



Not What It Was and Not What It Will Be: The Future of Job Design Research

Citation

Oldham, Greg R. and J. Richard Hackman. 2010. Not what it was and not what it will be: the future of job design research. *Journal of Organizational Behavior* 31(2-3): 463–479.

Published Version

doi:10.1002/job.678

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**Not What It Was and Not What It Will Be:
The Future of Job Design Research**

Greg R. Oldham and J. Richard Hackman
Tulane University Harvard University

Journal of Organizational Behavior, in press

One of the earliest essays on the design of jobs was Adam Smith's well-known description of how pins should be manufactured, published in 1850:

One man draws out the wire, another straightens it, a third cuts, a fourth points it, a fifth grinds it at the top for receiving the head: to make the head requires two or three distinct operations: to put it on is a peculiar business, to whiten the pins is another; it is even a trade by itself to put them into the paper; and the important business of making a pin is, in this manner, divided into about eighteen distinct operations, which in some manufactories, are all performed by distinct hands, though in others the same man will sometime perform two or three of them (Smith, 1850, p. 3)

That way of thinking caught on and flowered, eventually resulting in the “scientific management” philosophy set forth a century ago by Frederick W. Taylor (1911) and subsequently carried forward by industrial engineers and others who sought to bring greater control and efficiency to the workplace. The basic idea was to design work systems with standardized operations and highly simplified work so that people could be just as interchangeable as standardized machine parts. The problem was that people did not much like the routine, repetitive jobs they now were required to perform—so much so, as researchers such as Charles Walker and Robert Guest found in their studies of work on the assembly line, that they sometimes behaved in ways that negated the efficiencies engineers had built into work systems (Walker & Guest, 1952).

By the 1960s, the world of work was ready for Frederick Herzberg's revolutionary approach to job design which specified that, to motivate employees to do good work, jobs should be enriched rather than simplified (Herzberg, 1966, 1976). Work should be designed and managed to foster responsibility, achievement, growth in competence, recognition, and advancement, Herzberg claimed. Factors extrinsic to the work itself, such as good supervisory practices and pleasant working conditions, were “hygiene factors” that could create dissatisfaction if poorly managed but never motivate employees to work hard and perform well.

Although empirical research did not provide much support for the conceptual model on which job enrichment was based, Herzberg's work spawned a large number of job enrichment projects, many of them successful. And it provided a valuable point of departure for our own research on the motivational potential of jobs that, eventually, evolved into Job Characteristics Theory (JCT; Hackman & Oldham, 1975, 1976, 1980).

The conceptual core of our approach was the expectancy theory of motivation as set forth by Edward Lawler, Lyman Porter, and Victor Vroom (Porter & Lawler, 1968; Vroom, 1964). That is, rather than being motivated by, say, the promise of rewards or the prospect of receiving (or avoiding) supervisory attention, people would try to perform well simply because it felt good when they did—and it felt bad when they did not. What characteristics of jobs, we wondered, might foster that state of *internal* work motivation?

Our approach built upon the pioneering research on job characteristics carried out by Arthur Turner and Paul Lawrence (1965). Specifically, some of the job attributes they had assessed, such as the amount of variety and autonomy jobs provided, appeared likely also to contribute to internal motivation. Other attributes they studied, such as the opportunity for social interaction, seemed to us at the time less consequential for jobholder motivation (a judgment call that, as several pieces in this issue show, was quite short-sighted).

We eventually settled on five “core” job characteristics: skill variety (i.e., the degree to which the job requires a variety of different activities in carrying out the work, involving the use of a number of different skills and talents of the person), task identity (i.e., the degree to which the job requires doing a whole and identifiable piece of work from beginning to end), task significance (i.e., the degree to which the job has a substantial impact on the lives of lives of other people, whether those people are in the immediate organization or the world at large),

autonomy (i.e., the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out), and job-based feedback (i.e., the degree to which carrying out the work activities required by the job provides the individual with direct and clear information about the effectiveness of his or her performance).

Each of the first three of these characteristics, we proposed, would contribute to the experienced meaningfulness of the work. Having autonomy would contribute to the jobholders' felt responsibility for work outcomes. And built-in feedback, of course, would provide direct knowledge of the results of the work. When these three psychological states were present—that is, when job holders experienced the work to be meaningful, felt personally responsible for outcomes, and had knowledge of the results of their work—they would become internally motivated to perform well. And, just as importantly, they would not be able to give themselves a psychological pat on the back for performing well if the work were devoid of meaning, or if they were merely following someone else's required procedures, or if doing the work generated no information about how well they were performing.

Although we suspected that our core proposition applied to most people, we took seriously the conclusions of Turner and Lawrence (1965) and of Charles Hulin and Milton Blood (1968) that not everyone responds positively to large, challenging jobs. So we incorporated two individual differences into our model—growth need strength (i.e., the degree to which an individual values opportunities for personal growth and development at work) and job-relevant knowledge and skill. Absent the former, a jobholder would not seek or respond to the internal

“kick” that comes from succeeding on a challenging task, and without the latter the jobholder would experience more failure than success, never a motivating state of affairs.¹

To summarize, the essence of JCT is that the presence of certain attributes of jobs increases the probability that individuals will find the work meaningful, will experience responsibility for work outcomes, and will have trustworthy knowledge of the results of their work. People who have the knowledge and skill needed to perform the job well and who value opportunities for growth and learning will be internally motivated to perform such jobs, which over time should result in greater overall job satisfaction and higher quality work outcomes. We developed a set of measurement instruments, including the Job Diagnostic Survey (JDS) and the Job Rating Form (JRF), for use in assessing job characteristics and jobholders’ responses to them, and then conducted a large-scale field study to test the model (Hackman & Oldham, 1975, 1976). Initial findings were promising, and there followed a large number of empirical studies by ourselves and others to extend and correct JCT.²

That was then. At the time, it made sense to focus on the job itself, since jobs were what people did at work and therefore surely also should be the core concept in research on work motivation, satisfaction, and productivity. But there have been some interesting developments in organizational life over the last few decades. As is seen in the articles in this issue, and as will be discussed in the remainder of this commentary, the world of work is now different than it was then, perhaps fundamentally so. Because it is different in ways that neither we nor others who

¹ We subsequently added satisfaction with the work context as a third moderator of responses to enriched work, based on empirical findings showing that responses are muted when jobholders are preoccupied with unsatisfactory organizational circumstances. For details, see Oldham, Hackman, and Pearce (1976).

² Our early findings and their implications for the design of jobs were summarized in a book (Hackman & Oldham, 1980) and in a practitioner-oriented article that identifies a number of principles for implementing the model in organizations (Hackman, Oldham, Janson, & Purdy, 1975). A decade after JCT was published, Fried and Ferris (1987) conducted a meta-analysis that assessed (and provided modest support for) its validity. Our personal reflections on the development of JCT and the responses, both favorable and highly skeptical, of scholars and practitioners are provided by Oldham and Hackman (2005).

were involved in work design research anticipated, it offers opportunities for some new directions in research and theory on work design—directions that may generate enriched understanding of human and organizational behavior and, perhaps, suggest some strategies for the design and leadership of work organizations.

The Phenomenon Has Changed . . .

In normal science, research evidence gradually corrects and elaborates existing conceptual models, new and improved research methods are developed, and new generations of researchers try out fresh approaches to understanding the phenomena being investigated. Eventually, of course, a wholly new theory will appear to replace that which had previously guided scientific work. But the phenomena themselves stay the same. To illustrate, consider the field of cognitive neuroscience, which has seen extraordinarily rapid development in both models and methods over recent years. Through all these changes the brain itself has continued to operate just as it did before scientific work on neural processes was even contemplated.

For research and theory on job design, by contrast, *the very phenomena being studied are changing*. Back when we were doing our own research on job design, organizational work generally was organized as a linked set of specific jobs, each set up to be performed by individuals who worked mostly independently of one another in bounded, stand-alone organizations. Those jobs were carefully analyzed and defined, both to establish pay rates and to remove any ambiguity about what jobholders were supposed to do. For information about virtually any job—from abalone diver to zipper trimmer—scholars, as well as job seekers and human resource professionals, could turn to the comprehensive *Dictionary of Occupational Titles* (Miller, Treiman, Cain, & Roos, 1980). One could learn all manner of things about the

specific jobs from the *Dictionary*—what qualifications are required, how risky they are, and even some of their motivational properties.

The *Dictionary* has now evolved into the *Occupational Information Network* (O*NET), which is readily available online (<http://www.occupationalinfo.org>). Yet we wonder how extensively that carefully maintained resource is consulted these days, since the very meaning of the concept of “job” is changing. It is true that many specific, well-defined jobs continue to exist in contemporary organizations. But we presently are in the midst of what we believe are fundamental changes in the relationships among people, the work they do, and the organizations for which they do it. Now individuals may telecommute rather than come to the office or plant every morning. They may be responsible for balancing among several different activities and responsibilities, none of which is defined as their main job. They may work in temporary teams whose membership shifts as work requirements change. They may be independent contractors, managing simultaneously temporary or semi-permanent relationships with multiple enterprises. They may serve on a project team whose other members come from different organizations—suppliers, clients, or organizational partners. They may be required to market their services within their own organizations, with no single boss, no home organizational unit, and no assurance of long-term employment. Even managers are not immune to the changes. For example, they may be members of a leadership team that is responsible for a large number of organizational activities rather than occupy a well-defined role as the sole leader of any one unit or function.

What does it mean in such circumstances to talk about the properties of one’s “job”? We have no answer to that question, but we do believe that the developments sketched above have profound implications for job design research. It is not a matter of theories coming and going, or

of newly developed methodologies supplanting old ones. It is, instead, that the very thing job design researchers study is being transformed. And what has happened thus far, we believe, is but a harbinger of even more profound changes that are likely to be seen in the years to come. A number of articles in this special issue highlight some of the changes presently unfolding in the world of work, which gives us hope that the field of job design may be on the cusp of a quite interesting new paradigm for research on the relationship between people and the work they do.

. . . But the Issues Have Not

For all the changes in contemporary workplaces, many of the issues that prompted researchers to examine the human aspects of work design decades ago—alienation and dissatisfaction, low work motivation, absenteeism and turnover, sometimes-shoddy products—are still very much alive in work organizations. And responsibility for those matters still can be attributed more to those who design work systems than to those who actually do the work within those systems. Almost half a century ago books such as Robert Blauner's *Alienation and freedom* (1964) and James O'Toole's *Work in America* (1973) helped fuel research and practice aimed at improving both the quality of work life and organizational productivity. Nowadays we see similarly themed books that worry about work-induced corrosion of values and that celebrate the virtues of craftsmanship, such as Matthew Crawford's *Shop class as soulcraft: An inquiry into the value of work* (2009), and Richard Sennett's *Corrosion of character: The personal consequences of work in the new capitalism* (1998) and *The craftsman* (2008).

But there is a difference between then and now. Then, the main focus was on front-line workers who turn out an organization's products or services. Now, the concerns are just as much, or more, with the work of managers and professionals. In the last chapter of our 1980 book on work redesign, we made some predictions about how work would be designed in the

future—and we got it exactly wrong. We thought that the prospects for creating genuinely enriched front-line jobs (that is, work that brimmed with challenge, autonomy, teamwork, and feedback) were quite dim, in part because doing so would require radical change of widely shared managerial values, which we summarized as follows:

“...that organizations are supposed to be run from the top down, not from the bottom up; that many employees have neither the competence nor the commitment to take real responsibility for carrying out the work of the organization on their own; that organizational effectiveness should be measured primarily, if not exclusively, in terms of the economic efficiency of the enterprise; that more management control of employee behavior is better management” (Hackman & Oldham, 1980, pp. 268-269).

The increasing popularity of self-managing teams, re-engineering, and sundry other organizational innovations, coupled with the increased flexibility in work arrangements made possible by advances in information technology, has expanded considerably the scope, challenge, and autonomy of front-line work. Professional jobs, on the other hand, appear to be shrinking, which is perverse because professionals are the people we rely on to make wise decisions in uncertain circumstances. Consider, for example, the detailed procedural manuals that must be followed by aircraft flightdeck crews, the “guidelines” that specify the sentences that judges are required to impose for specific crimes (fortunately subsequently loosened considerably by Congress), the constraints on physicians about the diagnostic tests and treatments they are allowed to select, and even specification of what teachers are required to cover in their courses and the pedagogies they are to use in doing so (for additional detail and other examples, see Hackman, 1998).

We have come a long way since the 1970s when both researchers and practitioners were concerned mainly with identifying ways to assess and improve the properties of fixed jobs performed by individual workers. The issues that will be addressed in the future are just as challenging. But they will focus less on rank-and-file work and more on that done by managers

and professionals. They will be less concerned with the properties of specific jobs and more with ways of exploiting technological advances to help self-managing individuals and teams efficiently coordinate what they do in pursuit of collective purposes. And, as will be discussed next, they will give special attention to the interpersonal aspects of the work.

Social Sources of Motivation

When we developed JCT, we focused on those job dimensions that had mainly to do with the motivation of individual jobholders. The JDS and JRF did assess two social dimensions of the work (the degree to which the work required dealing with other people, and the amount of feedback received from others), and we often counseled researchers and practitioners to include these job characteristics in their assessments of job properties. Even though Turner and Lawrence (1965) also had included two social aspects of the work in their earlier study of job characteristics (required interaction and interaction opportunities), we did not view social factors as essential for fostering internal work motivation. Indeed, we thought that we had identified the core motivational properties of jobs and that other properties were of relatively little motivational consequence. Unfortunately, we were not alone in neglecting the social dimensions of work—other researchers also tended to overlook social sources of work motivation in the decades following the publication of JCT (Oldham, 1996).

But circumstances change, and the time is now right for research that focuses squarely on the social aspects of the work itself (Grant & Parker, 2009). The reason, as several articles in this issue suggest, is that social interaction is now much more pervasive and prominent in contemporary work organizations than previously was the case. The service sector, for example, employs a larger percentage of the workforce in Western countries than ever before—and the development and management of social relationships are central features of service work. Even

in non-service jobs, workers' activities now typically involve considerable interaction with coworkers and the clients of the work.

As several of the commentaries in this issue suggest, there are good reasons to expect the social dimensions of the work to contribute to the motivation, performance, and well-being of jobholders. These dimensions, therefore, deserve greater attention from scholars than they have received heretofore. Yet a number of questions still exist about their role. What *are* the social dimensions of jobs that are most likely to enhance work motivation? What theoretical frameworks are most useful in guiding research on the social aspects of work? And what individual differences, if any, moderate the relationship between the social characteristics of jobs and the responses of jobholders? We offer some preliminary thoughts about these matters next.

Social attributes of jobs. The two dimensions we assessed in our early work (dealing with others and feedback from agents), along with the two suggested by Turner and Lawrence (required interaction and interaction opportunities) capture elements of the work that are worthy of much more systematic attention than we gave them. Recent work by Morgeson and Humphrey (2006) suggests additional social dimensions that may contribute to employee motivation and well-being—specifically, interaction outside the organization, social support, initiated interdependence, and received interdependence. These dimensions, as well as other socially relevant aspects of the work still to be identified, clearly are worthy of empirical investigation.

Although we know of no studies that explicitly compare the effects of the social and the motivational attributes of jobs, the groundwork for such research has been laid in a recent meta-analysis performed by Humphrey, Nahrgang, and Morgeson (2007). These authors examined the relative effects of four social characteristics (interdependence, feedback from others, social

support, and interaction outside the organization) on a variety of behavioral and attitudinal outcomes after controlling for eight non-social job characteristics (such as job complexity, information processing requirements, and autonomy). Results showed that the social characteristics contributed to subjective performance assessments, turnover intentions, and satisfaction beyond the effects of the eight non-social job properties.

Neither the Humphrey et al. meta-analysis nor earlier research on the social attributes of jobs identified the specific social characteristics or set of social characteristics that are most relevant to jobholder motivation. Nor is it known whether the social aspects of work can compensate for the absence of motivational job attributes such as skill variety, task identity, and autonomy³. We hope and expect that future research will provide not just empirical answers to these questions but also an integration of knowledge about job effects that crosses the social and motivational domains—resulting, perhaps, in a refurbished version of the sociotechnical paradigm originally set forth in the mid-1900s by Eric Trist and his colleagues (Cherns, 1976; Trist & Bamforth, 1951).

Conceptual issues. As the social aspects of work become increasingly pervasive in contemporary organizations, will the social attributes of jobs become the main focus of scholarly research—in effect, becoming the new “core” dimensions of work, replacing skill variety, autonomy, and other well-established job characteristics? Or will they continue to serve as secondary dimensions that provide supplementary information about job requirements and opportunities? If future research focuses mainly on motivational outcomes, we believe that “core” dimensions such as those included in JCT will continue to dominate research and

³ Among the exceptions to our general argument are studies that do address some of the possible interdependencies between the social and motivational attributes of jobs, such as those by Karasek and Theorell (1990), Langfred (2005), Langfred and Moye (2004), and van der Doef and Maes (1999).

practice. But if the focus is on other, nonmotivational outcomes, the social characteristics of jobs will move to center stage.

Consider, for example, outcomes that themselves have a significant social component, such as altruistic behavior at work, helping behavior, satisfaction with coworkers, or even the cohesiveness of the unit where the work is performed. The social aspects of work surely are salient in affecting these kinds of outcomes. For example, when jobs are structured to encourage employee contact with others, those who perform them may empathize, identify with, and take the perspective of the others with whom they interact, resulting in more positive social outcomes (Grant, 2007). And the social aspects of work are especially relevant for understanding the acquisition of knowledge and skill, as some commentaries point out (e.g., Kilduff & Brass, this issue).

In fact, both the motivational and the social job dimensions contribute to jobholder learning. Enriching a job on the motivational core characteristics included in JCT certainly would open opportunities for honing one's knowledge and skill (Clegg & Spencer, 2007). Increased skill variety, for example, offers the chance to extend one's skill set, and increased autonomy requires honing one's self-management capabilities. Adding social features to the work also can contribute to jobholder learning. For example, required interaction between the focal employee and clients or customers can provide new information to the jobholder that expands his or her knowledge, can invite the cultivation of relationship management skills, and, if those with whom the jobholder interacts have background and demographic characteristics different from his or her own, expose the person to novel perspectives or behavioral styles (Perry-Smith, 2006). It would be good to know more than we do at present about how changes

in the motivational and social characteristics of jobs, separately and in interaction, enhance jobholder knowledge and skill.

Indeed, if the focus of future work on job design focuses on outcomes such as altruism or the acquisition of knowledge and skill, the social dimensions of work are likely to take on the status of core characteristics and, perhaps, give rise to an entirely new theoretical perspective that is distinct from that offered by JCT and other existing frameworks (e.g., Campion & Thayer, 1985; Parker, Wall, & Cordery, 2001). Once such frameworks have been developed, job design researchers would have a chance to explore systematically how the social dimensions of work contribute to personal and work outcomes, and to contrast these effects with those from studies that have focused mainly on the motivational properties of jobs.

Individual differences. As noted earlier, JCT included two individual difference measures as moderators of the job characteristic-work outcome relationship: existing knowledge and skill and growth need strength. Might there also be individual differences that moderate the impact of the *social* attributes of jobs?

We did not explore that possibility for the two social dimensions included in our own research (required interaction and feedback from agents), nor has there been much research by others on individual difference moderators to jobs' social features. A good start in addressing this issue has been provided by Mount, Barrick, and Stewart (1998). These authors focused on employees who held jobs that required interpersonal interaction (teamwork or customer service) and demonstrated that employees in these jobs performed at higher levels when they scored high on three dimensions from the "Big Five" model of personality: conscientiousness, agreeableness and emotional stability.

Research is needed to further specify the interactions between the social aspects of jobs and jobholder personality for other kinds of responses, such as altruistic behavior, as well as studies that explore the moderating effects of individual differences other than those specified in the Big Five model. One inviting possibility is social need strength (i.e., the degree to which an individual values opportunities for social interaction and for developing personal relationships at work), which was examined in an unpublished study by Milton Blood many years ago.

Although that study did not find social need strength to moderate responses to those social dimensions of work assessed by the JDS, research that addresses other social aspects of jobs and, perhaps, that relies on alternative measures of social need strength, might well generate findings that would be of considerable conceptual and practical interest.

Job Crafting

The papers in this issue highlight a new interest in and emphasis on the personal initiative employees' exercise in shaping and customizing their own work. This emphasis on job crafting is a major departure from our early work. Like Herzberg (1966), our approach to the design of work was generally top-down in nature. Managers and consultants were viewed as having primary responsibility for assessing the content of jobs and then, based on that assessment, introducing changes in job characteristics intended to foster internal motivation and psychological well-being. In general, employees were involved in the redesign of their own jobs only to the extent that they provided information to managers and consultants about the job's current properties which could be used in a job restructuring program initiated and supported by management.

The papers by Berg, Wrzesniewski, and Dutton (this issue) and Hornung, Rousseau, Glaser, Angerer, and Weigl (this issue), along with some earlier work (e.g., Frese, Garst, & Fay,

2007; Wrzesniewski & Dutton, 2001) suggest an alternative approach. These scholars note, correctly, that employees in many contemporary organizations have considerable latitude to customize, modify, and craft their own jobs—or at least to engage in direct discussions with their managers about how the work might be restructured. These days, changes in the structure and content of jobs do not necessarily have to wait for managers to take the initiative.

Job crafting is an exciting area of research. But as the article by Nicholson (this issue) indicates, the idea of an employee taking the initiative in shaping the characteristics of his or her own job is not so new. Several authors previously have suggested that employees often craft their work on their own (Black & Ashford, 1995; Nicholson, 1984), and a paper by Wrzesniewski and Dutton (2001) has explored the concept in detail and made a strong case for studying its dynamics. Indeed, we ourselves discussed job crafting in an article with Carol Kulik more than two decades ago (Kulik, Oldham, & Hackman, 1987), in which we suggested that:

“Another strategy for work redesign is a participative change process, in which jobholders are actively involved in determining what changes will be made in their jobs to improve the match with their own needs and skills... employees may on occasion redesign their jobs on their own initiative—either with or without management assent and cooperation... Over time, such self-initiated changes may become accepted by all as part of the person’s contributions to the organization, and a significant redesign of the work will have been accomplished without anyone actually executing a planned change program” (Kulik et al., 1987, pp. 292-293).

Because we failed to follow up on our own observation back then, we are greatly encouraged by the renewed interest in job crafting expressed by the authors of the papers in this issue, and we predict a substantial increase in research attention on the topic in the years to come.

One of the first questions that needs to be addressed is whether any benefits of job crafting derive from substantive changes in the work itself or mainly from involvement in the process of making those changes. It may be that employee-initiated changes in the design of jobs result in more complex, challenging, and meaningful work—which, as now is well-

established, is likely to foster positive work and personal outcomes. But it also could be the case that any beneficial outcomes derive not from positive changes in job attributes but, instead, from simply being involved in job-crafting activities. Presumably future research will find out whether the effects of job crafting derive more from the actual job changes made or from having the opportunity and latitude to tailor one's own work responsibilities.

Let us assume that the job changes that result from crafting do make a positive difference. The next question is to determine why that happens. If improvements in productivity and/or satisfaction are observed after individuals have crafted their jobs, is it because the job now fits better with their own preferences and needs, or because the newly crafted jobs stretches their skills, or merely because crafting allowed them to eliminate inefficiencies and redundancies in work processes that had been frustrating them and impeding their productivity?

Numerous other questions about the process of job crafting also invite empirical investigation. Is job crafting a continuous process, as suggested by Berg et al. (this issue), or is it more typically a single episode that produces lasting structural changes in the design of work? That is, might employees succeed in crafting jobs that better fit their needs and preferences in a single episode, or might multiple crafting episodes be necessary for a good fit to develop? Another issue: What are the characteristics of those people who are most likely to spontaneously customize their jobs or, perhaps, to respond positively when offered the opportunity to do so? Are people who have a proactive orientation (Crant, 2000) more likely to engage in job crafting than those who tend mainly to react to whatever comes their way? Are individuals who have high growth need strength especially likely to make changes that increase the challenge and autonomy in their work? And do those who are not oriented toward growth tend to simplify and routinize their work? Do individuals with strong social needs introduce more social aspects in

the work? More generally, when people have the chance to customize their jobs, do they mainly seek to maximize its fit with their personal dispositions and felt needs? Or do they take a broader perspective and also consider what changes would be most helpful to their work unit as a whole in achieving its purposes?

We also expect to see research that identifies the *dysfunctional* consequences of job crafting. It is known, for example, that employees often compare the characteristics of their own jobs with those of others in their work units—and that they have negative reactions when they perceive their jobs to be relatively lower in quality (Oldham, Nottenburg, Kassner, Ferris, Fedor, & Masters, 1982). Thus, if some employees engage in job crafting and introduce conspicuous positive changes, will people who elected not to craft their job exhibit lower satisfaction and productivity thereafter? If so, does that mean that the opportunity to craft jobs always should be made available to everyone in a work unit, or to no one, so as to head off possible equity issues? Finally, how great is the risk that job crafting will introduce inefficiencies in work processes? If customization results in a product or service that is even slightly different from what existed before, disruptions can develop down the line as other employees struggle to accommodate to the newly modified product or service. How can job crafting be carried out in ways that lessen the likelihood of spawning unanticipated problems that compromise the effectiveness of the work unit as a whole?

In summary, we expect to see in the near future a substantial flow of research on the antecedents, dynamics, and consequences of job crafting. By documenting the benefits and the risks of customizing jobs, and by identifying implementation processes that tilt the balance toward the real benefits that job crafting can bring, it should be possible one day soon to move

toward the more “individualized” form of organization that Edward Lawler envisioned many years ago (Lawler, 1974).

Organizational Context

In our own work on job design, we proposed that enriched work was advantageous so long as those who performed it had the requisite skills, had at least moderately strong personal needs for growth and learning, and were generally satisfied with their pay, coworkers, and supervisors. We predicted that in such circumstances jobholders would be internally motivated, that they would produce outcomes of high quality, and that they would exhibit reasonably high satisfaction with their work. Meta-analyses of research on our model provided some support for these predictions (Fried & Ferris, 1987; Loher, Noe, Moeller, & Fitzgerald, 1985; Spector, 1985).

But just as we failed to give the practice of job crafting the attention it deserved when we formulated JCT, we also under-recognized the importance for work redesign of the broader context—that is, the organization’s formal properties (e.g., centralization, formalization, technology, and control systems) and the culture within which the organization operates. We did acknowledge that the organizational and cultural contexts affect how individuals experience their jobs (Oldham & Hackman, 1980), and we conducted one of several empirical studies documenting the relationship between organizational features and job characteristics (Oldham & Hackman, 1981; Pierce & Dunham, 1978; Rousseau, 1978; Sutton & Rousseau, 1979). But we did not explore the possibility that certain job designs may be more appropriate in certain contexts than in others, nor did we identify those specific features of the cultural context that shape job characteristics.

Morgeson, Dierdorff, and Hmurovic (this issue) point out that much remains to be learned about those properties of the broader organizational context that most powerfully constrain or enhance the emergence of well-designed jobs (see also Johns, this issue). It is not yet clear what the most constraining organizational features are, but candidates include the size of the organization or work unit, the number of hierarchical levels in the organization, the degree to which organizational decision-making is centralized, or some combination of these properties. Moreover, Walton (1985) established some time ago that organizations with control-oriented human resource strategies spawn more constrained jobs than do organizations that rely on employee commitment to achieve collective purposes. It would be good to know more than we do now about the dynamics of such effects and about their long-term effects on people and the work they do.

If future research identifies those bundles of contextual features that most powerfully constrain the characteristics of jobs, then it also should be possible to specify the strategies and practices that are most effective in buffering people and their work from such constraints. Are there, for example, specific managerial practices that protect individuals from over-controlling rules and restrictions in highly centralized and formalized organizations? And are there ways that managers in such organizations can informally encourage employee autonomy without overtly violating formal job descriptions, perhaps by encouraging informal job crafting? If so, the constraining effects of formalization and centralization could be mitigated at least to a modest extent.

We also expect that future research on job design will give increasing attention to “trickle up” models of the relationship between organizational properties and how jobs are designed. Traditionally, job design has been dealt with, by scholars as well as by practitioners, as a top-

down undertaking: the way the work is structured is shaped and constrained by properties of the larger organizational within which the work is done. But it is at least possible that organization-level properties might themselves be altered by the way front-line work is designed and performed. Imagine, for example, that front-line workers and their managers came up with a new and better way of serving clients—but that this innovation is constrained by long-standing, firm-wide structures and systems. Might such organization-level constraints be loosened in response to bottom-up improvements in the design and management of work? When we wrote our *Work Redesign* book in 1980, such a possibility surely would have been considered pure fantasy. Now, however, with more powerful and flexible means of communication and coordination becoming more widely available, the possibility of front-line work driving the organizational context, rather than vice versa, may at least be worth some thought and empirical exploration.

And, finally, there is the broader cultural context, whose boundaries are becoming ever more permeable as the world economy evolves and as means of real-time, electronically mediated means of communication and coordination become widely available. The emerging question, which surely will command the attention of the next-generation job design researchers, is to determine how much of what we know about people and jobs is universal, reflecting how the human animal is wired up, and how much of what we *think* we know will turn out to be true only for those cultures (mainly Western) where the bulk of the research on job design has been carried out.

Our present view is that the three psychological states that are the conceptual “motor” of JCT (i.e., experienced meaningfulness of the work, experienced responsibility for work outcomes, and knowledge of the results of the work) are in fact important to individuals across

nations and cultures. We also know from previous research that many findings involving the basic relationships specified in JCT among job characteristics, the psychological states, and personal and work outcomes are generally consistent across cultures (see Birnbaum, Farh, & Wong, 1986; DeVaro, Li, & Brookshire, 2007).

That said, it still may be that certain features of the work are more salient in some cultures than in others. For example, as suggested by Erez (this issue), the social or relational aspects of jobs may be more salient in certain cultures than in others, and may play a greater role than the job characteristics specified by JCT in shaping individuals' psychological responses to their work. Future research, surely, will give increased attention to identifying those job characteristics that are of special salience in various cultures, and to their effects on jobholder motivation, performance, and well-being. Eventually, we hope, this research will generate new and broadly applicable understanding of the interdependencies between the design of work and the culture and contexts in which the work is performed.

Work Design for Teams

When we wrote our *Work Redesign* book in 1980, we ventured two rather speculative chapters on the design of work for teams, even though the great majority of the research on which the book was based had been conducted on individual jobholders. Subsequently, one of us has focused his research mainly on the structure and dynamics of work teams (for summaries of what has been learned, see Hackman, 1990, 2002; and Hackman & Wageman, 2005). That research has surfaced two issues that, we believe, are especially worthy of attention in future research on the design of work for teams: (1) when it is and is not appropriate to design work for collective rather than individual performance, and (2) the *type* of team that is most appropriate for different kinds of tasks.

When teams, when not? Using teams to accomplish work can bring a number of advantages. For one thing, the task itself can be larger in scope and therefore more meaningful than would be possible for work carried out by any individual performer. Moreover, since the work is not parceled out in small pieces among multiple performers, it is easier to establish direct two-way communication between the team and its clients, which can generate prompt and trustworthy knowledge of the performance results. Tasks that require members to take on a whole piece of work rather than just one small subtask also require that teams be composed of diverse individuals who have different areas of expertise—and that, in turn, can foster exchanges among members that result in a richer pool of knowledge than would be available from any one member.

Some types of tasks, however, are inappropriate for teams, such as those that require sophisticated use of highly specialized individual knowledge or expertise, or creative composition that requires surfacing, organizing, and combining into an original whole ideas or images that initially are only partially formulated. Such work is inherently more suitable for individual than for collective performance. Moreover, teams sometimes are used because the managers who create them believe, without much thought or evidence, that teams invariably produce higher quality products than individuals—a commonly held but erroneous assumption (Locke, Tirnauer, Roberson, Goldman, Latham, & Weldon, 2001). Some managers may assign a controversial piece of work to a team in hopes of diluting, or at least distributing, their personal accountability for whatever is produced. Still others may use a team as a way to strengthen members' commitment to whatever is produced. Clearly, teams should not be used to accomplish work unless the work itself is amenable to teamwork, and unless the team can be adequately structured and supported.

Responsibility for deciding when teams should be used to perform work does rest mainly with those who create them because teams are remarkably passive and accepting even when given work that is inappropriate for performance by a team, when the design of the team's task is flawed, or when contextual supports for teamwork are unavailable or inadequate (Hackman & Katz, 2010). At present, little is known about the roots of this passivity or what it would take to foster greater team proactivity about such matters. It would be good to know more.

Type of team.⁴ When one thinks of a team, one generally has in mind a set of people who work together face-to-face to create some collective product, service, or decision. In fact, there are other options, each of which is appropriate in some circumstances but not in others. In some cases, responsibility and accountability lies primarily with the group as a whole; in others, individual members are mainly responsible. And in some cases, team members interact synchronously in real time; in others, the work is accomplished by members who working at their own paces and in their own places. Taken together, these options identify four fundamentally different types of teams, described next.

“Surgical” teams. In these teams, responsibility and accountability for outcomes lies primarily with one person (the “surgeon”), but accomplishing that work requires coordinated interaction among all members in real time. Members of surgical-type teams provide the lead member, the person mainly responsible for team product, all the information and assistance that they can provide. This kind of team is appropriate for work that requires a high level of individual insight, expertise, and/or creativity but that is too large or complex to be handled by any one member working alone.

⁴ This section draws on material developed by Hackman and Wageman (2005).

Coacting groups. Individual members also are primarily responsible for outcomes in this type of team. Each member's work does not depend upon what the others do, and the output of the group is simply the aggregation of members' individual contributions. Because members work independently there is no particular reason for them to coordinate their activities in real time. A great deal of organizational work is performed by sets of people who are called "teams" but that really are coacting groups—formed, perhaps, by managers who hope that the benefits of teamwork can be obtained even as they continue to directly supervise the work of individual members. Coacting groups are appropriate only when there is little need for interdependent work by group members.

Face-to-face teams. In these teams, members are co-located and work together interdependently in real time to generate a product for which they are collectively accountable. Most existing research on team behavior and performance is about this type of team. They are appropriate for a wide variety of tasks for which creating a high quality product requires coordinated contributions in real time from a diversity of members who have complementary expertise, experience, and perspectives.

Distributed teams. Members of distributed teams (sometimes called “virtual” teams) are collectively responsible and accountable for work products, but they are neither co-located nor are they required to interact in real time. Instead, members use information and communication technologies to exchange observations, ideas, and reactions at times of their own choosing. Such teams can be larger, more diverse, and collectively more knowledgeable than face-to-face teams, and they are especially useful when it is difficult for team members to meet regularly *and* the work does not require high levels of interdependence among them. When they function well, such teams can quickly and efficiently bring widely dispersed information and expertise to bear

on the work. As increasing numbers of organizations have logged experience with distributed teams, however, it has become clear that they are not a panacea (for a review of the benefits and liabilities of these teams, see Hackman & Katz, 2010). A great deal of research on the proper design of distributed teams and their work is presently underway and shows no signs of abating.

Special types of teams. Two special types of teams are likely to capture increasing research attention in the years to come. The first is *leadership teams*, whose members all are themselves significant leaders and who share responsibility for leading an entire organization or large organizational unit. As both the pace and scope of organizational leadership continue to expand, it is becoming increasingly evident that the “heroic” model of leadership, in which a single person is responsible and accountable for overall organizational performance, is decreasingly viable. More and more organizations, therefore, are forming teams to accomplish the work of leadership. The problem, as documented in a cross-national empirical study of senior leadership teams, is that such teams typically are not designed very well, nor do they perform very well (Wageman, Nunes, Burruss, & Hackman, 2008). Clearly, attention to the proper design of the work of such teams will be high on the research agenda of scholars who seek to understand the dynamics and performance of leadership teams.

Another special kind of team, also receiving increasing research attention these days, is colloquially referred to as a *sand dune* team. A sand dune team is not in any traditional sense a bounded work team at all. Instead, the team is a dynamic social system that has fluid rather than fixed composition and boundaries. Just as sand dunes change in number and shape as winds change, teams of various sizes and kinds form and re-form within a larger organizational unit as external requirements and opportunities change. Sand dune teams appear to be especially well suited for managerial and professional work that does not lend itself to the formation of fixed

teams with stable membership. Such teams have great potential, especially in organizations that operate in fast-changing environments, but considerable research remains to be done to identify the specific conditions that are needed to support them.

Conclusion

The next decade, we believe, will be an exciting time for research about people doing work in organizational settings. What comes next certainly will be informed by all the research that has been done over the last few decades. But its specific features will have little in common with the studies we and others carried out back in the early days of research on the attributes of specific jobs. The reason, as is seen in this issue (and especially in the commentaries), is that the design of work is now inextricably bound up with the structures and processes of organizational systems more generally. That is, rather than specific jobs it is the often-fluid relationships among people and their various work activities that are most in need of empirical research and conceptual attention. Work design is everywhere in organizations, which attests to the importance of the topic—but also requires fresh thinking about the phenomenon and about the most productive ways to continue to learn about it.

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