

C

E



Center for
Effective
Organizations

**DOING RESEARCH:
THE CASE OF ORGANIZATIONAL DESIGN**

**CEO Publication
T 84-5 (53)**

**THOMAS G. CUMMINGS
SUSAN A. MOHRMAN
ALLAN M. MOHRMAN, JR.
GERALD E. LEDFORD, JR.**
Center for Effective Organizations

May, 1994

DOING RESEARCH:
THE CASE OF ORGANIZATION DESIGN

by

Thomas G. Cummings
Susan A. Mohrman
Allan M. Mohrman, Jr.
Gerald E. Ledford, Jr.

T 84-5 (53)

ABSTRACT

This paper presents a framework for understanding our research approach with organizations that are designing and redesigning themselves to adapt to rapid and fundamental societal changes. Our approach departs from traditional content and methodology. It requires a new concept of the role of the researcher and the development of long-term, collaborative and intense research relationships with organizations.

I think managers recognize the need to change for a very simple reason: Ten years ago, when they asked a subordinate to do something, it was done. Now, when they ask a subordinate to do the same thing, the subordinate stares at them just a little bit longer, and thinks about whether to do it.

I used to manage hardware people. That was easy. I knew just what they did and how to motivate them. Now I manage software people. I don't know what they do. They don't know what they do. Need me? Hell no, they don't need me. They don't even remember to pick up their pay checks. They're impossible to manage.

We used to be a small, local, paternalistic company. We took good care of our people, related well to the community, and made a lot of money. We're growing and modernizing. We want our people to grow and develop. We want them to think about their jobs differently. There are a lot of opportunities in this company right now. But all they want us to do is to continue to take good care of them. They're indignant that we want them to change. What's wrong with them?

Opportunity? For what? We haven't had a promotion in this plant in 18 months. With our operational cutbacks, I'm not sure any of us will ever again move up in this organization. We've always loved the industry and living in this area is great. But I think we're all becoming stagnant. At least we sure rationalize well about why it isn't our fault that the status quo isn't working as well as it used to.

Although the specifics differ considerably, the managers quoted above share a common concern. They are challenged by aspects of change and persistence in their organizations. Changes in the content of work, the nature of the work force, and organizational and societal conditions are placing new demands on how organizations are managed and designed. Organizational members are spending increasing amounts of time coping with change. Meanwhile, values are challenged and confirmed, dreams are built and destroyed, and opportunities are created and thwarted.

This paper is about doing research with organizations undergoing change. Our focus is on how organizations design themselves. We are

interested in the range of phenomena associated with organizational design, including cognitive change, behavioral change, and structural change.

Our interests derive from extensive field work where we have actively engaged with organizational members in the generation and implementation of innovative designs. Our roles have been to join with organizational members in the learning process, to offer advice, to collect data to guide implementation, and to study the design process itself. We are allowed access to organizations as long as we are considered useful and our usefulness depends on our access to the phenomena. In order to contribute to a systematic understanding of organization design, we have combined the roles of learner and expert. We share this combined role with organization members.

INTRODUCTORY FRAMEWORK

Our attempt to forge a useful research strategy is occurring within a certain framework of understanding, and we will briefly describe that frame as an introduction to this paper. We believe that organizations are human artifacts created for instrumental purposes (Simon, 1969). Their designs reflect and are constrained by the norms, world views, and knowledge base of the larger society and by the demands of the task environment within which they are embedded. Equally important, organization designs express the values and aesthetics of their designers (Ackoff, 1981; Mitroff, 1983).

As societal, environmental, and designer forces change, people attempt to transform organizations to reflect new purposes, values, and aesthetics. The design process is difficult and often incomplete, especially in older, more established organizations. Years later, the characteristics of organizations in a particular industry generally reflect the era in which the industry was formed (Stinchcombe, 1965). It is easier to create new

organizations which embody prevailing values, societal conditions, and world views than it is to redesign existing organizations (Lawler, 1978). Established organizations embody systems and behaviors which are congruent with one another, and which reflect the organizing principles which were salient when the organization was created. Reward systems, managerial styles, rules and procedures, and organizational structures often reinforce one another. Attempts to change one aspect of the organization are often countered by stabilizing forces from the other parts (Nadler and Lawler, 1983).

Redesigning existing organizations differs substantially from designing new ones. Redesign cannot be conceived as the work of one person or a small group of people, such as might occur when an entrepreneur creates a company. Rather, it requires that a wide variety of organizational members agree to behave differently. Because organizations are designed to promote certain patterns of behavior, redesigning involves fundamental changes in how people behave and relate to one another.

The problems inherent in organization design are especially troublesome during periods of rapid, uncertain change. In an era of turbulence which is occurring in most post-industrial societies, organizations are being asked to change quickly in an as-yet-undetermined direction. Traditional and heretofore successful ways of functioning are being challenged. Established organizations with entrenched structures and policies are being asked to be nimble and flexible. Moreover, organizational members are being told to embark on a trip with an unknown destination. They are being asked to learn new behaviors with little assurance that the journey will be safe. As one manager engaged in

organization design told us: "We know only that things will be different; we can only hope that they will be better."

Given these beliefs about designing organizations, we have come to conceive of our research as requiring temporary, inter-system linkages between researchers and organizations (Mohrman et al., in press). Such linkages are necessary to achieve cooperation between researchers and organizations. They define the nature of that relationship, and determine the purpose and conduct of the research. They have two major aspects: a content component which involves the specific research topic, methodology, and task, and a relationship aspect which is necessary to create and maintain the social connection between researchers and organizations.

Our research content is concerned with how organizations design (or redesign) themselves, and with how researchers might engage with them to produce knowledge that is useful for both parties. This content suggests certain features of the relationship part of our research.

First, the focus on designing organizations suggests that the relationship between researchers and organizations involves long time commitments and high levels of psychological intensity. Action-oriented research generally requires long time commitments because researchers and organizational members are jointly engaged in generating new ideas, testing innovative approaches, and trying out different assumptions about organizations. These activities not only take time, but they invariably produce tension between researchers and organizational members. This psychological intensity is inherent in any relationship where one party is helping the other to change. It is particularly magnified in researching organizational change, where researchers and members are often exploring uncharted

waters. The risks of failure and the importance of the stakes are high for both parties.

Second, the joint goals of producing knowledge useful for organizations and useful for the scientific community suggest that multiple stakeholders are actively involved in the research. Stakeholders constitute those persons or groups having a potential interest in the research, such as research centers, government funding agencies, and organizational managers and employees. Traditionally, research has tended to be directed by limited stakeholders, either those from the scientific community, as in basic research, or those from the client organization, as in applied research. What is seen as useful research from one perspective is often seen as useless from the other. Attempts to meet both researcher and client-organization needs, such as Lewinian action research, have actively involved multiple stakeholders in generating research issues, designing the research, and carrying it out. This participation increases the likelihood that all relevant stakeholders will see the research as useful.

Now that we have outlined the conceptual framework underlying our research, we can delve deeper into the content and relationship aspects of the research process. We will first discuss the content component, describing certain theoretical and methodological characteristics appropriate for researching organizational design. Then we will examine the relationship aspect, providing a richer understanding of research involving multiple stakeholders and high levels of time commitment and psychological intensity among the parties. Finally, we will discuss the larger institutional and transorganizational structures needed to support such research,

with special attention to the role of research centers in creating those conditions.

THE CONTENT ASPECT OF RESEARCH ON ORGANIZATIONAL DESIGN

Research content concerns the substantive part of the researcher and organization linkage. It includes the specific topic of research and the methodology for studying it. A venerable axiom of scientific research is that methodology should be dictated by the nature of the phenomena under investigation. In our case, research methods should derive from assumptions about organizational change or design. (The terms "change" and "design" are used interchangeably throughout the rest of this paper). We believe that many traditional research methods are unsuited to studying organizational change, primarily because they are based on assumptions that do not hold in change situations. In the following pages, we first describe a more realistic set of assumptions about organizations design, and then suggest requisite research methods, conceptual perspectives, and appropriate uses of research.

Assumptions About Organizational Change

Organizational change is a disorderly, highly dynamic process.

Most familiar descriptors for organizational change can be misleading. Our preferred term, "organization design," as well as such alternatives as "planned organizational change," "organization development," and "strategic human resource management," evoke comforting but inaccurate connotations of a rationally controlled process. Yet, organizational changes that survive over any length of time typically entail shifting goals, discontinuous patterns of activity, surprising events, and unexpected combinations of interventions. There are many reasons for the chaotic quality of organiza-

tional change. Managers must often act without well-ordered plans in order to discover or articulate their goals and strategies (March, 1978; Mintzberg and Waters, 1982). As the change process unfolds, new constituencies may be affected by the change. They may demand modifications in or elimination of the change, reflecting previously unvoiced or even unknown needs and aspirations (Mangham, 1979; Nadler, 1982). Even when organizational members have clear initial goals and plans, they may alter them in response to experience (Cyert and March, 1963). Moreover, organizational and environmental changes may render the best-laid plans irrelevant or even dysfunctional (Grinyer and Norburn, 1975).

Processes of organizational change and organizational sense-making are interwoven. Organizations channel the ways in which members perceive and act into patterns representing only a small fraction of the possible ways of seeing and acting. These patterns represent socially constructed systems of shared meaning, and may be called organizational "paradigms" (e.g., Mohrman and Lawler, 1983), "frames of reference" (Watzlawick et al., 1974), "learning models" (e.g., Argyris and Schon, 1978), "myths" (e.g., Boje et al., 1982), "sagas" (Burton, 1972), "cognitive maps" (e.g., Bougon et al., 1977), or "organizational cultures" (e.g., Pettigrew, 1979). Although the perspectives attached to these terms imply somewhat different conceptions of social reality, they share a number of key assumptions. Systems of meaning develop through the repetition of behavior and through socialization processes. They serve as the ground against which figures such as rational beliefs, attitudes, and perceptions are constructed. A system of shared meaning facilitates efficient communication and permits many actions to be carried out automatically or ritualistically. To the

extent that a system of meaning is widely understood and shared, it fades from collective awareness and assumes a tacit, "taken-for-granted" quality. It then becomes relatively inaccessible and difficult to challenge.

Organizational changes and changes in systems of meaning are interrelated. First, changes in observable patterns of behavior are usually associated with changes in systems of meaning. Neither behavior nor meaning necessarily has causal primacy; the causal links between the two are complex and reciprocal (Mohrman and Lawler, 1983). Second, disruptions in shared meaning are extremely uncomfortable for people. Challenges to a group's system of meaning call into question members' views of reality and thus, in a sense, their sanity. Hence, organizational members are unlikely to change their systems of meaning unless there are compelling reasons to do so. Moreover, the adoption of an alternative or modified system of meaning is often an emotional experience akin to religious conversion. Patterns of meaning that were once alien, uncomfortable, or even inconceivable can become cherished new truths. Third, different types of meaning systems vary in the degree to which they are shared within an organization. Different hierarchical, functional, and demographic groups are likely to vary systematically in their constructions of reality (Alderfer, 1976). On the other hand, certain types of meaning systems may be shared almost universally. Argyris (1980), for example, contends that nearly all people share the assumptions of a Model 1 learning system. Organizational changes may be associated with changes in some elements of an overall system of meaning but not others, and there may be wide variations in the degree to which any new system of meaning is shared in the organization.

Organizational change is largely a group-level phenomenon.

Organizational change is most often designed, implemented, maintained, and diffused at the group level. This occurs partly because it is difficult to change organizations by operating at other levels. Individual change is slow and difficult unless a person's social context also changes, as generations of trainers, educators, and therapists have learned. In addition, individual change as a strategy for changing organizations is too labor-intensive to be practical in large organizations. Attempts to directly change the organizational level and higher levels are also difficult. Indeed, major changes in complex organizations cannot be experienced completely by an individual, and hence must be comprehended in the abstract. Change agents almost always work with groups, even when their aim is organizational or societal change. Groups exist at a high-enough level to influence the organization as a whole, yet they are small enough to be changed without massive infusions of external resources.

Groups are especially important when organizational change involves multiple stakeholders. In our research on organization design, we often create a group representing multiple stakeholders including researchers, managers, employees, and other relevant persons such as union leaders. The group manages the design process, and attempts to reconcile the different needs of the participants. It serves as a forum in which intergroup dynamics are played out, thus providing researchers with a clearer understanding of the forces impacting change, and organizational members with greater appreciation of intergroup conflicts and cooperation.

Organization designs cannot be prescribed totally on the basis of prior research. Traditionally, research aims to increase understanding, prediction, and control of behavior. The underlying hope is that if enough

research is conducted, social scientists (or those privy to social science findings) will be able to specify appropriate changes for an organization, and to accurately predict their consequences. Unfortunately, the relationship between researchers and organizations implied by these goals can result in researchers' sage advice being disregarded. We will address this issue in the next section of this paper. Suffice it to say here that the record of organizational science does not support the belief that organizational designs can be specified appropriately and in detail on the basis of prior theory and research.

Organizational theories can serve as a definitive blueprint for action only if they are elegant enough to have been adequately tested, are supported by the cumulative weight of research evidence, and are powerful enough to account for much of the variance in organizational behavior. These criteria are not met by current organizational theories.

Especially in the area of organization change, theories are often inelegant or "ugly" (Mohr, 1982). The temptation to create excessively complex models of organizations is understandable. Many aspects of organizational functioning may be targets of change, and separate theories exist about changes in many of them (job design, reward systems, organization design, and so on). Any attempt to develop an inclusive theory quickly leads to inelegance. Similarly, the systemic nature of organizations means that change in one aspect of organizational functioning affects and is influenced by other aspects. However, any attempt to construct a theory that includes major elements of a system as well as likely feedback loops and interaction effects generates ugliness. The literature is filled with complex, ugly theories (some contributed by us). The problem with inelegance is not merely aesthetic. Given the limitations

of current analytical techniques, it is simply impossible to test models that include dozens of variables arrayed in non-linear relationships-- particularly when the data used to test these models come from one or a handful of organizations.

A number of reviewers have commented on the lack of cumulative findings in organizational research and in social science research more broadly (e.g., Argyris, 1980; Hunter et al., 1982; Mitroff and Kilmann, 1978; Mohr, 1982). Generally, the more research which is conducted in an area, the less consistency there is in the relationships among known variables and the more additional variables are proposed as important explanations of a phenomenon. After hundreds or even thousands of studies have been conducted on a topic, researchers are usually not much closer to cumulative findings than when they began. Instructive examples include the topics of group behavior (Cummings, 1981), innovation (Mohr, 1982), and organizational effectiveness (Cameron and Whetton, 1983), all of which are central to organizational change.

Few traditional theories appear to account for more than a small fraction of the variance in dependent variables (Mohr, 1982). In addition, there is no reason to predict that strong relationships found in one study will be confirmed in subsequent studies, given the inconsistency of research findings in so many areas of the literature.

We know of no real solutions to these problems. Our mode of research suffers from them no less than traditional research. The implication is that the prescriptions of organizational researchers should serve mainly as general guides to organization design rather than as detailed blueprints for action. Organization design is too costly, difficult, and risky to be

driven by research findings which may have questionable applicability in a particular situation.

We have presented four assumptions about organizational change indicating that it is a highly dynamic process, that it is accompanied by changes in systems of meaning, and that it is located largely in groups. Furthermore, organization change cannot be prescribed on the basis of existing research. These assumptions are not necessarily controversial; indeed, they receive a good deal of support in the literature. We believe, however, that the implications of these assumptions for research and action are inadequately understood.

Implications for Research and Action

Our assumptions about organizational change suggest a different orientation for researching organization design. The importance of some theoretical issues increases while that of others decreases. The applicability of some methodological tools becomes questionable, while the importance of others is enhanced. More fundamentally, the purposes of research and the process of theory construction are altered. Specifically, our assumptions suggest the following implications.

Research on organizations design should be concerned with change dynamics, sense-making processes, group-level phenomena, and change design as well as with the effects of particular interventions. The research literature on organizational change consists primarily of reports of the attitudinal and performance effects of specific types of interventions (team building, autonomous work groups, reward system changes, and so on). It is important to investigate intervention effects, but it is at least as important to investigate other central aspects of organization change. For

example, relatively little is known about the following questions. Why do organizations adopt particular interventions or combinations of interventions and not others and with what result for the design of the organization? How are new design features actually implemented? What are the patterns by which designs become transformed, diffused, abandoned, or persistent over time? How do different patterns of sense-making affect the course of change? When does change precede new interpretations of reality? How do new systems of meaning interact over time? How do we best design groups in order to promote organizational-level change? How do group and intergroup dynamics influence the process of change? How do organizations go about designing change when the task is so fraught with uncertainty? When multiple interventions are utilized is it better to adopt certain changes first? If so, under what conditions? It would not be difficult to greatly expand this list of questions. Although some research or speculation is relevant to most of these questions, such issues have not been systematically studied.

We believe that the emphasis on intervention effects almost to the exclusion of concern for change processes derives largely from relying on traditional research methodologies. Experimental and quasi-experimental research designs are aimed at making causal inferences about the degree to which a well-defined predictor variable or small set of predictor variables (such as a particular organizational change) affects a well-defined dependent variable. The strongest research designs are those where researchers can control the field situation in ways that simulate laboratory conditions. Conversely, research designs become weaker and threats to validity become stronger as researchers lose control over such conditions

as the nature, scope, introduction, and diffusion of interventions, not to mention the measurement of change.

However, attempting to control the disorderly process of change in order to test for intervention effects may destroy many of the phenomena worthy of investigation. As Kahn (1982) recently suggested:

The suns of organizational change do not revolve around the small domain of the researcher, nor are their large movements defined by the experimenter's small forces . . . We will learn most about the process of change by studying full-scale manifestations of that process rather than by reducing it to the size of our experimental powers. (p. 428)

Generally, researchers cannot control change dynamics. Change processes are treated as intrusions on the research, but often are not studied as phenomena that are important in their own right. Consequently, neither the intervention effects nor the change processes are adequately explored. An example of this pattern is the prevalence of multiple interventions and multiple design alterations. This poses a problem for traditional research methods because it is difficult or impossible to disentangle the effects of different parts of the change process; yet multiple change efforts are closer to the rule than the exception (Cummings et al., 1977). Because single interventions are rarely powerful enough to produce significant change in complex, well-bounded systems (Kahn, 1982; Nadler and Lawler, 1983), it is probably fortunate that researchers must suffer through the traumas of having murky change variables.

It is important to emphasize that knowledge about change processes will only partly come from quasi-experimental studies of each process or sub-process. Even if it were possible to hold all else constant, traditional methods do not capture fully the complex interplay of forces and events that makes organizational change so fascinating and frustrating.

Our strategy for studying change dynamics and intervention effects follows what Lawler (1977) has termed an adaptive research design. It includes several elements. First, there is recognition that the strongest experimental and quasi-experimental designs are difficult to apply in field settings. The best researchers can usually hope for is some version of what Cook and Campbell (1979) called a non-equivalent control group design. Second, the researcher attempts to cast a "broad measurement net"--measuring as many variables as possible in order to capture unintended consequences, unanticipated interventions, and other unpredictable turns of events. Third, there is heavy emphasis on qualitative description to supplement moderately rigorous quantitative measurement. Extensive qualitative data are essential in understanding the change process. Fourth, longitudinal research is critical. Finally, semi-standardized research instruments are used to investigate multiple cases of a particular type of change. Although comparison is usually difficult because organizational changes, contextual conditions, and change processes tend to be partly idiosyncratic to each case, the opportunities for comparative study are enhanced with this approach.

This research strategy is called adaptive because it permits and encourages researchers to improvise and to be responsive to changes in the nature of the interventions. All is not lost if the intervention takes unexpected turns; indeed unanticipated consequences are expected. No element of this strategy is necessarily novel; it is consistent with the suggestions of other commentators on field studies of organizational change (e.g., Cummings et al., 1977; Porras and Berg, 1978; Kahn, 1982). However, such a strategy is more often respected than practiced. Generally, field studies fail to provide adequate descriptions of the change process

(Cummings and Molloy, 1977), and are limited to relatively brief time periods (Porras and Berg, 1978).

We have also begun to explore other approaches for studying organization design. The strategy first proposed by Golembiewski et al. (1976) for identifying "beta" and "gamma" changes (i.e., changes in scale calibration and changes in underlying constructs) can facilitate the quantitative investigations of change in systems of meaning. Although the idea has received a fair amount of attention in the literature, nearly all studies are concerned merely with identifying the most appropriate algorithm for calculating beta and gamma shifts. A noticeable exception is the work of Mohrman and Novelli (1982, 1983) on people's responses to office automation. We are also intrigued by Mohr's (1982) concept of process theory as opposed to variance theory. Briefly, a process theory tells a story explaining a chain of all-or-nothing events rather than variation in dependent variables. Process theories have a different formal structure and are based on a different notion of causality than the ubiquitous variance theories. We are currently developing process theories to account for the evolution and persistence of planned change (Ledford, 1984), and are exploring alternative processes for designing organizations (Mohrman and Cummings, 1983).

The usefulness of research for organization design does not depend exclusively on the rigor of the research or the degree to which research findings are cumulative. We have suggested that traditional research is relatively weak in offering specific prescriptions for organizational design. Yet there are other ways of using research findings to facilitate change which do not depend upon having well-tested, demonstrably powerful theories. Research can be used to help organizational members envision new

courses of action, to expose them to new realities, to convey past experiences of designers, and to provide warnings and checklists of issues to consider prior to taking action.

For example, prior research can help organizational members consider new frames of reference. If introduced at the right time and under the right conditions, theoretical frameworks can help organizational members expand their views of what is possible. Even simple models and typologies that are too primitive to serve as theories are often sufficient for this purpose. For example, we have found that in working with people who are struggling to understand the range of possible design options, it is often helpful to contrast the characteristics of traditional organizations with the conditions of high-involvement organizations, and to suggest how different types of organizational changes are related to one or the other of these organizational forms. This exercise shows that a number of aspects of organizations--job designs, reward systems, management structure and style, personnel practices, and so on--can be changed, and that multiple changes can be introduced more or less simultaneously. The discussion also demonstrates that organizations are comprised of interrelated systems, and that changes in one subsystem can be reinforced or undermined by other subsystems.

Research can also be helpful in conveying the prior experiences of other organizations. Case studies go beyond theoretical abstractions to make the possibility and nature of change more real and concrete. Moreover, sharing prior experiences can promote realistic expectations about the change process and about some of its outcomes; it can reassure people experiencing crises that others have overcome similar obstacles.

Existing research and theory can also identify practical issues in designing and implementing change. Models that are too inelegant or "ugly" to be tested using traditional methods can still be useful in this way. Overdeveloped or redundant models may suggest relevant issues that would otherwise be overlooked.

These practical uses of research are tolerant of findings having certain methodological weaknesses. Such uses are legitimate because the purpose is not to narrowly specify an appropriate course of action, but rather to expand the realities available to organizational members, and where possible to help them find comfort, hope, and a healthy skepticism as they learn how to design their organizations.

In this section, we discussed the content aspect of our research--the focus on organization design and the methods used to study it. We argued that researchers traditionally have made questionable assumptions about organization design, about how design should be studied, and about how research findings should be used in the design process. However, we do not view the content of our own research as a radical departure from the best of current practice. We favor, for example, using quantitative methods and research designs that are as strong as possible in capturing the phenomena of organizational change. Our argument is that more modest assumptions about the usefulness of research are needed; that a redirection of theoretical emphasis is called for; and that certain methodological approaches are required to take into account the messiness of the phenomena of interest.

THE RELATIONSHIP ASPECT OF RESEARCHING ORGANIZATION DESIGN

The relationship aspect of research concerns the nature of the interactions between researchers and subjects. All social research includes a

relationship component, although it typically receives only limited attention. Traditionally, researchers tend to focus on the content aspect of research; they are concerned with generating research questions, designing appropriate methodologies, and collecting and analyzing data. There is considerable evidence, however, that the nature of the relationship between researchers and subjects can have a powerful impact on the research content (Argyris, 1980). For example, subjects may attempt to second-guess or deceive researchers that they do not trust. Relationship effects are pervasive and even operate in such socially impoverished settings as research laboratories (Orne, 1962).

We believe that the relationship component is an integral part of field research, especially in organization design situations where researchers and organizational members are jointly involved in the research process. Here, researchers must establish and maintain relationships with multiple stakeholders in the organization. Moreover, those relationships must be strong enough to withstand the rigors of a research process requiring long time commitments and high levels of psychological intensity.

In the following pages, we will discuss the characteristics of the research relationship, and then suggest the researchers' role in the interaction.

Characteristics of the Research Relationship

The relationships between researchers and organizational members can be characterized as forming a communications network. The network is composed of different stakeholders, each having preferences, goals, and values for the organization's design. Communication among the participants occurs simultaneously at two levels: the content and relational levels (Watzlawick et al., 1967). The content level involves the specific

information that is communicated. In our case, this would primarily include information about the content aspect of research--messages about the research focus, methodology, and data collection and analysis. The relational level involves the relationship among the participants in the communication network, and thus provides information about how specific content is to be interpreted--for example, whether it is a command or request, a compliment or criticism, a hostile or helping act, and the like.

The relational level of communication is relatively tacit, and involves subtle contextual cues (often nonverbal) which comment on or qualify the meaning of communication content. Because the relational level communicates a message about how the content is to be viewed, it is of a higher logical level of abstraction than the content. It represents a metacommunication which frames the content and gives it meaning. Thus, different metacommunications or frames lead to differences in meaning attributed to the same content. For example, information about organization-design research is likely to be interpreted differently by organizational members depending on whether it is seen within a frame of trust between researchers and members or within a frame of skepticism between them. The observation of a meeting or conduct of an interview will be experienced differently by individuals who feel the researcher will provide helpful information than by those who feel they are being evaluated. The experience will be different yet if the researcher is participating in the meeting rather than observing it or engaging in conversations rather than interviewing.

The relational frame exerts a subtle yet powerful influence on interactions between researchers and organizational members. It tends to pattern the relationships, implicitly defining the positions of the

participants in the network as well as the nature of their interactions. The challenge for researchers is to gain a position in the network allowing access to information which is critical to the research goals. In our view, this requires establishing effective relations with multiple stakeholders while remaining relatively independent of their different perspectives, goals, and values. This relational strategy is especially difficult in situations where the multiple stakeholders have well-established frames governing their interactions. Here, researchers may be viewed as representing a particular viewpoint or stakeholder, and they are likely to be treated in a way that presupposes the response of that stakeholder. For example, unionists may see researchers as representing management's interests, and thus interact with them as if they were managers.

Researchers must explicitly address the relational level if they are to establish an identity in the communications network which is seen as legitimate yet independent of the competing viewpoints already present. They need to understand existing relational frames, and may have to change them if necessary, a process referred to as reframing. Unfortunately, problems at the relational level are difficult to recognize and thus are typically misdefined as content-level disagreements. For example, researchers often interpret people's concerns and questions about the research as content issues; they respond to those issues by giving more elaborate descriptions of the research content. In reality, questions such as "what are you trying to find out?" and "what are you doing?" often have more to do with "who are you working for?" "whose interests are you serving?" and "how can you hurt or help me?" than with research content. To the extent that people's concerns derive from the relational level, they

cannot be resolved by addressing the content. Indeed, attempts to resolve relational problems at the content level may escalate the conflict. For instance, trust is best established by the openness with which the researcher lays out the issues as he or she sees them and not by the researcher carefully articulating the research agenda while taking pains to conceal the hypotheses being tested.

Failure to distinguish between the content and relational levels and to solve problems at the requisite level results in disturbed communication (Watzlawick et al., 1967). The quality and usefulness of research conducted in situations where there is disturbed communication between researchers and organizational members are questionable. The data are likely to be distorted, and what is useful for one of the participants may be useless to others.

Disturbed communications seem particularly prevalent when there is disagreement about whether the relationship between researchers and organizational members should be complementary or symmetric. In complementary relations, one of the participants assumes a dominant posture while the other assumes a submissive role. The two roles complement each other, with more dominance leading to more submissiveness and so on. Symmetrical relations assume equality of the parties. Traditionally, researchers have attempted to act out a complementary relation with organizational members; they tend to treat members as subjects, and by implication, themselves as dominant. They tend to see research as being conducted primarily to serve the interests of the social science community. From a scientific perspective, this relational frame seems rational. Researchers need to control the situation, whether in the laboratory or field, so that the findings are "scientifically" valid. Organizational members, on the other

hand, often feel uncomfortable with this complementary relationship. They may assume their own right to initiate behavior. They may provide misleading data. They may make arbitrary changes in the research content, or may terminate the research relationship altogether. From a practical perspective, these behaviors appear rational, especially when the research is not seen as helping members achieve specific goals.

These disturbed communications are typically addressed by unilateral revision of the research content by either the researchers or by organizational members. Changes are made to make the research either more scientific or more practical. This reduces the value of the research to one party or the other, and often results in ill-will between researchers and organizational members. We feel that disturbed communications are commonly part of organization-design research, and should be addressed at the relational level. Different stakeholders often value different research outcomes, and have different frames for the relational part of the research. Unless researchers explicitly address the relationship issue, they may not understand or even be aware of patterns of disturbed communication. Researchers need to create conditions where the stakeholders, themselves included, can openly discuss their differences (and similarities) and forge a more symmetric relationship which accounts for the different perspectives. For example, we have successfully used groups comprised of multiple stakeholders to design the research content. The group rather than individuals makes decisions about research content. Considerable attention is directed at understanding different relational frames, and developing a more symmetric frame for jointly learning about organization design.

Researchers' Role

Researchers play a more difficult and complex role in our research strategy than in more traditional ones. They must attend to both the content and relationship aspects of the research; the latter requiring focus on both the content and relational levels of communication between researchers and organizational members.

Researchers must maintain long-term linkages with various stakeholders during a design process often infused with politics. Various stakeholders typically try to influence the design in directions favorable to their preferences and values. In order to remain privy to sensitive information from these diverse stakeholders, researchers must maintain relationships with those having formal and informal power as well as with those who are in the position of responding. The organization design which emerges from this political process will embody not only the changed behaviors of those in power, but also the new responses of those whose views did not prevail in the design process. We have found, for example, that top management often feels that the organization is making a successful transition to a participative culture, while those at middle and lower levels are experiencing neither success nor a serious effort to change. Nevertheless, lower level participants may maintain a self-protective rhetoric of participation with public statements of success and enthusiasm.

Researchers whose role is defined purely as information gathering will have difficulty maintaining effective linkages with stakeholders. Data collection generally requires the commitment of time and energy from organizational members, and they are unlikely to continue to cooperate if they see no useful outcome. More fundamentally, organization design involves a great deal of uncertainty and, consequently, insecurity. Rather

than see themselves as embarking on an exciting and innovative journey, people often feel that they are being pushed into a mode of functioning with which they are uncomfortable, for which they have been inadequately prepared, and in which they may be unable to function effectively. The individuals involved take risks and feel vulnerable. They are likely to feel extremely uncomfortable doing this when a passive observer is recording an "objective" history, particularly when they feel that the researcher is an advocate of the change, and is keeping a "report card" on how well the organizational members are doing.

Continued access to the design process depends largely on maintaining a "professional" relationship with organizational members. Researchers must provide useful services as they acquire privileged access to the organization. "In a sense, therefore, the social scientist begins in practice, however imperfect scientifically, and works back to theory and the more systematic research which may test this, and then back again to improved practice" (Emery & Trist, 1973, p. 111). A large range of professional services are possible. Researchers might provide systematic feedback of research data; they may play an expert role in providing design information; they might actively intervene in the change process. Each of these roles might imply a different relationship to the organization and to the members of the communications network.

Certain roles may be more difficult to maintain over time. In the quality-of-work-life studies conducted by the Institute for Social Research of the University of Michigan, for example, some of the researchers who were observers and data-collectors found it difficult to maintain this "hands off" role. Their data made them potentially impactful in the design process. Because of their natural inclination to act and because of

requests from organizational members, they often became active in the change process. They were no longer impartial observers, but became advocates in the change process; they used their interpersonal relationships with the site members and their "expert" and "information" power to influence the change process. This activity caused role conflict among participants in the design process, primarily because other professionals were directly responsible for helping the design process.

There are other problems with the pure observational role in researching organization design. The quality of understanding of the change process depends on how well researchers are integrated into the network of stakeholders enacting the design activity. Understanding a social process requires entering into its flow (Lewin, 1951), or the participation of the knower in the known (Barfield, 1961, Vaill, 1983). Existing measurement tools capture or describe only a part of the richness of experience of organizational change, of the fears and anxieties characterizing a group entering into organizational arrangements of unknown properties, and of the value and aesthetic preferences pervading the superficially rational design process. Although it is predictable that these forces will emerge, the specific form they take must be discovered in each situation. We become aware of them by intense exposure, and by being part of the change process.

External observers often fail to grasp the depth of human reactions to change. This may result in superficial prescriptions for change. Take, for example, the common "finding" that participative management was not implemented because supervisors did not change their behaviors; and, the resultant recommendation that increased training for supervisors and altered incentives are necessary to enable such changes to occur. Although

these findings probably reflect reality and the recommendations are sound, they fail to capture the depth of the change process: the tenuous and delicately-balanced position of the supervisor vis-a-vis subordinates, the mixed messages and demands which the supervisor receives from above, the anxiety surrounding behavioral change in what is often perceived as a hostile world, and the inability to envision a new and different role and how it might be played out. Reducing this complexity to a matter of training and incentives misses the dynamics of change; it results in a superficial understanding of what is required to bring about fundamental change in organizations.

Similarly, external observers tend to see the design of organizations as an "unstructured" problem, which it doubtless is. However, cognitive and structural approaches to understanding design fail to capture the emotional trauma experienced by managers who have only operated in a well-defined set of parameters and who are suddenly asked to invent and create; the political interplay of groups and individuals who are attempting to enact a world which confirms their values and preferences; and the desperate search for leadership when a group is embarking into the unknown. Only by being privy to these subtle struggles can researchers capture their profound implications. Researchers who are actively engaged in the change process quickly become aware of the insufficiency of theory as a prescription for change. Those who do not get close enough to the change process to recognize this will continue to spin theories of what organizations might be like if they were not populated by people.

Active involvement and a certain humility are needed, then, if we are to grasp the phenomena of change. We must assume our role alongside the roles of others with different goals, values, and world views. To do so,

we must be open to others' views and explanations of organizational life. We cannot adequately observe a phenomenon so complex as organization design by limiting ourselves to our own frameworks. We learn by entering into the world of change; by being open to influence from those whose world is changing; by being willing to learn from others rather than defining our task as learning about them.

In short, what researchers bring to organization design is a way of viewing the world, which, when combined with the world views of the others involved, may expand horizons and possibilities. We can share what we see as possible, using our experience with other situations and our theoretical frameworks. We can then learn how organizational members treat these possibilities--whether they are assimilated into their world view, rejected in their entirety, or taken and transformed into yet a new reality. The treatment of our theories can serve as a practical source of confirmation or disconfirmation. Likewise, our treatment of their views determines how and whether we contribute to systematic understanding of organizations. To the extent that we see organizations in a manner that does not accommodate the perceptions of the people who inhabit them, then we have spun a set of beliefs that do not fit people's reality. It is questionable whether such beliefs can serve as a guide to organization design.

What then is the researchers' role in organization design? They are members of a network of people concerned with change and design. Researchers are enablers of a mutual learning process, and contributors to and observers within that process. They differ from other members of the network both in what they bring to the network and in what they take from it.

Researchers need to bring several kinds of skills to the situation:

- a) Exposure to a wide variety of situations and theoretical frameworks which offer both a rich way of viewing organizations and possible projected futures.
- b) Ability to present this understanding to others, in a way that they will be able to assimilate it into their own understanding.
- c) Social skills which facilitate the process by which various stakeholders share their understandings and try to emerge with an agreed-on course of action.
- d) Ability to view the communications network as a relative newcomer, and to make people aware of the patterns and rules which govern and inhibit their interaction.
- e) Methodologies to observe and record the process systematically, so that understanding can be furthered for the designing organization, and preserved in the social science literature.

In other words, organization-design researchers must be able to bridge the epistemological gap separating the scientists from the practitioner (Bennis, 1983). Looking at the list of tasks comprising researchers' role in organization design, it becomes clear that the role probably requires more than one person. Although a researcher might have all the requisite skills, it would be difficult for one person to perform all of the tasks at one time. Our experience with teams of researchers suggests that trading off the roles of change-agent and observer can be done effectively. We sometimes cycle through these role exchanges several times in the same field visit. Likewise, action in the field can be alternated with sense-making back in the safe harbor of our research center or university.

The complexity of organization design probably demands multi-disciplinary teams, capable of viewing and engaging with a diversity of organizational phenomena. Most organization designing involves both technological and human change. Furthermore, it includes alterations in the cultural, political and economic aspects of the organization (Tichy and Friedman, 1983). A full grasp of the change process as well as ability to

contribute meaningfully to it depend on creating research teams with people who are able to challenge yet complement each others' viewpoints.

Given this complexity and the likely need for research teams rather than individuals, the difficulty of maintaining a research relationship with organizations over time is underscored. The next section of the paper suggests that relationships between researchers and organizational members generally occur within a larger institutional context. Attention to that context can provide the kind of high-level support needed to create and maintain the research relationships proposed here.

Establishing the Institutional Context for Researching

Organization Design

So far in this paper, we argued that researching organization design requires a set of assumptions about organizations differing from assumptions underlying traditional research methods. Further, we proposed that such research requires a symmetrical or collaborative relationship between researchers and organizational members; a relation where multiple stakeholders are actively involved in a learning process characterized by long time commitments and high levels of psychological intensity.

In this final section, we suggest that doing the kind of research proposed here can be facilitated by the existence of an appropriate institutional base. This entity needs to exist at a higher level than the specific researchers and organizational members engaged in a research project, so that it can encompass their different interests and help to establish and sustain collaborative linkages between them (Purlmutter, 1965). It needs to provide an infrastructure for integrating the problem-oriented needs of organizations with the knowledge-oriented needs

of researchers: a context promoting collaboration and joint learning among the parties.

In the absence of such higher-level support, researchers and organizations are likely to continue to act out their traditional, asymmetric relationship. This relational frame generally results in interactions where one of the parties is assumed to be superior to the other; it may reduce the professional relationship to simply an exchange of services for information. The latter implies that the activities needed to generate things useful for the organization are seen as different from the activities providing the researcher with something useful. Both parties' needs are more likely to be satisfied through joint engagement in the same activities; in our case, doing and learning about organization design.

The key to creating a more collaborative relationship involves breaking the traditional frame and creating a new, more collaborative one. Unfortunately, relational frames are tacit and typically taken for granted. They can only be changed by resorting to some higher logical level (a frame of frames), or by having people external to the relationship (with different frames) help to replace the existing frame with a new one. This is precisely why a higher-level, institutionalized research base facilitates collaborative research. It exists outside of the relational frame governing a specific research project, and consequently can help researchers and organizational members assess that frame and make changes if necessary. Further, it can provide a number of supporting functions which promote collaborative frames.

In order to perform a "reframing" function, the institutional base must be sufficiently broad to encompass the interests and values of researchers, organizations, and other stakeholders such as government

funding agencies. This argues strongly for what Trist (1967) has called "special institutes" or centers of applied research. They exist intermediate between user organizations and orthodox academic departments and supply the necessarily link between them. They may be located at universities, such as the Institute of Social Research at the University of Michigan and the Center for Effective Organizations at the University of Southern California; or they may be independent institutes, such as the Tavistock Institute of Human Relations. In Trist's words, these centers have the following features:

They are problem-centered and inter-disciplinary, but focus on generic problems rather than specific problems. They accept a professional as well as scientific responsibility for the projects they undertake, and contribute both to theoretical development and to the improvement of practice. Their work expresses a research/application 'mix.' (Trist, 1967, p.11)

In the following pages, we will provide a preliminary description of how such applied centers can facilitate collaborative, organization-design research. We do not mean to imply that applied centers are the only feasible arrangement for conducting organization-design research. Our main argument is that such centers can help to overcome many of the problems inherent in more traditional, researcher-organization relationships. We will draw primarily on our experience at the Center for Effective Organizations (CEO), although much of it seems applicable to other applied centers.

The role of CEO can be understood in terms of a transorganizational framework. The center spends considerable time linking with organizations and facilitating interactions between and among them. It attempts to form a network among different organizations sharing an interest in organization design. This network generally consists of a diversity of members from relevant organizations, including people from academic departments,

university administration, user organizations, funding agencies, and the Center itself. The formation of supportive linkages among the different organizations represents the kind of high-level institution-building which facilitates the kind of research proposed here. It results in what Cummings (in press) has described as a "transorganizational system" (TS)--a group of organizations that have joined together for a common purpose.

From this perspective, CEO's primary task is building and maintaining a transorganizational system supportive of organization-design learning. Cummings has suggested that the development of such systems typically includes three phases: identification, convention, and organization. We will organize the following material in terms of those stages.

Identification

This initial phase is concerned with identifying the organizations potentially comprising the TS. It serves to explore their interests in organization-design research and to see whether they want to engage further in developing the TS.

Identifying potential organizations involves more than simply having a large number of contacts with researchers, user organizations, and funders. Many possible members will not be sympathetic with the view of research proposed here. Moreover, many universities, academic departments, and organizations have norms and practices thwarting collaborative relationships with each other. A major task of centers like CEO is to establish relationships with potential members which allow a realistic test of commitment to collaborative learning processes. CEO's forums for exploring commitment have run the gamut from informal lunches and serendipitous contacts to formal conferences. Because the purpose of such meetings is to explore possibilities for collaborative learning, both the content and the

relational frame of the interactions tend to reflect this approach. For example, CEO has convened "special interest groups" to identify areas of common interest among representatives from academic departments, funding agencies, and user organizations. Not all attendees (academic and corporate) leave the conference wanting to join the TS. They may be uncomfortable with the symmetric relationships promoted at the conferences and/or see their organizations' practices as being barriers to participating in collaborative learning. In some ways the identification process is a realistic preview of collaborative research. We share our conceptualizations of the research process, and solicit their view of it and of what they see as useful behaviors. We try to model symmetric, collaborative relationships in our interactions. At the same time, they exhibit their ability to respond in kind and their comfort in doing so.

It is important to emphasize that even among those who eventually join the TS, a considerable number do not become directly involved in a research project. The participation of some groups is important because they are involved in non-research relationships with those doing the research. University administration, for example, not only needs to support the research approach, but needs to understand it in a tacit, experiential sense so that support is appropriate.

Convention

Once the potential organizations comprising the TS are identified, they need to be brought together or convened in order to assess whether building the TS is plausible and desirable. This stage explores organizations' motivations to join together and perceptions of organization design research. It seeks to establish sufficient levels of motivation and research consensus to form the TS.

A preliminary issue is who should convene the potential members and manage the event. An applied research center such as CEO will generally be seen as a legitimate source of leadership for the TS, especially during the earlier stages of its development. Indeed, a primary task of such centers is to provide leadership for building a TS supportive of organization design research.

Organizations' motivations to join the TS typically derive from resource dependencies and mutual commitments to problem solving. Mutual commitment to the organization design problem is inherent in the research relationships proposed here. More problematic is resource dependence. At first glance it seems clear: Organizations need to learn about and do organization design, and they often need professional expertise to aid them. Researchers need to learn about organization design, and they need "real-life" opportunities to do so as well as money to support the endeavor. This resource exchange, however, may undermine the symmetry of the interaction, especially if it is the primary motivation to join the TS. How soon does a research center begin to compromise the collaborative relationship in order to sell its services at a rate that insures its survival?

Traditionally, academic-based, organizational research is conducted in a resource-dependency frame. Funding from such sources as the government or foundations is administered by the university, and the specific research project is managed by individual faculty members. Project funds from corporations, however, typically go directly to faculty members under an ad hoc consulting agreement, primarily because of the difficulty in creating acceptable standardized approaches to managing the exchange.

Research centers like CEO can provide a mechanism for managing corporate funds by working out research sponsorship in a way that meets the mutual needs of the researchers, the organization, and the center itself. This is most directly accomplished when funding is administered on a project-by-project basis. Here, funding arrangements can be tailored to the specific needs of the participants directly involved in the project. The center, of course, must have the organizational flexibility to cope with a variety of different project arrangements.

There is a close connection between the nature of the funding arrangement and the nature of the research process. It begins with the way in which projects and funding become linked. Traditionally, a formal proposal is submitted to a funding source. It specifies the research purpose, the methods and knowledge base, the costs, and the researchers' expertise. The proposal is then evaluated (sometimes by other relevant professionals) according to the purposes and criteria of the profession, the agency, and/or the client organization. The subsequent financial arrangements tend to mirror the standardized procedures of the funding decision. The research is often carried out with similar organization. It is standardized by the specifications in the proposal; the proposal tends to become the blueprint by which the research is carried out. Such programmed arrangements can hinder the kind of research process proposed here.

In practice, however, the traditional approach to funded research is routinely coupled with information practices that attempt to add symmetry to the relationships in the research process. Most funding agencies, for example, are prepared to collaborate with researchers to find a way of proposing research so that both the needs of the scientist and the funding

agency are met. It is usually accepted and expected that research plans will change as the project unfolds. Nevertheless, these tacit acknowledgments of the need for mutuality in research are still within a standardized, resource-dependency frame. They are not typically understood as important to the underlying validity of the research, but are seen as necessary only because of the pragmatics of the situation. Such informal arrangements are seen as potentially compromising the ideal of rigorous research, not as an emerging methodology to be understood and improved. Certainly not enough systematic attention has been given to other modes of resource distribution that would be more conducive to collaborative relationships.

When convening TS members, resource-dependency motivations to interact need to be kept secondary to mutual commitments to organization-design research. Thus, the convention phase should emphasize achieving mutual commitment to collaborative research, and developing a framework for institutional relationships to support a long-term, mutual endeavor.

Organization

The final stage of transorganizational development involves establishing the necessary structures and mechanisms to facilitate the ongoing functioning of the system. Here, applied research centers can provide continued leadership for the TS. They can serve a key linking-pin role in integrating the different organizations by serving as a communication channel between them, by linking third parties to one another, and by actively making decisions on behalf of the TS. This leadership role helps to regulate interactions among the members. It is concerned with managing interactions, orienting the members to future trends and issues, mobilizing resources, and establishing linkages with groups outside the TS.

Among the many mechanisms that CEO has developed to maintain organization of the TS are the following. It has an extensive publication series which is routinely sent to all participating organizations. It conducts an annual "sponsors meeting" where members from academia and private and public corporations share ideas and experiences, assess how well the TS is functioning, and make changes if necessary. Full-time members of the center actively maintain contacts with TS members, including a fair amount of "missionary" work in their respective organizations. CEO has a monthly meeting especially for its academic members and full-time staff where progress on different research projects is reported and emergent problems are discussed. It does continual recruiting of new organizations as well as relevant people to staff the center.

Because these TS organizing functions are primarily people-intensive, they require considerable amounts of time and energy. The major burden falls on the full-time staff of the center, who must typically manage different research projects, enact the integrating mechanisms mentioned above, and contribute to scientific knowledge. Members from other organizations participating in the TS contribute to some of these functions, although their commitment to and membership in the TS is balanced against membership in their respective organizations.

The need to build higher-level institutions to support the kind of organization-design research proposed here suggests a heavy demand on the knowledge and skills of applied social scientists. They need to be competent in the content aspect of this research. They must also have the understanding and skills to address the relationship part at both content and relational levels. They must be able to build higher-level institu-

tions to support the learning process. The need for collegial help and support in researching organization design is evident.

Conclusion

We exist in a period of rapid and perplexing change and, possibly, transformation in fundamental aspects of the society, the economy, and technology. This paper has presented a framework for understanding research with organizations which are designing to adapt to these changes. We have argued that such research departs from traditional content and methodology because of its appropriate focus on the process of change. This means the development of long-term, collaborative research with a high level of intensity. It requires new conceptualizations of the role of researchers in a wider network of key stakeholders in the change process. While we have made this argument in the context of organizational change, we suspect it has validity for a much broader array of organizational issues. In fact, we believe it applies to all organizational research that seeks to connect knowledge to use.

A key point is that the content of our research is given meaning (usefulness) by the collaborative relationships established to carry out research methodology. Unfortunately, there is little formalized practice in either the corporate or academic worlds that legitimates the collaborative research relationship proposed here. Stakeholders from all sides seem to "naturally" engage in research in an asymmetric or exchange mode. Consequently, we have found it necessary to create a higher-level, institutionalized base--a transorganizational system--that legitimizes, socializes stakeholders into, and provides support for collaborative research relationships.

We have therefore argued that collaborative research relationships are facilitated by the leadership of centers of applied research, which can be catalytic in the formation of transorganizational systems to frame the collaborative learning process. The ideas presented have profound implications for the conduct of organizational research and the training of organizational researchers. They suggest a fundamental change in how we do research.

References

- Ackoff, Russell L., Creating the Corporate Future. New York: John Wiley & Sons, 1981.
- Alderfer, C. P., "Group and Intergroup Relations." In J. R. Hackman & J. L. Suttle, Improving Life at Work: Behavioral Science Approaches to Organizational Change. Santa Monica, California: Goodyear, 1977.
- Argyris, Chris, Inner Contradictions of Rigorous Research. New York: Academic Press, 1980.
- Argyris, Chris, and Schon, D. A., Organizational Learning: A Theory of Action Perspective. Reading, Massachusetts: Addison-Wesley, 1978.
- Barfield, Owen, "The Rediscovery of Meaning." Thruelsen, R., and Kobler, J. (editors). Adventures of the Mind, (2nd series). New York: Vintage Books, 1961.
- Boje, D. M., Fedor, D. B., and Rowland, K. M., "Myth-Making: A Qualitative Step in OD Interventions." Journal of Applied Behavioral Science, 1982, 18.
- Bougon, M., Weick, K. E., and Binkhorst, D., "Cognitions in Organizations: An Analysis of the Utrecht Jazz Orchestra." Administrative Science Quarterly, 1977, 22, 606-639.
- Cameron, K. S., and Whetten, D. A., Organizational Effectiveness: A Comparison of Multiple Models. New York: Academic Press, 1983.
- Clark, B. R., "The Organizational Saga in Higher Education." Administrative Science Quarterly, 1972, 17, 178-184.
- Cook, T. D., and Campbell, D. T., Quasi-Experimentation: Design and Analysis Issues for Field Settings. Chicago, Rand McNally, 1979.
- Cummings, T. G., "Designing Effective Work Groups." In P. C. Nystrom and W. H. Starbuck (editors). Handbook of Organizational Design (Vol. 2). New York: Oxford University Press, 1981.
- Cummings, T. G., and Molloy, E. S., Improving Productivity and the Quality of Work Life. New York: Praeger, 1977.
- Cummings, T. G., and Molloy, E. S., and Glen, R., "A Methodological Critique of Fifty-Eight Selected Work Experiments." Human Relations, 1977, 30, 675-708.
- Cummings, T. G., "Transorganizational Development." Cummings, L. L. and Staw, B. (editors). Research in Organizational Behavior, Vol. 6. New York: JAI Press, in press.
- Cyert, R. M., and March, J. G., A Behavioral Theory of the Firm. Englewood Cliffs, New Jersey: Prentice-Hall, 1963.

- Emery, F. E., and Trist, E. L., Towards a Social Ecology: An Appreciation of the Future in the Present. London and New York: Plenum Press, 1973.
- Golembiewski, R. T., Billingsley, K., and Yeager, S., "Measuring Change and Persistence in Human Affairs: Types of Change Generated by OD Designs." Journal of Applied Behavioral Science, 1973, 12, 133-157.
- Grinyer, P. H., and Norburn, D., "Planning for Existing Markets: Perceptions of Executives and Financial Performance." Journal of the Royal Statistical Society, Series A, 1975, 138, 70-97.
- Huntes, J. E., Schmidt, F. L., and Jackson, G. B., Meta-Analysis: Cumulating Research Findings Across Studies. Beverly Hills, California: Sage, 1982.
- Kahn, R., "Theories of Organizational Change: An Altered Agenda." In P. S. Goodman (editor), Change in Organizations. San Francisco, California: Jossey-Bass, 1982.
- Lawler, III, E. E., "Adaptive Experiments: An Approach to Organizational Behavior Research." Academy of Management Review, 1977, 2, 576-585.
- Lawler, III, E. E., "The New Plant Revolution." Organizational Dynamics, Winter, 1978, pp. 3-12.
- Ledford, Jr., G. E., "The Persistence of Planned Organization Change: A Process Theory Perspective." Unpublished doctoral dissertation, University of Michigan, 1984.
- Lewin, K., Field Theory in Social Science. New York: Harper, 1951.
- Mangham, I., The Politics of Organizational Change. Westport, Connecticut: Greenwood Press, 1979.
- Masch, J. G., "Bounded Rationality, Ambiguity, and the Engineering of Choice." Bell Journal of Economics, 1978, 9, 587-608.
- Mintzberg, H., and Waters, J. A., "Tracking Strategy in an Entrepreneurial Firm." Academy of Management Journal, 1982, 25, 465-499.
- Mitroff, I. I., and Kilmann, R. H., Methodological Approaches to Social Sciences. San Francisco, California: Jossey-Bass, 1978.
- Mitroff, I. I., "Why Our Old Pictures of the World Don't Work Anymore." Paper presented at the University of Southern California Seminar "Doing Research that is Useful for Theory and Practice," November 3-4, 1983.
- Mohr, L. B., Explaining Organizational Behavior. San Francisco, California: Jossey-Bass, 1982.

- Mohrman, S. A., Cummings, T. G., and Lawler, E. E., III, "Creating Useful Research with Organizations: Relationship and Process Issues." In Kilmann et al., Producing Useful Knowledge for Organizations, New York: Praeger Press, in press.
- Mohrman, Jr., A. M., and Lawler, III, E. E., "The Diffusion of QWL as a Paradigm Shift." University of Southern California, Center for Effective Organizations, G81-13(18), 1983.
- Mohrman, Jr., A. M., and Novelli, Jr., L., "Adaptively Learning About the Impacts of Information Processing Technologies in the Office." University of Southern California, Center for Effective Organizations, G82-8(27), 1982.
- Mohrman, Jr., A. M., and Novelli, Jr., L., "Three Types of Change in the Automated Office." University of Southern California, Center for Effective Organizations, G83-10(41), 1983.
- Mohrman, S. A., and Cummings, T. G., "Self-Design Processes in Organizations." Working paper, University of Southern California, Center for Effective Organizations, 1983.
- Mohrman, S. A., and Cummings, T. G., and Lawler, III, E. E., "Creating Useful Research with Organizations: Relationship and Process Issues." In Kilmann et al., Producing Useful Knowledge for Organizations, New York: Praeger Press, 1983.
- Nadler, D. A., "Managing Transitions to Uncertain Future States." Organizational Dynamics, Summer, 1982, pp. 37-45.
- Nadler, D., and Lawler, E. E., III, "Quality of Work Life: Perspectives and Directions." Organizational Dynamics, Winter, 1983, pp. 20-30.
- Nadler, D. and Lawler, E. E., III, "Quality of Work Life: Perspectives and Directions." Organizational Dynamics. Winter, 1983, pp. 20-30.
- Orne, Martin T., "On the Social Psychology of the Psychological Experiment with Particular Reference to Demand Characteristics and Their Implications." American Psychology, 17, 1962, 776-783.
- Orne, Martin T., "On the Social Psychology of the Psychological Experiment, With Particular Reverence to Demand Characteristics and Their Implications." American Psychologist. 17, 1962, 776-783.
- Pettigrew, A. M., "On Studying Organizational Cultures." Administrative Science Quarterly, 1979, 24, 570-581.
- Porras, J. I., and Berg, P. O., "Evaluation Methodology in Organization Development: An Analysis and Critique." Journal of Applied Behavioral Science, 1978, 14, 151-173.
- Purlmutter, Howard, "L'Entrepure Internationale Trois Conceptions." Revue E'conomique et Sociale, 2, 1965, 1-14.

- Simon, Herbert A., The Sciences of the Artificial. Cambridge, Massachusetts: The M.I.T. Press, 1969.
- Stinchcombe, Arthur L., "Social Structure and Organizations." In March, J. (editor), Handbook of Organizations. Chicago: Rand McNally, 1965.
- Tichy, Noel M., and Friedman, Stewart, D., "Institutional Dynamics of Action Research." Paper for: "Producing Useful Knowledge for Organizations" Conference at Pittsburgh, October 28-30, 1982.
- Trist, Eric, "Engaging with Large-Scale Systems: Some Concepts and Methods Based on Experience Gained in Field Projects at the Tavistock Institute." A paper contributed to the McGregor Conference on Organization Development, Endicott House, 1967.
- Vaill, P. B., "Process Wisdom for a New Age." In J. Adams, Transforming Work. Alexandria, VA: Miles River Press, in press.
- Watzlawick, P., Beavin, J. H., and Jackson, D. D., Pragmatics of Human Communication: A Study of Interactional Patterns, Pathologies and Paradoxes. New York: W. W. Norton, 1967.
- Watzlawick, P., Weakland, John H., Fisch, Richard, Change: Principles of Problem Formation and Problem Resolution. New York: W. W. Norton & Company, Inc., 1974.