Sociotechnical Systems Ideas as Public Policy in Norway: Empowering Participation Through Worker-Managed Change*

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Developments in sociotechnical systems (STS) theory and practice in Norway during the past two decades have closely supported and been supported by public policies aimed at democratizing working life. This article discusses the resulting Norwegian model of democratization through empowering participation, comparing this model to similar ones based on work done in Denmark, Australia, and Germany. The author finds that the resulting general model incorporating the major features of this work, while not widely known, is clearly not limited to Norway. The article identifies some of the consequences of participation under different working conditions and some necessary conditions for empowering participation, and notes that—although work-place participation is popular—democracy in the work place is more often preached than practiced.

INTRODUCTION

Nowhere are ideas about sociotechnical systems (STS) design of work taken more seriously than in Norway. Three of the more recent Norwegian public policies aimed at democratizing working life rely significantly on STS ideas first developed by the Norwegian Industrial Democracy Program (NIDP) more than two decades ago (Bolweg, 1976; Emery & Thorsrud, 1976; Herbst, 1976; Qvale, 1977; T. Sandberg, 1982). In Norway, the evolution of

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these ideas since that time (Elden, 1979, 1985b; Gustavsen, 1983, 1985; Thorsrud, 1984) has supported—and, more important, been supported by—new labor legislation and innovative industrial relations policies aimed at democratizing working life (Gustavsen & Hunnius, 1981). This article summarizes these new ideas about STS and the democratization of working life in Norway by presenting a model of current practice, refining the model by comparing it to reports of similar kinds of work democratization efforts in other countries, and assessing STS's promise as a practical policy guiding strategies for democratization.

STS concepts offer one way of addressing democratization and the development of parity of power and democratic values in working life. The techniques of STS do not make democracy in the work place inevitable; indeed, as these techniques become more widespread, they appear to become divorced from democratic values. The problem does not stem as much from engineers' becoming technocrats or from social scientists' becoming sociocrats as it stems from job and organization design specialists' becoming "sociotechnocrats" (Herbst, 1976, 1984). This situation differs vastly from the vision shared by the architects of the NIDP—such "founding fathers" of STS as Emery, Herbst, Thorsrud, and Trist, among others—who considered work organizations to be on the "leading edge" in eliminating the domination of the few over the many, and who believed that democratizing work could lead to the democratization of other social institutions such as school and families. Put simply—perhaps too simply—according to this view, autonomous groups at work could lead to more participatory democracy in society at large (Elden, 1981; Emery, 1969; Hunnius, 1979; Pateman, 1970).

The evolution of STS theory and its impact on public policy in Norway during the past two decades presents an unusual opportunity to explore STS and its values and the ways they have provided a basis for policy—both public and private—promoting participatory democracy.

STS IDEAS AND EMPOWERING PARTICIPATION AS PUBLIC POLICY

Researchers in the NIDP in the 1960s drew on basic STS ideas originated at the Tavistock Institute in London in the 1950s and invented new conceptual tools. At least three important public policies affecting Norwegian industrial democracy during the past 25 years have roots in STS theory and concepts.

In 1977, Norway passed an innovative law affecting the work environment (Gustavsen, 1983; Gustavsen & Hunnius, 1981). The law's unique provisions affecting job design come directly from STS criteria. Specifically, the law's "paragraph 12" seeks to outlaw alienating and dehumanizing labor by improving social and psychological working conditions, or the quality of working life (QWL). The law also mandates company QWL councils charged with studying, planning, and carrying out QWL improvements. One of the important objectives is self-study and self-managed change at the local level. This makes participation a means of empowering workers to study and change their own work places. Such participation empowers workers to increase their control over their own work places.

In 1982, the Norwegian Trade Union Confederation (LO) signed a national agreement with the Norwegian Employers Association (NAF) to increase union-supported worker participation in management decision making, particularly in decisions affecting labor-management

company development programs (Gustavsen & Engelstad, 1985). The LO-NAF company development fund—which equals approximately $700,000 per year—explicitly supports participatory planning and employee-controlled work design or redesign efforts (Elden, 1985b). Although by 1985 the program had barely left its formative stage, by that time more than 150 companies had already become involved in it. Its aim clearly is to support "do-it-yourself," employee-managed change; the LO-NAF funds cannot go to consultants. Such participation empowers persons to change their own work situations.

The third and most recent example of Norwegian public policy building on STS ideas is an official government inquiry by a special commission addressing the further democratization of industry. This commission emphasizes direct forms of participation in the work place and has recommended that further democratization be a national industrial development strategy. Such democratization should promote direct participation—direct empowerment through organizations promoting autonomy—which should increase workers' involvement and learning and promote more effective use of human resources. According to the commission, if workers have more influence on the decisions directly affecting them, this will benefit a variety of stakeholders. Such empowering participation enhances both industrial democracy and industrial development.

These are not the only public policies aimed at promoting democracy in working life. Other Norwegian legislation has placed workers on company boards, and Norway has an unusually cooperative and comprehensive system of trade union representation (International Labor Office, 1984). Nearly everyone in Norway seems to belong to a trade union, professional association, or other bargaining unit. The three policies discussed above share an emphasis on increasing workers' direct control over their own work places—that is, the development of autonomy-based work organizations. This approach stems from such STS ideas as autonomous ways of organizing tasks, cooperative labor-management change processes, and humanistic-democratic values.

If one term were used to summarize the evolution of new STS ideas in Norway as the basis for public policy on democratizing working life, that term might be "empowering participation." Empowerment, obviously, is not a neutral word. As used in this article, it does not refer to power possessed by everyone under any conditions for any purpose. Rather, I use it to refer to persons' gaining greater control over their own lives. Such empowerment is not unlimited, but is self-limiting. What one person considers empowerment another may consider oppression. Raw empowerment in the absence of democratic values could be synonymous with autocracy or tyranny. Participation without empowerment, however, would be synonymous with cooptation or manipulation.

Psychologists have long addressed empowerment as a psychological phenomenon on the individual level (see Kieffer, 1981, for a useful summary and some thought-provoking findings on phases of individual development in becoming empowered in political settings). This article deals with how empowerment can occur in particular types of organized settings: work places. STS theory holds that autonomy-based work organizations allow workers to learn how to act efficaciously in their interests without acting selfishly.

Between STS theory—and empowering participation at work—and increased levels of political efficacy and participatory democracy in and beyond the work

place exists a gap that is large, complex, and confusing (contrast Elden, 1981, and Pateman, 1970, with Greenberg, 1983, and Levin, in press). All design and redesign of the work place and efforts at improving QWL rely on workers' participation, but not all participation in QWL efforts need be empowering. How can one tell if participation in STS-based QWL efforts is likely to be empowering?

One way to address this question is to classify QWL projects in terms of power, specifically by determining how much emphasis an effort places on autonomy and self-management in relations based on tasks compared to its emphasis on social relations and "team feelings." Variables of power and task control tend to correlate with political attitude and activity variables even outside the work place, whereas indices of social relations, work satisfaction, and "good feelings" do not (Elden, 1981a, b). This means that efforts at improving QWL can either be humanizing, democratizing, or both. Humanistic QWL allows persons to feel more involved in the work place, feel better about their colleagues, feel accepted, and the like without making any change in their relations with authority toward greater parity of power and autonomy. Under these circumstances, increased participation implies both decreased empowerment and improved QWL.

This finding is consistent with those of other research showing that increased participation—that is, greater involvement of workers under conditions of openness, trust, and free exchange—in circumstances in which two systems have unequal amounts of power actually increases rather than decreases the differences in power (Braten, 1973; Dickson, 1982; Mulder, 1971). In such cases, participation preserves the unequal distribution of power in favor of the powerful; it does not empower the relatively powerless. Such "pseudo" participation (Pateman, 1970), or cooptive participation, contrasts with empowering participation and is most evident in circumstances characterized by deep conflicts of interest and values. For participation to be empowering under these conditions, participation requires parity of power (see Table 1). Work reform in Norway aims to democratize more than humanize the work place. It aims to empower participation.

Table 1
Different Consequences of Participation Under Different Conditions

Power structure	*Converging interests and values**	*Diverging interests and values***	*Best outcome of combinations*
Unequal: Unilateral control • "top-down" decision making • hierarchical authority structures	When combined with unequal power structures produce paternalism and cooptation	When combined with unequal power structures produce problem solving and conflict management	• Job satisfaction • Humanization
Equal: Multilateral control • countervailing powers and negotiated order • autonomy-based organization	When combined with equal power structures produce joint planning and decision making by consensus	When combined with equal power structures produce negotiation and mutual accommodation	• Empowerment • Democratization

*Converging interests and values occur when no deep conflicts exist over values and a model of "love and trust" prevails.
**Diverging interests and values occur when deep differences in values exist and a mode of "power and conflict" prevails.

EMPOWERMENT AS STRUCTURE AND PROCESS

The development of STS ideas in Norway has undergone several "generations" or major phases. The first generation—evident by the end of the 1960s—aimed to empower workers by installing more self-managed forms of work—that is, through "empowerment as structure." The present generation, evident by the end of the 1970s, aims to empower workers by making the process of generating structure itself more worker managed—that is, through "empowerment as process." Both processes equally address STS and empowering participation, but from different, though mutually supportive, perspectives.

Empowerment as structure

Four STS-based field experiments conducted by the original NIDP (Bolweg, 1976; Emery & Thorsrud, 1976; Qvale, 1976; T. Sandberg, 1982; Thorsrud, 1984) extended the original work of the Tavistock Institute by demonstrating that autonomy-based forms of work organizations can exist under different organizational and technological conditions in quite different industries. Although numerous alternative forms of autonomy-based organizations exist (in particular see Herbst, 1976), according to this generation of STS ideas, empowerment was seen as participation in a particular form of organization: the autonomous work group. The experiments conducted by the NIDP were technically successful in demonstrating "organizational choice," but little diffusion generally occurred, and only limited indications showed organizational learning in and among the companies that were subjects of the experiments.

Assessing the reasons for such limited diffusion and learning is beyond the scope of this article, but I will point out a contradiction noted by researchers in the early 1970s. The manifest goal of the change efforts based on first-generation ideas was to change organizational structure from a hierarchical, centralized form to a more self-managed, autonomy-based form. The change process itself, however, was based on a model of hierarchical organization and expert authority. If this process provided a source of learning, then participants likely learned not self-management, but another form of submission to "higher authority." The first-generation change agents provided the model of a nondemocratic organization even as they attempted to install democratic organizations. Democratizing the change process itself was thus considered one means of improving diffusion and learning.

Empowerment as process

During the 1970s, a variety of methods of participatory research were developed (Davies, 1983; Elden, 1985b; Gustavsen, 1985; Gustavsen & Engelstad, 1985). The common purpose of these methods was the creation of ways in which workers could study and change their own organizations. Participation has, of course, long been recognized as a powerful means of overcoming resistance to change; even pseudo or cooptive participation has been found to have powerful effects on participants (Blumberg, 1968; Dickson, 1982; Pateman, 1970).

For the first time, however, inquiry and change were controlled by participants rather than by those representing a higher authority—that is, by higher-level managers or sociotechnocrats. The process of inquiry, learning, and self-study can empower participants because it creates new definitions of what is possible, new explanations of why things are as they are, and, therefore, new possibilities for action.

Participative research is thus a means of empowerment (Brown & Tandon, 1983; Elden & Taylor, 1983; Hall, 1975; Levin, 1986).

A Norwegian project conducted in the mid-1970s particularly demonstrates the importance of deciding who will analyze the work place. Ødegaard (1983) helped train a group of internal "experts" to analyze the working environment of a department of their company. Later, workers in the same department received the same training. Comparing the experts' and workers' explanations of the causes and effects of what happened in the work place indicated that the workers and experts had significantly different systematic explanations. The experts, for example, failed to see the organization as the cause of any problems, even of any social/psychological problems, whereas workers attributed more than half of the problems related to the sociopsychological environment to the organization itself. Obviously, then, workers would seek to improve their QWL by making changes quite different from those the experts would recommend.

This indicates that workers may have different explanations or "theories" about their situations than outsiders have. Workers work directly from "insider knowledge" (Evered & Louis, 1981). Such knowledge is rich with implicit possibilities for action, but remains fragmented and tacit unless systematically brought forth. Workers as individuals have partial and latent explanations related to their work places. Alone, each worker fails to see the whole picture and tends to make incorrect or incomplete attributions of cause and effect—demonstrating "pluralistic ignorance"—and this leads individual "causal maps" to remain isolated, fragmentary, and unused.

By involving workers in a process of participatory research, change efforts allow individual causal maps to surface and become integrated with others to create a more complete, locally grounded explanation of the workers' situation. This explanation is called "local theory," in contrast to more general, abstract, or "context-free" social science theory. Projects conducted in Norway have shown that workers tend to have maps or local theories about their work places that are more complex and sophisticated than the theories of either their managers or of external experts (for examples, see Elden, 1983). Workers, however, tend to lack the authority necessary to develop "local theory" or act on it. Conversely, managers and experts have the authority to act, but not the detailed, practical, "insider" knowledge necessary for effective change.

One solution to this dilemma is to organize the process of inquiry and change to develop methods allowing workers to study and change their own organizations. This allows empowering participation that lets workers generate knowledge useful for action through participatory research and change. Workers thus empower themselves through collective efforts to produce new definitions of reality and new possibilities for action. Empowering participation as a process rather than as a structure leads to self-managed learning through changing one's own organization. Workers thereby create their own work place according to their own local theory.

Democratizing the process of organizational change means empowering workers to design and redesign their own work place in harmony with the larger organization as a total system. Empowering participation calls for consciousness raising and self-managed organizational learning, which necessarily means learning about oneself in relation to others. Herbst's observation (1976) that "the product of work is people" is aptly illus-

trated in the conclusion of a report on one of the more dramatic cases of participatory research and change in Norway, which occurred on the merchant ship *Balao*:

> What is important here is that when you are participating in developing your own organization (in this case of both work and free time), you are also creating your own relationship to other people and your view of yourself and others. **You become a product of your organizing.** (Johansen, 1979, pp. 126–127, emphasis in original)

THE NORWEGIAN APPROACH TO EMPOWERING PARTICIPATION

The work on STS in Norway has returned to the origins of STS itself. We tend to forget that Trist, Herbst, and the other researchers at Tavistock did not invent autonomous groups in the coal mines, but discovered the groups there. The English coal miners invented self-managing groups on their own, yet this invention has proven so powerful it has come to the foreground and been elaborated, extended, and generalized into a highly popular consultant intervention. The workers' ability to learn and invent, however, has fallen into the background and largely been forgotten. During the 1970s, thinking in Norway about STS has been a reversal of figure and ground, with interventions moving from a basis of external expertise to one of internal invention.

Empowering participation calls for workers to intervene in their own organization as part of continuous worker-managed learning, which results in workers' inventing their own organizations and QWL. Democratizing work calls for workers to invent their own organizations. This Norwegian approach can be summarized in terms of a model having the following five main features.

Institutuional/political support for democratized working life

Such support creates a basis for parity of power and labor-management cooperation within organizations. Although the support of top management is desirable, projects have been carried out by unions acting alone (e.g., Elden, 1985; Levin, in press). Changes in job design affect multiple stakeholders. The work environment law passed in 1977 mandates QWL councils in all but the smallest companies and substantially enlarges and extends the State Work Inspection Agency. The nationwide LO-NAF agreement made in 1982 with respect to worker participation in company development projects requires company and national labor-management review processes. Management alone is clearly not the only arbitrator of work improvement and democratization efforts.

Conflict and cooperation

Conflict and cooperation are often viewed as existing at opposite ends of a continuum. This is not so in Norwegian working life. An organization can score either high or low on either dimension simultaneously (Whyte, 1984). Conflicts of interest—such as those about wages—are negotiated while common interests lead to cooperative projects, such as those seeking work improvement. No models of change indicate a simple dichotomy between "conflict" and "harmony." Effective organizational learning involves both conflict and cooperation as stakeholders work out new meanings and new possibilities for action.

A vision of the good organization

The Norwegian tradition of STS-based action research is highly normative: It aims at democratizing working life. The

idea of an autonomy-based organizational structure is at the center of a vision of the good organization (see, for example, Emery & Thorsrud, 1976; Qvale, 1976; Thorsrud, 1984). It is based on alternatives to hierarchy (Herbst, 1976), adaptable to turbulent environments, and characterized by self-maintained organizational learning processes (Thorsrud, 1972). Moreover, democratizing work organizations is a strategic intervention in societal development; the "relations of production" are the leading edge of social change. Thus, change efforts are not limited to efforts within companies, but extend to relations between companies (interorganizational networks) and among work and family life, leisure, education, and community development. A project is developed not just because management is interested in more effective organizational functioning, but also because of the strategic importance of developing a more democratic society (Thorsrud, 1984).

"Do-it-yourself"— or participative—research

Workers have sufficient useful, "insider" knowledge—though it initially is fragmented and tacit—about their work places to be considered practical experts. One need not be formally trained as a researcher to produce new knowledge and apply it toward changing one's own organization (Elden & Taylor, 1983).

New methods of worker-managed inquiry and change

These new methods employ researchers as "colearners." Different, participatory methods assist workers in developing local theory as a basis for local organizational learning managed by workers themselves (Elden, 1985a; Gustavsen, 1983; Gustavsen & Engelstad, 1986). Researchers and consultants are not necessarily irrelevant, but they have new, different roles. Creating new meanings, new definitions of reality, and alternatives for change are no longer exclusively "managerial prerogatives" of researchers or consultants. Experts are no longer the exclusive managers of change, but become colearners (Elden, 1981) who must surrender unilateral control over the process of generating new meaning.

In short, the Norwegian model aims at democratization in the work place, not just humanization. It seeks democratization through participative action research within an STS framework. Some argue that other elements are necessary (Berstein, 1976), that this approach will not in the long term change power relations in Norwegian enterprises sufficiently to democratize them (Levin, in press), or that significant democratization of working life is not possible in "market capitalist societies" (Greenberg, 1983). Knowledge of such things as the long-term effects of the Norwegian approach to democratizing working life and the relationship between political democracy and industrial democracy are not yet possible. Norway has, however, a national public policy based on STS theory, and Norwegian policy makers have relied on STS ideas in formulating public policies supporting the democratization of working life. New thinking in Norwegian research on work and public policy concerning work place democracy are closely intertwined and have been mutually supportive for more than two decades. The further development of STS ideas on empowerment, from that of empowerment as structure (a 1960s view) to empowerment as process, is also reflected in recent public policies. The common theme of Norwegian STS-based democratization policy is one of organization structures and learning processes rooted in and promoting empowering participation.

WORK DEMOCRACY AS EMPOWERING PARTICIPATION: OTHER VIEWS

Is the Norwegian model of empowering participation unique? Descriptions of organization design and redesign projects based on STS ideas abound, as do studies of worker-owned enterprises and of other forms of worker control, industrial democracy, and the efficacy of participation. Unfortunately, QWL and industrial democracy appear in the literature as quite separate ideas. QWL projects tend to humanize rather than democratize organizations, and worker-owned enterprises seem little concerned with self-managed work design and democratizing organizational change. The Norwegian model based on STS as a means of democratization is presently neither widespread nor limited to Norway.

Concepts and cases from other countries also differentiate between democratic and humanistic work reform. A review of three such cases—from Denmark, Australia, and Germany—demonstrates that the idea of empowering participation is not limited to Norway. These cases also help develop a more complete and general model of work democracy.

Before discussing the model, I will clarify some core concepts. Participatory research (PR), also known as worker-managed inquiry and change, overlaps action research (AR) and organization development (OD) with respect to values, the centrality of experiential learning, and the collaborative role of the researcher or change agent. Participation plays a central role in both PR and AR, and both approaches profess similar values. Brown and Tandon (1983) make clear, however, that these two approaches to change differ significantly with respect to how, where, and for whom these values are sought or realized. Each approach has its own ideology and "politics of inquiry."

Brown and Tandon (1983) note that PR originated under conditions of political oppression in relatively unorganized settings—such as that of peasants living in Third World countries with authoritarian governments—as a way of building basic political resources and power bases. Participant-managed learning and self-organization are the building blocks of political autonomy and liberation under conditions of deep, often violent conflicts of interests and values.

In contrast, Brown and Tandon describe AR as a developmental strategy used primarily within organized settings such as work places within which change occurs through broad consensus on common goals. In such circumstances, AR resembles OD or the humanization of work: Both allow for participation without parity of power. AR inquiry would not occur outside of those areas of consensus permitted by management. Furthermore, AR's politics of inquiry impedes the transformation of hierarchical authority structures into more democratic structures.

PR, however, defines problems, collects and analyzes data, and uses the results of research to increase the resources of power available to the relatively powerless. Applied to an organization, PR should result in worker-controlled inquiry and change under conditions in which management is not the sole arbiter of the use of new knowledge. In short, PR results in empowering participation and democratization, not just humanization. The Norwegian model of empowering participation represents one attempt to explore the use of participatory research in a work setting. Let us now examine similar attempts in other countries.

A case from Denmark

Borum (1980) describes a "power strategy" for organization development, in contrast to conventional "communication strategies." He demonstrates his power resource model by describing a year-long PR project aimed at improving working conditions in a surgical support unit at a large (1,000 beds) Danish hospital. This surgical unit consisted of 21 employees, 17 of whom were nurses—all female—who assisted three groups of surgeons with patients from four wards and two outpatient clinics. Borum's goal for the project was to help the surgical unit regulate its relations with the other units more effectively with respect to its own interests.

A key problem was the surgical nurses' lack of power. They could not get the surgeons to plan operations, for the doctors preferred the status quo of day-to-day, "ad hoc" arrangements that gave them maximum flexibility—and were powerful enough to maintain this situation. To solve their work load problems, the nurses had to change this power relationship. Unless the nurses had sufficient power to negotiate, their participation in the project would make no sense.

The nurses had several bases of power with respect to the doctors. First, the nurses had sufficient group cohesion and autonomy to initiate activity. Furthermore, they increased their knowledge base by gathering and analyzing operational data that would support their case that better planning would improve the functioning of all units. Finally, they developed coalitions with head nurses in the wards housing surgical patients, explaining that better planning would also benefit these wards. By developing these and other power bases, the nurses eventually won the surgeons' cooperation.

According to the Norwegian model, Borum presents a case of empowering participation; according to Brown and Tandon's (1983) definition, this is a case of participative research. A key element in Borum's case that is not stressed in the Norwegian model is the development of power bases **prior to** participation. The issue of power parity among participants is a crucial difference between empowering participation and participatory management.

A case from Australia

The issue of power parity also raises the issue of the role of an expert in helping persons learn to rely more on themselves as sources of expertise in improving their own circumstances. Williams (1982, chapter 2) describes an experiment in an Australian university in which students of organization and management were allowed to choose to self-manage their learning. His data show that even under favorable conditions in which those in authority promote democracy in a sociotechnical fashion, not all participants are willing to participate in this process—at least not initially.

Williams developed an STS-based, self-managed learning design to provide students with "direct experience about active adaptation through participative organization democracy" (p. 64). This application of STS is particularly relevant because newer STS ideas deal with the design of self-managed learning systems and "action learning." In university classrooms, authority is often as centralized and hierarchical as it is in industrial bureaucracies. The professor plays the same role as top management, teaching assistants as middle managers or supervisors, and students as workers. Students do not normally participate in decisions affecting their work as students. They perform assigned tasks and are rewarded—usually on an individual, piecework basis—after

being evaluated by their hierarchical superiors. Students do not participate in deciding what topics are taught, how the classroom should be organized, or how evaluation should be carried out. New STS-designed factories offer more of an alternative to centralized, hierarchical authority.

Williams began his courses by asking students to define their learning goals, and then developed self-managed student groups based on members' shared goals. The instructors became resources for the various student-run groups. The design was intended to help students "to discover what they need to learn, to become motivated to learn continuously, and to learn how to learn for themselves in the face of uncertainty and in cooperation with others" (Williams, 1982, pp. 63–64).

Williams implemented this design in three courses on organization and management: a large (210 students) introductory course for undergraduates, a more advanced undergraduate course for 75 seniors, and an MBA course for 43 first-year graduate students who mostly attended school part-time and worked full-time. Systematic evaluations—based on student performance, faculty observations, and questionnaires—indicated that a significant proportion of the students at all levels rejected the democratic, more ambiguous design in favor of more directive, well-structured, bureaucratic forms of learning. The proportions varied by level, with approximately half of the undergraduate students and a third of the graduate students rejecting the alternative promoting self-management. Apparently, hierarchical authority patterns may be so ingrained that they impede self-managed learning.

A case from Germany

Consistent with the above conclusion, Fricke's research in Germany led to his finding that the nature of the hierarchical organization itself—"the Taylorization of work, the influence of experts, and the isolation of workers by piece work and work distribution" (p. 73)—is the chief barrier to workers' developing learning skills, which he calls "innovatory qualifications." Through an experiment in participatory AR lasting several years, Fricke demonstrated that a combination of workers' changing their own organization and a supportive adult education program based on self-managed learning was able to overcome this barrier.

Fricke's project at Peiner AG involved 47 unskilled workers—of whom two-thirds were either women or from foreign nations—from the company's car parts and screw factory. Working under conditions in which work was highly repetitive and physically demanding and wages were based on piecework, the workers also suffered from high levels of noise that made conversation difficult. Fricke chose this site expressly because of its "extremely stressful and restrictive working conditions" (p. 76). If participatory AR could work in this setting, he reasoned, it could work anywhere.

Fricke and his colleagues developed a new method of "accompanying observation" that made workers actively involved in explaining tasks in ways that contributed to the researchers' understanding, the workers' learning, and the workers' proposing changes. The workers' proposals and change strategies were further developed in a series of week-long participatory learning workshops during the four years of the project. The project resulted in improved working conditions, self-maintained learning processes—in which workers displayed creative and innovative skills that their work organization and working conditions otherwise discouraged—and a new relationship be-

tween adult education and self-managed learning in the work place.

The Norwegian model of empowering participation is not unique to Norway. The three models presented above support and extend the one developed in Norway. The central feature common to all models is a requirement that participants not merely participate but also have some power, control, and authority over what they are involved in. Without power, participation results in paternalism at best, and in a hidden managerial control strategy at worst (Dickson, 1982).

EMPOWERING PARTICIPATION AND SOCIOTECHNICAL SYSTEMS IDEAS

This article explores other models of work-place democratization that support and extend the Norwegian model of empowering participation. Given the diversity of the backgrounds and approaches of these different models, any features common to all are significant. I find at least four such features: rejection of conventional OD as a source of empowerment, skepticism of participation as potentially cooptive, the view that organization and political democracy are not the same thing, and the view that empowerment as a learning process legitimates new possibilities for action from the "bottom up."

The rejection of conventional OD as a source of empowerment implies that conventional OD is insufficient for promoting parity of power and empowering the relatively powerless. Even STS ideas can be used for cooptation. Each of the models discussed above distinguishes between conventional and empowering forms of planned organizational change. The Norwegian model prefers democratization to humanization; Brown and Tandon prefer participative research to action research; Borum prefers "power-based" OD to that which is "communications based"; Williams prefers participatory democracy as a basis of organization to a bureaucratic model; and Fricke attacks the uncritical acceptance of fragmented, centralized forms of hierarchical control (Taylorism) and argues for self-educative processes of worker control.

These analyses imply that conventional OD tends to sustain rather than transform hierarchical authority, that it fails to develop structures based on autonomy. Although such structures are central to STS theory, what is needed is a structure-generating process that is itself autonomy-based and self-managed. The Norwegian model of empowering participation attempts to integrate classical STS ideas about autonomy-based structure with OD's emphasis on change and learning processes and with PR's ideas about participant control of the creation of knowledge and "sense making."

The skepticism of participation as potentially cooptive may seem odd, for all of the models presented above aim to increase participatory democracy at work. This skepticism is based on participation's inherent duality, which is often overlooked in OD: Participation is both a powerful mechanism for integrating individual and organizational goals—that is, a strategy for increased management control (Dickson, 1982)—and a potential means of transforming organizational authority (Pateman, 1970). Participation is not the equivalent of democratization (Elden, 1981, 1985a; Levin, in press; Å. Sandberg, 1976, in press). For example, authoritarian political regimes often require a great deal of "participation." All of the models presented above emphasize forms of participation that enhance autonomy and equalize power, not participation of any type at any cost. Participation—

along with other typical OD values such as openness, trust, and the like—under conditions of unequal power tends to increase differences in power in favor of the powerful. Therefore, whether or not participation is empowering depends on the existing distribution of power and whether or not interests and values converge or conflict (see Table 1). Empowering participation presupposes some form of countervailing powers or parity of power that allows one to have an impact even when interests do not converge.

The recognition that work-place and organizational democracy are not the same as political democracy stems from the knowledge that a polity such as a nation-state differs fundamentally from a business. Although a business can be analyzed as a political system, the floor of Congress and the shop floor are not the same with respect to systems of power, control, and authority. Although justice and effectiveness can overlap, by definition business organizations must be effective and should preferably be just, whereas a state must be just and should preferably be effective. Mechanisms such as "one person, one vote," majority rule, and checks and balances contribute to realizing a democratic polity, but can conflict with the economic survival of a business. Democratic enterprises require other mechanisms, at least on the direct level. Democracy in working life is inherently more limited and partial compared to political democracy.

Although all of the models of democracy at work share the values and goals of advocating industrial democracy, we need a clearer recognition of the limits of democratic planning and decision making in a commercial enterprise (Å. Sandberg, 1976). Good economic performance depends upon the effective mobilization of relevant competence, not simply upon majority rule. Ideally, authority at work is organized so that competence can be allocated appropriately. In a business, goal-related competence is an important means of converting power into authority.

In a democratic polity, the conversion of power into authority depends upon general, undeniable, and equally distributed rights, not just on competence in contributing to limited economic goals. The popular image of industrial democracy is that of an organization modeled upon a democratic political system (see, for example, Berstein, 1976)—that is, one employing one person, one vote, checks and balances, judicial appeal, freedom of speech, and the like. On the level of the work place, however, the models analyzed in this article clearly emphasize increasing one's power base by increasing one's organizationally central or "strategic" areas of competence (Salacik & Pfeffer, 1977) and power bases (Borum, 1980). In such terms, democracy means free play and fair play: free play for developing and applying competency, and fair play among all relevant stakeholders involved in self-regulation in the interests of the organization as a whole.

The emphasis on developing competence supports empowerment as a learning process. In all of the models presented in this article, the organization and management of inquiry and change is crucial. Brown and Tandon focus on the "political economy of inquiry"; the Norwegian model uses participatory research to help create new meanings and possibilities for action through the development of local theory; Fricke relies on a strategy of adult education. The seeds for developing authority structures necessary for democratizing work are sown through structuring authority for organizational inquiry and change. This extends Pateman's argument for the educative value of participatory democracy: "The major function of participation in the theory of participative

democracy is an educative one, education in the very widest sense including both the psychological aspect and in the gaining of practice in democratic skills and procedures" (1970, p. 42).

The models discussed above imply that a central element of work-place democratization is increasing workers' power through their development and application of new knowledge on their own. The source of such knowledge is not external experts, but workers' analyses of their own experience. Participative research is therefore simply a form of action research directed and performed by workers according to their interests and needs for learning. Democracy at work, according to this interpretation of STS theory, is not a particular organizational form, but a continuous process of self-directed learning and "active adaptation" (Williams, 1982).

SUMMARY AND CONCLUSION

I will now summarize the results of this exploration of the conditions in which STS ideas can lead to empowering participation (see Table 2). The 12 conditions presented suggest that the organization and management of work reform efforts may be more significant for democratization than any particular change or organizational form. When inquiry and change are more self-managed, new definitions and symbols can emerge that contribute to empowerment.

Workers acquire power by developing new definitions of their own situations. One way of doing this is by analyzing their own organizations as sociotechnical systems (Davies, 1983; Elden, 1985b; Thorsrud, 1977). The key is to create new, shared definitions or new local theory that can more easily be put into action. This evolution of new, "coincident meanings" is a

> political process in which the powerful shape meaning for other organizational members. The most important role of leadship is to define organizational reality for others and to engineer its consensual acceptance. By drawing members' attention to certain aspects of their experience, and not to others, leaders impose a pattern of meaning on otherwise ambiguous contexts. Leaders, or emergent leaders, influence sensemaking through any of the meaning con-

Table 2
Some Necessary Conditions for Empowering Participation

The Norwegian model	*Other models*	*Significant common features*
1. Institutional and political support at "higher" levels	6. Some parity of power prior to participation	9. A rejection of conventional OD and STS as a source of empowerment
2. High levels of cooperation and conflict	7. Systematic development of bases of power	10. Recognition that participation can be either cooptive or empowering
3. A vision of how work should be organized	8. Overcoming resistance to empowerment by the powerless	11. Recognition of significant differences between organizational and political democracy
4. "Do-it-yourself"/ participative research		12. Empowerment as learning legitimates new realities and possibilities for action from the "bottom up"
5. Researchers act as "co-learners," not experts in charge of change		

> struction processses—by introducing concepts, by inculcating cause/effect relationships, and by imparting values.... Thus, it is the interpretative schemes of the powerful which are eventually rationalized as organizational policies and practices. (Gray, Bougon, & Donellon, 1985, p. 83)

From this perspective, the one controlling and directing organization inquiry determines the possibilities for power and empowerment. Participative research at work would empower relatively powerless stakeholders by treating them as "leaders or emergent leaders." Empowering participation means that workers influence or contribute to "sense making" and that organization policies bubble up as well as trickle down.

Participative research and self-managed inquiry thus emerge as central elements of a strategy of empowering participation. Researchers are in the business of defining new possibilities and creating new meanings. Although social scientists may with good cause feel relatively powerless with respect to democratizing work life generally, inquiry and learning are at the heart of work-place democracy, and researchers have much to contribute to these processes. The researcher's role cannot, however, be based on the traditional model of the expert in charge of change (Elden, 1981) or on a model of science based on unilateral control (Torbert, 1981). The findings presented in this article suggest that STS "experts" who seek to contribute to self-management and democracy at work must divest themselves of the typical expert's managerial prerogatives if the sense-making process in organizations is to contribute to empowering participation.

Ultimately, STS ideas imply the need for more local control in policy making. A new challenge for STS is to design systems of governance that extend the ideas of self-regulation beyond the work group. If, as this analysis suggests, sense making is essential to empowerment processes, then so are new ideas about leadership. Further study of these issues is necessary if STS is to contribute as much in the future as it has in the past toward democratizing organization development.

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