First-Order, Second-Order, and Third-Order Change and Organization Development Interventions: A Cognitive Approach*

JEAN M. BARTUNEK
MICHAEL K. MOCH

This article discusses how recent developments in the cognitive sciences, especially the concept of schemata (organizing frameworks for understanding events), can illumine the practice of organization development. On the basis of a cognitive perspective, the authors discuss the relationship between organizational change and schemata, describing the following orders of change that might result from OD: first-order change, or incremental changes occurring within particular schemata already shared by members of a client system; second-order change, or modifications in the shared schemata themselves; and third-order change, or the development of the capacity of the client system to change the schemata as events require. To show how understanding the differences among orders of change can help clarify problems and solutions from an intervention, the authors discuss how a paternalism schema affected a particular quality of working life intervention. They conclude by suggesting implications of the cognitive perspective for OD practice and research.

INTRODUCTION

The repertoire of organization development (OD) interventions has expanded from initial emphases on individuals and groups to contemporary approaches addressing structural and political concerns (French & Bell, 1984; Huse & Cummings, 1985). Correspondingly, OD may aim to achieve "first-order" (or "single-

The Journal of Applied Behavioral Science
Volume 23, Number 4, pages 483-500.

ISSN: 0021-8863.

*Both authors contributed equally to this article. They appreciate the assistance of Lee Bomblatus, Mary-Jane Ferrier, and Meryl Louis. An earlier version of this article was presented at the annual meeting of the Academy of Management, San Diego, August 1985.

Jean M. Bartunek is an associate professor of organizational studies at Boston College, Chestnut Hill, Massachusetts 02167. Michael K. Moch is a professor of management in the Graduate School of Business Administration, Michigan State University, East Lansing, Michigan 48824.

loop" or "alpha" change) or "second-order" change (or "double-loop" or "gamma" change) (Argyris & Schön, 1978; Golembiewski, Billingsley, & Yeager, 1976; Watzlawick, Weakland, & Fisch, 1974). First-order changes are incremental modifications that make sense within an established framework or method of operating. Second-order changes are modifications in the frameworks themselves.

Recent advances in cognitive science and cognitive social psychology (e.g., de Mey, 1982; Markus & Zajonc, 1985) provide ways of understanding first- and second-order change that extend previous formulations; links between these fields and OD, however, have rarely been drawn. This article links them explicitly. We begin by introducing the cognitive perspective, especially the concept of "schemata," and show its applicability for understanding organizational change. We then use this concept to analyze several of the events of a specific OD intervention. Finally, we suggest implications for OD practice and research. The major purposes of the article are to suggest new ways of understanding the OD enterprise based on the cognitive sciences and to stimulate practice and research based on this enhanced understanding.

Although OD literature (e.g., French & Bell, 1984) states that OD is concerned about changes in organizations' "cultures," discussions of interventions have largely focused on behavioral changes (e.g., Porras & Hoffer, 1986), without specifically addressing how organizational members understand themselves and their organizations. The ways organizational members understand and interpret events influence both their individual responses and organizational functioning (e.g., Frost, Moore, Louis, Lundberg, & Martin, 1985). Researchers have paid relatively little attention, however, to how OD interventions can affect the interpretative—essentially cultural—perspectives giving coherence and meaning to experience. This article therefore complements the behavioral emphasis in OD with a perspective focusing on interpretive schemata and how they are used to understand and guide organizational interventions.

The role of schemata

The cognitive sciences suggest that the world as it is experienced does not consist of events that are meaningful in themselves. Rather, cognitions, interpretations, or ways of understanding events are guided by organizing frameworks—or schemata. In a recent review, Markus and Zajonc (1985) provide several definitions of the concept of schemata, ranging from "the portion of the perceptual cycle which is internal to the perceiver, modifiable by experience, and somehow specific to what is being perceived" (Neisser, 1976, p. 54) to alternative world views. The terms "paradigm" (Kuhn, 1970), "frame" (Goffman, 1974), "theory-in-use" (Argyris & Schön, 1978), and "cognitive map" (Bougon, Weick, & Binkhorst, 1977) are frequently used to refer to similar, if not identical, constructs. Markus and Zajonc (1985) caution against greater definitional refinement, which can reduce the concept's conceptual richness; it may not be possible to give the term a definition that is simultaneously general, accurate, and simple (Thorngate, 1976). In this article we thus view schemata analogically as templates that, when pressed against experience, give it form and meaning (Hastie, 1981; Markus & Zajonc, 1985). This definition is both general and relatively simple. Readers interested in greater precision should refer to Markus and Zajonc (1985) for a full review.

Schemata serve several important functions. First, they enable individuals to identify entities as they encounter them and to specify relationships among these entities. Schemata are the means by which these entities are integrated into a coherent whole, one representing either an ideal type or one of a set of exemplary types (de Mey, 1982; Gioia & Manz, 1985; Gioia & Poole, 1984; Neisser, 1976; Taylor & Crocker, 1981; Weick, 1979). Schemata therefore function as data reduction devices that enable individuals to grasp what would otherwise be an overwhelming flow of sensations. Because individuals can process only a limited amount of information at any given time (O'Reilly, 1983), schemata therefore guide people as they attend to some aspects of their experience and, by implication, ignore others. For example, schemata may cause people to focus attention on collective issues and ask how they can contribute, or schemata may cause people to focus attention on individual concerns and ask how they can benefit (Wagner & Moch, 1986). Through interpretive activity, people's experience therefore makes sense and becomes meaningful.

Schemata typically do not predispose individuals to particular courses of action. Nevertheless, they do guide and give meaning to behavior, suggesting implications of certain actions, making events meaningful in terms of what participants seek and seek to avoid, and enabling people to set goals and enact behaviors to achieve them (Gioia & Manz, 1985; Gioia & Poole, 1984; Schank & Abelson, 1977; Taylor & Crocker, 1981). The OD literature provides illustrations of the schemata-behavior link. For example, Tichy (1974, 1974; Tichy & Nisberg, 1976) presents data indicating that some change agents—such as consumer advocates—see change as stimulated primarily through outside pressure. Others, notably business school processors, view change as emerging through analyses conducted for top-level executives. Still others, such as more traditional OD consultants, see change as an outcome of interpersonal and intergroup communication and negotiation. Tichy has shown how their schemata affect how the change agents understand, plan, and engage in planned change.

Schemata, once established, tend to endure. Nystrom and Starbuck (1984) argue that organizational members frequently continue to interpret organizational problems using schemata that no longer guide them to useful solutions. Schemata *can*, however, be changed (Bartunek, Gordon, & Weathersby, 1983). For example, Graham (1986) describes the process by which employees come to change their schemata providing the reasons for organizational wrongdoing. Because schemata have the potential either to constrain or guide change, change agents need to understand the role of schemata in particular change projects.

Organizational schemata

Organization members frequently negotiate specifically *organizational* schemata. Such negotiations allow participants to have a common orientation toward events. Organizational schemata, therefore, generate *shared* meanings or frames of reference for the organization as a whole or for various subgroups within it (e.g., Gray, Bougon, & Donnellon, 1985; Ouchi & Wilkins, 1985; Smircich, 1983; Shrivasta & Schneider, 1984). The development of such schemata is a function of individual and group choices motivated by individual and collective interests (Showers & Cantor, 1985). Organizational schemata are often sustained and communicated

through organizational myths, stories, and dominant metaphors (Martin, 1982; Martin, Feldman, Hatch, & Simkin, 1983). Similar to individual schemata organizational schemata guide organization members as they interpret their environment, select value priorities, and allocate resources (Bartunek, 1984; Daft & Weick, 1984). They also guide behavior. For example, Mohrman and Lawler (1985) have suggested that organizations whose members share the "quality of working life paradigm" engage in specific actions—such as employee involvement in decision making—more than other organizations do. In sum, schemata guide the process by which *individual* organizational members give meaning to events. Such schemata are *social*, however, as they are generated, communicated, maintained, and changed historically and collectively.

Organizational schemata and the actions they guide do not usually serve all organization members' interests equally (Giddens, 1979; Gray et al., 1985). Those whose interests are being slighted—at least relatively—do not likely "see" things in the same way as those who feel their interests are being adequately served. As do individual schemata, organizational schemata tend to endure. Forces exist, however—such as the differential serving of members' interests—that may initiate changes in organizational schemata (e.g., Bartunek, 1984; Gray et al., 1985).

THE RELATIONSHIP BETWEEN ORGANIZATIONAL CHANGE AND SCHEMATA

Organization development interventions—consciously or unconsciously, intentionally or unintentionally—affect and are affected by organizational schemata. We propose that successful planned change efforts achieve one or more of the following three different orders of schematic change.

1. First-order change: the tacit reinforcement of present understandings.
2. Second-order change: the conscious modification of present schemata in a particular direction.
3. Third-order change: the training of organizational members to be aware of their present schemata and thereby more able to change these schemata as they see fit.

Moreover, we argue that change agents can improve their chances of success by becoming aware of these three possibilities and by explicitly targeting their effects toward one of these orders and designing their interventions accordingly.

The distinction between first- and second-order change

First-order organizational change includes changes consistent with already-present schemata. For example, such change might result in increased skill in participative decision making based on an already-shared agreement that participation is valuable. This type of change endorses the utility of interpretive schemata already in place in the organization, and at least implicitly supports the established configuration of interests and interest groups. Second-order change, however, seeks to change the schemata themselves. In this case, one interpretive schema or set of schemata is "phased out" as another is "phased in."

For example, a core schema of OD specifies that employee participation and shared responsibility for decisions lead to more effective organizational functioning (Lawler, 1986; Mohrman & Lawler, 1985). Consequently, OD interventions

attempt to foster increased employee involvement in decision making. Yet, the schemata of higher management may specify that employee involvement is a costly distraction and a dysfunctional source of conflict. Managers may also feel that participation violates their prerogatives and/or threatens their jobs (e.g., Hanlon, Nadler, & Gladstein, 1985). Thus, a change agent committed to increased participation may have to change the managers' schemata if the intervention is to succeed. This requires second-order change.

Many OD interventions have been implicitly designed as first-order interventions—that is, they focus on solving problems so that established patterns can function more effectively (cf. Morgan, 1984). Such interventions generally give little consideration to the political consequences of first-order change: the tacit support given to the status quo (Morgan, 1984; Ross, 1971). Similarly, interventions frequently fail to consider sufficiently that alterations in schemata resulting from second-order change will serve the interests of some organizational members but constrain or confront the interests of others.

For example, Hanlon et al. (1985) describe a quality of working life (QWL) intervention at "Parkside Hospital" that they evaluated as a failure because attempts to increase staff participation in decisions on an experimental unit were not well accepted or implemented. After the QWL program ended, Hanlon and his colleagues interviewed the hospital president. They learned from him that at the time of the intervention, his primary aim for the hospital—because of mounting operational deficits and the physician-dominated culture—was to increase managerial control. For the president, increased control was necessary for effective functioning. The control "ethos" the president established thus was directly contrary to the QWL intervention's attempts to decentralize decision making. To have succeeded, this intervention would have had to achieve a second-order change in the president's schematic interpretation of the nature and functioning of managerial control.

The distinction between second- and third-order change

Whereas second-order change attempts are designed to "phase in" particular schemata and "phase out" others, third-order change attempts aim to help organization members develop the capacity to identify and change their own schemata as they see fit. For the Parkside QWL intervention, for example (Hanlon et al., 1985), third-order change would have required assisting hospital personnel in identifying different possible schemata (including a participative schema and a managerial control schema), reflecting on the implications of the various schemata, and negotiating a new shared understanding responsive to the needs of the individuals involved and the hospital at that time.

Distinguishing between whether the intervention seeks second- or third-order change is important for OD practice because these two approaches present the change agent with different roles and ethical dilemmas. Second-order change requires the consultant to advocate a particular interpretation of events (e.g., that participation is effective). In contrast, third-order change requires the consultant to help organization members develop the ability to determine for themselves when second-order change is required and then to help them implement it. In such cases, the consultant does not prescribe a particular schema, but instead is responsible for helping the client

system develop "the capacity to change one's point of view, and therefore to explore one's situation through a different light" (Smith, 1984, p. 290). Third-order change requires the consultant to help the client system (a) become conscious of the schemata it holds, (b) reflect on how its schemata influence its actions and thereby determine its effectiveness, and, when asked to do so by the client system, (c) initiate processes designed to enable it to operate out of a different schema, one of its own choosing (cf. Argyris, 1982; 1985; Morgan & Ramirez, 1984; Smith, 1984; Torbert, 1985). Third-order change therefore requires the consultant to play more of a teaching role, training the client system to distinguish among schemata and develop and implement alternatives.

In sum, second-order change requires the consultant to make a reasoned judgment about which schemata—such as a participative ethos—are "best" for the client system and then apply the consultant's skills to successfully implementing it. Third-order change requires the consultant to train the client system to be its own diagnostician, decision maker, and expert in implementing schemata. Second- and third-order change also imply two different ethical positions. Because different schemata often serve different and perhaps divergent interests, second-order change may involve an ethical judgment as to whose interests *ought* to be served. Third-order change, however, requires the consultant to assist the client system in making its own assessments of the value of particular schemata. This requires a judgment that such knowledge and freedom are in some way "best" for the client system and that the client system is capable of making decisions compatible with generally accepted—perhaps the consultant's own—ethical principles.

In the following pages, we discuss the role of schemata in organizational interventions more fully by doing the following:

1. demonstrating how one schema, a paternalism schema, affected a QWL intervention,
2. drawing implications for how OD practitioners might benefit from distinguishing among the three orders of change when planning and implementing interventions, and
3. suggesting research topics that appear promising from a cognitive perspective.

We present data from a QWL intervention we evaluated, an intervention we feel can best be understood through the interpretive lens of cognitive perspective.

PATERNALISM: AN INTERPRETIVE SCHEMA OF IMPORTANCE FOR OD

The QWL intervention we evaluated took place in a medium-sized food processing plant located in the southern United States. The evaluation team staff member was on site full time during this period to record events and take measurements. From the first to the last day we were in the plant, we were struck by the frequency and pervasiveness of a paternalistic schema, especially as indicated in the language used by plant personnel. This schema was shared by both management and labor. For example, the plant manager frequently expressed fatherly affection for and concern about "his" employees. Personnel in the packaging department often were referred to as "the babies," and their department as "the sandbox." Moreover, paternalistic imagery was invoked to guide the QWL experiment itself. When asked how the intervention should be conducted, one

high-level union official said, "It's gotta be done on a gradual, firm, constructive approach, just as you would raise your child...."

The presence of a paternalistic schema has been documented by other organizational researchers, and its importance, therefore, is likely to extend beyond the organization studied here. Bernstein (1985), for example, suggests that many organizations are characterized by a schema including organizational "parents" and "children," and a paternalistic schema was present in a QWL intervention at the Tennessee Valley Authority (Nurick 1985, ch. 9). OD consultants who use transactional analysis assume that some type of "parent-child" relationship is present in many work settings (e.g., French & Bell, 1984).

Evidence of the paternalism schema in the plant we studied included the employees' dependence on management, with line employees expecting management to "solve" their problems. As Meek, Nelson, and Whyte (1983a) point out, this can—and in the case of the food processing plant did—lead to management's becoming overloaded with employee requests and complaints. The QWL program was proclaimed as a way to increase the quality of employees' working life. Operating from a paternalistic schema, employees interpreted this to mean that the program would make management more responsive to their appeals. On the first day we (as evaluators) entered the plant to interview the employees, we were inundated by complaints and requests. Employees wanted everything from changes in pay and job assignment to radios with earphones capable of insulating their ears from noise produced by heavy machinery.

As are most QWL efforts, the program we assessed was established to facilitate joint labor-management responsibility and problem solving, not to provide automatic managerial responses to individual complaints. This aim had been made explicit in both the QWL pronouncements and in the program structure, which centered around a joint labor-management committee (LMC) assisted—but not directed—by outside consultants and an on-site intern (cf. Drexler & Lawler, 1977; Hanlon et al., 1985; Nurick, 1985; Seashore, Mirvis, Lawler, & Cammann, 1983). The QWL program therefore represented an alternative schema to the paternalistic one operating in the plant. However, no evidence indicated that the QWL program managers—the representatives from the American Center for the Quality of Working Life and the external consultant—realized that the client system did not share their views concerning shared responsibility. The QWL program managers made no provisions for dealing with this discrepancy. Specifically, they did not distinguish among three different strategic responses: (1) designing the QWL program to generate activities compatible with the paternalistic orientation of the plant (first-order change), (2) exchanging the paternalistic schema for the more participative schema advocated by the QWL program (second-order change), and (3) facilitating employees' awareness of paternalistic and participative schemata and helping them choose between the alternatives (third-order change).

The QWL program managers did not "impose" participation and shared responsibility on the organization members; such imposition was incompatible with their own participative schema. They simply encouraged participation. The LMC, however, was familiar only with a paternalistic schema and thus used its paternalistic orientation to guide its participative actions. The LMC kept press-

ing management to provide for employee needs as it defined them, and management continued to find itself overwhelmed by requests to which it could not effectively respond. Meanwhile, the QWL program managers did not have the perspective required to diagnose their situation properly. Specifically, they lacked a "schema of schemata" such as the cognitive perspective we are proposing, making them incapable of constructively interpreting the frustration felt by both labor and management.

The QWL program managers and the client system were, as the cognitive perspective would lead us to anticipate, understanding the situation using schemata familiar to them, yet the schemata used by the two groups were incompatible. The more the intervention fostered egalitarian participation and shared responsibility, the more the client system undermined such shared responsibility by "asking" or "demanding" that management take better care of the employees. Similarly, the program managers, recognizing that the program was faltering and unable to understand why, tended to try to solve the problem by devoting increasingly greater energy to encouraging equal participation.

This dilemma plagued the QWL program almost from the outset. Moreover, because the program managers did not have a "schema of schemata," they found themselves in a double bind (Watzlawick, Beavan, & Jackson, 1967). Had they pressed for more awareness of schemata and freedom of choice (third-order change), they would have had to impose a level of understanding the client system had not chosen. Had they pressed harder or more insistently for the introduction of a more participative schema (second-order change), they would have violated their commitment to equal participation in decisions.

This dilemma cannot be written off simply as poor QWL practice. From a cognitive point of view, the problem may appear obvious—but in the absence of a cognitive perspective it is impossible to diagnose, and few QWL practitioners currently have such a perspective. Moreover, the problem is not limited to client systems employing paternalistic schema. The same problem will occur whenever the client system employs *any* schema—such as the managerial control schema present at Parkside Hospital (Hanlon et al., 1985)—that in any significant way differs from that held by the QWL practitioners. QWL programs are based upon a premise of equal participation, but participants in a QWL program often must be taught another schema (or a schema of schemata) if they are to participate equally, *and they are not capable of making an informed choice to be so taught.* Thus QWL program managers find themselves facing a dilemma every time they confront a client system that does not employ their schema. Yet this is precisely the situation they will face any time a QWL program is in a position to make a significant second- or third-order change.

THE CASE OF THE PLANT'S PARKING LOT

Space does not allow us to describe even a small percentage of the events that led us to the conclusions now present. A complete account will be available elsewhere (Moch & Bartunek, in press). The LMC addressed several issues. Many of the potential benefits, however, were lost as the LMC became disillusioned at management's lack of response and management became disillusioned at the increased work load and rising expectations resulting from the change effort. A representative issue involved proposed

changes in the plant parking lot. This issue illustrates how the QWL participants tried to effect a participative work environment while guided by a paternalistic schema.

Parking lot security was a high priority for the plant. Thieves were known to enter the lot and break into unattended cars; one employee had been wounded when he surprised someone who had broken into one of the cars. A parking lot subcommittee of the LMC therefore was assigned the task of proposing changes to promote security.

The parking lot subcommittee investigated several problems, including adequacy of space, traffic flow, and traffic jams. Based on their investigation, they recommended that the plant manager improve security by requiring automobile identification stickers on each car, obtaining and distributing cards that would activate electronically controlled gates, and placing security guards on the lot for all three shifts. The subcommittee also made several other recommendations. They wanted the lot redesigned to create more room, a walkway from the lot free from moving traffic, a wider access road from the main street outside the plant, and designated space for visitor parking.

These recommendations presented the plant manager with a dilemma. Had he responded positively to them, he would have had to confront a cost-conscious company controller. Launching such an appeal therefore would have required detailed cost estimates and justification, and the staff members who might have done this work were heavily committed to installing a new assembly line in the plant. Consequently, the manager rejected the subcommittee's request as insufficiently documented. He told the committee that it had not done its "homework" and insisted that it develop documented cost estimates, blueprints, specific recommendations for the proposed structural changes, and plans for accommodating city regulations related to widening the access road to the parking lot. The subcommittee members considered this an unreasonable requirement, and interpreted the manager's behavior as a rejection of the ideas themselves.

One member of the subcommittee asked her son, an aspiring draftsman, to draw up speculative blueprints. Another began the task of studying the appropriate city regulations. These activities seemed hopelessly complex and time consuming, however, and were soon abandoned. The subcommittee members expressed their belief that planning and implementing the changes requested were the responsibility of management.

Shortly after the subcommittee's failure to secure plant-level support for the parking lot proposals, the LMC began gathering evidence that it had accurately represented employee wishes. It conducted a survey designed to allow it to document its compliance with the QWL program and planned to present the survey results at a previously scheduled meeting with the responsible corporate and national-level union officials. The LMC anticipated that the plant manager's lack of action would be considered resistance to the QWL program and that appropriate remedial actions would be taken by his superiors.

The meeting between the LMC and the higher-level officials focused on several issues, but one theme predominated: that the committee had done its best, but local management had not been responsive (Moch & Hoff, 1984). The meeting was used as a forum for lower-level employees to express their frustration and to plead for higher level assistance. The higher-level officials, some of whom were aware of what was going to happen,

expressed sympathy for the committee members and agreed to provide the expertise necessary to get the parking lot changes and other committee projects underway. Subsequently, corporate officials agreed to "work closely" with the plant manager to ensure his cooperation with future QWL projects.

A parking lot consultant visited the plant within a week after the meeting between the committee and higher-level officials. He made several recommendations for change, many of which the QWL committee rejected because they had not been among those recommended by "rank-and-file" employees. The LMC insisted that the plant manager execute its recommendations as they had been presented, and then essentially dropped the matter, doing nothing for the next eight months on the parking lot proposals but clarifying that the automobile stickers should be window stickers rather than bumper stickers. All implementation decisions were left to the plant manager.

Before the LMC's plans could be implemented, the plant experienced a growth in demand for its product. To accommodate an increased work force, additional parking space was paved immediately by managerial directive. When the automobile stickers arrived one month later, they bore stylistic changes that the committee had not approved. The plant manager proudly announced that the stickers had arrived, and management personnel distributed them.

The QWL committee soon began to receive complaints that the stickers did not reflect light, making them legible only during the day. Unfamiliar vehicles, therefore, could not be checked at night. Moreover, if at night a car was found to be blocking a fire line, the only solution was to tow it away; notifying the employee who drove the care was impossible because the security guards could not read the sticker numbers. The committee decided to take this problem to management.

A cognitive perspective on the parking lot situation

In the case of the food processing plant, a paternalistic schema guided interpretations and behaviors and resulted in a particular variety of management-employee relationship. In the food processing plant, as in other settings in which paternalism guides the assignment of meaning and understanding, such a schema leads employees to depend on management to solve problems. It also leads people to reserve praise for managers who provide well for their employees. Moreover, it does not tie the acquisition of benefits to taking responsibility as long as benefits are forthcoming without such commitment. Similarly, managers are unlikely to relinquish responsibility for employee welfare until the rewards they receive are not attached to the extent to which they assume this responsibility. More penetrating, from a change perspective, neither party is likely to "see" beyond the paternalistic schema unless and until the party's interests cease to be served by it or until a more attractive schema becomes available.

The paternalistic schema that had guided employee-management relationships in the plant for many years guided the client system's interpretation of the new QWL program. It determined the meaning employees gave to a high quality of working life and the methods for achieving it. In the case of the parking lot (and the other issues dealt with by the LMC), high quality of working life was understood to be the acquisition of amenities. These were to be asked by the LMC on behalf of employees and given by management.

As we note above, schemata are not necessarily stable over time: Their persistence depends on the extent to which they hinder or facilitate dominant individuals or subgroups as they pursue their own interests. The meeting at which the LMC confronted the manager over the parking lot issue signaled the point at which the paternalistic schema was no longer seen as serving these interests, and the LMC made at least some attempt to act on a more equal level with management. Had the QWL program managers been able to interpret events from a cognitive perspective, they might have explicitly used this confrontation to foster the development of their more participative schema (second-order change toward more shared responsibility) or even to introduce a new level of understanding (third-order change toward a schema of schemata).

The LMC members and plant management, however, never fully developed a new schema, but slipped back into well-established patterns. As a result, QWL committee members were frustrated because they did not receive the amenities they had requested, and the plant management was frustrated because it was being asked to take increased responsibility for securing amenities for which the LMC would receive credit.

That the program we assessed was not successful does not mean more participative schemata cannot be enacted. Some programs have achieved this aim. In the Jamestown case reported by Keidel (1981), Meek (1983), Meek et al. (1983a, 1983b), and Trist (1986), labor and management came together to address an economic crisis. Initially, neither labor nor management wanted to assume responsibility for Jamestown's problems, but eventually a breakthrough came when labor and management officials started fighting openly with each other at the meetings. These confrontations initiated a participative, shared-responsibility perspective, and both parties were subsequently able to agree on goals that would benefit both sides.

One of the major goals in the Jamestown case was to increase productivity. Productivity gains, moreover, would be shared by both the company and the workers. This goal was qualitatively different from the initial stance of both groups, in which an emphasis on productivity had been seen as a threat to labor and an emphasis on gain sharing as a threat to management. The committee worked together to achieve its goals and, in the process, changed the image and reality of Jamestown's labor-management relationship.

IMPLICATIONS FOR OD PRACTICE

A cognitive perspective focuses attention on the schemata operating in the client system. It also allows OD/QWL practitioners to distinguish among change attempts directed toward making improvements that reinforce particular schemata (first-order changes), changing these schemata (second-order change), and imparting the capacity to change schemata in an ongoing fasion (third-order change). Because these approaches to change require different and perhaps conflicting change agent roles, distinguishing among them can help one avoid strategic confusion and frustrating role conflict.

A cognitive perspective can help OD/QWL professionals become more aware that their participative predisposition—if not tempered by appreciation of other schemata held by intervention participants—can sometimes impede the successful implementation of an OD/QWL

project. As noted above, the commitment to egalitarian participation can prevent change agents from doing what is required to help individuals "see" events in new ways. Knowing that they face difficult ethical choices regardless of the type of change they foster, change agents can spend more energy clarifying their own beliefs and values. To be effective agents of cognitive social change, they must at some level decide what they believe is best for the client system.

Finally, the cognitive perspective directs attention toward discovering the techniques and developing the skills required to identify existing schemata and, when necessary, stimulate change in schemata. Relatively little in the planned organizational change literature directly addresses this issue, but some materials—both in organizational studies and clinical psychology—suggest potential directions.

Identifying schemata

Methodologies capable of fully identifying and documenting organizational schemata have yet to be developed (Moch & Fields, 1985). This is similar to the case of subatomic particles, for which the cloud chamber that would clearly reveal their presence by documenting their effects has yet to be built. Nevertheless, some methods have begun to be developed that enable practitioners and/or organization members to make good "guesses" as to which schemata are present. Many of these are applicable to both practice and research.

A major method for identifying schemata involves paying careful attention to and analyzing linguistic symbols, such as stories, legends, rites, and, especially language (Louis, 1985; Martin et al., 1983; Moch & Huff, 1983, 1984; Papp, 1983; Trice & Beyer, 1985). Trice and Beyer (1985), for example, describe several ways of assessing organizational rites and ceremonies. Moch and Fields (1985) describe ways of analyzing organization members' uses of speech to determine underlying themes.

In addition, some methods have been developed that one can use to stimulate organization members' own awareness of the schemata they use. For example, Weick (1985), Weakland, Fisch, and Segal (1982), and others suggest that a major way to stimulate awareness is to cause a breakdown in people's routine; this breakdown causes a greater awareness of underlying patterns. Louis (1985) suggests two other methods. One is to use guided group reflections, in which group members describe common occurrences and how they understand them. The other is to develop group products, such as collages and biographies. Analysis of the "themes" of the group reflections and products can help organization members become more aware of their underlying schemata.

Inducing first-, second-, and third-order change

Most OD literature does not distinguish among first-, second-, or third-order change. Therefore, we focus on insights of the literature of other fields. This literature suggests that OD practitioners cannot change organizational members' schemata simply by telling them to change their frames of reference (cf. Weakland et al., 1982, chapter 6), but that consultants can intervene in ways that initiate significant changes.

Inducing first-order change

Pondy and Huff (1985) studied the methods a school superintendent used to induce members of his school board to adopt a major change in the curriculum—the introduction of personal computers.

The superintendent framed the issue as an "extension rather than a sharp break with current values and policies" (p. 110). He introduced computer knowledge as a "basic skill" rather than as a qualitatively new type of endeavor, and thus played into school board members' already present schemata valuing "good" instruction. His approach was successful.

Pondy and Huff's (1985) results suggest that OD practitioners might sometimes successfully use similar strategies. If a practitioner finds present schemata adequate, he or she may consciously introduce change attempts within the framework of those schemata. As suggested above, for example, if the organization members' schema is a participative one, OD practitioners might teach methods of making effective group decisions or introduce several of the other design features characterizing participative organizations (Lawler, 1986).

Inducing second-order change

Most analyses of second-order change describe "natural" rather than planned means through which change in schemata occur (e.g., Bartunek, 1984; Gemmill & Smith, 1985; Gray et al., 1985). Bartunek (1984) suggests, for example, that second-order change in organizational schemata typically begins with a perceived crisis strong enough to "unfreeze" an accepted schema. When this crisis occurs, another schema arises as the antithesis to the original one. This schema interacts with the original one, and both are modified in the interaction process. Eventually, their interaction results in a new synthesis, which cannot be specified in advance (Gemmill & Smith, 1985); this synthesis is *created* by the interaction that occurs.

Thus, for second-order change to commence, some type of crisis must be associated with the present schema. The crisis may be experienced "naturally," or induced by a consultant or by forces set in motion by the consultant. Family therapists (Hoffman, 1981; Weakland et al., 1982; Woodruff & Engle, 1985) have described some mechanisms for initiating such change, especially relabeling current behaviors and giving instructions for actions that cannot be adequately carried out within the present schema. In addition, OD consultants can make use of the fact that, in organizational settings, only some members' interests are typically served by particular schemata (Giddens, 1979) and thereby increase other members' awareness that their interests are not being served.

For second-order change attempts to succeed, not only must problems with the present schema be shown, but an alternative perspective must be introduced by the consultant or by other organization members. Even if the consultant has an egalitarian disposition, he or she cannot remain "neutral," or else the original schema—the only one the organization members know—will remain operative (Weakland et al., 1982, chapter 6).

As descriptions of "natural" second-order change attest (Bartunek, 1984; Gemmill & Smith, 1985), a transition to a new perspective is rarely smooth. The transition is likely to involve both ambiguity and conflict. As these descriptions also show, however, this type of change *can* occur.

Inducing third-order change

A major difference between second- and third-order change is that for second-order change the consultant consciously advocates a particular schema, whereas for third-order change the consultant establishes mechanisms to enable organizational members to become aware of their present schemata and alternatives and take steps to move away from their

present state if necessary. For third-order change, as with second-order change, alternative perspectives must be introduced, but this is done primarily to foster awareness and lessen reliance on one way of "seeing." Bartunek et al. (1983) suggest that one way to induce this type of change for individuals is to establish structures that consciously enable them to operate using different perspectives. For example, persons from different departments of an organization might help other organization members view problems from the various departments' perspectives. Kilman (1985) shows how a matrix organization can be used for this effect. The introduction of the different perspectives enables organization members to identify the ways they understand a particular problem and to generate a working appreciation for available alternatives. On the whole, strategies and tactics for inducing this type of change are less well developed for organizational change than they are in the clinical area. With the proper research, however, tested approaches might become available to OD practitioners.

IMPLICATIONS FOR RESEARCH

The work we describe has several research implications. Two issues are particularly pertinent: The research questions that should be asked in studies of organization change, and the ways organizational schemata and change in organizational schemata can be assessed.

What research questions should be asked?

The issues we have raised suggest that researchers must do more than simply ask if OD leads to increases in "mean scores" on some predetermined criterion, although that has been the primary question asked in most OD research (e.g., Bullock & Svyantek, 1985; Woodman & Wayne, 1985). As Golembiewski et al. (1976) pointed out several years ago, second-order changes are likely not to be reflected in increases in mean scores, simply because the types of changes that have occurred have made the original measurement categories obsolete. The more appropriate question is what *type* of change, if any, the intervention achieved and why. One must identify conditions and practitioner interventions associated with change at each of the three levels identified here. If second- or third-order change was achieved, one must also trace the social and historical processes through which the change evolved. Given the nature of second-order change, neither the processes nor the eventual outcomes are likely to have been perfectly planned in advance. Thus, the question of the type of change that occurs requires attention not only to the originally intended outcomes and processes of the intervention, but also to the processes and outcomes that occur once the change is set in motion.

One must also determine the various types of organizational schemata—other than a participative one—that OD consultants might encounter. We have suggested that two other schemata that might be present are paternalistic and managerial control schemata. Additional schemata may also exist. It would be valuable not only to assess in more depth these and other equivalent schemata, but also to determine more fully the ways they interact with OD efforts to affect organizational functioning.

How should schemata and changes in schemata be measured?

We have already suggested several ways schemata might be assessed, such as through analysis of language, guided group reflection, and group products. These methods are available both to consultants and researchers, although researchers are more likely to be interested in the more technical linguistic methods of analysis (e.g., Moch & Fields, 1985). In addition, Golembiewski et al. (1976) designed a way of assessing schemata and first- and second-order changes in schemata through a sophisticated use of factor analysis, in which the questionnaire items that form common factors are studied. This method has recently been expanded by Schmitt (1982) and Bartunek and Franzak (in press).

These measurement methods represent fruitful beginnings, but, as we suggest above, are not fully developed. Further research therefore should focus upon developing more adequate ways of assessing schemata and documenting the causes and consequences of schematic change.

CONCLUSIONS

In this article we have introduced the cognitive perspective, used it to analyze a QWL intervention, and suggested several implications for practice and research. We believe that this perspective offers a promising new direction for OD.

In addition to highlighting important issues for OD, the cognitive perspective raises several questions for which no clear answers are available. For example, is success or failure at lower orders of change required for a system to develop toward higher-order change? Must change agents master skills required for lower-order change before venturing to develop competence at higher orders? What time perspectives and levels of "client readiness" are essential for second-order or third-order change to occur? Are systems characterized by a wider variety of schemata more flexible and adaptive? Are these systems also likely to be less efficient than others, as their members will not share a single, homogeneous point of view? Are systems capable of third-order change likely to be relatively ineffective in the short run as they compete with "true believers" who are inextricably committed to a single schema they consider immutable reality? Will they be more effective in the long run as external changes requiring cognitive shifts become increasingly evident?

These questions can only be answered by future research. Their answers, and even the increased awareness the questions provide, may generate valuable guidelines for practitioners planning change interventions. The cognitive perspective, moreover, can be relied upon to generate many more useful questions for researchers than have been addressed in this article. It may help both practitioners and researchers develop a clearer idea of what to "look for" and "see" in organizational change—a vision with both methodological and substantive implications.

REFERENCES

Argyris, C. (1982). How learning and reasoning processes affect organizational change. In P.S. Goodman & Associates (Eds.), *Change in organizations* (pp. 47-86). San Francisco: Jossey Bass.

Argyris, C. (1985). *Strategy, change, and defensive routines.* Boston: Pitman.

Argyris, C., & Schön, D. (1978). *Organizational Learning.* Reading, MA: Addison-Wesley.

Bartunek, J.M. (1984). Changing interpretive schemes and organizational restructuring: The example of a religious order. *Administrative Science Quarterly, 29,* 355-372.

Bartunek, J.M., & Franzak, F.J. (in press). The effects of organizational restructuring on frames of reference and cooperation. *Journal of Management.*

Bartunek, J.M., Gordon, J.R., & Weathersby, R.P. (1983). Developing "complicated" understanding in administrators. *Academy of Management Review, 8,* 273-284.

Bernstein, P. (1985). *Family ties, corporate bonds.* Garden City, NY: Doubleday.

Bougon, M.G. Weick, K.E., & Binkhorst, D. (1977). Cognition in organizations: An analysis of the Utrecht Jazz Orchestra. *Administrative Science Quarterly, 22,* 609-639.

Bullock, R.J., & Svyantek, D.J. (1985). Analyzing meta-analysis: Potential problems, an unsuccessful replication, and evaluation criteria. *Journal of Applied Psychology, 70,* 108-115.

Daft, R.L., & Weick, K.E. (1984). Toward a model of organizations as interpretation systems. *Academy of Management Review, 9,* 284-295.

de Mey, M. (1982). *The cognitive paradigm.* Dordrecht: Reidel.

Drexler, J.A., & Lawler, E.E. (1977). A union management cooperative project to improve the quality of work life. *Journal of Applied Behavioral Science, 13,* 373-387.

French, W.L., & Bell, C.H. (1984). *Organization development: Behavioral science principles for organizational improvement* (3rd ed.). Englewood Cliffs: NJ: Prentice-Hall.

Frost, P.J., Moore, L.F., Louis, M.R., Lundberg, C.C., & Martin, J. (Eds.). (1985). *Organizational culture.* Beverly Hills: Sage.

Gemmill, G., & Smith, C. (1985). A dissipative structure model of organization transformation. *Human Relations, 38,* 751-766.

Giddens, A. (1979). *Central problems in social theory.* Berkeley: University of California Press.

Gioia, D.A., & Manz, C.C. (1985). Linking cognition and behavior: A script processing interpretation of vicarious learning. *Academy of Management Review, 10,* 527-539.

Gioia, D.A., & Poole, P.P. (1984). Scripts in organizational behavior. *Academy of Management Review, 9,* 449-459.

Goffman, E. (1974). *Frame analysis.* New York: Harper.

Golembiewski, R.T., Billingsley, K., & Yeager, S. (1976). Measuring change and persistence in human affairs: Types of change generated by OD designs. *Journal of Applied Behavioral Science, 12,* 133-157.

Graham, J.W. (1986). Principled organizational dissent: A theoretical essay. In B.M. Staw & L.L. Cummings (Eds.), *Research in organizational behavior* (Vol. 8, pp. 1-52). Greenwich, CT: JAI Press.

Gray, B., Bougon, M.G., & Donnellon, A. (1985). Organizations as constructions and destructions of meaning. *Journal of Management, 11,* 83-95.

Hanlon, M.D., Nadler, D.A., & Gladstein, D. (1985). *Attempting work reform: The case of "Parkside" Hospital.* New York: Wiley.

Hastie, R. (1981). Schematic principles in human memory. In E.T. Higgins, C.P. Herman, & M.P. Zanna (Eds), *Social cognition: The Ontario symposium* (Vol. 1, pp. 39-88). Hillsdale, NJ: Erlbaum.

Hoffman, L. (1981). *Foundations of family therapy.* New York: Basic Books.

Huse, E.F., & Cummings, T. (1985). *Organization development and change* (3rd ed.). St. Paul: West.

Keidel, R.W. (1981). Theme appreciation as a construct for organizational change. *Management Science, 27,* 1261-1278.

Kilman, R.H. (1985). Understanding matrix organization: Keeping the dialectic alive and well. In D.D. Warrick (Ed.), *Contemporary organization development: Current thinking and application* (pp. 152-165). Glenview, IL: Scott Foresman.

Kuhn, T.S. (1970). *The structure of scientific revolutions.* Chicago: University of Chicago Press.

Lawler, E.E. III. (1986). *High-involvement management.* San Francisco: Jossey-Bass.

Louis, M.R. (1985). An investigator's guide to workplace culture. In P.J. Frost, L.F. Moore, M.R. Louis, C.C. Lundberg, & J. Martin (Eds.), *Organizational culture* (pp. 73-93). Beverly Hills: Sage.

Markus, H., & Zajonc, R.B. (1985). The cognitive perspective in social psychology. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology* (Vol. 1, pp. 137-230). New York: Random House.

Martin, J. (1982). Stories and scripts in organizational settings. In A. Hastorf & A. Isen (Eds.), *Cognitive social psychology* (pp. 255-305). New York: North Holland.

Martin, J., Feldman, M.S., Hatch, M.J., & Simkin, S. (1983). The uniqueness paradox in organi-

zational stories *Administrative Science Quarterly, 28*, 438-453.

Meek, C.B. (1983). *Labor-management cooperation and economic revitalization: The story of the growth and development of the Jamestown Area Labor-Management Committee.* Unpublished doctoral dissertation, Cornell University, Ithaca, NY.

Meek, C.B., Nelson, R., & Whyte, W.F. (1983a). Cooperative problem solving in Jamestown. In W.F. Whyte, T.H. Hammer, C.B. Meek, R. Nelson, & R.N. Stern (Eds.), *Worker participation and ownership* (pp. 6-32). Ithaca, NY: ILR Press.

Meek, C.B., Nelson, R., & Whyte, W.F. (1983b). Lessons from the Jamestown experience. In W.F. Whyte, T.H. Hammer, C.B. Meek, R. Nelson, & R.N. Stern (Eds.), *Worker participation and ownership* (pp. 33-54). Ithaca, NY: ILR Press.

Moch, M.K., & Bartunek, J.M. (in press). *Creating alternative realities at work.* Cambridge, MA: Ballinger.

Moch, M.K., & Fields, W.C. (1985). Developing a content analysis of language use for facilitating understanding in organizations. In S. Mitchell & S. Bacharach (Eds.), *Perspectives in organizational sociology: theory and research* (Vol. 5, pp. 81-126). Greenwich, CT: JAI Press.

Moch, M.K., & Huff, A.S. (1983). Power enactment through language and ritual. *Journal of Business Research, 11*, 293-316.

Moch, M.K., & Huff, A.S. (1984). *Language and ritual for the creation of power.* Paper prepared for the First International Conference on Organization Symbolism and Corporate Culture, Lund, Sweden.

Mohrman, A.M., & Lawler, E.E. III. (1985). The diffusion of QWL as a paradigm shift. In W.G. Bennis, K.D. Benne, & R. Chin (Eds.), *The planning of change* (4th ed., pp. 149-159). New York: Holt, Rinehart, & Winston.

Morgan, G. (1984). Opportunities arising from paradigm diversity. *Administration and Society, 16*, 306-327.

Morgan, G., & Ramirez, R. (1984). Action learning: A holographic metaphor for guiding social change. *Human Relations, 37*, 1-28.

Neisser, U. (1976). *Cognition and reality.* San Francisco: Freeman.

Nurick, A. (1985). *Participation in organizational change: The TVA experiment.* New York: Praeger.

Nystrom, P.C., & Starbuck, W.H. (1984). To avoid organizational crises, unlearn. *Organizational Dynamics, 12*(4), 53-65.

O'Reilly, C.A. (1983). The use of information in organizational decision making: A model and some propositions. In B. Staw & L.L. Cummings (Eds.), *Research in organizational behavior* (Vol. 5, pp. 103-139). Greenwich, CT: JAI Press.

Ouchi, W.G., & Wilkins, A.L. (1985). Organizational culture. *Annual review of sociology, 11*, 457-483.

Papp, P. (1983). *The process of change.* New York: Guilford.

Pondy, L.R., & Huff, A.S. (1985). Achieving routine in organizational change. *Journal of Management, 11*, 103-116.

Porras, J.I., & Hoffer, S.J. (1986). Common behavior changes in successful organization development efforts. *Journal of Applied Behavioral Science, 22*, 477-494.

Ross, R. (1971). OD for whom? *Journal of Applied Behavioral Science, 7*, 580-585.

Schank, R.C., & Abelson, R. (1977). *Scripts, plans, goals and understanding.* Hillsdale, NJ: Erlbaum.

Schmitt, N. (1982). The use of analysis of covariance structures to assess beta and gamma change. *Multivariate Behavioral Research, 8*, 343-358.

Seashore, S., Mirvis, P., Lawler, E., & Cammann, C. (Eds.). (1983). *Assessing organizational change.* New York: Wiley.

Showers, C., & Cantor, N. (1985). Social cognition: A look at motivated strategies. *Annual review of psychology, 26*, 275-305.

Shrivastva, P., & Schneider, S. (1984). Organizational frames of reference. *Human Relations, 37*, 795-809.

Smircich, L. (1983). Organizations as shared meaning. In L.R. Pondy, P. Frost, G. Morgan, & T. Dandridge (Eds.), *Organizational symbolism* (pp. 55-65). Greenwich, CT: JAI Press.

Smith, K.K. (1984). Rabbits, lynxes, and organizational transitions. In J.R. Kimberly & R.E. Quinn (Eds.), *Managing organizational transitions* (pp. 267-294). Homewood, IL: Irwin.

Taylor, S.E., & Crocker, J. (1981). Schematic basis of social information processing. In E.T. Higgins, C.P. Herman, & M.P. Zanna (Eds.), *Social cognition: The Ontario symposium* (Vol. 1, pp. 89-134). Hillsdale, NJ: Erlbaum.

Thorngate, W. (1976). "In general" vs. "it depends": Some comments on the Gergen-Schlenker debate. *Personality and Social Psychology Bulletin, 2*, 404-410.

Tichy, N. (1974). Agents of planned social change: Congruence of values, cognitions, and actions. *Administrative Science Quarterly, 19*, 164-182.

Tichy, N. (1975). How different types of change agents diagnose organizations. *Human relations, 9*, 771-779.

Tichy, N., & Nisberg, J. (1976). Change agent bias: What they view determines what they do. *Group and Organization Studies*, 1, 286-301.

Torbert, W.R. (1985). On-line reframing: An integrative approach to organizational management. *Organizational Dynamics, 14*, 60-79.

Trice, H.M., & Meyer, J.M. (1985). Using six organizational rites to change culture. In R.H. Kilmann, M.J. Saxton, R. Serpa, & Associates, *Gaining control of the corporate culture* (pp. 370-399). San Francisco: Jossey-Bass.

Trist, E. (1986). Quality of working life and community development: Some reflections on the Jamestown experience. *Journal of Applied Behavioral Science, 22*, 223-238.

Wagner, J.A., & Moch, M.K. (1986). Individualism-collectivism: Its conceptualization and measurement. *Group and Organization Studies, 11*, 280-304.

Watzlawick, P., Beavin, J., & Jackson, D. (1967). *Pragmatics of human communication.* New York: Norton.

Watzlawick, P., Weakland, J.H., & Fisch, R. (1974). *Change: Principles of problem formation and problem resolution.* New York: Norton.

Weakland, J.H., Fisch, R., & Segal, L. (1982). *The tactics of change.* San Francisco: Jossey-Bass.

Weick, K.E. (1979). *The social psychology of organizing.* Reading, MA: Addison-Wesley.

Weick, K.E. (1985). The significance of corporate culture. In P.J. Frost, L.F. Moore, M.R. Louis, C.C. Lundberg, & J. Martin (Eds.), *Organizational culture* (pp. 381-390). Beverly Hills: Sage.

Woodman, R.W., & Wayne, S.J. (1985). An investigation of positive findings bias in evaluation of organization development interventions. *Academy of Management Journal, 28*, 889-913.

Woodruff, A.F., & Engle, T. (1985). Strategic therapy and agency development: Using circular thinking to turn the corner. *Journal of Strategic and Systemic Therapies, 4*(4), 25-29.