

A Community of Interest

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ABSTRACT

This paper discusses the relation between participatory design and joint labor-management committees. It describes criteria for meaningful committees, two projects that reflect those criteria and proposes a role for the PD community.

Keywords

Labor-management, participatory design, democracy, workers, human centered.

INTRODUCTION

We define participatory design as “a set of diverse ways of thinking, planning and acting through which people make their work, technologies, and social institutions more responsive to human needs. PD practitioners aim to improve conditions of work and the quality of life by involving workers, users, and community members in design and development.” These words are taken from PDC’ 98 call for participation. A more pointed way of defining participatory design would be to say that participation must go beyond advice and encompass the idea that the users (workers) or some representative body of users must be able to approve or disapprove the designs before they are implemented. A further elaboration would be that users must be directly included in the design process and that the decisions of the design group must be by consensus.

Yet while the Participatory Design community raises important issues and develops techniques to allow for and encourage all kinds of group participation in design we are still operating apart from the various experiments involving labor-management co-operation.

A substantial number, if not the greatest numbers of participatory design projects, are going on under the rubric of these co-operative activities.

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Various labor-management organizations dealing with the structure of work exist in state and county government, in manufacturing and in the delivery of medical care. Yet the PD community as a community is remote from the community of labor activists engaged in efforts to restructure work or ensure high quality delivery of public services.

In this paper I will try to define my concept of robust or meaningful participation in design activities by the user. I will describe two examples of labor management design activities, which I believe illustrate the idea of meaningful participation. I will return to the notion of what the PD community can bring to the labor management relation and the necessity for our PD community to do so.

A BAD NAME

Various forms of labor management cooperation have been current for years. During the 1970ies and 1980s management in both unionized and non-union firms pushed the concept of quality circles. Quality circles soon got a bad name because in spite of the idea that management would give workers meaningful voice, it turned out that these circles were powerless. Worse they sapped energy and often weakened the ability of the union and the workers to act in concert. Whether this was the idea or not the result was the gradual deteriorating of the quality circle movement. [3]

COERCION VS. PARTICIPATION

Since the 1980s a whole variety of labor management cooperation schemes have been offered. It is obvious to management that the complex production and service delivery systems of today need the active participation of the work force if these systems are to function at anything approaching peak efficiency. The work force participation schemes are designed first and foremost to increase productivity. In general all of the programs have common features. Workers are required to take more responsibility for quality and to do a number of additional tasks associated with their jobs. Most of these programs feature some sort of team building training along with training in certain quality processes such as statistical process control. In the main, although these programs appear to include decision making there is little actual decision making that is translated down to the bottom of the hierarchy. Even if these programs

ascribe responsibility to the worker for maintaining quality most management driven programs still do not transfer meaningful decision making to workers. Clearly worker participation to achieve efficiency is not the same as participatory design. In fact this participation is often coerced with the simple threat- spoken or unspoken that the firm will not be competitive. Translated, "being non competitive," means the firm will leave town.

Worker participation is only meaningful in locations where workers have the contractually protected right of free speech. In non-union locations there are only privileges and not rights. As one scholar pointed out, workers cannot have a voice unless they have the right of free speech, so programs in non-union locations professing to encourage employee input are even more attenuated than in union locations. [6] In unionized locations workers may have the right of free speech, but the question arises as to what workers will say. In other words most workers and unions are not prepared to challenge management's control of the production process with ideas that reflect the interests of workers as distinct from the corporations' interests.

Is it possible to categorize the many labor management projects so that the underlying assumptions and the content are clear? Practitioners do not agree upon a measurable standard by which to judge labor-management projects. The same words and language are used to describe vastly different types of decision-making. The very nature of the competing interests, which management co-operation attempts to reconcile, prevents a common understanding of cooperation. Many consultants coming from a management orientation would see union insistence on issues such as employment, skill and compensation to be an example of failure as the union was not won to the firms' agenda.

Given the difficulty with typing or categorizing projects what can one do to determine the real scope joint decision making? The key determinant of the scope of joint decision-making is the acceptance by management of the legitimacy of the unions' measuring system. In most cases the union already accepts management's systems, as they are the norm in the society. Acceptance of "competitiveness" profit, and quality standards are part of the framework workers use to evaluate their situation. Acceptance by the corporation of union/worker centered design criteria signal a change in power relationships.

INTERESTS AND INDEPENDENCE

It is indicative of the political weakness of unions that in many cases management has promulgated ideas for reorganization and most unions do not feel able to suggest, or insist on options. In this context organized labor has taken two paths simultaneously. One the one hand many local unions or internationals have accepted the rhetoric of participation and joined with the firms in various co-operation schemes. In general this group of unions has accepted the idea that the interests of the workers and a specific company are in basic agreement. Thus at the level

of an individual location the needs of the firm for greater quality and productivity are consistent with the needs of the workers for a job. As a result many, if not most programs, are management driven with little or no union demands regarding the production system itself. Thus we have participation without meaningful worker collaboration in design. This is not to say that the designs chosen are implemented in a totally top down fashion. Often there is more of a team effort among professionals (engineers and designers) than in the past and there are usually significant efforts to explain the production decisions to workers elsewhere in the hierarchy. It is a sad thing to note, but even participation in a management driven production system, which alters traditional Tayloristic systems, is often a very positive change for many workers. Thus even the modest changes offered in these programs are often embraced with vigor.

Even in situations without much worker or union input into the design of the production system workers and their unions often have a considerable amount involvement in the development of compensation systems, job descriptions and the training organizations necessary to maintain the work force in a productive state. These relatively low intensity projects might be included in the notion of participatory design at least with a narrow framework. The problem is that the word "input" is imprecise. We define input as "an organized decision making system which recognizes the institutional roles of the individuals." input is not joint decision-making. "INPUT" is organized advice giving.

ROBUST LABOR-MANAGEMENT PROJECTS?

There exist labor-management projects that do include significant joint decision-making. One aspect of joint decision-making is participatory design. These projects can be characterized as follows:

- labor comes to the discussion with a thought out and confident agenda
- decisions are made by consensus
- the subject matters include some aspect of the design of the production system
- subject matters include the purchase of capital equipment
- subjects include the information system.

Taken as a whole the list proposes altering in the relations between management and labor. Two alterations are suggested. First, the Union enters the discussion as an intellectual equal with management. The union comes ready to propose ideas and not simply react to management's agenda. Secondly the decision process itself is altered from a unilateral decision process to joint decisions using consensus. The list also encompasses subjects basic to the management of any production process such as the design of the production system itself and the purchase of the capital equipment necessary for its operation. Finally the list includes the information system. Meaningful participation by workers requires access to relevant, up to

date information about all aspects of the firm, as well as a way to respond in a short period of time, if not IN real time.

The list is derived from the experiences that unions have had in the area of joint participation. It includes parts of the "Teaming Agreement" between the International Association of Machinists and Bath Iron Works. It is also based on my experience in the field.

Often the motivation for participation might be the same as in the more limited projects described above- namely "save the facility". But the underlying thinking the union and management bring to the project is different. There is a mutual recognition of the differing interests of labor and management. (In my experience management and labor are much more relaxed in their relations with each other when the actual differences that exist between them are recognized and given legitimacy). Sometimes the difference in interests between labor and management are expressed as a coalition between local management and the union against the divisional or the national corporation.

The formal recognition by workers of their own interests enables them to make demands, which reflect those interests as regards the design and implementation of the production system. These cases illustrate the first criteria for meaningful participation –self-consciousness. In projects where some aspects of the production system are being discussed and where there is recognition of differences the level of participation and its quality is high. The individual projects span a continuum in regards to the scope of decision-making and the use of consensus. In no American case does consensus extend to the most basic strategic decisions of the firm such as the choice of the product. However, some firms have involved the union in choosing the location of additional manufacturing sites as did Harley Davidson Corporation and the International Association of Machinists.

In the projects where ~~in~~ the union takes a proactive role we find that we have participation in design. The union is the actor to achieve participatory design. Viewed in this way participatory design in America is reaching back to its Scandinavian roots when the metalworkers union in Norway made demands for participation in the design of production systems in particular various attempts to secure shop floor programming.

RESOURCES AND BARRIERS

A big problem with participatory design projects in the US is the resources available to the union and workers To assist in the development of options to the production and information systems promulgated by the firm. Simply put, the intellectual resources needed to come up with options to a management production agenda are not available at the plant level in most places. To put it another way, even well meaning technical people at most plants are simply not part of the dialogue that takes seriously the imposition of human

centered criteria or democratic values in the design of technologies, especially information systems.

Although lack of resources is a problem the most significant barrier to meaningful participatory design at the work place is the stifling nature of private ownership supported by law, which inhibit the exercise of democracy in the work place. The National Labor Relations Act defines which issues firms must negotiate with a union. Firms are under no obligation to negotiate anything in non-union workplaces. The NLRA sets forth as mandatory subjects for negotiations wages, hours, and working conditions ARE Mandatory subjects of negotiations These subjects are the effects of management decisions such as the design of equipment. However the subject of design itself is not a mandatory subject for bargaining. Most firms do not enter into discussions about design; the configuration of work systems or other such issues unless they feel compelled to do so as a result of some outside pressure.

In order to clarify the nature of participatory design as it exists in the current work place we will briefly describe two projects that illustrate meaningful participatory design. The projects took place in an industrial setting and in a hospital. But they are within the culture, organizations and vocabulary of joint labor management co-operation.

The projects are The Bath Iron Works (BIW) and the IAM located in Bath Maine and the University of Wisconsin Hospitals and Clinics and SEIU Local 1199 United Professionals for Quality Health Care, located in Madison Wisconsin.

In both projects the unions proposed criteria by which they would judge the outcome of their joint work. These criteria are the criteria for the design of the production system or information system. In both cases the unions sought systems that would enhance skill; maintain or enhance employment; maintain or enhance health and safety; and increase income. In all cases the firms wanted to reduce cost per unit; increase quality and reduce manufacturing or process time. When the parties were able to combine both sets of criteria the result was a high performance work system that was (or would be) recognized as such by both the workers and the management.

In brief the ideas agreed upon by the union and management in each of these projects are summarized below.

BATH IRON WORKS AND THE IAM

The initial impetus for worker participation was job loss. Employment at BIW decreased from 12,800 employees in 1990 to about 8700 employees in 1994. The reduction was due to the fall in defense spending. The union pushed the firm to think about product diversification and bring BIW back to its former glory as a low cost, highly efficient producer of commercial and military ships. The union saw that the only way for BIW to move forward was for the firm

to co-operate with the work force in order to be a competitive yard.

The IAM began a teaming process with the BIW in 1993. By mid 1994 the company and the union had agreed to a number of items that required a consensus decision. Even though the company had the right to propose or develop the idea, the union and the company had to agree jointly before the idea could be implemented. In that process the union could refuse to accept, but as was often the case the union could propose alternatives to the company plan, some of which were accepted by BIW. According to the agreement, implementation with joint approval meant that implementation could only take place after a consensus was reached. A list of subjects entitled "Management Develop/Implementation with Joint approval" follows:

- Plan to scope/rescope work
- Subcontract plan
- A long range overtime plan;
- New job classifications

Where approval is required, implementation will not occur until consensus is reached. [1]
Reasonable options had to be explored. Neither party could just say "no".

The parties also agreed to try to put in place a high performance work organization which they defined as "An organization where employees develop ideas, plan the work, and make decisions on how the work is to be carried out." The IAM and BIW embraced a number of criteria, which would define the system. They included: cost, making the shipyard competitive; encouraging a multi-skilled workforce; a communication network which encourages a free flow of ideas; quality, and coming up with an organization which will achieve competitiveness by "achieving the lowest supervisor and support ratio in manufacturing". [2]

The key to the future in the union and management's eyes was a free flow of information. They characterized it in a variety of ways but fundamentally for teams to work they needed a system of "shared information storage and retrieval". The parties agreed upon the following design criteria for the information system:

- 1) Develop ways for the work force to quickly find or be supplied with the data they are looking for;
- 2) Develop ways in which computers can be utilized by the work force with out them having to invest substantial time in becoming computer operators;
- 3) Create interactive overviews and general explanations for individuals who are new to a certain process, product or technical subject.

The BIW-IAM experiment was an experiment in participatory design, albeit with a different vocabulary, located in a different place (Bath, Maine) and located in a different culture than most of us. I believe those barriers

contributed to a lack of participation and support by our community to that effort. What were some of the effects of the lack of PD resources? The pace of the project especially as regards the information system was slowed considerably. Thus when management changed, no information system was in place that would support from a structural point of view the free flow of information. Although I cannot document this assertion, I believe that involvement of PDers committed to democratic decision-making would have allowed more participation and discussion by the rank and file members of the union. My assumption is that PDers would have been available to talk with workers, listen to concerns and help articulate the principles that the union wanted to be embedded in the new system. In other words lack of resources acted as a constraint on discussion and that in turn contributed to a deep distrust by many workers of the new initiatives.

Today the situation at Bath is representative of many union-management attempts at co-operation. General Dynamics purchased BIW. General Dynamics was and is opposed to the concept of product diversification - that is they are only interested in defense. Thus all projects at Bath which encouraged product diversification were ended. Many of these projects were the most innovative as regards worker participation in design. In addition General Dynamics does not support worker participation or involvement. General Dynamics ended the teaming agreement and replaced the major corporate supporters of the agreement with more traditional managers. Concomitantly the union elected a new set of officers who were prepared to resume traditional relations with the company. Thus the participatory design projects came to an end, due not to disinterest but due to a top down management decision and the lack of any legal institutional support for meaningful worker participation in design functions. BIW is now completely devoted to building a new generation of military ships and competes with two other shipyards for that business.

UNITED PROFESSIONALS FOR QUALITY HEALTH CARE AND THE UNIVERSITY HOSPITALS AND CLINICS

In the spring of 1995 the University of Wisconsin Hospitals and Clinics (UW) and the United Professionals for Quality Health Care, Local 1199- Service Employees International Union (United Professionals) began a project to assess and then reconfigure the information system then extant at the University of Wisconsin Hospitals. The parties won a grant from the Federal Mediation and Conciliation Service (FMCS) which helped support the project. The project was unique in that the nurses would undertake to redesign the information system used by them as well as others in the hospital. The project was not simply a nursing work redesign effort, but a project that involved the entire hospital, but with Nurses and their interaction with patients as the focal point.

The project tested several variables associated with participatory design projects. First, could a group without specific technical expertise envision a system, make

meaningful decisions about it and propose specific changes to it? Second, could the group find means to communicate within the body bearing in mind wide disparities in technical knowledge? Third, could the group overcome hierarchical divisions enabling meaningful consensus? Finally would other key stakeholders accept the system and would the software house employed by the University Hospital actually make the changes suggested by the Nursing Information Systems Design Group (NISDG)?

The NISDG focused on the design and development of a clinical information system intended to benefit clinicians and patients. In the view of the NISDG the system had to be designed to ensure that it met the professional needs of the clinician, while at the same time being more efficient and improve the quality of patient care. The ultimate goal for the NISDG is to formulate the design structure for the information system. While the technical challenges facing the group were clear a related challenge was to learn the collaborative design process and apply it.

The design process involved three distinct phases, each of which required learning a set of skills. The group learned the common group process skills, with some emphasis on seeing a problem in a dynamic fashion (flowcharts) as well as seeing a problem as composed of several elements. At the same time as these reasoning skills were developed the group learned to work with each other and actually hear what another person had to say. The mutual listening is the heart of collaboration, and the protected environment of the NISDG allowed people to overcome the hierarchical divisions in the group. The NISDG learned how to envision their reality and then envision the reality they wanted to create.

If we translate the above process to design language, visioning leads to technical information, that is the addition of technical knowledge to the group. The knowledge was supplied by a variety of consultants, and processed using assessment tools designed by the group. In turn as a consequence of decisions made by the NISDG a new system was specified. The group then translated their ideas into an action plan.

The NISDG determined the criteria by which they would assess their system through a combination of discussion amongst the NISDG, surveys, and analysis of their departments. Nurses mapped the flow of information within departments and between departments and then determined how effective the system was. Central to ascertaining the effectiveness of the information system, the NISDG also came to a mutually shared understanding of the most important values regarding nursing and care giving. [4]

SHARED VALUES

Achieving consensus on the shared values drove the process. The shared values included a commitment to hands on nursing, that is the nurse as a caregiver, not as a manipulator of technology. The consensus included the way

in which nurses delivered care, preferably in person and at the bedside determined the initial concept of the information system.

Over a period of 4 months the NISDG determined the following value statement should judge their new system. "We are committed to nursing as a profession and believe that nursing is and should remain an integral part of the health care delivery system. Developing technology to enhance our contributions to that system will increase our efficiency and effectiveness, and positively impact our ability to maintain our unique role in the delivery system." The statement goes on to say that the NISDG wants "to impact the development of the information system so it is designed to support an environment which advances nursing practice, and the nursing process, improves patient care without placing barriers between the nurse and the patient." [5].

FUNCTIONAL SPECIFICATIONS

After having achieved consensus on the basic criteria and values the NISDG then translated these values into more specific functional specifications. NISDG defined two main criteria: (1) The Nursing department's computerized patient record solution must support multi-disciplinary documentation across all care delivery settings; (2) The system must integrate rules-based protocols, pathways and clinical decision support.

Examples of key criteria embedded in the specifications are:

1. Patient education-technology, case specific with registered nurse responsible for evaluating learning pre- and post-procedure;
2. Networking: with lab, X-ray, physical therapy, Occupational therapy, unit-to-unit, nurse-to-nurse, inpatient to outpatient and to other caregivers; and other departments [5]

STANDARDS TO GUIDE NIS DESIGN

As the NISDG developed consensus regarding what they wanted the system to do, the NISDG also set standards to guide the NIS design. Two of the eight such guides are:

1. Real-time entry and access to data from multiple sites using multiple methods;
2. Data entered one time through any one device had to be made available to all other databases. [5]

Designing criteria are one thing, implementation is another. Space does not permit a detailed discussion of the implementation process. But as of May 1998 a significant number of the changes desired by the NISDG are in place. In addition the NISDG has become institutionalized to an extent as the UW Hospital has hired information specialists to work for the Nursing department to support their needs.

The NISDG started out with the objective of designing and developing a clinical information system broadly defined. The NISDG developed criteria and a means to implement

them and has succeeded in implementing many of their ideas. Thus the process of collaborative design, in this case involving non-specialists seems to be validated.

Did the participatory design model actually produce a product? The answer is affirmative. The NISDG did produce a design for an information system that more closely matched the needs of nurses than the system that was in the process of being revised. In other words the NISDG was responsible for some important changes in the existing system, changes which did not appear to be part of the software providers proposals.

Could increased availability of PD resources been helpful to the Nurses? On the one hand the nurses were concerned about being overwhelmed by technical agendas imposed on them from the outside. However, having PDers involved who could have assisted the nurses in articulating their vision from a technical point of view and aiding the group in their relations with the hospital's chosen software provider would have been very helpful. As it was the NISDG was dependent on the existing IS staff, which had conflicting loyalties. Presumably professionals committed to a participatory design approach working for the NISDG would have been responsive to the needs and desires of the nurses.

The project at University of Wisconsin Hospitals and Clinics has run up against the demands of the HMO style medicine. Although the labor management project has been separate from the actual negotiations on a new contract, the acrimonious and frustrating 11 month negotiations served to divert attention, resources and political support from any joint activity between the nurses and nursing administration vis a vis other leaders in the hospital system. It became impossible for nurses to speak as one with their administration to defend nursing interests against the pressures of the HMO while simultaneously the nursing administration was in conflict with the elected nurses union bargaining committee in the area of wages, hours and working conditions. The project has survived and some of the agreed upon first steps have been implemented. With the end of the negotiations the parties will see if they can find means to invigorate their joint process.

WHAT'S MISSING FROM THIS PICTURE?

Twenty percent, at most of American private sector firms have engaged in some form of modernization defined as moving towards a high performance work organization. Of these only a small minority are unionized. Nonetheless, the number of such projects is in the hundreds.

What is missing is the commitment and concomitant technical skill that PD designers bring to the process. PD practitioners believe in information systems that enhance democratic practice AND systems that reduce hierarchy. By definition participatory design means that designs must take into consideration the needs of all the stakeholders, particularly the ones most disfavored by the society. Most

important PD engineers and designers have ideas about how to actually structure the technologies to meet human centered needs.

PD has the antidote to TINA- there is no alternative. Even if the union and the firm agree that mutual needs can be met with new ideas and techniques acceptable to both, finding and developing those techniques has proven to be very difficult. The PD community is simply unavailable to the vast majority of people at the local level who are searching for ways to move forward beyond Taylorism.

What can we do? The Participatory design movement and now, the intellectual discipline developed from it, has its roots in efforts by professionals and workers to attack Tayloristic practice in manufacturing. The massive change from mechanical based production to computer based systems was an opportunity to build a coalition of workers and professionals to impact the design and implementation of computer based production systems.

Those of us associated with Universities are increasingly tied to serving a strictly corporate agenda. Grants by corporations to our departments set limits on what we can do. Perhaps the greatest limit of all is time as many of us are expected to bring in significant sums of money to our departments. Most PD projects as described above don't have the money to support the increased financial demands of academia. For those in the private sector downsizing, tight budgets and internal political restraints also limit availability.

Since under the existing situation resources are not available to support progressive PD work it appears that we will have to fight for them. This might be done through an aggressive approach to public funding agencies such as NIST or the NSF. In part it might be done by joining those in the University community who are battling the budgetary and political priorities of the Universities by demanding that more resources be devoted to the needs of workers as defined not by the corporations but by the workers themselves.

We in the PD community must revisit our roots. We need to seek out and work with those forces in the society WHO uphold, perhaps imperfectly, but none the less consistently the fundamental idea that workers have rights and that workers have the right to intervene in the production process. First and foremost we must find ways to work directly with organized labor at all levels. There is no other force within the American economy composed of workers of all levels of skill, nationality and race which is doing battle on behalf of democratic rights in the workplace. These rights must include the right to design our places of work. Organized labor, the people at the local hospital or office need access to the skills of people in our participatory design community. Our challenge is to reach out to our neighbors in the organized workplaces of American and join their efforts.

Secondly, we need to find ways to reach the vast numbers of technical, engineering and support people who are working in industry, health care and the service industry. Often these people are the ones who actually design or are asked to implement new production systems proposed by senior management. In general they are not part of our dialogue and have not been exposed to human centered design and engineering concepts, so even if they want to support new work systems that encourage participation they do not know how to do so.

Decisions regarding the design of our production and information systems are too important to be left up to the corporations and their servants. The labor movement is beginning to stir after many years of somnolence. Perhaps this is the moment for our community to join in their effort of renewal.

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