

Commentary **Designing for diversity or diversity for design? Tasks, interdependence, and within-unit differences at work**

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Organizations are defined by people getting together – pooling their energy and resources – to achieve broad goals they could not have achieved on their own. To reach those broad goals, organizations attract members, form structures and systems, and create products, services, or knowledge to be delivered at particular points in time. Because of the complexity involved in creating such high-quality and timely deliverables, differentiation of individual roles within the organization's structures and systems is necessary.

Such role differentiation is also manifest in organizations. Jobs vary. Tasks vary. They do so in ostensibly orderly ways. Classic approaches to work design capture this variation and *a priori* specialization, induce its underlying dimensions, and connect those dimensions via perceptual and cognitive mechanisms to individual affective and behavioral outcomes (e.g., Hackman & Oldham, 1975, 1976, 1980; Sims, Szilagy, & Keller, 1976). Oh . . . and . . . welcome to Management 101.

Bow Down To Sovereign Tasks

This modular viewpoint is clearly part of the orthodoxy of traditional work design research (Hackman & Oldham, 1975, 1976, 1980). It tends to treat organization members as co-acting but implicitly independent individuals, although recognizing the importance of some form of feedback (for a largely opposing and less dominant viewpoint, see the stream of work initiated by Salancik and Pfeffer, 1978). Most positions in organizations are assumed to be characterize-able in terms of a finite number of task dimensions, which is also a fundamental assumption of task analysis, and a pivotal consideration in selection as well (Morgeson & Humphrey, 2008). According to the dominant stream of work design

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theory and research, those task dimensions are more or less preferred by role holders because of a very small number of individual differences. In sum, *tasks rule*.

Traditionally, the conceptual and practical focus of work design has been to change the features of what had been routine, or unpleasant, or disfavored tasks. Changes can boost personal motivation, well-being, and satisfaction, and improve subsequent individual performance. Organizations are thought to control most aspects of work (re-)design and selection, and therefore can tweak tasks while still achieving the broader, collective goals mentioned above.

Yet, in spite of their fit to cumulative data (Fried & Ferris, 1987), and their laudable aims of making work healthier and more fulfilling (Parker & Wall, 1998), pre-eminent theories of work design still seem to follow a cold metal, “Modern Times” metaphor. Firms are input-output machines with many moving and connected, but generally interchangeable, human parts, all of whom engage task gears. What if those gears seized up and the metaphor fell apart? What if conventional work design research or job characteristics theories did not exist? What if organizations did not create task-based holes – enriched or enlarged as they might be – and fill them with properly fitting person-pegs? What would be, and what are, some of the viable alternatives for characterizing the work environments of people within firms?

Work Design = Team Design: Is it the People, Stupid?

Some of the answers might come from a more explicitly interpersonal perspective on work design. Again, in what has become the overwhelmingly popular approach to the topic, task dimensions have little in the way of explicit social content, a bifurcation principle (or oversight) that has been endemic to the leadership and small groups literatures for over 50 years. This task versus social split may stem from the groups-rooted germination of job characteristics theory (Hackman, 1968).

In contrast, the original goal of organizing requires (at least a nominal) state of relational interdependence among organization members. And, since the formulation of work design paradigms over 30 years ago, strong trends in the workplace are toward greater interdependence. More tasks are defined for and done by small teams or units, most of whom have greater discretion and process control than in the past (Harrison, Johns, & Martocchio, 2000). Many, many more tasks are geared toward knowledge production and service delivery, with the latter defined by co-production with a service recipient who is ordinarily outside the organization (Ryan & Ployhart, 2003).

To be sure, many scholars have long-recognized or picked up this social slack in work design research. Role holders can revise their own task definitions (Staw & Boettger, 1990). Although they have not had as galvanizing an effect as the foundational theories, interpersonally richer updates and expansions to the original task characteristic dimensions started not too long after the foundational theories, from Kiggundu (1983) to, most recently, Humphrey, Nahrgang, and Morgeson (2007b) and Grant (2007). *Interdependence* itself is currently part of a lengthier, more interpersonally mindful taxonomy of work design dimensions, as are *social support*, *feedback from others*, *interaction outside the organization* and several more (e.g., Morgeson & Humphrey, 2006, 2008).

Clearly, these areas of scholarship on work design are laudable. They also appear to come nearly full circle with role theory (Katz & Kahn, 1978). Task and social content are now layered in a thicker parafait of what individuals savor and shun in their immediate environments.

Even in this richer formulation of work design, however, the interpersonal environment is assumed to be a vector of perceptual scores, one for each relational dimension. And, each dimension affects each

“other” individual monolithically or holistically. That is, the social component of work design is assumed to be composed of an undifferentiated set of alters, none of which has a stronger influence on the ego than anyone else in the same stratum of the team or organization (Chiaburu & Harrison, 2008). Interaction, feedback, or support from co-worker A is assumed to be equivalent to co-worker B, C, D, and E, or is part of a uniform aggregate of A through E. The social environment is *homogeneous*.

But it's not.

Indeed, in another strong (substantive) trend, the social environments within and between workplaces, everywhere, are increasingly *heterogeneous*, especially in terms of demographic variables such as age, gender, and ethnicity. Along with greater interdependence and larger portions of work likely to be done in small teams, that heterogeneity – that diversity – mark the experience of work. In social network language, that experience is increasingly a function of varied dyadic connections or ties with alters that are dissimilar from oneself and from one another (and, as an aside, the confluence of work design and social networks is almost completely unmapped territory in organizational behavior; Balkundi & Harrison, 2006; see the Kilduff and Brass commentary in this special issue for some remedies to this deficiency). With all due respect to Schneider (1987), in modern organizations, *different* people make the place.

How can these social facts inform work design theory and research? In turn, how can work design theory and research inform other domains, such as diversity? Below, we sketch some possible answers to those and our earlier questions. As we do so, we start with the presumption that organizations need to mesh member selection from a wide-ranging pool of human capital with a dynamic combination of task elements, all while following their broad goals. We also presume that semi-autonomous teams rather than individuals have become the chief entities for performing tasks, and therefore are the locus of where such meshing takes place (an observation that is being seen more frequently in the work design literature; Morgeson, Reider, & Campion, (2005); Wageman, Hackman, & Lehman (2005)). We also adopt an implicitly multi-level perspective, of individuals and dyads nested with teams. Finally, we hope to imply a metaphor of entities (individuals, dyads, teams) in their work environments that approaches a living organism transacting with its surroundings in an open system.

Designing for Diversity

In this paper's version of a chicken-egg argument, we must broach whether a task bundle or a diverse set of individuals is generally primary in the organization. If teams come first – such as in a lab or research and development unit – then work can be molded for, or task eggs chosen and negotiated by, the team's members. That is, what if tasks were not specified by the organization for individuals, and thus, much of work design research was not immediately germane? Should teams and their members be allowed to treat their tasks so autonomously?

Autonomy is a good thing. Mostly. Work design and stress researchers (where autonomy appears in its sibling form of personal or perceived *control*) are nearly universal in recommending that individuals have more of it (e.g., Spector, 1986). But there is a potential dark side to autonomy. Consider what happens when roles differ in desirability (Beersma, Hollenbeck, Conlon, Humphrey, Moon, & Ilgen, 2009), particularly if desirability corresponds to the more positive, high-motivation ends of work design dimensions (e.g., task significance). How will team members distribute task responsibilities? Status differences would likely lead to desirable tasks being taken by members with higher standing. And, even if this role-taking is a suboptimal use of team resources, the role appropriation may still be seen as legitimate (Aime, Meyer, & Humphrey, in press; Berger, Cohen, & Zelditch, 1972). In essence,

the team will have created a unit that does not properly use the task-relevant resources of its members, yet it is fine with lumbering along, carrying this misfit forward.

Even ignoring status differences, a team may fall back on stereotyping members when negotiating roles. Essentially, a team may internally “typecast” members into portfolios of expectations or duties, creating covariation of persons with tasks that deepens the social chasm of demographic or other faultlines (Lau & Murnighan, 1998). For example, tasks that are high in social support or interdependence may be set aside or reserved, with teams assuming they are being more inclusive by allowing female members to take on nurturing roles. In turn, in a version of false consensus (Ross, Greene, & House, 1977), female team members may (implicitly but) not explicitly disagree with this task alignment, in the hopes of appearing more cooperative or team-oriented. Alternately, pluralistic ignorance may occur, such that the lack of objection to biased task alignment by the remainder of the team may lead the female members to suppress their own divergent opinion (Allport, 1924; Harvey, 1974; Latané & Darley, 1970; Prentice & Miller, 1993). Another option may be that members are assigned to tasks high in interaction outside the organization because they are supposed to “know” more about people of the same gender, race, age group, and so on who are clients of the team, and are also assumed to be more attracted to people who are similar to them.

Is this autonomous, multi-level (team and individual) assignment process a poor way to handle work design? On one hand, members may indeed be more comfortable in tasks that fit stereotypes (i.e., reduce stereotype threats; Steele, 1997). On the other hand, such a process can reinforce *disparity* in the team (i.e., status differences) while simultaneously failing to capitalize on the *variety* of a team’s knowledge, skills, and abilities (KSAs: Harrison & Klein, 2007). That is, the team will fail to create the kind of synergy that has underlaid the “whole is greater than the sum of its parts” belief in using team structures in organizations. Firms will instead end up with teams that perform no better (and probably worse) than individuals who would have worked alone and combined their inputs more mechanically. Moreover, if members are continually typecast into task roles, they will not be able to develop in their job and will be unprepared for new roles, when tasks and team membership change. That would seem to be a dangerous state of affairs. Despite the dominant cross-sectional or short-term research paradigms in teams, diversity, and work design, tasks and team membership *always* change (Arrow & McGrath, 1995; Harrison, Price, Gavin, & Florey, 2002).

One researchable solution to this possible design-for-diversity problem is to suggest that we put square pegs into round holes. That is, teams should actively “cast against type” by self-assigning members to roles that violate stereotypes and preconceived notions. How can an organization make this happen, yet still capitalize on team work? One option is to randomly assign people to teams and tasks to people within teams. Despite how ridiculous that might sound *a priori*, it promotes an equal distribution of skills across roles, and it builds capability at “backing up” when members leave or are absent, a crucial aspect of interdependence (Porter, Hollenbeck, Ilgen, Ellis, West, & Moon, 2003). Moreover, it provides individuals with task and skill variety (Morgeson & Humphrey, 2006), giving members the tools they need to be more adaptive.

A more focused version of the randomization process would be to rotate roles. Role rotation has been used for decades to increase worker motivation and provide higher reliability of functions. If team members are assigned to roles for a subset of performance episodes (Marks, Mathieu, & Zaccaro, 2001), they will be exposed to the task responsibilities involved in the given role, as well as to the connections between roles. This provides an experiential basis for shared mental models or shared team cognitions that facilitate performance (Cannon-Bowers, Salas, Blickensderfer, & Bowers, 1998; also, note the potential dark side of role change, Moon et al., 2004). In either case, however, the within-team roles should not be highly specialized or team members will be unlikely to possess the necessary KSAs to perform them.

Turning this team-level lens around design, a common recommendation by scholars reviewing diversity research is that task characteristics should matter as moderators (e.g., Mannix & Neale, 2005; Stewart, 2006; Van Knippenberg & Schippers, 2007; Webber & Donahue, 2001). The degrees to which demographic individual differences are task relevant (e.g., functional background) are proposed to be important for the potency of diversity effects (Lawrence, 1997; Harrison, Price, & Bell, 1998). Indeed, several meta-analyses have demonstrated that the nature of the team's task accounts for the fluctuating impact of individual heterogeneity in teams (Bell, 2007; Bowers, Pharmer, & Salas, 2000; Stewart, 2006).

However, the *distribution of tasks over members*, or the strength/weakness of overlap in task elements across members, is virtually unstudied in diversity investigations. Our conjecture above might lead to a prediction that potentially negative effects of diversity on performance would be weakest in teams that have role rotation or deliberately revolving task requirements. At the same time, such rotation might also mitigate the positive effects of member diversity-as-variety or skill specialization: members would be spending time away from the task where they excel. We might propose that, rather than full rotation, a one or two-step rotation would lead to greater appreciation of the tasks done by a subset of other team members, and reduce "representational gaps" in how diverse members contribute toward and craft a viewpoint on the team's work (Cronin & Weingart, 2007).

Diversity for Design

Arguably, it is more likely that the egg (task) comes before the chicken (team member) in modern organizations. Deliverables are required – the work is primary and to a large extent already designed or determined – and organizations or teams assemble some composition of members to match the differentiation in task requirements necessary to do that work. What, then, are the implications of tasks for team membership, of diversity constructed to fit tasks? Should we let teams leaders decide on membership once an (empty) team is charged with a set of task goals? More simply, how do we team design (Stewart, 2006)?

One normative, overall prediction we might make is that organizations can and should strive to create units with a wide-ranging mix of member characteristics or KSAs. This is the base proposition from the diversity-as-variety approach to team composition (Klein & Harrison, 2007). Yes, diverse teams with autonomy may still try to typecast members, but seeding teams with maximal levels of diversity (Humphrey, Hollenbeck, Meyer, & Ilgen, 2007a) may reduce the salience of faultlines in the team by crosscutting identities (Homan, Hollenbeck, Humphrey, van Knippenberg, Ilgen, & Van Kleef, 2008; Sawyer, Houlette, & Yeagley, 2006). Moreover, having high variety on KSAs provides the team with the necessary raw materials for performing and then adapting to changes in performance requirements.

Another way to frame this question is to return to the criticality of autonomy – in both positive and negative ways. Having the autonomy to self-determine membership should allow teams to find and include those individuals who fit the task demands for the team. Yet, the likely social psychological processes at play in choosing one's own task partners raises a truckload of red flags, regardless of how complex or differentiated those tasks are.

First and foremost amongst those flags, the processes summarized in the Attraction-Selection-Attrition model (ASA: Schneider, 1987) suggests that team membership will homogenize over time if teams have the autonomy to make decisions about self-staffing. Members who are dissimilar will exit the team, or may never enter at all. Second, any minority group members that remain in the team (before the team fully homogenizes) will likely be marginalized, or feel marginalized, in the team's task process. This will not necessarily be an explicit process. Rather, it could just be a by-product of

majority control. Nonetheless, having members who do not or cannot contribute to the team creates reduction of inputs and process loss (Price, Harrison, & Gavin, 2006). Third, even if the team strives for diversity, there is a good chance that they will go about it in the wrong way. Many people naively assume that “optimal diversity” means having mixed gender, mixed ethnicity, mixed age teams. Yet, a focus solely on surface-level characteristics (Harrison et al., 1998) will possibly create conflict, rather than creativity. Instead, teams must include deep-level characteristics in the mix to create a useful amount of diversity.

Most of these ideas are presumptive. Before marrying diversity to design, a clear structure needs to be evoked for classifying team tasks, especially one that allows differentiation of tasks and importance of task execution *across members* (Humphrey, Morgeson, & Mannor, 2009). What should such a task scheme incorporate? Classic approaches to work design and team performance might be brought together for fruitful answers. Undoubtedly, that integration would need to incorporate Steiner’s (1972) typology of disjunctive, conjunctive, and additive team tasks. For instance, persons doing work that is low in interdependence would fall into an additive category, while the inputs of those high in interdependence would depend positively (conjunctive) or negatively (disjunctive) on others’ efforts.

Even this confluence of ideas is probably not enough to reasonably characterize team tasks, or to connect them to member composition, as individuals in most teams obviously do different tasks (from one another), and at different times. Therefore, our final suggestion of enriching work design research is to embrace *task complexity* more fully. Although it takes a somewhat different character at the team level, this might be accomplished by adapting Wood’s (1986) theory about the relationships between task inputs that are necessary for (team) task products: *component*, *coordinative*, and *dynamic complexity*.

Tasks with more non-redundant acts distributed across team members (e.g., building a house) would be more componentially complex than tasks with a greater degree of overlapping demands across team members (e.g., milling lumber). Tasks with precise contingencies of who, when, and where inputs are brought together to create team output (e.g., an orchestra performing a Beethoven symphony) are more coordinatively complex than those less affected by slight changes in temporal or spatial proximity (e.g., studio musicians recording separate parts of a pop song). Frequent modifications in the means-ends sequencing of tasks over time reflect a higher degree of dynamic complexity (e.g., creating a new computer product line), compared to tasks in which the relationship between inputs and outcomes is more stable (e.g., assembling computer components).

At this point, the three types of team diversity, *separation* (differences in opinions, values, or attitudes), *variety* (differences in knowledge, expertise, network ties, or experience), and *disparity* (differences in prestige, status, or power), might be matched to a sophisticated task scheme to create a theory of “optimal diversity” (Harrison & Klein, 2007). More componentially complex tasks are less additive. More coordinatively complex tasks are more disjunctive (reflecting the “weakest” link). In the former case, a high diversity-as-variety team seems requisite, and differences in values and attitudes (diversity-as-separation) might be less crucial. In the latter case, synchrony is paramount, so diversity-as-separation is likely to be toxic. For most cases, it might also be necessary to create enough disparity for one or a subset of team members to be responsible for bringing team inputs together (e.g., the symphony conductor or studio engineer).

What Now?

Although it is tempting to end this discussion after posing questions (and in some sense, our paper has been written to stimulate others to produce answers to “what now?”), we have been encouraged to

introduce a preliminary agenda for future research in the area of diversity and work design. Thus, we want to introduce three specific research directions.

First, researchers should investigate how teams allocate tasks to diverse members. In our discussion of autonomy, we note that it is possible that team-directed role assignment is a function of either status differences or stereotyping. In fact, recent research has suggested that status can be a legitimate (and conflict-defusing) method of assigning roles (Beersma et al., 2009). Yet, researchers have not systematically examined how roles are assigned, particularly in light of the diversity of membership. If members are being typecast, there are clear negative implications for both the team and the individuals themselves.

Second, we need to examine how task requirements shape the selection of diverse members. We proposed that organizations are most often faced with some specific task to be completed and must choose from the organizational population those members who help them best complete the task. This is a classic question, and numerous scholars have attempted to determine how to staff teams (for recent reviews, see Bell, 2007, and Stewart, 2006). Yet, these approaches invariably deal with questions of design (i.e., what is the best combination of characteristics across all teams?) rather than investigating the interaction between team composition and task requirements, task complexity, or other characteristics of the work.

Third, given that teams designed from scratch (i.e., all new members) behave differently than teams where there are rolling membership changes (i.e., new members are added when others leave), it is important to investigate how the design of teams, and the tasks they perform, moderate the relationship between team stability and team effectiveness. Research on team stability has produced equivocal results that suggest anywhere from negative, to positive, to curvilinear relationships between constant membership and effectiveness (e.g., Berman, Down, & Hill, 2002; Choi & Thompson, 2005; Hackman, 2002). However, there is reason to suspect that role assignment, where the right people are slotted into critical roles (Humphrey et al., 2009), may produce high levels of performance even in light of membership change. Further clarifying which configurations of task characteristics lead to more effective teams (and which characteristics lead to less effective teams) in light of membership change may help in designing teams with specific temporal requirements.

Although we have posed several answers to the questions introduced herein, we realize all of those answers cannot and will not be pursued, even if work design research is intensely reinvigorated. Therefore, more generally speaking, we suggest that the domain's biggest challenge is to more fully incorporate the complexities involved in any person's *social* environment, not separable from the task environment. In that regard, we believe a focus on units or teams, and individuals within units or teams, is vital. Just as vital is the joint recognition that tasks are not siloed and that team members differ in consequential ways.

A new conceptualization that brings team task features and individual differences together in a multi-level scheme is a tall order. But, the short orders have already been served. It's time to feed the more interesting customers.

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