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THE DISCIPLINE OF
ORGANIZATION DESIGN

CEO Publication
T 96-6 (300)

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August, 1996

Abstract

As organizations adapt to rapidly changing and increasingly demanding environments, they find themselves continually transforming themselves. This demands continual redesign of the organization. Successful organizations in the future will be flexible, dynamic configurations capable of self-designing through time in order to adapt to the environment and to increase performance. A discipline of organization design needs to be created so that organizational members and expert consultants have a systematic body of knowledge and methodologies to guide ongoing self-design processes. This discipline needs to take into account the open systems nature of organizations, and the fact that they are purposive human creations that exist through the meaning that is attached to them by their members.

Organization designs are increasingly being managed as competitive tools (Pfeffer, 1994; Lewin and Stephens, 1993; Galbraith and Lawler, 1993;   Nadler, Gerstein, Shaw, and Associates, 1992). New organization forms are emerging, required competitively and enabled by telecommunications technology that permits almost instantaneous transfer of information anywhere in the world (Huber, 1990). For example, companies have removed layers of management (Lawler, Mohrman, and Ledford, 1995); have unbundled the vertically integrated organization, blurred the boundaries between organizations, and created complex network structures (Galbraith, 1995); and are replacing their "line and box" hierarchical organizations with various configurations of self-contained and cross-cutting teams and networks (Mohrman, Cohen and Mohrman, 1995). Companies house a variety of idiosyncratic organizational approaches. New organizational forms embody changing logics: lateral capabilities are emphasized, often at the expense of hierarchical control; structures are conceived as dynamic and malleable rather than stable. These new organization designs create a changing landscape upon which organizational behavior occurs.

Although these new forms are responses to environmental forces, they are created by the people involved in the process of their design. The viewpoint put forth in this chapter is that the academic field of organizational studies must seriously grapple with the reality that since organizations are purposefully designed by people, they are *artificial* (Simon, 1969). We argue that it is time for organization design to be treated as a discipline, and for increased academic attention to generating theory and technique to underpin it. The interplay between design, designing, and organizational behavior must become a critical focus of study. Organization design bridges macro and micro, and designing is a fundamental ongoing organizational process that has to be understood in its own right.

This requires changes in the way we go about doing organizational science. A large body of knowledge exists, much of it useful in informing design, but it often requires reconceptualization in light of new organizational forms, and translation to the perspectives and language of designers. In addition, a large amount of new work is required to extend our models and theoretical understanding.

Organization Design: The Case for A Discipline

An organization's design is its configuration of technologies, processes and structures (Huber and Glick, 1993). Its importance derives from its role in shaping the distribution of resources, authority, and information. It provides a context that shapes behavior in the organization. In turn, the behavior of people shape the design of the organization. Increasingly, design is being recognized as a major determinant of organizational capability and a potential competitive advantage. Galbraith (1994) has noted that as organizations grow and evolve and as they adopt changing strategies they have to develop new capabilities. To do this they put in

place a consistent set of structures, management processes, rewards and incentives, people, and human resource practices to support new performances.

Organization design research has explored the relation of various organizational configurations to organizational outcomes, most typically to indicators of organizational effectiveness (Lewin and Huber, 1986). A systems perspective has underpinned much of the academic work on organizational theory (eg., Katz and Kahn, 1978) and design. It has stressed that organizational effectiveness is related to the fit between the various aspects of the design of the organization and between the design of the organization and its environment and strategy (eg., Beer, 1980; Miles and Snow, 1978; Galbraith, 1973; Lawrence and Lorsch, 1967).

Most designs and for that matter most organizational theory has been within the framework of bureaucratic theory, and have accepted its premises (Lewin and Stephens, 1993). Organizational change and redesign occur through time--primarily in an incremental or routine fashion, as organizations put in place changes to bridge a gap between current or desired performance, to adopt up-to date practices, or to adjust to demographic, economic and social trends (March, 1981).   Recent changes, however, have often been discontinuous. Unstable environmental conditions and competitor capabilities have made it necessary to find new ways of operating to achieve a quantum change in levels of performance in such areas as flexibility, innovativeness in products and services, service responsiveness, cycle time, cost, quality, and financial performance. Organizations are having to search for designs that eliminate the dysfunctional aspects of the bureaucratic form itself--the slowness, segmentation, sub-optimization, and risk aversion that it fosters. New approaches represent reinterpretations of the assumptions of bureaucracy such as hierarchical control, specialization, routinization, and formalization. New organizational forms are created. New patterns of organizational behavior are evoked.

It is increasingly being understood in today's world that organizational redesigning is an ongoing process, made possible through the self-designing capabilities within the organization (Weick, 1993). Organizations work continually to bring various aspects into alignment with the requirements of their context, generating an ongoing stream of designing activity (Monge, 1993). Studies of organizational redesign have found that entire industries--including electronics, healthcare, telecommunications, utilities and financial services--have been in a state of hyperturbulence. The demands placed on them by the environment "exceed the adaptive capacities of members sharing an environment" (McCann and Selsky, 1984, 460), leading to revolutionary change. This situation unfolds through time and may lead to a succession of radically new strategies for survival that entail redesigns that redraw the industry, the organization, and interorganizational networks in fundamental ways ((Meyer, Goes, and Brooks, 1993).

In addition to ongoing changes in the environment triggering ongoing redesign activities, the new forms of organization that are emerging have as their essence dynamic configurations of

organizational units and relationships. As once vertically integrated organizations increasingly reconfigure themselves as networks (Nohria, and Eccles, 1992) they increasingly accomplish work through a dynamic configuration of temporary project teams and alliances (Mohrman, Cohen and Mohrman, 1995), and the need to redesign the organization to fit today's tasks and strategies is continual.

Organizations also have to become capable of ongoing self-improvement; they exist in a competitive race to see which companies can learn and implement improved approaches quickly enough to be industry leaders and survivors. Today's organizations often house a stream of process improvement teams and redesign teams, frequently referred to as collateral structures (Stein and Kanter, 1980). As organizations become based on flexibility rather than stability, and as parts of organizations become more diverse, responsibility for initiating redesign is dispersed throughout the organization (Weick, 1993). Performance improvement activities have become part of the expected behavior within organizations.

In summary, designing is a fundamental process in today's organizational world, and designs are becoming more varied and fundamentally different than in the past. Because of this, there is a need for a discipline of organizational design. A discipline is a body of theory and technique that must be studied and mastered to be put into practice (Senge, 1990, p.10). Effective designing, whether of small units or large corporations, will be a key organizational competency in the future (Mohrman and Cummings, 1989). To underpin this competency, frameworks for design and designing are required.

Currently, managers have not been trained in organizational design, nor have students of organizational behavior. In part this is because the research and frameworks that have been produced by scholars have not been particularly useful for this purpose. Our claim is not that most existing research is irrelevant to design; rather, that design has been irrelevant to much academic work. Organizational studies have generally not been cast in a manner that makes the results useful for design. Academic work on the network organization, for example, is currently primarily descriptive, focuses on abstract properties, and is aimed at theoretical understanding. Practitioners, on the other hand, want to know how to build a network and what it contributes to the outcomes that they seek (Kanter and Eccles, 1992). They are going about their business finding these things out by experimenting with new forms and learning from their own experiences. The emergence of new organizational forms affords an opportunity for management and organization theory to become highly relevant to practice (Lewin and Stephens, 1993). If academia is to contribute a body of knowledge upon which to base a design discipline, however, organizational studies will have to address a number of key issues of methodology and focus.

Key Issues in Developing a Discipline of Organization Design

Let us first address an overarching philosophical issue: should organizational studies be concerned with design? Isn't that the purview of consultants and practitioners? While this can be, and has been, debated at length, the point of view in this chapter is that design and designing are part of the essence of organizations. Organizations are "artifacts"--created by people for their instrumental purposes. They are designed when they start up, redesigned as they go through life cycles and change their strategy, and transformed when they encounter major societal and environmental upheavals. At the micro-level, ongoing self-designing is part of the activities of effective units as they go about carrying out their mission in the organization. Thus, design and designing are important focuses for organizational studies; the blurring of the lines between the student of organizations and the practitioner is inevitable.

Laying the foundation for a discipline of organizational design has two aspects. First, a base of content knowledge about the organization as a system that can be designed must be generated and presented in a way that can guide action. Second, and perhaps more important, knowledge about the designing process is required. A thorough treatment of these two requirements for a discipline is not possible in a chapter of this length. Rather, we will use the remainder of the chapter to lay out several of the key issues that must be addressed.

An overarching issue is the need to take seriously the open systems nature of organization. A classic definition is that an organizational system is an organized, cohesive complex of elements standing in interaction with each other and with the environment (Evered, 1980). Another definition stresses the processual aspect of the system as a "set of coherent, evolving, interactive processes which temporarily manifest in globally stable structures" (Jantsch, 1980, 6). This latter definition is perhaps more helpful in understanding organizations today, since it acknowledges the dynamic nature of the system and focuses on organizing as processes that yield structures, a perspective that has also been taken by Weick (1979).

The second related issue is that organizational systems are populated by human beings and are the product of human beings and their interactions. The design of the organization is intended to shape the behavior within it. In a sense; however, the organization exists through the meaning attributed to it by human beings (Taylor, 1987). Design is the product of the behavior of the people in the organization. This reality needs to be central to the discipline of organization design.

These two issues, in combination, define a number of challenges that are particularly important to inform design and designing, particularly in an era when new organizational forms are emerging. Examples will be provided below.

The Implications of Organizations as Open Systems

Much organizational redesign has been conceptualized and initiated at the macro level of the overarching structure including its units, sub-units, and lateral integrating mechanisms. For example, a typical scenario in today's world is that organizations are becoming global, creating

focused, decentralized business units that are integrated by a series of lateral linking structures that plan and coordinate across business units around the world. Work is being done in focused business units, in a series of flexibly configured teams that deal with a whole piece of work, and in integrating teams whose function is to make sure lateral interdependencies are addressed. Often these units are largely self-directing; lateral and self-management replace many of the functions of the hierarchy.

While this flexible, lateral organization has been described conceptually (eg., Galbraith, 1994), it is less easily designed as an operational entity; behavior does not automatically assume the new patterns anticipated by the designers of a new macro structure, nor do organizational processes automatically shift. The shift in macro design away from a vertical hierarchical logic carries with it a shift in almost all of the key organizational processes, including decision-making, information-sharing, goal-setting, and planning. The systems that support these processes must fit with the way work is intended to be performed, and each to some extent provides the context for the others. For example, the information systems provide the distributed information required to support lateral decision-making, and the lateral goal-setting process provides the support for lateral planning.

These organizational systems have traditionally been designed to support managing work vertically. A great deal of the organizational behavior literature has focused on the resultant behavioral dynamics. In new organization designs, the vertical dimension does not disappear, but becomes attenuated through the reduction of levels and declines in its relative prominence. A hierarchy of systemic levels remains--individuals, teams or groups, business units, and businesses--with more inclusive levels providing a context for less inclusive elements (Mohrman, Cohen and Mohrman, 1995). Organizational processes need to support simultaneous vertical and horizontal activities.

Structure and the systems that support work provide the context in which people behave. Changes in the design of these aspects of the organizational system is intended to alter behavior within the organization. People have to engage in new activities, develop new competencies, relate in new ways to an expanded network of people, and direct their actions towards new objectives. The human resources systems have as their objective securing, developing, and motivating the employees necessary to carry out the strategy of the organization. While historically directed toward individuals and individual performance, these systems now have to address group and business unit levels as well. In team-based organizations, for example, the team is the primary performing unit, and it makes most sense to address individual performance within the context of the interdependent team of which the individual is a part (Mohrman, Cohen and Mohrman, 1995).

In a flexible, lateral organization, the concept of well-defined jobs, and of human resource systems that prepare people for these is no longer relevant. Responsibilities change fluidly as the set of tasks to be accomplished and the configuration of people available change. The management of competencies and capabilities--developing them and making sure they are

where they are needed-- is becoming the core principle of these new systems (see Lawler and Ledford, this volume). The notion of career is changing, also in a fundamental way. Careers will for the most part no longer consist of progression through a series of upward job moves that carry with them increased breadth of responsibility for a vertical segment of the organization. The new career will consist of continual broad and deep competency development through a series of work assignments that may span organizations (Hall and Associates, 1996).

This image of how the organization operates draws into question the learnings from a huge amount of research that has been done within hierarchical job-based contexts. In the arena of human resource practices, where research has traditionally been tightly connected to practice, the new organizational landscape is calling for new approaches. The design prescriptions for human resource systems that fit the new organization and new social reality are in their infancy.

Achieving a design fit between the macro-structural design of the organization, its work, and other systems is not automatic nor trivial. Designers of the macro system often assume more malleability of organizational behavior than is actually the case. There is a great deal of evidence, for example, that reconfiguring work into cross functional teams does not result in the intended collaborative behavior unless other aspects of the organization also change: behavior at the higher levels of the organization must also become collaborative, goal-setting and rewards of team members must be aligned, and other organizational systems must be reconfigured to fit a new collaborative way of doing work. At the very micro level, even the language used by people in teams where the context does not change continues to reflect the segmentation, competition, and hierarchical orientation of the old order (Donnellon, 1996).

Likewise, the designers can seriously underestimate and misread the ripple effect of structural change. For example, a number of organizations we have studied have implemented internal markets by creating expert service and support groups that have to pay for their own existence through contracts with business units. The purpose of the changes was to generate increased responsiveness to business requirments. These organizations have not anticipated the collapse of sharing of information and resources and the subsequent demise of cross unit learning that can result from a design that puts units in overt or perceived competition with one another for limited resources.

An important ramification for researchers of the systemic nature of organizations has to do with the dimension of time. Organizations existing as open systems in a rapidly evolving environment are continually introducing change. Furthermore, systemic change is of necessity iterative, particularly because, given the current condition of organizational science knowledge, it is based on spotty design knowledge (Mohrman and Cummings, 1989). Organizations are forced to learn as they implement; and to iterate as they learn. A snapshot in time provides little information about what design configurations contribute to outcomes and to subsequent change and learning. Organizational behavior occurs within ever-shifting designs. An important focus for research is how employees orient their actions given the fluidity of the context in which they

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perform; likewise, how does the organization attend to issues of motivation and commitment when it itself is such a shifting phenomenon? Another research implication is that methdology to understand and inform organizational design and designing has to reflect the complexity, interactivity, and dynamic nature of the phenomena (Monge, 1993).

To inform the discipline of organization design, the kinds of knowledge that will be useful include exemplars and principles to guide designing. Given that the present focus is on organizations in a turbulent environment when new organizational forms are emerging, researchers can contribute by creating typologies that capture new organizational forms, describe the attributes of new organizational forms and their relationship to one another, to behavior, and to organizational outcomes (Lewin and Stephens, 1993). Concrete depictions of ideal types and general and form-specific principles to guide the designing process can be derived. Depictions of the way in which organizations reconfigure themselves--principles and practical guidelines for self-organization--will be equally important.

Building the knowledge foundation for the discipline of organizational design will require organizational science to change its prevailing approaches in the following ways:

- More attention will have to be given to cross-level phenomena and to emergent phenomena. This will require a bridging of the traditionally separate domains of macro and micro organizational science. Methodologies for studying phenomena that have cross level impact and manifestation will become more commonplace (Klein, Dansereau and Hall, 1994; Rousseau, 1984). Relational analyses such as form-context relationships and network relationships are critical to understanding the problems of organizational design (Monge, 1993). Organizational behavior will have to become understood in light of the requirements of the context in which it unfolds. Knowledge is also needed about how relationships among elements at lower systemic levels result in emergent phenomena at higher levels, so we can better understand the macro ramifications of micro behavior and design decisions.

- More attention will have to be given to interdisciplinary phenomena. Human resource systems, information systems, and financial measurement and valuation systems are key organizational sub-systems that directly influence behavior and have to be aligned as organizations change forms. Adequately understanding their interactions will require approaches that integrate the social-psychological, cybernetic, and economic disciplines.

- Focus will be increasingly on process aspects of organization rather than the preoccupation on structures. As structures are increasingly ephemeral and virtual, methodologies for studying and designing process will become increasingly important. Systems for supporting processes such as information systems to support communication will also be key focuses.

- Longitudinal and action-based designs will be required to investigate iterative and evolutionary design and design processes.

- Increasingly, researchers will focus on issues and problems confronting organizations since it is these that yield self-organizing activity. Researchers will have to provide a bridge between the language and perspectives of practitioners and their own perspectives and language.

- Because of the emerging diversity of form (Galbraith, 1994) and the idiosyncratic nature and timing of the evolution of organizational form in different industries and organizations, rich case studies will be a useful theory building methodology (Cameron, Freeman & Mishra, 1993).

- Modeling methodologies, which have often been thought of as attempts to analogize "natural" organization behavior for descriptive purposes are also inherently methodologies of design. Computer-based modeling of organization designs can not only suggest potentially emergent phenomena but can also function as an integral part of the designing process.

- Because the majority of research in organizational science has been conducted in bureaucratic organizations, researchers will have to consciously scrutinize what we think we know to determine whether it is based on faulty assumptions about the nature of the human organization. Thus, much theory may have to be recast, and research results re-interpreted in light of a new range of forms and expanded assumptions.

The open systems nature of organizations and the importance of organizational fit have long been acknowledged by organizational scholars; however, organizational science has been primarily analytical, focusing on the piece parts. The differentiation between organizational behavior and organizational theory is itself a manifestation of this orientation. Design, on the other hand, focuses on synthesizing piece parts into wholes that perform in larger contexts. The discipline of design calls for a more concerted focus on the whole system in defining, executing and interpreting research. In particular, more attention will have to be given to understanding the whole system, and to processes and relationships that define the system.

The Implications of Organizations as Human Creations

Because organizations are artificial creations of human beings, they embody the values, interests, and purposes of their designers (Weick, 1993; McWhinney, 1980). Organizations have a wide variety of stakeholders; consequently, designs often represent compromises or reflect widely shared belief structures and values that may characterize a society. Purpose is a key element of an organization's design, and determining purpose is a key aspect of organizational designing.

Purpose also relates directly to another element of the discipline of organizational design: the determination of the definition of effectiveness. Most current organizational theorists subscribe to the notion that effectiveness is subject to multiple definitions and that true effectiveness may require the simultaneous accomplishment of several goals. For example, the

competing values model of effectiveness (Quinn and Rohrbaugh, 1983) enumerates four goals: eonomic efficiency; internal integration and coordination; adaptiveness and responsiveness to the external environment; and utilization of human capital. According to this model, collectively achieving these can result in the achievement of economic profit.

During a period of turbulence and fundamental change, agreement about cause-effect and shared preferences for outcomes erodes. The compromise of values and beliefs that underpinned the old order falls apart, and designing requires that a new set of understandings be created that can serve as the basis for a design that embodies a new compromise or that a novel design emerges that inspires commitment from everyone (Weick, 1993).

This issue is central to the methodological component of the discipline of designing. Various approaches to design are possible (McWhinney, 1980). In one approach, the set of goals is given, perhaps by top management or by experts, and the designing task is a technical one of finding the most direct path to the goals.   Alternatively, multiple stakeholders may participate in the selection of a design that cannot fully meet their multiple and conflicting sets of purposes. They search for a solution that addresses a set of goals that people are able to agree to. A third approach is also a participative one, and begins by stepping back to more fundamental levels and searching for core meanings to guide the design process. It is a process by which a group can create a new social reality--perhaps a unique organizational configuration capable of attaining a newly defined set of goals.

The organizational redesign activity of the past decade has been carried out with a somewhat limited mix of outcome focuses: economic and market performance to ensure survival; and improvement of organizational coordination and integration in the service of efficiency, innovation, and environmental responsiveness. The changes have been in service of the organization's strategic direction and objectives, generally set by top management. Interestingly, although organizations are human creations, very little of the redesign activity has been guided by workforce preferences. Downsizing, increases in the gap between the outcomes of those at the highest and lowest levels of the organization, the increased use of outsourcing and contract labor rather than full-time employees, and the breaching of the implicit employment contract between employees and their organizations are manifestations of this. A backlash is beginning to occur, in the form of increasing societal attention to the issue and pressures on employers to address the concerns of employees. The next iteration of the ongoing transition for many organizations may be to seriously incorporate an expanded set of purposes in their designs.

From an organizational science perspective, critical issues arise that are central to the resolution of this tension, and that reinforce the need for cross level perspectives to guide research to inform design.   As examples: What impact do the emerging organizational forms have on employee commitment, effort, and behavior? Cynicism and distrust? Perceived opportunity? How do these employee impacts affect subsequent organizational performance?

What human resource practices provide the foundation for excellent performance in an organization that does not provide job security or a career?

The solutions to many of the human problems caused by the emergence of new organizational forms may lie beyond the realm of one organization. People are only partially included in the organizational system (Rousseau, 1985)--they also have identities as members of families, communities, and other organizational systems. The design solution to the problems caused by the transient nature of organizational attachments may lie in inter-organizational or community-based approaches. People may seek certain outcomes, such as opportunities for growth and development, and attainment of benefits through alternative routes such as community-based insurance pools or employability and placement centers. To fully understand individual behavior in organizations may require the organizational researcher to take a broader, interorganizational, community and societal perspective.

The tight connection of purposes and values to design means that the discipline of design will have to include methodologies and principles for determining purpose and creating a workable agreement among organizational stakeholders.

- Researchers will have to be much more explicit about the values underpinning their research, and be explicitly cognizant of the values underpinning the designs that they study.

- Research will have to take into account the purposes that different stakeholders have in their interaction with organizations. Employees with different employment relationships (eg., core "careerists", temporary contract workers, etc.) may have different preferred outcomes (Rousseau and Wade-Benzoni, 1995), and may respond quite differently to different designs.

- Research examining design will have to take into account the designing process, the impact of different approaches to designing on the creation of shared meaning and agreement in the organization, and the ramifications of that for the effectiveness of designs in eliciting intended organizational behavior and outcomes.

Because organizations are designed by human beings and their behavior determines whether an organization will be effective, the integration of a phenomenological perspective is critical to a deep understanding of the discipline of design. Based on the work of Edward Husserl, a fundamental premise of the phenomenological approach is that when we try to understand any phenomenon we project our intentions and attribute meaning. In trying to understand the organizational world, we can only deal with interpretations, and as researchers we are in many cases interpreting interpretations (Ravinow and Sullivan, 1987).

When we try to understand and change organizations, there will be no clear and consensual account of how it is currently operating and the problems it is encountering, let alone agreement about the desired state (Schon, 1987). Designs embody meaning. Designing is a

meaning-creating activity, and, in a time of uncertainty and fundamental change, the best designs may be those that enable meaning to emerge, by establishing processes that work toward a shared interpretation (Weick, 1993). Meaning may be the most potent shaper of behavior, and may allow the organization to continually self-organize and deal with increasing amounts of uncertainty and complexity (Wheatley, 1992). Designs that provide rich feedback about multiple outcomes and provide opportunity for collective interpretation and action planing are examples. Designing that provides for rich interaction that shares divergent viewpoints and provides a forum for progression toward shared interpretations also addresses the phenomenological reality.

New designs, once implemented, imply new understandings and meaning. For example, one of the hardest transitions for people to make in the flexible organization is to develop a new understanding of career (Hall and Associates, 1996). Even if people can accurately describe the changed organizational landscape, they may hold on tenaciously to their definition of career as movement through a now pitifully scarce succession of hierarchical jobs. An important research question is what processes help people develop new understandings that fit the changing organizational designs that are being created?

More broadly, our current research has found that within the same organization, people in different units attach quite different meaning to new designs, yielding differences in their behavior and in the outcome effectiveness of the design (Tenkasi, Mohrman, and Mohrman, 1996). For example, across the hall from each other, one customer service unit might see their new cross-functional unit as an exploitative way to exact more work with the same pay; another may see it as a way to broaden knowledge and skills and take on more responsibility that will ultimately lead to even more opportunities. People's mental maps are of great import in shaping their behavior: important aspects of the mental maps are one's own position of centrality and influence, as well as how one images power, influence, support, and activity flows in the new organization (Massarik, 1980).

Researchers may find that they have difficulty studying new organizational forms because they have difficulty finding a language that fits the varieties of meaning that exist in the organization. Questions asked of organizational members often have built into them a framework for understanding the organization that may not resonate with the new reality. As an example, in our own research looking at organizations in transition, we have found that it is difficult to identify the organizational unit to which an organizational member belongs. Even when local management has presented us with membership lists for teams that have formal responsibilities that are measured and rewarded, "team members" often don't think of themselves as belonging to that team because they see themselves as existing in a dynamic set of activities that often extend beyond the team. They may not even think of that team as existing: their own understanding of the composition of the team is quite different than the formal documents would indicate. This raises fundamental questions for researchers. How many of the core framework concepts that we employ make sense in the new organization? What kind of language can be used to elicit meaningful data in a changing situation?

For researchers contributing to the building of the discipline of design, the implications are profound.

- Designs can not be understood in the absence of understanding the meaning that is attached to them by various participants. Researchers need to be cognizant of the meanings of organizational members as well as their own meaning that frames the designing of research, interpreting of results, and drawing of implications. Particularly during a time of rapid transition, analysis of design effectiveness requires that this phenomenological perspective be taken into account.

- Methodological knowledge about designing has to have as a premise the assumption that organizational members will attribute meaning to the design, and that the effectiveness of an organizational design depends on creating sufficient shared meaning to provide the foundation for coordinated action.

- Since language is a critical carrier of meaning, the translation of theory-based research into useful design knowledge requires a translation process from the abstract, theoretical language of the researcher to the practical, action-oriented world of the designer. The language used in the framing and conduct of research must track to the phenonmena being studied.

Implications for the Organizational Sciences: Agenda for The Future

We have argued that designing is a fundamental organizational process and that research that provides the knowledge to underpin a discipline of organizational design is an appropriate arena of focus for organizational scientists. The discipline should include both the theory and guidelines to underpin the design process, and methodology to guide the practice of design. The importance of designing as an organizational process has been made salient by the ubiquitous redesigning that is occurring in organizations throughout the world. Designing has become a key competence for organizational managers.

Taking this mission seriously would, in our viewpoint, require some fundamental redirection of organizational science. It would require that disciplinary boundaries be blurred, and much more research be cross-level. Organizational design is systemic--it requires a simultaneous consideration of multiple goals, sub-systems, and levels. Designs unfold through time; more longitudinal and action-oriented case studies will be necessary to understand the dynamics that are inherent. Serious design-oriented work would require that the values be made explicit and become part of the underpinnings of design and designing knowledge. Furthermore, it would require a serious treatment of the phenomenological nature of organizations, and a willingness to insert meaning into theoretical models.

These changes may demand a change in the meaning of organizational sciences for many researchers. Although at a general level we all recognize the organizations are human creations, we often act as if they have a permanent and real nature that can be understood solely through rigorously controlled scientific method. Taken seriously, the artificial nature of organizations means that we should open ourselves up to the fact that what we are studying is ephemeral, subject to change by the very knowledge our studies yield, and that principles, models, and methodologies for design are perhaps the most useful contribution we can make from the understandings we gain from our research.

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