervention, Parker et al. (2001) recommended considering both theory and context.

> …In some contexts, some variables will vary little, so the explanatory power will lie in other variables. For example, social interaction might not vary much in most jobs, but might assume especial significance for certain forms of work such as teleworking … Generally, the choice of variables will be guided by the overall theory as well as an understanding and analysis of the context. Rather like the premise of traditional work design theory, researchers and practitioners need to be afforded autonomy and minimal critical specification if the full potential of their contribution is to be realised.

A further important issue in regard to work characteristics is their measurement. Self-perceptions of job characteristics are most commonly used as indicators of objective job characteristics, but these can be affected by mood, personality, and social processes (Salancik and Pfeffer, 1978). When the outcome variable is also assessed via self-perceptions, such as measures of well-being, the link between job characteristics and the outcome can be inflated by common method variance.

These concerns have led to the use of complementary approaches to assess objective job characteristics, such as using others' perceptions (e.g. managers, researchers), aggregating measures of job perceptions to the group or job level, and using data bases of occupations such as the Dictionary of Occupational Titles or O*NET. Unfortunately, none of these additional methods are problem-free. Another person's rating of the job is not necessarily appropriate, or sufficiently nuanced, to capture real variations in job content or its meaning for individuals. Further, aggregated measures do not allow for the possibility that individuals within groups can have different job characteristics, and data bases such as O*NET only give information on the characteristics of occupations rather than specific jobs. Using more 'objective' indicators, such as the presence of machine-pacing to indicate low job control, can oversimplify job content and they are not helpful for assessing more subjective aspects like role conflict. In contrast, subjective measures also allow for the role of social cues and personal meaning in determining job characteristics (Salancik and Pfeffer, 1978; Wrzesniewski et al., 2003).

In fact, despite the concerns about them, there are several sources of evidence that employee self-ratings can closely match objective job features (Oldham, 1996). First, meta-analyses show relatively high convergence between self-ratings and ratings from external observers, especially for the more observable work characteristics like job control (Fried and Ferris, 1987). Studies also show convergence between surveys of relevant work characteristics and occupations classified via DOT and O*NET (Morgeson and Humphrey, 2006). Second, studies show that, if there are objective changes in job characteristics, there is a parallel change in job holders' self-rating (see Taber and Taylor, 1990). Third, although studies based on the social information processing approach have shown that social information does indeed affect employee job ratings, these studies also suggest the effects are weaker than those of objective job features (Taber and Taylor, 1990). Therefore, there are good reasons for the continued use of self-report measures of job characteristics, albeit with the recognition that they likely reflect more than 'objective' work characteristics and with due caution about common method variance. At the same time, using multilevel approaches to analyze self-report date can also be insightful (see de Jonge et al., 1999 and Van Yperen and Snijders, 2000 for two contrasting multilevel approaches), and we recommend complementing self-report measures with others' reports.

Most important, one must think about exactly what it is one is trying to assess and design the measurement strategy accordingly. To assist in this process, Daniels (2006)

distinguished global perceptions of jobs (best assessed through self or other reports) from enacted and emergent job characteristics (best assessed through self-reports within specific time frames, such as daily diary methods) and from latent job characteristics (best assessed by data bases, analysis of job descriptions, or inferred from interventions that change structures, processes or technology). Daniels' (2006) approach may help to achieve a better match between the theoretical construct and its measurement. One should also bear in mind that some research questions will be usefully addressed with more interpretivist approaches, and ethnographic methodologies, that focus on how jobs are understood and experienced by the incumbent.

Outcomes

The importance of work design lies in its ability to predict valuable individual and organizational outcomes. In Fried and Ferris's (1987) meta-analysis of the JCM, they found consistently strong relationships between the five job characteristics and satisfaction and motivation, as well as weaker relationships with performance and absenteeism (see also Loher et al., 1985; Rentsch and Steel, 1998), although other research has not found support for the relationship between job characteristics and performance (Kelly, 1992). More recently, Humphrey et al. (2007) performed an extended meta-analysis and found even stronger relationships between job characteristics and attitudinal outcomes. They also demonstrated that the job characteristics predicted organizational commitment, job involvement, and role conflict.

Some of the most intriguing results regarding these traditional outcomes of job redesign come from longitudinal studies. In Wall and Clegg's (1981) study of autonomous work groups, the positive effects on performance, retention, and motivation lasted throughout the 33-month study, whereas the positive impact on satisfaction and mental health was only evident one year after the work redesign. In contrast, in a study of job enrichment of bank tellers that consisted of four

measurement periods, Griffin (1991) found an increase in satisfaction and commitment in the first six months after the redesign, but a drop back to original levels in these job attitudes after 24 months. Performance, in contrast, showed significant increases between 6 and 24 months and stayed at that high level until the end of the study at 48 months. Clearly, these two studies show different patterns of change, which might stem from differences in the two samples (blue collar employees vs. bank tellers) or the different level of analysis (groups vs. individuals) or some other factor. Clearly there is a need for additional research into the longitudinal effects of work design because, as these studies indicate, some of the initially positive outcomes might not be enduring, perhaps because employees adapt to the work redesign. Longitudinal designs also remain important for establishing causality.

Other important outcomes of job design are mental and physical health. Karasek (1979; see also Karasek, 1990) demonstrated that when employees have high job demands and low job latitude they are more likely to be depressed, exhausted, absent, dissatisfied and take pills than employees in other job conditions. Le Blanc et al. (2007) attributed the success of a team-based burnout intervention amongst oncology care providers to improvements in job control, social support, and reduced job demands. Both social support and job demands were also shown to be important in a longitudinal analysis of UK civil servants (Stansfeld et al., 1997). Overall, when rigorous work designs are implemented, there is consistent evidence of the negative effects of excess demands on mental health outcomes (Frese, 1985; Parkes, 1995). However, the positive mental health effects of job control are more mixed (e.g. Dwyer and Fox, 2000; Sargent and Terry, 1998).

Research is also increasingly highlighting the potential role of work design for physical health and safety (Parker et al., 2003). In their review, Theorell and Karasek (1996) reported that 16 out of 22 studies showed significant associations between high

demand-low control jobs and cardiovascular disease (CVD) or CVD symptoms. As another example, Sprigg et al. (2007) found that, for call center employees, higher work load was associated with upper body and lower back musculoskeletal disorders, and this relationship was largely accounted for by job-related strain. The effect of work design might also affect safety through a number of mechanisms. For example, job variety might alleviate boredom and increase attentiveness, thereby reducing risks, whereas excess job demands might cause short cuts to be taken, thereby increasing the chance of injuries. However, so far, few studies have investigated how work design affects accidents or injuries, and the studies that exist show diverse findings (Parker et al., 2003). Overall, although promising, research on the effects of work design on physical health remains relatively underdeveloped.

Researchers have also investigated how work design influences employees' self-efficacy and proactivity. These two outcomes are important because they relate to employee motivation (Gist and Mitchell, 1992) and organizational effectiveness (Hisrich, 1990). Parker (1998) defined role based self-efficacy as the degree to which people believe they can take on a broader array of interpersonal, integrative, and proactive tasks rather than just fulfil technical requirements. In one longitudinal study of a manufacturing company, she found that participation in improvement circles and job enrichment promoted role-based self-efficacy (Parker, 1998) and, in the reverse situation when jobs were deskilled due to introducing lean assembly lines, role based self-efficacy decreased (Parker, 2003). In a related vein, in a study of East and West Germany, Frese et al. (1996) demonstrated that the lower control and complexity that was characteristic of the East led to less personal initiative for the East German employees. These results were further substantiated with evidence showing that self-efficacy both mediates and moderates job complexity and control's relationship with initiative (Speier and Frese, 1997). Parker et al. (2006) similarly showed that job autonomy was associated with more proactive problem-solving as well as self-implementation of ideas; a relationship that was partially mediated by role breadth self-efficacy and flexible role orientation.

Although researchers have investigated the effects of job characteristics on outcomes for nearly half a decade, the influence of job characteristics on specific emotions is still in its infancy. We know that job characteristics impact both positive and negative moods and that the five job characteristics differentially affect enthusiasm, fatigue, nervousness, and relaxation (Saavedra and Kwun, 2000). Certain job characteristics (e.g. interactions with others) can also lead to emotional labor (Schaubroeck and Jones, 2000). Due to the importance many employees place on social interactions in the workplace (Tschanh et al., 2005), social work design models may be especially crucial to understanding how job characteristics impact emotion.

Mediators

In addition to a focus on the outcomes of work design, there has been substantial work exploring the mechanisms that mediate this relationship. In the JCM, it was proposed that skill variety, task identity, and task significance would influence experienced meaningfulness, autonomy would influence experienced responsibility, and feedback would influence knowledge of results and that these three psychological states would, in turn, drive attitudinal and behavioral outcomes. While there is evidence that these states do mediate the job characteristics-outcomes relationship (Humphrey et al., 2007), the psychological states may not only mediate the specified relationships (Fried and Ferris, 1987) and may not all be necessary (Johns et al., 1992). Of the three psychological states, experienced meaningfulness has the strongest influence on outcomes (Fried and Ferris, 1987; Humphrey et al., 2007).

In an effort to provide a more detailed analysis of the mediating role of motivation, Parker and Ohly (in press) proposed that job characteristics can affect motivation in ways beyond its effect on traditional states.

For example, they proposed that, because they enhance feelings of internal control, enriched jobs will lead to a promotion vs. prevention regulatory focus (Higgins, 1996), in which employees focus on growth and accomplishment rather than security and obligation. In turn, employees will demonstrate more creativity and discretionary behavior (Friedman and Foerster, 2005). Integrating work design theory with Kanfer's (1990) task specific motivation theory, the authors also proposed that job characteristics can affect the kinds of goals employee choose (goal generation) as well as their persistence in achieving them (goal striving). For example, job enrichment might lead employees to generate more difficult goals with longer-time frames because autonomy increases the sense of ownership one has for a broader range of goals (Parker et al., 1997).

Work characteristics not only affect outcomes through influencing motivation, but also through improved logistics and learning. When employees are given increased autonomy and responsibility for their work they can often respond to problems faster (Wall et al., 1992) and use their knowledge to anticipate and fix problems more effectively (Miller and Monge, 1986). In a novel demonstration of this point, Wall et al. (1992) investigated employees on an assembly line where the rate of production is fixed and, therefore, not a matter of motivation. They found that the relationship between job redesign and performance was a result of the fact that when employees were given greater control over their jobs, as well as performance contingent compensation, they were able to respond to technological problems faster and they could anticipate and prevent potential problems.

The role of knowledge is not limited to its utility for quickly remedying or preventing problems. Individuals with enriched jobs were more likely to empathize with the perspective of others' in their work environment, and to have 'big picture' understanding of how the whole department works (Parker et al., 2001). Likewise, at the team level, it has been suggested that autonomous work group members learn from each other (Pearce and

Ravlin, 1987) and, because they assume more responsibility for external coordination with others in other organizations, they gain more understanding of the broader work process (Batt, 1999).

Of course, by expanding the range of outcomes considered, one also ultimately needs to expand the range of mechanisms that are considered. For example, job enrichment might promote more active coping, which explains why it can enhance mental health; whereas high work load in a call center might cause musculoskeletal damage because it 'ties' individuals to their work station thereby creating biomechanical strain. By understanding why a given work characteristic or form of work design affects outcomes, one can better identify the circumstances under which it will and will not be effective.

Moderators

The research on moderators to the JCM has focused mostly on individual differences and has been plagued with inconsistent findings. For example, White (1978) found that none of 73 potential moderators consistently moderated the relationship between participation in decision making and employee attitudes across 14 research sites. Most studies of individual moderators have focused on the role of growth need strength (GNS) that was proposed in the original JCM. Some studies have supported its moderating role (e.g. Loher et al., 1985); others have not (Tiegs et al., 1992). In a more comprehensive examination of moderators, Johns et al. (1992) found that personal characteristics (GNS, educational level, and job tenure) primarily moderated the relationship between psychological states and outcomes, whereas contextual moderators (social supervisory security and pay satisfaction) primarily moderated the relationship between job characteristics and psychological states.

Another individual difference that has often been related to job design is cognitive ability. Employees with higher cognitive abilities should be able to handle the additional pressures and knowledge requirements when

autonomy is increased. In contrast, employees with lower levels of cognitive ability will feel overloaded and stressed when they are faced with increased autonomy (Dunham, 1977; Schneider et al., 1982). Using the interdisciplinary approach, Campion (1989) found that enriched job characteristics are positively related to mental ability requirements, while the other approaches are negatively related to ability requirements. Cognitive ability therefore does appear to be relevant to work design, although its specific moderating effect has yet to be investigated.

There is initial support for the notion that people differ in their propensity to be proactive and that this difference moderates the job characteristics to outcomes relationship (Parker and Sprigg, 1998). Specifically, these authors found that when employees faced jobs with high autonomy as well as high demands, proactive employees took advantage of the opportunity to reduce demand and avoid strain, while less proactive employees felt higher degrees of strain, presumably because they did not act on the greater autonomy afforded them. Further, it has been demonstrated that the impact of access to resources and strategy-related information on felt responsibility for constructive change depends on employees' proactive personality (Fuller et al., 2006).

The relationship between work characteristics and outcomes can also be affected by group and organizational variables. Most of the attention to this issue has been given to interdependence and uncertainty. In regard to interdependence, some studies suggest interdependence is necessary for teamwork to be of benefit (e.g., Sprigg et al., 2000) whereas others show benefits of teamwork even if interdependence is low (Batt, 1999). For uncertainty, the evidence is quite consistent: job enrichment, particularly job control, is most powerful in enhancing performance when uncertainty is high (e.g., Wall et al., 1990; Wright and Cordery, 1999), probably because autonomy promotes the learning needed to be successful in such contexts.

Beyond uncertainty and interdependence, many other organizational factors are likely to affect whether job redesign leads to the predicted outcomes, such as how well the change process is introduced, the organization's readiness for work redesign, the level of employee job security, and national culture. Regarding the latter, Robert et al. (2000) found that empowerment was associated with lower job satisfaction in India, which they attributed the conflict of this form of work with cultural deference to hierarchy and status. However this contrasts with early studies of autonomous work groups in Indian textile companies, in which Rice (1958) described how autonomous work groups emerged relatively spontaneously, on the basis of workers' 'intuitive recognition' (p. 81). Another pertinent avenue for exploration is whether broader work organization variables (e.g. reward, training, information systems) need to align with the work design in order for it to be effective, as proposed by Cordery and Parker, 2007). Interestingly, in contrast to the idea of alignment, Morgeson et al. (2006) found that work redesign into autonomous work groups only had a positive effect on self-reported performance when reward, feedback, and information systems were poor.

Again, as the range of work characteristics and outcomes expand, a wider set of moderators becomes relevant. For example, a study of service workers showed that emotional demands were only negative for employee well-being when individuals lacked emotional competence. For those who had emotional competence to deal with their own and others' affect, emotional demands was not detrimental to well-being (Giardini and Frese, 2006).

In this section we have addressed some of the theories and findings concerning work design. We now turn to where we believe work design is headed.

CURRENT AND FUTURE TRENDS

We focus here on four areas that are increasingly taking shape in the work design arena: the role of context, social influence, job crafting, and meaning of work. We also briefly

discuss the current state of practice regarding work design.

Context

A theme throughout this review concerns how changes in the wider context shape the work characteristics that are relevant, as well as give rise to interest in different outcomes, underpinning mechanisms, and contingencies. Fuller theoretical development in regard to context, such as along the lines proposed by Johns (2006) is now important. One contextual issue we have not yet explicitly addressed concerns the 'who' of work design. When one thinks of work design research, many studies are in manufacturing contexts (e.g. Dean and Snell, 1991; Kemp et al., 1983; Parker, 2003) or call centers (e.g. Frenkel et al., 1998), both traditionally characterized by poor quality work design. However, increasingly, studies are investigating work design in white-collar, service, or professional settings. Using a sample that included members of a broad array of white collar professions in Sweden, Karasek (1990) found that increased control over work had health benefits. Additionally, Janz et al. (1997) demonstrated the important role that autonomy and interdependence played for effectiveness in groups of knowledge workers.

These studies point to the need for additional research into job design in professional and knowledge-based jobs. The argument could be made that autonomy is the foundation of most work design research and because professionals, by definition, typically have high autonomy, work design is less relevant to them. From a different perspective, the fact that professionals are often given high autonomy can make them ideal for learning how autonomy interacts with the other job characteristics to influence outcomes. For instance, a young lawyer may be given a great deal of autonomy in assisting clients, but she may be given only minimal feedback because her job relies on providing services to clients, who may not be willing or knowledgeable enough to give her information about her performance. Thus, in this context, feedback may become the most influential job characteristics in influencing outcomes. Because professional jobs have different job characteristics than the most commonly researched contexts, it is unlikely that the findings from non-professional contexts will apply equally to them.

Social influences

The influence of the social context can be viewed from at least two perspectives. First, the social context influences how employees perceive their working situations. Salancik and Pfeffer (1978) proposed that work design can be best understood from a social information processing approach in which employees take into consideration social information and use social reality construction processes in order to understand their job characteristics. More recently, Wrzesniewski and colleagues (2003) described how interactions with other people at work provide employees with information about the nature and value of their jobs, roles, and selves. For example, Griffin (1983) showed how employees' perceptions of their jobs, and their job satisfaction, were more positive as a result of supervisors repeatedly drawing attention to the variety, autonomy and other positive work design aspects present in employees' jobs. One might extend this research to consider how emotional contagion processes from others influence work perceptions.

A second way in which the social context is relevant to work design is more direct. Rather than being viewed as a perceptual filter, the social context itself can be considered a job characteristic to be designed. Variables such as social support have long been acknowledged as important job characteristics, especially in stress-related work design research. However, perhaps because of a broader interest within organizational behavior on topics like social networks and positive relationships, social processes are now being highlighted within mainstream work design research. For example, in their meta-analytical tests, Humphrey et al. (2007)

found that the social environment variables explained an additional 40 per cent of the variance above motivational factors when predicting organizational commitment, and an additional 24 per cent of the variance on job satisfaction. As part of this renewed interest in social processes, it has been proposed that jobs can be designed in order to increase employees' understanding of how their work makes a prosocial difference (Grant, 2007). Work that involves contact with beneficiaries of the work and provides feedback about its impact on beneficiaries is predicted to lead to greater effort, persistence, and helping behavior towards beneficiaries.

Crafting/proactivity

An exciting realm of new work design research is the role that employees themselves play in creating and crafting their jobs. Extending earlier work on constructs like task revision (Staw and Boettger, 1990) and flexible role orientation (Parker et al., 1997), Wrzesniewski and Dutton (2001) argued that employees do not passively accept their work context but proactively craft their work by cognitively or behaviorally altering their tasks or work interactions in order to change their work identities and work meaning. These authors give the examples of hospital cleaners who had the same objective tasks but varied greatly on their perceptions of the necessary tasks, skill levels, and social interactions. Thus, some of the cleaners had crafted their jobs to have greater boundaries while others had confined their tasks to relatively few activities.

This more dynamic perspective on work design has also been captured in the current emphasis on self-efficacy and proactivity in the work design literature because, as employees' self-efficacy increases, their beliefs about what can be done on the job and, subsequently, their actions on the job, may actually lead them to change the characteristics of the job. In an excellent four wave study of East German employees during transition to reunification, Frese et al. (2007) demonstrated this reciprocity between people and their work.

Job control and job complexity were associated with greater personal initiative, which led, in the longer term, to even higher levels of job control and job complexity. Both causal pathways were mediated by control orientations, a concept that encapsulates self efficacy.

In sum, as people find that they are not satisfied with their work or that their work is not meeting their needs, they may actively change the job characteristics to get what they want out of the job. We hope to see future research embrace this approach. Of course, this recommendation also comes with a caveat; which is that the possibility of crafting does not absolve organizations from the responsibility of designing good quality work.

Meaning as a key mechanism

One set of relationships that we believe warrants special attention is that between the job characteristics and experienced meaningfulness. Experienced meaningfulness has been repeatedly shown to be the strongest mediator between job characteristics and outcomes (Fried, 1991; Humphrey et al., 2007). However, because the meaning of work literature and the work design literature have evolved in parallel with little dialogue, it is not clear what 'experienced meaningfulness' really means. In the original conceptualization, experienced meaningfulness is defined as 'The degree to which the individual experiences the job as one which is generally meaningful, valuable, and worthwhile' (Hackman and Oldham, 1976: 256). Researchers studying meaning of work have recently begun focusing on the self-concept and the notions of significance and purpose as the defining characteristics of meaningfulness (e.g. Chalofsky, 2003; Pratt and Ashforth, 2003; Wrzesniewski et al., 2003), therefore further specifying the conditions under which work is experienced as meaningful. Thus, it may be possible to borrow from the meaning of work literature in order to understand how the job characteristics influence employees' sense of self, significance, and purpose, and

consequently how they find their work to be meaningful. Such research will likely benefit from an interpretivist approach that focuses on subjective experiences and how individuals create and maintain the world through their own actions and those of others.

Another way in which the job characteristics model may be further integrated with the meaning of work research is by investigating the moderating role of employees' orientation to their work as a job, career, or calling (Bellah et al., 1985; Wrzesniewski et al., 1997). Employees who are job oriented focus on financial rewards, career oriented employees emphasize the advancement opportunities available to them at work, and calling oriented employees derive enjoyment from doing socially useful and fulfilling work. These orientations are likely to affect how employees respond when their tasks are redesigned. For example, employees who are job oriented might react to job enrichment with concerns that they are being given added responsibilities without additional pay. The career-oriented employee may worry that enrichment is occurring in lieu of her getting the opportunity to move into a more managerial position. Finally, the calling-oriented employee may be positive about increased control and variety because he views this as an opportunity to be even more involved in the already fulfilling job.

It is also possible that work orientations might be influenced by work design through a process of adaptation. One might expect that long-term exposure to deskilled jobs with little opportunity to make a difference will lead individuals to define their work as a 'job', whereas exposure to enriched jobs will increase the likelihood that individuals will define their work as a calling. The idea that individuals adapt to their jobs has been suggested in other related research. For example, Parker et al. (1997) showed that, as a result of enriched work design, employees' develop broader and more flexible role orientations, in which they feel ownership for longer-term goals (e.g. customer satisfaction). At the same time, deskilled work can lower one's aspirations (Parker, 2003) and engender inflexible role orientations. The idea is that work characteristics can, over the long term, shape and influence the meaning employees give to their work through changing their orientation.

Practice

An important but rarely addressed issue in the work design literature is whether the ideas and suggestions from work design research been successfully mined and integrated into practice? Or, in contrast, have practicing managers continued to work in parallel with existing research, preferring management fads over academic findings? For example, the autonomous workgroup has purportedly been embraced across industries (Druskat and Wheeler, 2004), but are organizations implementing these teams in a way that allows for the potential benefits (Kemp et al., 1983; Wall and Clegg, 1981) or are they instead actually exerting more control over their employees, albeit in a less conspicuous manner (Barker, 1993)? Certainly evidence would suggest that positive work designs exist more readily in rhetoric than reality. For example, many management initiatives fail to meet their objectives, which are, in turn, often attributed to a failure to adequately address issues of work design (e.g. Storey, 1994). Therefore, more effort developing and promoting tools and methods, coaching leaders, and changing policy to have an impact on work design is needed.

In this respect, it is useful to consider how researchers can best influence the practices managers (and others) choose to adopt. Harkening back to the opening quotation, Clair Vough claimed that he could explain his job design philosophy to other managers, but rarely were these other managers able to implement it properly in their respective organizations. Thus, researchers may face an uphill battle when trying to influence work design practices. The traditional outlet of academic publications is clearly underperforming, as is evident in the Academy of Management's current attempts to find new ways to bridge academia and practice.

Teaching work design in MBA classes is one potential source of influence, but there are a number of intermediate events that have to occur before an MBA student can influence an organization.

Thus, the world of academia needs to find better ways of influencing work design practice and policy. Regarding the former, action research is one way a researcher learns about a work context and gains data through their experiences, while simultaneously helping the organization move in a desired direction (e.g. Wall and Clegg, 1981). Also important is the development of evidence-based tools, processes, and guidance to analyze work design and facilitate its redesign, as well as tools that can be used to incorporate job design principles when introducing changes to work practices and/or new technologies (e.g., Nadin et al., 2001). The development of such practical guidance, it is important to include the politics of change, which have often considered in interpretivist approaches to work design (e.g. Badham et al., 1996). In this way, by influencing practice and policy, academics can not only respond to changes in work design, but shape them.

CONCLUSION

While in the 1950s and 1960s, when Vough was redesigning IBM's typewriter assembly lines, he did not face the rapid change and limited employee commitment employers face today, he did understand that people were the core of any business and that people shaped the tasks just as much as the tasks shaped the people. Although the job characteristics model has remained the dominant model for 30 years, new models are emerging that increasingly acknowledge the role of the employee. These models propose that jobs should be designed to allow for social interactions, individual initiative, self-efficacy, and an understanding of the impact the work has on others. Researchers within these perspectives have recognized the changing working context, characterized by rapid technological development, and have responded with an emphasis on dynamism and reciprocity, where employees themselves influence and craft the nature and meaning of job design. Thus, work design research has come a long way since its inception and it is now coming into its own in terms of the social and enacted environments in which jobs are embedded.

NOTES

1 Note that most of the research we review here can be characterized as deriving from a functionalist paradigm. For consideration of work design from other paradigms, see Holman et al. (2002).

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