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Chapter 18

Work Design for Performance: Expanding the Criterion Domain

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INTRODUCTION

The content of every job reflects a series of work design decisions made when the job is first set up or during its enactment over time. Example 'work design' decisions include: Which tasks should be grouped together and performed within a job? What (and how many) procedures guide the work of the job incumbent? How much control over work methods does the incumbent have? How does the job connect to tasks carried out by other individuals? Does the work have some degree of mental challenge? Sometimes these work design decisions are conscious and deliberate; other times people unconsciously or indirectly configure their work roles for themselves or others. Either way, these work design decisions create a configuration of 'job characteristics' for each job. Some of the most well-established job characteristics include job autonomy, job variety, job demands, and social support. Job characteristics, in turn, affect multiple outcomes, including employees' well-being at work and outside of work, their learning and development, and potentially their performance.

In this chapter, we focus on how work design affects performance. Although major theories of work design identify employee performance as a key outcome of job characteristics, this link has proved more inconsistent and elusive than evidence of the effect of work design on attitudes and well-being (Fried & Ferris, 1987; Griffin, Welsh, & Moorhead, 1981; Humphrey,

Nahrgang, & Morgeson, 2007; Parker & Turner, 2002). Parker and Turner (2002) proposed that one source of these inconsistencies is that performance means different things. They therefore recommended that the criterion domain be extended and clarified to understand how work design might affect individual performance. Research and theory on work performance has similarly evolved towards the same need for criterion expansion. Multidimensional, multilevel models provide new opportunities for reconsidering the link between work design and performance at work. Our goal in this chapter is to analyze the relationship between work design and performance by considering different dimensions of work performance that are proposed to be relevant for contemporary and future organizations. Drawing particularly on the performance framework proposed by Griffin, Neal and Parker (2007) we consider the effect of work design on three types of performance: proficiency, adaptivity and proactivity. We cover existing evidence that links work design with these three performance dimensions, as well as identify gaps in the literature and future research directions.

To begin, however, we briefly outline the scope of work design, some history, and its major theories (for more details, see the first edition of this handbook, as well as more recent reviews: Grant & Parker, 2009; Parker, 2014). We then briefly elaborate the work performance model. Having laid the foundation, we then go on to the main core of the chapter, which is whether and how work design affects multiple dimensions of performance.

SCOPE OF WORK DESIGN

Work design refers to 'the content and organization of one's work tasks, activities, relationships, and responsibilities' (Parker, 2014, p. 662). Traditionally this topic was referred to as 'job design', but it is increasingly being referred to as 'work design' (Morgeson & Campion, 2003; Parker & Wall, 1998) to signify interest not only in the content and organization of individuals' prescribed and fixed tasks, but also in the more flexible, emergent,

and sometimes self-initiated tasks and activities that characterize contemporary work (Ilgen & Hollenbeck, 1991). For example, when a school teacher carries out his/her work, the teacher will not only educate students in accordance with the prescriptions of the curriculum, but the teacher will engage in any number of other activities (coaching students, dealing with difficult parents, running concerts, etc.) which make up the work role, and these broader activities are integral elements of work design.

Work design is a component of organization design, which is more broadly concerned with structure, strategy, systems, processes and practices of the organization. Work design is shaped by organizational design. For example, if the information system does not enable a flow of information to people at the lowest level of the organization, job autonomy will tend to be low because individuals do not have the necessary information to make sensible decisions. Likewise, work design is shaped by leadership, albeit distrinct from it. For example, the level of support received from the management is an aspect of leadership, but the social support that arises from how roles are configured in teams is a core work design issue.

Work 'redesign' refers to changes in the nature and organization of tasks, activities, relationships and responsibilities. Work redesign can be introduced externally (through restructuring processes, for example) or it can be initiated in a more incremental way by the employees themselves (such as through job crafting). Sometimes work redesign is intended and a deliberate strategy; sometimes work redesign is an unintended consequence (such as when new technology changes the nature of tasks).

History and Major Theories

To understand work design, it is particularly useful to consider its historical roots. The design of work became a topic of interest during the Industrial Revolution when large numbers of people moved to cities to work in factories. The view emerged that overall effectiveness could

be achieved by organizing work into simplified, narrow and deskilled jobs. 'Scientific Management', proposed by Taylor (1911), aimed to systematically identify the most efficient (or best) way to carry out specific tasks by eliminating all unnecessary actions. The manager's role was to ensure compliance with these best ways, as well as to make decisions and to carry out all thinking aspects of the work. A simplified job implied lower levels of employee skill; therefore employees could learn the job and perform the tasks faster. Also, by reducing all slow or unnecessary movements, employees could perform more tasks within the same amount of time. When moving assembly lines were introduced, employees not only had simplified tasks, but work was automatically moved between different stages resulting in jobs in which the pace was decided by the technology.

For a long time, job simplification was the dominating paradigm for work design in manufacturing and beyond (Braverman, 1974). Even after a massive shift from production to services, and after much discussion about the value of enriched jobs, job simplification continues to be prevalent in many organizations. Campion and Stevens (1991) suggested job simplification seems to be the intuitive choice when people are faced with a job design task. Even today, more than twenty years after Campion and Steven's study, job simplification seems to be the preferred strategy that naïve participants use in work design simulations (Parker & Andrei, 2014).

Despite the way job simplification took hold in industry, evidence surfaced to show that simplified work was associated with high psychological costs like dissatisfaction, alienation and even productivity losses (Braverman, 1984; Fraser, 1947). In the face of these observations, alternative 'work redesign' solutions were proposed, mainly job rotation (employees regularly switching between equally simplified jobs) and job enlargement (expanding the range of

activities that form a given job). Nevertheless, although they were performing more varied tasks, employees were still denied active involvement and decision-making in their jobs.

The Two-Factor Theory (Herzberg, 1966) marks the beginning of theory building in the area of work design. This theory proposed that factors related to peoples' intrinsic motivation (such as opportunity for achievement) are associated with satisfaction, while dissatisfaction arises mainly from extrinsic factors (such as financial rewards). Although the two factor theory was not empirically supported by later research, from this theory emerged the concept and practice of work enrichment, which continues to be central to many contemporary notions of work design. An enriched job design has challenging and responsible work that offers greater opportunities for personal achievement, growth and recognition of one's efforts (Paul & Robertson, 1970). Importantly, an enriched work design is one in which employees are able to make decisions about key aspects of their work. Therefore this theory challenges the previous focus on a vertical division of labor, and highlights the importance of increased work autonomy. This theory also sparked more attention to motivation as a key mechanism that carries the effect of work design on behaviors, attitudes and well-being.

The focus on motivation was further developed with the Job Characteristics Model (JCM; Hackman & Oldham, 1976). This now dominant work design model identifies five core job characteristics: autonomy, skill variety, task identity, task significance, and feedback. These job characteristics are proposed to give rise to three critical psychological states (experienced meaningfulness, knowledge of results and experienced responsibility) that account for the effects of job characteristics on different outcomes such as work satisfaction, internal work motivation, work performance, reduced absenteeism, and reduced turnover. The strength of these relationships are posited to depend on the level of individual growth need strength, with individuals higher in their desire for personal development benefiting more from an enriched

work design. Later on, other moderators were added such as knowledge and skills, satisfaction with work context (Oldham, 1996). The JCM model specifically includes performance as one of the outcomes explained by the motivating effects of work characteristics. Effort is the primary assumed mechanism. Basically, according to this model, individuals – especially those with high needs for growth – will exert more effort when they feel they are doing a meaningful job.

Much evidence supports the main propositions of the JCM model. Meta-analyses (e.g., Humphrey et al., 2007) and longitudinal and quasi-experimental studies (e.g., Griffin, 1991) have shown that job characteristics predict a range of outcomes such as job satisfaction, commitment, and well-being, and that the critical psychological states (especially meaningfulness) are important mediators of these relationships. However, other aspects of the model have proved more problematic, such as a rather narrow range of job characteristics, mediators and outcomes, and the somewhat inconsistent positive relationships between work design and performance outcomes (Parker & Turner, 2002). These deficits stimulated several extensions to the original JCM (Humphrey et al., 2007; Morgeson & Campion, 2003; Parker, Wall, & Cordery, 2001). For example, scholars now often consider sets of job characteristics beyond the core motivational characteristics, such as knowledge characteristics, social characteristics (including interdependence), and characteristics of the work context (e.g., Grant, 2007; Kiggundu, 1983; Morgeson & Humphrey, 2006). Mechanisms beyond intrinsic motivation have also been advocated, such as prosocial motivation (Grant, 2007) and knowledge development (e.g., Parker et al., 2001). There has been some expansion to outcomes considered, such as the inclusion of creativity and safety (Parker et al., 2001).

Overall, however, relative to the effort put into expanding job characteristics, criterion issues have had less systematic attention. Most studies have tended to focus on overall

definitions/operationalization of work performance (as seen in the Humphrey et al., 2007 meta-analysis). When different performance outcomes have been considered in the work design literature (such as creativity, proactive behavior, extra-role performance, etc.), they tend to be considered independently, and as unrelated to one another, which means we have few insights into how work design might support different performance outcomes at the same time. Finally, although there are a few exceptions we discuss later, the focus is still on intrinsic motivation as the core mechanism by which work characteristics affect performance (Humphrey et al., 2007).

Shortly we propose an integrated approach for understanding the performance implications of work design, including a focus on differential mechanisms. To set the scene for this discussion, we briefly consider the concept of work performance.

WORK PERFORMANCE

Work performance is about work behavior that contributes to organizational goals (Campbell, McCloy, Oppler, & Sager, 1993). For example, Viswesvaran and Ones (2000) defined job performance as scalable actions, behavior (and in some cases, outcomes) that employees engage in or bring about that are linked with and contribute to organizational goals (p. 216).

Traditionally, work performance has focused on how well employees perform the core duties in their job description (Griffin et al., 2007). This focus was based on the idea that all individual behaviors that contributed to the overall organizational goals could be comprehensively prescribed within employees' job descriptions (Murphy & Jackson, 1999). However, significant changes in society, organizations and work itself have challenged this rather static view of organizational roles (Ilgen & Pulakos, 1999). The increased uncertainty, complexity and interdependence of organizational life (Griffin et al., 2007) means that tasks and duties circumscribed to a role can change quickly, that employees often have to go beyond

their job descriptions in order to meet goals, that employees aren't only responsible for themselves but also for the actions and outcomes of people they work with, and that employees often need to drive change in their work and their organization. Reflecting these changes and challenges, the approaches on work performance started to shift.

A key development has been the identification of a range of performance behaviors considered critical for organizational success. New constructs such as contextual performance (Borman & Motowidlo, 1993), organizational citizenship behavior (Smith, Organ, & Near, 1983), adaptive performance (Pulakos, Arad, Donovan, & Plamondon, 2000), and proactive behaviors (Parker, Williams, & Turner, 2006) have been proposed as necessary for ensuring a contemporary organization's ability to attain its goals within a dynamic, unpredictable market. A further development involved recognizing that individuals can contribute to higher-level outcomes, beyond the goals of their immediate job. For example, with work becoming increasingly team-based, an individual's performance as a team member was recognized as distinct from carrying out their individual tasks.

A performance framework that synthesizes these two developments is that proposed by Griffin, Neal and Parker (2007; see Table 18.1). Two characteristics of the context, uncertainty and interdependence, are placed at the core of this model as they are seen to shape or constrain the type of behaviors that will be expected and valued by organizations. The uncertainty dimension is used to classify the different existing performance constructs into three types of behaviors that reflect increasing capacity of dealing with uncertainty: proficiency, adaptivity and proactivity. Proficiency refers to behavior that fulfills the requirements that are prescribed in one's job role. Proficient behaviors can be specified and anticipated in advance. However, in uncertain and unpredictable contexts, it is not possible to pre-specify all required behaviors, and two forms of emergent behavior are also important. First, adaptivity refers to employees

responding to, coping with and supporting change. Second, proactivity refers to behaviors of initiating change in a self-starting, future directed manner (Griffin et al., 2007). Adaptivity and proactivity are argued to be especially important in unpredictable operating environments characterized by customization, change and innovation.

[TS: Insert Table 18.1 here]

Table 18.1 Model of positive work role behaviors

These three types of behaviors are then cross-classified against a further dimension that considers the interdependence of the work context. That is, proficiency, adaptivity, and proactivity can all be executed in relation to one's role as an individual, team-member, and organizational-member. For example, an individual can be adaptive in relation to their core individual job, such as coping well with a change in one's core tasks (task adaptivity); in relation to their role as a team member, such as adjusting to new team members (team-member adaptivity); and in relation to their role as a member of the wider organization, such as adapting to a site-wide downsizing program (organization-member adaptivity). The result of considering both uncertainty and interdependence dimensions is a model of nine types of positive work-role behaviors that integrates constructs previously developed in the work performance literature, while at the same time bringing new aspects into focus. For example, Griffin et al. (2007) identified citizenship behaviors such as helping as an example of team-member proficiency: such behaviors are proficient because they can be readily anticipated as necessary within the context; and they are team-member behaviors because they support the teams within the context. This framework helps to synthesize the increasing number of constructs (sometimes overlapping) proposed to study different aspects of work role performance.

We adopt this framework to analyze the relationship between work design and work performance. Previous reviews on this relationship have focused on narrower classifications of

performance (task and contextual – Parker & Turner, 2002). In the subsequent sections we analyze existing knowledge related to the relationship of work design with each type of work performance behavior: proficiency, adaptivity and proactivity. For each dimension, we consider the evidence-base for each level of individual performance: individual, team-member and organizational-member. Given the complexity of our endeavor, we will focus on individual level variables, although when appropriate, we draw on team-level studies to infer knowledge about the different levels of individual behavior.

WORK DESIGN AND TASK PROFICIENCY

Proficiency refers to employee behaviors that are required within the role that can be anticipated a priori and therefore prescribed, such as in a job description (Griffin et al., 2007). Proficiency includes behaviors that are expected within the individual's core job (*individual task proficiency*), their role as a team member (*team member proficiency*, such as helping colleagues) and their role as a member of the organization (*organization-member proficiency*).

It is difficult to be precise about how work design affects task proficiency because work design research has not traditionally used a fine differentiation of performance outcomes. However, given the fact that proficiency behaviors map very well on the more classical concepts of job performance and contextual performance (Griffin et al., 2007), most of the empirical papers looking at the link between work design and performance outcomes operationalize performance in terms of some kind of proficiency, primarily individual task proficiency.

As noted above, early meta-analyses and reviews (Fried & Ferris, 1987; Griffin et al., 1981; Kelly, 1992; Parker & Turner, 2002) highlighted that work design can affect performance as theorized (e.g., self-managing teams tend to be associated with stronger performance: Wall, Corbett, Martin, Clegg, & Jackson, 1990). However, compared to outcomes like job

satisfaction, the work design–performance association is more rarely investigated (as witnessed in the number of papers looking at this link in Humphrey et al.'s (2007) meta-analysis), and the findings are more inconsistent. Humphrey et al.'s (2007) meta-analysis of 259 studies sheds some light on the inconsistency: the effects of work design are weaker and more inconsistent when performance is operationalized using objective indicators (usually production figures or other distal indicators of performance that are not so easily controllable by employees) relative to subjectively measured performance (usually by assessments from supervisors or peers). Using the latter indicator, Humphrey et al. (2007) reported a medium positive association between an enriched work design and performance, with autonomy, task variety and task significance having the strongest relationship (ρ = .23 for each), and with motivational job characteristics all together predicting 25% of the variance in performance. Social characteristics of work (such as interdependence) had incremental predictive power (ΔR^2 = .09). Notably, autonomy was the only motivational job characteristic that was positively related to objectively measured performance (ρ = .17).

Although we are not provided with much detail about how these studies measured performance, examining a sample of the papers suggests that typically they used assessments by supervisors on individual proficiency-oriented criteria (such as effort, quality of work, for example see Baird, 1976; Griffin, 1991). Even when assessments used overall evaluations of job performance, existing evidence shows that the factors contributing to them are mainly core task performance and citizenship behavior (Johnson, 2001; Rotundo & Sackett, 2002; Viswesvaran, Schmidt, & Ones, 2005) or individual and team-member proficiency. The main mediator of this link between work design and proficiency was meaningfulness. It seems that when jobs lack enriched work characteristics, individuals' sense of meaning is impaired, and therefore individuals put lower levels of effort and care into their core work tasks and into their teams.

Another outcome considered in this meta-analysis was turnover. Turnover has some parallels with notions such as organizational loyalty and civic virtue (Griffin et al., 2007); therefore turnover might be considered a negative indicator of organization-member proficiency. The meta-analysis showed that turnover intentions are predicted by social characteristics of work ($\Delta R^2 = .24$), rather than motivational characteristics, suggesting that the further we go with embedding the required behaviors within team and organizational social contexts, the more social characteristics might increase their explanatory power. Interestingly the effect of social characteristics on turnover was not mediated by meaningfulness or other motivating states, suggesting that the mechanisms explaining how work design affects more contextually embedded types of proficiency go beyond the traditional motivational considerations.

One challenge with this meta-analysis is that it is based mostly on studies conducted with cross-sectional research designs. In their review of more rigorous studies, Parker and Turner (2002) provided further evidence that work design affects proficient performance. Field experiments (e.g., studies conducted by Griffin, 1991; Jackson & Wall, 1991; Leach, Wall, & Jackson, 2003; Wall et al., 1990) have looked mainly at effects of work redesign interventions on overall performance criteria (such as overall evaluations of performance, overall machine downtime, overall machine utilization), and have shown good support for a link between job design and performance. As an example, Griffin (1991) showed how a work redesign aimed at increasing some of the motivational job characteristics (job variety, authority over routine decisions, feedback and customer interaction) increased job performance, measured in terms of quality, quantity and overall performance. This performance effect, however, took time to materialize (it showed significant improvements only after 24 and 48 months), suggesting insufficient consideration of time lags might be another explanation for inconsistent findings for performance (see also Parker, Andrei & Li, 2014, on this topic). However, the same

intervention did not affect turnover, which might be because – as we suggested above – turnover is more strongly related to social characteristics of work which were not targeted in this intervention. More recent longitudinal studies also support our conclusion. For example, using a measure of work performance capturing mostly individual proficiency (although with some elements of adaptivity, as we discuss in the next section), Morgeson, Delaney-Klinger and Hemingway (2005) showed that, even when more proximal antecedents of performance like cognitive ability are accounted for, autonomy predicted individual proficiency. In this study, the mechanism was role breath.

Recent studies have emphasized the role of other job characteristics for performance. A series of well-crafted experiments by Grant and his colleagues (Grant, 2007; Grant, Campbell, Chen, Cottone, Lapedis, & Lee, 2007) showed that manipulations of task significance (via connecting employees with the end users of the work) affect proficiency-oriented types of performance (employee effort/work hours, sales). Moreover, prosocial motivational mechanisms rather than intrinsic motivation were highlighted as mediators for this relationship, such as perceived social impact and perceived social worth. This series of studies show that, even tasks characteristics that did not emerge as contributors to performance in the meta-analysis discussed above can have a strong effect on proficiency in some situations.

All these studies provide accumulating evidence that work design features are important for individual proficiency, or core task performance. In regard to proficiency from a team or organizational perspective, a meta-analytic study on citizenship behavior (Podsakoff, MacKenzie, Paine, & Bachrach, 2000) included both team-member proficiency dimensions of citizenship (altruism, courtesy) and organizational member type of proficiency (civic virtue, generalized compliance, sportsmanship). Although relatively few work design variables were considered in this meta-analysis, routinization (an indicator of a simplified work design) was

negatively associated with both categories of proficiency, whereas task feedback and intrinsically motivating tasks had positive associations with these outcomes. This data supports the importance of an enriched job design for team member and organizational member proficiency. The meta-analysis did not include social characteristics of work, although leader support predicted both types of proficiency, and team cohesiveness (which might imply a higher level of peer support) was positively associated to all forms of citizenship behavior, supporting our idea that social work characteristics can be important when considering socially-embedded forms of proficiency. In a follow up study, McAllister, Kamdar, Morisson, and Turban (2007) investigated different role perceptions related to helping (team member proficiency) and taking charge (individual task proactivity). Although they did not focus on specific work design characteristics, they identified mechanisms that have potential relationships with work design. For helping behaviors, role breadth and perceived instrumentality played the most important role, whereas taking charge was influenced more by self-efficacy beliefs and discretion beliefs. Focusing on motivating task characteristics, Todd and Kent's (2006) cross-sectional study showed direct and indirect (via job satisfaction) links between task characteristics and citizenship. Social job characteristics were not included in the design.

Moving to the few studies that investigate the effects of work design variables on different types of proficiency simultaneously, Bakker, Demerouti and Verbeke (2004) looked for different patterns of relationship between job characteristics (seen as resources and demands) with peer ratings of individual proficiency (or 'in-role' performance), team-member proficiency, and to some extent organization-member proficiency (referred to as 'extra-role' performance). Their results showed that job demands (such as workload and work–family interference) predicted lower individual proficiency via exhaustion but also directly, whereas job resources (similar to motivational and social characteristics) had an impact on individual

task proficiency only through reduced exhaustion. Therefore, individual task proficiency might be more directly influenced by negative aspects of work, while the positive effect of resources might be indirect through different mechanisms such as (reducing) exhaustion. The same study showed that team-member and organizational-member proficiency outcomes (extra-role performance), were impacted only by job resources via an engagement mechanism. The job resources that were examined as predictors of engagement, and hence team/organizational member proficiency were autonomy, social support and possibilities for development. However, even these authors admit that the variance in both individual and team/organization member proficiency explained by their model, although higher than previous studies, is still very low (8%). One reason they consider is inadequate measurement of behavior. We tend to agree, as we can see that in this case the behaviors targeted at the overall organizations are not well differentiated from those targeted at the team-members. Moreover, their individual proficiency measure is not well anchored in behaviors, which makes it more susceptible to bias, especially when peers act as assessors (Viswesvaran et al., 2005) and they considered a reduced number of possible job characteristics. Overall, this study seems to suggest that there is value in differentiating between different types of work performance, as this differentiation allows us to better assess relationships and mechanisms, but even more differentiation and precision is needed if we want to gain more explanatory power over these types of outcomes.

Piccolo, Greenbaum, Den Hartog and Folger (2010) also distinguished between different dimensions of proficiency. These authors examined how leadership affects work design (autonomy and significance), and how, in turn, work design influences effort, task performance and citizenship. Interestingly, their results showed that the path between autonomy and effort was not significant, although task significance was associated with greater effort. Also, effort was shown to influence both task performance and citizenship – although the effect was not large – suggesting the there are other mechanisms by which autonomy and job characteristics

exert their influence, or that the effect of autonomy might be direct (as shown in previous research). However, only a limited set of motivating job characteristics was considered here, and social characteristics were not included.

Another explanation for these results is suggested by the study of Dodd and Ganster (1996) showing that the effects of the motivational work characteristics are not always additive, but sometimes interactive. Their results show that autonomy matters for performance only when task variety is high. When task variety is low, having autonomy does not increase performance. Similarly, task feedback contributed to performance only when autonomy was high. When autonomy was low, feedback did not influence performance. Performance here was operationalized in terms of quality and it is consistent with individual proficiency, but it is important to look at similar interactive effects for other dimensions of proficiency given that literature on teamwork provides empirical support for interactive effects between autonomy and other characteristics such as interdependence (Janz, Colquitt, & Noe, 1997) and task uncertainty (Cordery, Morrison, Wright, & Wall, 2010) on team level outcomes. Indeed, most of the papers discussed so far assume an additive effect of work design characteristics on individual proficiency, but recent reviews and theoretical developments are starting to call for an increased attention towards interactive effects or configurations of work characteristics. Johns (2010), for example, drew attention to 'deadly combinations' of job characteristics such as low autonomy and high significance (see also Parker, 2014).

An important issue we have not yet considered in depth is 'why' work design affects proficiency, or the mechanisms underpinning this relationship. Proficiency is about fulfilling expectations, or doing what is required. Proficiency thus requires that an individual knows the expectations (role clarity), and has the knowledge, skills/abilities, motivation, and opportunity to fulfill them. When considering individual task proficiency (task performance) it is typically

assumed that work design affects proficiency because it enhances motivation, especially intrinsic motivation (such as believing that work is meaningful). Thus, more intrinsically motivated workers try harder, or put in greater effort and work to a higher standard, when completing their work requirements. The notion of psychological empowerment is similar to intrinsic motivation, encompassing feelings of meaning, impact, competence and choice (Thomas & Velthouse, 1990). Psychological empowerment has been shown to predict proficiency-oriented outcomes, including employee effectiveness, productivity, and role performance (Chen & Klimoski, 2003; Koberg, Boss, Senjem, & Goodman, 1999), and studies have identified that work design is a key predictor of psychological empowerment (Wallach & Mueller, 2006).

The relational approach to work design highlights the mechanism of prosocial motivation (Grant, 2007; Grant et al., 2007) that is, work design stimulates individuals' desire to make a difference for other people, which in turn prompts greater effort. These latter results are consistent with the proposed role of identified motivation, or integrated regulation, for understanding effects of work design (Parker & Ohly, 2008).

In terms of motivational mechanisms for team-member proficiency and organization-member proficiency, both are concerned with fulfilling expectations, but in this case the expectations incorporate going 'beyond' one's individual focus. Reciprocity might be an important mechanism by which social characteristics affect team-member and organization-member proficiency (Podsakoff et al., 2000). For example, employees who perceive support being offered to them by colleagues and supervisors are likely to want to reciprocate by investing more effort in performing tasks that will help the supervisor, their team, or the organization overall. This is consistent with the idea that work design generates organizational commitment, which has been shown to be especially important for team-member and

organizational-member proficiency (Griffin et al., 2007). When looking specifically at team-member and organizational-member proficiency (circumscribed by extra-role performance or OCB) mechanisms such as engagement or organizational commitment (Bakker et al., 2004) or affective commitment (Galletta, Portoghese, & Battistelli, 2011) emerge as important mediators of effects.

Beyond motivation, many scholars have argued that work design can affect performance through promoting learning and the development of expertise. Job control and job complexity facilitate a deeper understanding of the task at hand (Frese & Zapf, 1994), as well as broader and more integrated understanding of one's organizational system and the context (Lawler, 1992; Parker & Axtell, 2001; Parker, Wall, & Jackson, 1997). Interesting insights into this link can be provided by the work of Leach and colleagues indicating that work design interventions (targeted around increased autonomy, support, feedback) are definitely associated with gains in terms of job knowledge (Leach et al., 2003). Moreover, this mechanism has further positive effects on both individual task proficiency (Leach, Jackson, & Wall, 2001) and team effectiveness (Leach, Wall, Rogelberg, & Jackson, 2005). The latter study suggests that enriched work, especially that which is team-based such as self-managing teams, is likely to help individuals learn teamwork knowledge, skills and abilities such as helping that are critical for team-member proficiency.

A final mechanism, beyond motivation and learning, is what has been referred to as the 'quick response' mechanism. This is likely to be especially relevant for individual proficiency and can be best understood in terms of knowledge application (Jackson & Wall, 1991; Wall et al., 1990; Wall, Cordery, & Clegg, 2002). Essentially, this mechanism refers to the fact that when employees are empowered to deal with issues and problems without having to consult with or call for superiors or specialists, lost production time can be reduced and therefore

proficiency increased (assuming that said employees have the adequate knowledge and skills to deal effectively with those issues). The mechanism seems to be again related to the facilitation of the execution of knowledge or expertise that has been explicitly or implicitly acquired (Wall, Jackson, & Davids, 1992).

Overall, motivation is likely to underpin all forms of proficiency, with the type of proficiency potentially affecting the type of motivation (e.g., intrinsic motivation for individual proficiency, reciprocity-based motivation for team-member proficiency, organizational commitment for organization-member proficiency). Similarly, different types of learning promoted by work design might be relevant for different types of proficiency. The quick-response mechanism most likely applies particularly to individual proficiency. Overall, however, relatively little attention has been given to understanding how work design affects team-member and organizational-member task proficiency. Parker (2014), for example, theorized how self-managing teams might, in the somewhat longer term, foster employees' relational identity development, which in turn would be expected to affect proficiency directed towards the collective.

In sum, our review supports the insights obtained from the Humphrey et al. (2007) meta-analysis. As Parker and Turner (2002) concluded more than 10 years ago, evidences suggest beneficial effects of an enriched work design on individual task proficiency. Our analysis also hints at the possibility that social work characteristics are especially important for the more interdependent forms of proficiency, or team-member and organization-member proficiency, but this needs further testing.

WORK DESIGN AND ADAPTIVITY

Adaptivity refers to coping with, responding to, and supporting changes (Griffin et al., 2007). *Individual task adaptivity* involves behaviors aimed at dealing with uncertain situations in

one's core role (such as changes in tasks caused by new technology). *Team-member adaptivity* includes behaviors by which people cope, respond to or support changes in their roles as team members, and is similar to the notion of interpersonal adaptability (Pulakos et al., 2000) or coordinated interdependence (Kozlowski, Gully, Nason, & Smith, 1999). *Organization-member adaptivity* refers to employees' adapting to changes that take place at the organizational level (e.g., as a result of restructuring, acquisitions and mergers, restructuring of business processes).

Adaptivity requires knowledge (e.g., understanding the new requirements), skills (being able to change), motivation (willingness to do things differently) and opportunity (the chance to apply knowledge to cope with the change). Several of these aspects might be facilitated by work design, for example, the quick response mechanism (promoted by job autonomy) is a form of opportunity for adaptivity. Nevertheless, although adaptive processes have sometimes been used to explain why work design affects proficient or overall job performance (Cordery et al., 2010; Wall et al., 1990), empirically, adaptivity is the least explored performance outcome of work design. When elements of adaptivity have been investigated as an outcome of work design, they are usually merged with proficiency or proactive behaviors (such as the operationalization of performance used by Morgeson et al., 2005). The consequence is we don't really know whether work design affects adaptivity, or whether it affects it in ways distinct from other outcomes. In this section we review the limited research that exists, and set out some future directions.

Autonomy is theorized to play a central role in facilitating adaptive behavior. Sociotechnical systems theory highlights how autonomy enables individuals to deal with variances, or uncertainties, at the source (Cherns, 1987). In a study looking at managerial discretion in Chinese international joint ventures, Yan, Chong and Mak (2010) showed that management

autonomy predicted firm performance. These authors argued that autonomy supports quick adaptation to unanticipated changes in the markets where the firms operate. Moreover, freedom in decision making allows managers to deal with critical developments in the context without waiting for approval from the parent firm (Takeuchi, Shay, & Li, 2008). In a similar vein, Cordery et al. (2010) showed that autonomy (increased by introducing a new work design based on self-managing teams in a water management corporation) facilitated team performance, especially when uncertainty was high. The focus of the study was on team performance, but these authors suggested that performance effects were obtained through supporting teams' better adaptation to unplanned situations. As a further example, for people working in jobs that require frequent customer contact, structural empowerment seems to help employees to better cope with situations of customer aggression (Ben-Zur & Yagil, 2005). In situations that require adaptive performance, having adequate knowledge is insufficient: employees also need to be able to actually solve customer problems.

The above line of thinking relates to the quick response mechanism referred to earlier, but additionally highlights that it is not only a faster response that is facilitated through autonomy, but often a better quality response because the individual making the decisions is doing so with the benefit of local expertise. In other words, one mechanism by which greater autonomy affects adaptive performance is that is allows the application of skills, knowledge and expertise (Langfred & Moye, 2004; Wall et al., 2002), including exercising tacit knowledge (Wall et al., 1992). Parker (2003) illustrated how autonomy is a key ingredient for skill utilization: reduced levels of autonomy associated with the introduction of lean production systems were associated with a decrease in self-reported skill utilization.

As described earlier, work design can also promote learning and development. Autonomy, task and skill variety, feedback (both from peers and customers), interdependence, leader and

peer support, specialization, task identity are job characteristics expected to facilitate learning and development (Frese & Zapf, 1994; Morgeson & Humphrey, 2008; Parker, 2014). For example, work design promotes self-efficacy (e.g., Parker, 1998), and individuals with higher self-efficacy are more likely to learn and develop skills at work (Morgeson & Humphrey, 2008), and more likely to engage in adaptive types of job crafting (Berg, Wrzesniewski, & Dutton, 2010). In the longer term, such learning might mean the development of enhanced cognitive, self, social and affective complexity that is required by complex work environments (Parker, 2014), allowing employees to work and interact with others in adaptive ways, such as anticipate problems and challenges, and better cope/respond to them (Wall et al., 2002).

A further perspective on the role of autonomy for adaptivity is provided by the job crafting literature. Although crafting tends to be seen as a form of proactive work behavior (e.g., Grant & Parker, 2009), a process perspective (Berg et al., 2010) highlights important adaptive actions that employees engage in whilst trying to proactively alter their roles. In their qualitative study, Berg et al. (2010) described 'adaptive moves' involved in the job crafting process, and highlighted that it is the perceived freedom to alter the boundaries of one's job that is important for adaptivity rather than formal autonomy and power. Perceived freedom, and hence adaptivity, is likely to be reduced by higher levels of interdependence with other roles and by greater visibility of one's role. For example, in conditions of high interdependence when one's actions have the possibility of affecting the way other people do their work, adaptive and proactive behaviors might be inhibited.

In contemporary organizations it is becoming increasingly important that adaptivity is achieved alongside proficiency and indeed proactivity, even when these different outcomes might not appear compatible (Parker, 2014). Insights for individual adaptive performance can be obtained from the ambidexterity literature (O'Reilly & Tushman, 2008; Raisch &

Birkinshaw, 2008) looking at organizations that successfully promote a simultaneous focus on both control (exploration) and flexibility (exploitation). Parker (2014) highlighted the importance of an enriched work design for achieving required individual flexibility: having task variety, task identity, and task significance empower individuals to decide when they need to engage in task exploration (flexibility) or to just focus on execution. Parker further identified social characteristics (such as increased contact with customers, feedback, or support from leaders) as potentially promoting the flexibility required in ambidexterous organizations. In a similar vein, Gibson and Birkinshaw (2004) argued that effective performance in ambidextrous environments requires employees to be empowered so they can judge independently how to divide their efforts amongst competing demands.

Going further than empowerment, Parker (2014) also argued that individuals working in ambidextrous contexts require a level of behavioral and cognitive complexity that matches the complexity of the environment; with the development of this complexity being facilitated by enriched work designs. For example, Leach et al. (2001) showed how autonomy coupled with enhanced feedback and support can result in enhanced cognitive complexity, defined in terms of management knowledge, and more so amongst novice operators. A classic longitudinal study also supported the idea that task complexity (together with autonomy in the form of reduced supervision) predicted employees' intellectual flexibility, even when controlling for the levels of these variables assessed 20 years earlier (Schooler, Mulatu, & Oates, 2004). Some research hints at the possible role of social characteristics of work in developing requisite complexity. Parker and Axtell (2001) revealed the role of job autonomy in enhancing employees' tendency to adopt other's perspectives; and Parker (2014) theorized such processes might in the long term promote enhanced epistemic cognition.

Beyond learning and development, affective mechanisms have the potential to play an important role for individual adaptive performance. First, there is clear evidence that work design can promote positive affect at work, such as in the literature on engagement (Bakker et al., 2004; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Second, there is extensive support for the role of positive affect for creative problems solving (Amabile, Barsade, Mueller, & Staw, 2005; Isen, Daubman, & Nowicki, 1987); a core element of adaptive performance (Pulakos et al., 2000). Likewise, positive affect broadens thought–action repertoires (Fredrickson & Branigan, 2005) that are likely to help one to cope with change and uncertainty.

Affect can also facilitate co-operation (Wright & Staw, 1999), which means that work design could promote both team-member and organization-member adaptivity; both forms of behavior that contain an inherent element of co-operation. These more interdependent behaviors might also be promoted by knowledge mechanisms. For example, autonomy has been related to the development of more integrated understanding or bigger picture perspective about the overall organizational system (Lawler, 1992; Parker et al., 1997), which arguably might support both team-member and organization-member adaptivity. A further mechanism by which work design might shape team-member and organization-member adaptivity is that individuals develop a broader sense of their responsibilities, which in turn leads them to assume ownership for higher-level goals. When more aspects or broader goals are integrated in employees' representation of their own role, higher flexibility is expected, not only at the task-level but also at the team and organizational member level. These assertions are partially supported by preexisting data regarding role breath as a mechanism of work design. For example Fried, Hollenbeck, Slowik, Tiegs, and Ben-David (1999) highlighted how job autonomy leads to greater flexibility in the way employees define their own role. Moreover, Parker (Parker, 1998; Parker et al., 1997) highlighted that this link is particularly important in dynamic and uncertain environments when employees are called upon to increase their

ownership of organizational problems but also to try and master different tasks or different ways to go about their tasks. Indeed, Morgeson et al.'s (2005) study included some adaptive dimensions in their assessment of performance (e.g., problem solving, learning), and showed that job autonomy affected performance via role breadth, offering further support to the idea that one mechanism by which autonomy promotes team-member and organization-member adaptivity is that it facilitates individuals' taking on a broader set of responsibilities.

Beyond autonomy, other job characteristics are expected to play a role in facilitating adaptivity at multiple levels, although theory and empirical support for them is scarce. For example, Harrison and Humphrey (2010) argued that, within a team context, random assignment of employees to both teams and tasks might facilitate the development of an equal distribution of skills across roles that, in turn, will eventually build the capability to respond to changes in teams. Although proposed to act within a team context, there are indications that these characteristics are important for individual adaptivity. Task and skill variety create a deeper understanding of the task that allows employees to choose better strategies in dealing with new/unexpected situations (Frese & Zapf, 1994; Wall, Jackson, Mullarkey, & Parker, 1996). Having a wider repertoire of actions and expertise help people to better and more flexibly cope with changes in the way the overall organization operates. Interestingly, task specialization could have different effects at different levels. It might facilitate individual task adaptivity due to that deeper understanding of the tasks at hand, while for team and organizational member adaptivity, specialization might be seen as a possible inhibitor of adaptive actions due to reduced distribution of skills across roles (Harrison & Humphrey, 2010).

At the team level, Harrison and Humphrey (2010) highlighted the role of shared mental models or shared cognition. They proposed that greater skill and task variety would contribute

to more shared cognition and hence, improved performance. The way they discussed performance as including adaptive processes, we are tempted to agree that this mechanism might be especially relevant for individual adaptivity as a team member. Having an accurate mental representation of the team task and its interdependencies will allow employees to react more quickly and accurately to any changes or challenges during teamwork. Their arguments seem to point to the idea that forms of adaptivity that are more embedded in the social context (team-level and organizational-level) rely more on cognitive aspects such as mental models and transactive memory systems. Therefore a good way to start expanding our understanding of these relationships with adaptivity is to look at work designs that facilitate these aspects (such as task and skill variety, but also complexity, interdependence, feedback). An earlier similar argument is made for the individual level also. Wall and Jackson (1995) showed that employees conferred with autonomy to deal with disruptive events at the source and to rectify problems by themselves, develop anticipatory knowledge through repeated observations of causal relationships. This anticipatory knowledge plays a key role for more adaptive and proactive forms of work role behaviors.

In sum, although specific studies linking work design and adaptivity are scarce, existing data and theoretical arguments converge on the idea that an enriched work design, especially autonomy, supports adaptive behaviors. Nevertheless, it appears that other work characteristics might be relevant, and these might even differ again when considering team or organization member adaptivity (for example, specialization that might facilitate individual task adaptivity but inhibit team-member adaptivity). All in all, more work is needed to understand how work design supports adaptivity within the work place (Harrison & Humphrey, 2010; Johns, 2010; Parker, 2014). It appears that the role of work design in facilitating learning and development might be an especially important process for adaptivity, albeit supported by the motivation to actually execute learning.

WORK DESIGN AND PROACTIVITY

Calls to expand the criterion domain for work design research (e.g., Grant & Parker, 2009; Morgeson & Humphrey, 2008; Parker & Turner, 2002; Parker et al., 2001) have partly been answered with an increased interest in how work design shapes employee proactivity. In their framework of work role behavior, Griffin et al. (2007) argued for the particular importance of proactive behavior, defined as self-starting and anticipatory change, for dealing with dynamic and unpredictable work environments. *Individual task proactivity* is engaging in proactive behavior to change one's individual circumstances at work (their role, their work situations, or even themselves). *Team member proactivity* refers to proactive behaviors that an individual undertakes in order to change circumstances within their work team (the way the team operates, or team situation). Last but not least, *organization member proactivity* describes those self-starting, future and change oriented behaviors directed at influencing/modifying the way the overall organization works or the situation an organization is confronted with.

Existing literature highlights a strong relationship between work design and individual task proactivity. Most attention has been given to the work design variable of job autonomy. For example, perceived control positively predicts personal initiative (Frese, Fay, Hilburger, Leng, & Tag, 1997), perceived discretion in one's role predicts individual taking charge behavior (McAllister et al., 2007), job autonomy predicts proactive idea implementation and proactive problem solving (Parker et al., 2006), and autonomy predicts suggestions for improvement (Axtell, Holman, Unsworth, Wall, Waterson, & Harrington, 2000). A recent meta-analysis including 163 independent samples (N = 36,079) found positive and significant relationships of job control with several proactivity concepts (Tornau & Frese, 2013).

As to why job autonomy matters, research suggests autonomy can activate each of the three motivational states argued to be important for proactivity (Parker, Bindl, & Strauss, 2010).

First, ‘can do’ motivation refers to individuals’ belief they can be proactive (self-efficacy) and/or that their actions have agency (control orientations). There is substantial evidence to link self-efficacy to proactive behaviors. For example, self-efficacy beliefs were related to higher taking charge measured by peer-report (Morrison & Phelps, 1999), and higher self-ratings of personal initiative (Frese, Garst, & Fay, 2007). Evidence is even more consistent when it comes to the role of role breadth self-efficacy, defined as individual beliefs about their capabilities to carry out a broader and more proactive role (Parker, 1998). Role breadth self-efficacy predicts many different types of proactive behaviors, such as suggesting improvements (Axtell et al., 2000); proactive problem solving and idea implementation (Parker et al., 2006); and taking charge, individual innovation, problem prevention, voice, issue selling and strategic scanning (Parker & Collins, 2010). It is not surprising that recent meta-analytical results support general self-efficacy beliefs and role breadth self-efficacy (as well as locus of control) as correlates of proactivity behaviors, with the coefficients for role breadth self-efficacy being higher than those for general self-efficacy (Tornau & Frese, 2013). These findings are in line with research on other complex organizational behaviors showing that specific forms of self-efficacy are more predictive than general forms. In turn, evidence suggests that enriched job designs, likely because they allow opportunities for enactive mastery, promote self-efficacy (e.g., Parker, 1998), and further research shows that the effects of job autonomy on proactive behaviors are mediated by self-efficacy (Parker et al., 2006).

A second motivational state identified as facilitating proactivity is ‘reason to’ motivation (Parker et al., 2010), or individuals’ internalized willingness to behave proactively. One construct considered in this vein is a flexible role orientation. Flexible role orientation refers to the observation that some individuals construe their role more broadly and flexibly relative to others who possess a ‘that’s not my job’ mentality (Parker, et al., 1997). Flexible role orientation reflects how some individuals actively redefine their roles in order to incorporate

new tasks and goals (Frese & Fay, 2001). Parker et al., (2006) showed that flexible role orientation is a significant predictor of proactive behavior even when role breadth self-efficacy is controlled for, and prior research (Parker et al., 1997) showed that having high levels of job autonomy (in the form of self-managing teams) can result in the development of more flexible role orientations.

A third motivational state is 'energized to' motivation, or the experience of positive and activated affect. Bindl and Parker (2010) proposed a model in which affective mechanisms drive proactive behavior at the individual task, team and organization level. They drew on theory that positive affect results in a broadening of thought–action repertoires (Fredrickson & Branigan, 2005), as well as studies showing a relationship between engagement and individual proactivity (Den Hartog & Belschak, 2007; Hakanen, Perhoniemi, & Toppinen-Tanner, 2008; Salanova & Schaufeli, 2008). Consistent with this, there is evidence linking positive affect to individual proactive behaviors such as personal initiative (Den Hartog & Belschak, 2007), taking charge (same day and peer-reported) (Fritz & Sonnentag, 2009), and proactivity (Bindl, Parker, Totterdell, & Hagger-Johnson, 2012); as well as with organization member proactivity, such as strategic scanning (Parker & Collins, 2010). At the same time, there is much evidence that job design can promote enthusiasm and vigor, both activated positive states (Salanova & Schaufeli, 2008). Altogether, there appears to be growing evidence on the role of affective mechanisms for proactive performance, although there is still a need for further refinement, especially regarding specific effects for specific sub dimensions or regarding interdependencies with other mechanisms.

At this point it is relevant to comment on the role of affective commitment since this might be a mechanism expected to operate for proactive behaviors that are targeted at the organization. Whilst the effect of job autonomy on commitment is reasonably well-established

(e.g., Galletta et al., 2011; Parker, Axtell, & Turner, 2001), existing data regarding the role of affective commitment in supporting proactive behaviors is inconsistent. Some scholars have shown commitment being potentially rather passive in orientation – does not predict proactive behavior (Parker et al., 2006). Other studies show positive relationships between affective organizational commitment and proactive behaviors (Tornau & Frese, 2013). Griffin et al. (2007) reported stronger effects of commitment on organization-member proficiency, but there were still small to medium positive associations with organization-member adaptivity and proactivity. Some scholars point to the fact that inconsistencies might be generated by the fact that specific forms of commitment relate to different types of proactive behaviors (Bindl & Parker, 2011), and other scholars suggests it will depend whether more powerful co-related predictors are included in the analysis (Parker et al., 2006).

Altogether, there is quite solid evidence that job autonomy promotes proactivity via the can do, reason to, and energized to pathways. Fewer studies have considered job autonomy in relation to team member proactivity or organization member proactivity, although Hornung and Rousseau (2007) showed that job autonomy is positively related to commitment to structural change (operationalized in terms of proactive behaviors) through mechanisms such as role breadth self-efficacy and personal initiative. This latter study highlights that individual proactive motivation might also facilitate proactive contributions at team and organizational levels.

Beyond autonomy, what other possible job design characteristics might promote or constrain proactivity? Job complexity has also been investigated in relation with proactivity, sometimes alongside autonomy, with positive evidence for this job characteristic. For example, Frese et al. (2007) showed that autonomy and job complexity were related to control orientations (a type of 'can do' motivation) that in turn predicted personal initiative, a form of

proactive behavior. Moreover, they also showed a spiral effect, with more personal initiative leading to increased perceptions of autonomy and complexity. Social characteristics might also promote proactivity, such as by cultivating a psychologically safe environment in which individuals feel able to take the 'risk' to be proactive ('can do' motivation) or perhaps by creating a positive climate of shared responsibility. The meta-analysis by Tornau and Frese (2013) showed that support was also positively associated with proactive behaviors. In a similar vein, Parker et al. (2006) reported that coworker trust (but not supportive supervision) contributes to proactive behavior through supporting more flexible role orientations. More recently, Parker, Johnson, Collins and Nguyen (2013) showed that junior doctors increased their level of proactive care and proactive skill development when structural support was enhanced (via the presence of an advanced nurse on the shift), but this only applied to doctors who were not overly stressed. Stressed doctors responded to the intervention with lowered perceptions of role overload. The authors explained this finding in terms of conservation of resources theory: doctors not suffering from resource loss (non-stressed) responded to the expanded social support to accumulate resources for the future (via proactivity), whereas the distressed doctors used the social support to preserve their resources (via reducing their work load).

We expect social support might be even more important for enabling and encouraging proactivity at the team and organizational level since such proactivity typically requires higher levels of cooperation with others. In a study looking mainly at organizationally-oriented proactivity, Baer and Frese (2003) suggested that social support might be the mechanism by which innovation climate enhances innovation. However, as we argued in the previous section on adaptivity, social characteristics such as independence might have a negative impact on proactivity, or constrain proactivity in various ways. Because change initiated by one individual might have knock on effects for others, the high need for co-ordination might

overwhelm an individual's resources or motivation to be proactive. Frese and Fay (2001) observed that the proactive actions of one individual might not be always valued by colleagues or supervisors, especially when they are perceived as threatening. These observations suggest that the effect of the social job characteristics taken together, or even of all types of job characteristics, might not be always additive, but also interactive. Other elements outside work design (such as the organizational culture, or some individual differences) might also qualify these relationships.

Further job characteristics that have been considered in relation to proactivity are demands sometimes associated with job strain, that is, time pressure or situational constraints. Somewhat counter intuitively, studies suggest that – for proactive and innovative/creative work behaviors – these job characteristics might have positive effects, provided that they are perceived as challenges and that the job also entails sufficient job resources such as control or social support (Fay & Sonnentag, 2002; Ohly & Fritz, 2010). Such findings tend to be explained in terms of control discrepancy theory: that is, contexts of pressure and difficulty signal suboptimal conditions that could trigger proactive behavior, especially when employees have adequate job control (and other resources) to be able to initiate change. Consideration of these work characteristics also highlights possible non-linearity of relationships. That is, perhaps time pressure and some constraints are positive influences on proactivity up to a certain level, but if they exceed that level their effect on behaviors becomes negative.

A similar idea is also supported by research focus on 'workday' level job design. Scholars taking a workday design perspective have argued that some degree of 'mindless' work (work that is both simplified and devoid of performance pressures) might be important for creativity in high pressure jobs (Elsbach & Hargadon, 2006). These authors argued that bouts of

simplified, non-challenging work can provide the chance for recovery in otherwise relentlessly demanding work.

In sum, there is considerable research that supports links between work design and proactive behavior, with the evidence being clearest and most consistent for job autonomy, and evidence emerging for social characteristics and some types of demand. What is less clear is if their effect and underpinning mechanisms are homogenous for all three types of proactive behavior (individual, team member, organization member). An important area of further enquiry is how to manage the growing intensity of demands in some jobs. Whilst time pressure and constraints might prompt proactivity in some circumstances, as work becomes more intense, it might be that engaging in at least a small amount of simplified/routine tasks will support proactivity in complex and constant high pressure contexts.

FUTURE RESEARCH DIRECTIONS

We started this chapter by highlighting the types of performance that have become increasingly relevant for contemporary organizations, both in terms of forms of behavior (proficiency, adaptivity, proactivity) and in terms of the level they are targeted (individual, team, organization). Our review indicates that there is solid evidence for the role of work design in shaping individual task proficiency, but despite calls for work design theory to go beyond this focus, we are only part way there in understanding how to support more emergent forms of performance through work design.

First, regarding new forms of performance, whilst there has been progress in terms of considering proactive behaviors as outcomes of work design, the understanding of how work design might impact adaptive types of behaviors is limited. Even when adaptivity is studied as an outcome of work design, adaptive behaviors are usually investigated as part of a more general criteria focusing either on proficiency (Morgeson et al., 2005) or proactivity (Berg et

al., 2010). Although there is some overlap amongst the different forms of performance, we believe that a more focused operationalization of adaptive behavior will enhance our understanding about which types of work design might better support this important outcome. In some organizations and industries in particular, such as high reliability industries and emergency response context, adaptive behaviors are especially important.

Adaptivity is also important in light of the increased uncertainty and unpredictability within organizations, and with it the emergence of practices intended to support adaptivity, such as different work contracts (e.g., increased temporary, casual, part-time, contracts; greater outsourcing) and more flexible work arrangements (telework, flexible time management). Such practices raise questions such as how to balance flexibility and adaptivity at the individual level with co-ordination requirements at a higher level of work role performance (one could easily see how performance as a team member might be impacted by means of coordination difficulties, especially when all members of the team have different flexible schedules; similarly, different types of performance as an organizational member might also be negatively impacted if flexible time arrangements lead to a reduced contact with the overall organization). Remote and virtual work are also contemporary types of work organization that shape work design, but how these practices help or hinder adaptivity, especially at higher levels, has had little attention. We recommend future work design research to give more attention to adaptive outcomes.

Second, we can see that research on these different forms of behavior has evolved in different patterns. For proficiency, the tendency has been to use some general performance criteria that make it difficult to unpack how specific behaviors are affected, especially when we focus on proficiency behaviors embedded in the social context (team member proficiency and organization member proficiency). For proactivity, the tendency has been to develop

research on very specific proactive behaviors, with the main challenge residing in integrating these distinct behaviors. Adopting the performance framework focused on in this chapter (Griffin et al., 2007) might help address both challenges. It can be used as a guide for a more careful operationalization of proficiency criteria, and, the use of the framework is helpful in integrating proactive behaviors around the level of their intended impact – the individual task/job, the team, or the organization.

Third, our review highlights that our understanding is more limited as we consider more socially embedded behaviors. When the focus is on team member performance, or organization member performance, we found fewer studies (if any at all) and often have had to rely only on indirect data. We cannot deny the increasingly interdependent structure of contemporary workplaces, and therefore understanding how work design can affect performance directed towards improving the team, organization or other collective is important. In essence, we are arguing for the need to consider context to a greater extent in work design theory development. To date, the way work design theory tends to study context is as a boundary condition for work design–outcome relationships. We suggest it also shapes the outcomes of interest.

Our review highlighted that there are several work design features that can support each type of performance. Nevertheless, we observed that the tendency is to consider a limited set of job characteristics, usually focusing on job enrichment types of variables. However, we have highlighted how previously neglected job characteristics can be extremely relevant, such as job significance (Grant, 2007; Grant et al., 2007). Also, we have observed that the relevance of certain work characteristics might change as we shift horizontally or vertically within Griffin et al.'s model (2007). For example, for individual proficiency, job characteristics that promote motivation might be the most relevant (Humphrey et al., 2007), whereas when it comes to individual task adaptivity, work characteristics related to information processing become

increasingly relevant. Moving vertically to consider individual contributions targeted towards the team and the organization, we highlighted the possibility that social characteristics like social support and interdependence might become important, with these elements potentially interacting in interesting ways. In essence, we echo long-made calls (e.g., Parker et al., 2001) for expanded work design characteristics to be considered in job design research.

This point about expanding job design characteristics is also relevant for the mechanisms by which work design has an impact. Cognitive-motivational processes such as self-efficacy and intrinsic motivation appear to be predictive for all types of performance, although specific forms of self-efficacy are unsurprisingly most predictive when matched to the specific behaviors. When considering performance directed towards the team and organizational level, cognitive-motivational mechanisms concerned with a broader role orientation appear to be very important: it seems when individuals adopt a broader perspective on what their job is they are more likely to direct their efforts to collective outcomes. Affective processes have always had attention (such as early studies linking work design and well-being), but have had renewed emphasis in proactivity research where scholars have identified the particular importance of activated positive affect. Beyond cognitive-motivational and affective mechanisms, however, we have highlighted how learning is also an important but under-investigated mechanism, especially for adaptivity and proactivity. When it comes to team and organizationally-oriented performance, mechanisms such as knowledge sharing, perspective taking, and distributed cognition might be important processes by which work design makes a difference.

A further important issue is how the processes linking work design and outcomes play out over time, or the temporal issues (Parker et al., 2014). Reciprocal dynamics should also be considered. There are discussions in the literature around a possible positive spiral between autonomy and proactivity, with autonomy stimulating more proactivity that, in turn, leads

supervisors to give (or employees to assume) more responsibilities and hence further increase their job autonomy (Berg et al., 2010; Crant, 2000; Frese et al., 2007).

Overall, what is revealed by our review is the fact that work design is a potential antecedent of all the different types of work role performance. There are several job design characteristics that were already related directly or indirectly with the different categories of behaviors that we considered here. There are also multiple mechanisms by which these characteristics potentially influence performance. In this sense, we agree with Johns' (2010) observation that there might be several (or even numerous) patterns by which work design could support each of the three subdimensions of the three types of work behavior. What is more difficult is to identify those work design patterns that are capable of supporting several of these outcomes at the same time (see Parker, 2014). Therefore, we call for research that considers how patterns of work design characteristics impact multiple outcomes simultaneously.

Finally, although a detailed discussion on the emerging workplace trends is not the focus of this paper (for more detailed discussion see the special issue on work design in *Journal of Organizational Behavior*, 2010), it is important to consider work design and performance in the context of wider changes. For example, increased complexity resulting from technological developments, globalization, and competition has the potential to intensify work demands, which re-focuses our attention on proficiency: what types of work design best enable proficiency when the demands are intense? Likewise the workforce itself is increasingly more diverse – in terms of an aging workforce, females having increased participation in work, and increased multiculturalism at work. For example, an aging workforce means we need to understand how to design work that will not only be able to retain the participation of older employees, but also maximize their skills and experience, and channel their performance to

higher levels. Likewise, increased diversity gives rise to questions around the combinations of jobs and people in a team that best harness this diversity.

CONCLUSION

Although the field of work design has partly expanded the criteria of work performance in light of a contemporary context dominated by greater uncertainty and increased interdependence, the picture is still far from being clear. We have proposed how research in this field can be advanced, especially in regards to considering adaptivity as a crucial performance outcome and in terms of considering contributions to co-ordinated performance. Beyond stimulating research and theoretical development, our paper highlights important practical considerations. The inconsistency apparent in the research regarding how work design affects performance might have obscured the use of work design as an important tool for generating competitive advantage. If scholars are able to demonstrate the value of work design across multiple contemporary outcomes, then this might enhance managerial take up of work design as a vehicle for change. Our observation, supported by research (Campion & Stevens, 1994; Parker & Andrei, 2014), is that the natural tendency of most naïve job designers is to design simplified, low variety/discretion jobs. Such work designs, as we have argued here, diminish proficiency because individuals are less committed and engaged, but they also are likely to be especially inhibiting of adaptivity and proactivity because they lower self-efficacy and potentially suppress learning. The gap between work design strategies executed in practice, and the work design strategies that theory and research suggest will maximize performance in contemporary work, could well grow. We hope that this chapter and the research it might spur will help to close this gap.

REFERENCES

Amabile, T. M., Barsade, S. G., Mueller, J. S., & Staw, B. M. (2005). Affect and creativity at work. *Administrative Science Quarterly, 50,* 367–403.

Axtell, C. M., Holman, D. J., Unsworth, K. L., Wall, T. D., Waterson, P., & Harrington, E. (2000). Shop floor innovation: Facilitating the suggestion and implementation of ideas. *Journal of Occupational and Organizational Psychology*, *73,* 265–285.

Baer, M., & Frese, M. (2003). Innovation is not enough: Climates for initiative and psychological safety, process innovations, and firm performance. *Journal of Organizational Behavior*, *24*, 45–68.

Baird, L. S. (1976). Relationship of performance to satisfaction in stimulating and nonstimulating jobs. *Journal of Applied Psychology, 61*, 721–727.

Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands–resources model to predict burnout and performance. *Human Resources Management*, *43*, 83–104.

Ben-Zur, H., & Yagil, D. (2005). The relationship between empowerment, aggressive behaviours of customers, coping, and burnout. *European Journal of Work and Organizational Psychology*, *14*, 81–99.

Berg, J. M., Wrzesniewski, A., & Dutton, J. E. (2010). Perceiving and responding to challenges in job crafting at different ranks: When proactivity requires adaptivity. *Journal of Organizational Behavior*, *31*, 158–186.

Bindl, U. K., & Parker, S. K. (2010). Feeling good and performing well? Psychological engagement and positive behaviors at work. In S. Albrecht (Ed.), *Handbook of employee engagement: Perspectives, issues, research and practice* (pp. 385–398). Cheltenham: Edward-Elgar Publishing.

Bindl, U. K., & Parker, S. K. (2011). Proactive work behavior: Forward thinking and change-oriented action in organizations. In S. Zedeck (Ed.), *APA Handbook of industrial and organizational psychology* (pp. 567–598). Washington, DC: American Psychological Association.

Bindl, U. K., Parker, S. K., Totterdell, P., & Hagger-Johnson, G. (2012). Fuel of the self-starter: How mood relates to proactive goal regulation. *Journal of Applied Psychology, 97*, 134–150.

Borman, W. C., & Motowidlo, S. J. (1993). Expanding the criterion domain to include elements of contextual performance. In N. Schmitt, W. C. Borman, & Associates (Eds.), *Personnel selection in organizations* (pp. 71–98). San Francisco: Jossey-Bass.

Braverman, H. (1974). *Labour and monopoly capital: The degradation of work in the twentieth century.* New York: Monthly Review Press.

Braverman, H. (1984). The real meaning of Taylorism. In F. Fisher, & C. Sirianni (Eds.), *Critical studies in organization and bureaucracy* (pp. 79–86). Philadelphia: Temple Press.

Campbell, J. P., McCloy, R. A., Oppler, S. H., & Sager, S. E. (1993). A theory of performance. In E. Schmitt, W. Borman, & Associates (Eds.), *Personnel selection in organizations* (pp. 35–70). San Francisco: Jossey-Bass.

Campion, M. A., & Stevens, M. J. (1991). Neglected questions in job design: How people design jobs, task-job predictability, and influence of training. *Journal of Business & Psychology, 6*, 169–191.

Chen, G., & Klimoski, R. (2003). The impact of expectations on newcomer performance in teams as mediated by work characteristics, social exchanges, and empowerment. *Academy of Management Journal, 46*, 591–607.

Cherns, A. (1987). Principles of sociotechnical design. *Human Relations, 40*, 153–161.

Cordery, J. L., Morrison, D., Wright, B. M., & Wall, T. D. (2010). The impact of autonomy and task uncertainty on team performance: A longitudinal field study. *Journal of Organizational Behavior*, *31*, 240–258.

Crant, J. M. (2000). Proactive behavior in organizations. *Journal of Management*, *26*, 435–462.

Demerouti, E., Bakker, A., Nachreiner, F., & Schaufeli, W. (2001). The job demands–resources model of burnout. *Journal of Applied Psychology*, *86*, 499–512.

Den Hartog, D. N., & Belschak, F. D. (2007). Personal initiative, commitment and affect at work. *Journal of Occupational and Organizational Psychology*, *80*, 601–622.

Dodd, N. G., & Ganster, D. C. (1996). The interactive effects of variety, autonomy, and feedback on attitudes and performance. *Journal of Organizational Behavior*, *17*, 329–347.

Elsbach, K. D., & Hargadon, A. B. (2006). Enhancing creativity through 'mindless' work: A framework of workday design. *Organization Science*, *17*, 470–483.

Fay, D., & Sonnentag, S. (2002). Rethinking the effects of stressors: A longitudinal study on personal initiative. *Journal of Occupational Health Psychology*, *7*, 221–234.

Fraser, R. (1947). *The incidence of neurosis among factory workers.* Oxford: HM Stationery Office.

Fredrickson, B., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition and Emotion*, *19*, 313–332.

Frese, M., & Fay, D. (2001). Personal initiative (PI): An active performance concept for work in the 21st century. In B. M. Staw & R. M. Sutton (Eds.), *Research in organizational behavior* (Vol. 23, pp. 188–187). Amsterdam: Elsevier Science.

Frese, M., & Zapf, D. (1994). Action as the core of work psychology: A German approach. In H. Triandis, M. Dunnette & J. Hough (Eds.), *Handbook of industrial and organisational psychology* (2nd edn, pp. 271–340). Palo Alto, CA: Consulting Psychologists Press.

Frese, M., Fay, D., Hilburger, T., Leng, K., & Tag, A. (1997). The concept of personal initiative: Operationalization, reliability and validity in two German samples. *Journal of Organizational and Occupational Psychology*, *70*, 139–161.

Frese, M., Garst, H., & Fay, D. (2007). Making things happen: Reciprocal relationships between work characteristics and personal initiative in a four-wave longitudinal structural equation model. *Journal of Applied Psychology*, *92*, 1084–1102.

Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology*, *40*, 287–322.

Fried, Y., Hollenbeck, J. R., Slowik, L. H., Tiegs, R. B., & Ben-David, H. A. (1999). Changes in job decision latitude: The influence of personality and interpersonal satisfaction. *Journal of Vocational Behavior*, *54*, 233–243.

Fritz, C., & Sonnentag, S. (2009). Antecedents of day-level proactive behavior: A look at Job stressors and positive affect during the workday. *Journal of Management*, *35*, 94–111.

Galletta, M., Portoghese, I., & Battistelli, A. (2011). Intrinsic motivation, job autonomy and turnover intention in the Italian healthcare: The mediating role of affective commitment. *Journal of Management Research*, *3*, 1–19.

Gibson, C. B., & Birkinshaw, J. (2004). The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of Management Journal*, *47*, 209–226.

Grant, A. M. (2007). Relational job design and the motivation to make a prosocial difference. *Academy of Management Review*, *32*, 393–417.

Grant, A. M., & Parker, S. K. (2009). Redesigning work design theories: The rise of relational and proactive perspectives. *Academy of Management Annals*, *3*, 317–375.

Grant, A. M., Campbell, E. M., Chen, G., Cottone, K., Lapedis, D., & Lee, K. (2007). Impact and the art of motivation maintenance: The effects of contact with beneficiaries on persistence behavior. *Organizational Behavior and Human Decision Processes*, *103*, 53–67.

Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy of Management Journal*, *50*, 327–347.

Griffin, R. W. (1991). Effects of work redesign on employee perceptions, attitudes and behaviors. *Academy of Management Journal*, *34*, 425–435.

Griffin, R. W., Welsh, A., & Moorhead, G. (1981). Perceived task characteristics and employee performance: A literature review. *Academy of Management Review*, *6*, 655–664.

Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behaviour and Human Performance*, *16*, 250–279.

Hakanen, J. J., Perhoniemi, R., & Toppinen-Tanner, S. (2008). Positive gain spirals at work: From job resources to work engagement, personal initiative and work-unit innovativeness. *Journal of Vocational Behavior, 73,* 78–91.

Harrison, D. A., & Humphrey, S. E. (2010). Designing for diversity or diversity for design? Tasks, interdependence, and within-unit differences at work. *Journal of Organizational Behavior, 31,* 328–337.

Herzberg, F. (1966). *Work and the nature of man.* Cleveland, OH: World Publishing.

Hornung, S., & Rousseau, D. (2007). Active on the job−proactive in change: How autonomy at work contributes to employee support for organizational change. *Journal of Applied Behavioral Science, 43,* 401–426.

Humphrey, S. E., Nahrgang, J. D., & Morgeson, F. P. (2007). Integrating motivational, social, and contextual work design features: A meta-analytic summary and theoretical extension of the work design literature. *Journal of Applied Psychology, 92,* 1332–1356.

Ilgen, D., & Hollenbeck, J. (1991). The structure of work: Job design and roles. In M. D. Dunnette, & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd edn, pp. 165–208). Palo Alto, CA: Consulting Psychologists Press.

Ilgen, D. R., & Pulakos, E. D. (1999). Employee performance in today's organizations. In D. R. Ilgen & E. D. Pulakos (Eds.), *The changing nature of performance: Implications for staffing, motivation, and development* (pp. 21–55). San Francisco: Jossey-Bass.

Isen, A. M., Daubman, K. A., & Nowicki, G. P. (1987). Positive affect facilitates creative problem solving. *Journal of Personality and Social Psychology, 52,* 1122–1131.

Jackson, P. R., & Wall, T. D. (1991). How does operator control enhance performance of advanced manufacturing technology? *Ergonomics, 34,* 1301–1311.

Janz, B. D., Colquitt, J. A., & Noe, R. A. (1997). Knowledge worker team effectiveness: The role of autonomy, interdependence, team development, and contextual support variables. *Personnel Psychology, 50,* 877– 904.

Johns, G. (2010). Some unintended consequences of job design. *Journal of Organizational Behavior, 31,* 361–369.

Johnson, J. W. (2001). The relative importance of task and contextual performance dimensions to supervisor judgements of overall performance. *Journal of Applied Psychology, 86,* 984–996.

Kelly, J. E. (1992). Does job re-design theory explain job re-design outcomes? *Human Relations, 45,* 753–774.

Kiggundu, M. N. (1983). Task interdependence and job design: Test of a theory. *Organizational Behavior and Human Performance, 31,* 145–172.

Koberg, C. S., Boss, W., Senjem, J. C., & Goodman, E. A. (1999). Antecedents and outcomes of empowerment: Empirical evidence from the health care industry. *Group and Organization Management, 34,* 71–91.

Kozlowski, S. W., Gully, S. M., Nason, E. R., & Smith, E. M. (1999). Developing adaptive teams: A theory of compilation and performance across levels and time. In D. Ilgen & E. Pulakos (Eds.), *The changing nature of performance: Implications for staffing, motivation, and development* (pp. 240–292). San Francisco: Jossey-Bass.

Langfred, C. W., & Moye, N. A. (2004). Effects of task autonomy on performance: An extended model considering motivational, informational, and structural mechanisms. *Journal of Applied Psychology*, *89*, 934–945.

Lawler, E. (1992). *The ultimate advantage: Creating the high-involvement organization.* San Francisco, CA: Jossey-Bass.

Leach, D. J., Jackson, P. R., & Wall, T. D. (2001). Realizing the potential of empowerment: the impact of a feedback intervention on the performance of complex technology. *Ergonomics*, *44*, 870–886.

Leach, D. J., Wall, T. D., & Jackson, P. R. (2003). The effect of empowerment on job knowledge: An empirical test involving operators of complex technology. *Journal of Occupational and Organizational Psychology*, *76*, 27–52.

Leach, D. J., Wall, T. D., Rogelberg, S. G., & Jackson, P. R. (2005). Team autonomy, performance, and member job strain: Uncovering the teamwork KSA link. *Applied Psychology: An International Review*, *54*, 1–24.

McAllister, D. J., Kamdar, D., Morisson, E. W., & Turban, D. B. (2007). Disentangling role perceptions: How perceived role breadth, discretion, instrumentality, and efficacy relate to helping and taking charge. *Journal of Applied Psychology*, *92*, 1200–1211.

Morgeson, F. P., & Campion, M. A. (2003). Work design. In W. Borman, R. Klimoscki & D. Ilgen (Eds.), *Handbook of psychology: Industrial and organizational psychology* (pp. 423–452). New York: John Wiley.

Morgeson, F. P., & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): Developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of Applied Psychology*, *91*, 1321–1339.

Morgeson, F. P., & Humphrey, S. E. (2008). Job and team design: Toward a more integrative conceptualization of work design. In J. Martocchio (Ed.), *Research in personnel and human resources management* (Vol. 27, pp. 39–92). Bingley, UK: Emerald.

Morgeson, F. P., Delaney-Klinger, K. A., & Hemingway, M. A. (2005). The importance of job autonomy, cognitive ability, and job-related skill for predicting role breadth and job performance. *Journal of Applied Psychology*, *90*, 399– 406.

Morrison, E. W., & Phelps, C. C. (1999). Taking charge at work: Extrarole efforts to initiate workplace change. *Academy of Management Journal*, *42*, 403–419.

Murphy, P. R., & Jackson, S. E. (1999). Managing work-role performance: Challenges for 21st century organizations and employees. In D. Ilgen & E. Pulakos (Eds.), *The changing nature of work performance. Implications for staffing, motivation and development.* (pp. 325–365). San Fracisco, CA: Jossey-Bass.

Ohly, S., & Fritz, C. (2010). Work characteristics, challenge appraisal, creativity, and proactive behavior: A multi-level study. *Journal of Organizational Behavior*, *31*, 543–565.

Oldham, G. R. (1996). Job design. *International Review of Industrial and Organizational Psychology*, *11*, 33–60.

O'Reilly, C., & Tushman, M. (2008). Ambidexterity as a dynamic capability:Resolving the innovator's dilemma. *Research in Organizational Behavior*, *28*, 185–206.

Parker, S. K. (1998). Enhancing role breadth self-efficacy: The roles of job enrichment and other organizational interventions. *Journal of Applied Psychology, 83,* 835–852.

Parker, S. K. (2003). Longitudinal Effects of Lean Production on Employee Outcomes and the Mediating Role of Work Characteristics. *Journal of Applied Psychology, 88,* 620-634.

Parker, S. K. (2014). Going beyond motivation: Work design for sevelopment, health, ambidexterity, and more. *Annual Review of Psychology, 65*, 661–691.

Parker, S. K., & Andrei, D. M. (2014). Designing work: What task allocations come naturally? *Academy of Management 2014 Annual Meeting Program.* Philadelphia.

Parker, S. K., & Axtell, C. M. (2001). Seeing another viewpoint: Antecedents and outcomes of employee perspective taking. *Academy of Management Journal, 44*, 1085–1100.

Parker, S. K., & Collins, C. G. (2010). Taking stock: Integrating and differentiating multiple proactive behaviors. *Journal of Management, 36*, 633–662.

Parker, S. K., & Ohly, S. (2008). Designing motivating jobs: An expanded framework for linking work characteristics and motivation. In R. Kanfer, G. Chen, & R. Pritchard (Eds.), *Work motivation: Past, present and future* (pp. 233–284). New York/Abingdon: Routledge.

Parker, S. K., & Turner, N. (2002). Work design and individual job performance: Research findings and an agenda for future enquiry. In S. Sonnentag (Ed.), *The psychological management of individual performance: A handbook in the psychology of management in organizations* (pp. 69–93). Chichester, UK: Wiley.

Parker, S. K., & Wall, T. D. (1998). *Job and work design: Organizing work to promote well-being and effectiveness.* San Francisco, CA: Sage.

Parker, S. K., Andrei, D. M., & Li, W. D. (2014). An overdue overhaul: Revamping work design. In A. Shipp & Y. Fried (Eds.), *Time and work* (Vol. 1, pp. 191–228). New York: Psychology Press.

Parker, S. K., Axtell, C. M., & Turner, N. (2001). Designing a safer workplace: Importance of job autonomy communication quality, and supportive supervisors. *Journal of Occupational Health Psychology*, *6*, 211–228.

Parker, S. K., Bindl, U. K., & Strauss, K. (2010). Making things happen: A model of proactive motivation. *Journal of Management*, *36*, 827– 856.

Parker, S. K., Johnson, A., Collins, C. G., & Nguyen, H. (2013). Making the most of structural support: Moderating influence of employees' clarity and negative affect. *Academy of Management Journal*, *56*, 867–892.

Parker, S. K., Wall, T. D., & Cordery, J. L. (2001). Future work design research and practice: Towards an elaborated model of work design. *Journal of Occupational and Organizational Psychology*, *74*, 413–440.

Parker, S. K., Wall, T. D., & Jackson, P. R. (1997). 'That's not my job': Developing flexible employee work orientations. *Academy of Management Journal*, *40*, 899–929.

Parker, S. K., Williams, H. M., & Turner, N. (2006). Modelling the antecedents of proactive behavior at work. *Journal of Applied Psychology*, *91*, 636–652.

Paul, W. P., & Robertson, K. B. (1970). *Job enrichment and employee motivation.* London: Gower.

Piccolo, R. F., Greenbaum, R., Den Hartog, D. N., & Folger, R. (2010). The relationship between ethical leadership and core job characteristics. *Journal of Organizational Behavior, 31*, 259–278.

Podsakoff, P. M., MacKenzie, S. B., Paine, J. B., & Bachrach, D. (2000). Organizational citizenship behaviors: Critical review of the theoretical and empirical literature and suggestions for future research. *Journal of Management*, *26*, 513–563.

Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, K. (2000). Adaptability in the workplace: Development of a taxonomy of adaptive performance. *Journal of Applied Psychology*, *85*, 612–624.

Raisch, S., & Birkinshaw, J. (2008). Organizational ambidexterity: Antecedents, outcomes, and moderators. *Journal of Management*, *34*, 375–409.

Rotundo, M., & Sackett, P. R. (2002). The relative importance of task, citizenship, and counterproductiveperformance to global ratings of job performance: A policy-capturing approach. *Journal of Applied Psychology, 87*, 66–80.

Salanova, M., & Schaufeli, W. B. (2008). A cross-national study of work engagement as a mediator between job resources and proactive behaviour. *International Journal of Human Resource Management*, *19*, 116–131.

Schooler, C., Mulatu, M. S., & Oates, G. (2004). Occupational self-direction, intellectual functioning, and self-directed orientation in older workers: Findings and implications for individuals and societies. *American Journal of Sociology*, *110*, 161–197.

Smith, C. A., Organ, D. W., & Near, J. P. (1983). Organizational citizenship behavior: Its nature and antecedents. *Journal of Applied Psychology*, *68*, 653–663.

Takeuchi, R., Shay, J. P., & Li, J. (2008). When does decision autonomy increase expatriate managers' adjustment? An empirical test. *Academy of Management Journal, 51,* 45–60.

Taylor, F. W. (1911). *Principles of scientific management.* New York: Harper & Row.

Thomas, K. W., & Velthouse, B. A. (1990). Cognitive elements of empowerment: An 'interpretive' model of intrinsic task motivation. *Academy of Management Review*, *15,* 666–681.

Todd, S. Y., & Kent, A. (2006). Direct and indirect effects of task characteristics on organizational citizenship behavior. *North American Journal of Psychology*, *8,* 253–268.

Tornau, K., & Frese, M. (2013). Construct clean-up in proactivity research: A meta-analysis on the nomological net of work-related proactivity concepts and their incremental validities. *Applied Psychology: An International Review*, *62*, 44–96.

Viswesvaran, C., & Ones, D. (2000). Perspectives on models of job performance. *International Journal of Selection and Assessment*, *8,* 216–226.

Viswesvaran, C., Schmidt, F. L., & Ones, D. S. (2005). Is there a general factor in ratings of job performance? A meta-analytic framework for disentangling substantive and error influences. *Journal of Applied Psychology, 90*, 108–131.

Wall, T. D., & Jackson, P. R. (1995). New manufacturing initiatives and. In A. Howard (Ed.), *The changing nature of work* (pp. 139–174). San Francisco: Jossey-Bass.

Wall, T. D., Corbett, M. J., Martin, R., Clegg, C. W., & Jackson, P. R. (1990). Advanced manufacturing technology, work design and performance: A change study. *Journal of Applied Psychology*, *75,* 691–697.

Wall, T. D., Cordery, J. L., & Clegg, C. W. (2002). Empowerment, performance, and operational uncertainty: A theoretical integration. *Applied Psychology: An International Review*, *51*, 146–169.

Wall, T. D., Jackson, P. R., & Davids, K. (1992). Operator work design and robotic system performance: A serendipitous field study. *Journal of Applied Psychology*, *77*, 353–362.

Wall, T. D., Jackson, P. R., Mullarkey, S., & Parker, S. K. (1996). The demand–control model of job-strain: A more specific test. *Journal of Occupational Psychology*, *69*, 153–166.

Wallach, V. A., & Mueller, C. W. (2006). Job characteristics and organizational predictors of psychological empowerment among paraprofessionals within human service organizations: An exploratory study. *Administration in Social Work*, *30*, 95–115.

Wright, T. A., & Staw, B. M. (1999). Affect and favorable work outcomes: Two longitudinal tests of the happy-productive worker thesis. *Journal of Organizational Behavior*, *20*, 1–23.

Yan, Y., Chong, C. Y., & Mak, S. (2010). An exploration of managerial discretion and its impact on firm performance: Task autonomy, contractual control, and compensation. *International Business Review*, *19*, 521–530.