

Article

"Sustaining Management Commitment to Workplace Health Programs:: The Case of Participatory Ergonomics"

Shane M. Dixon, Nancy Theberge et Donald C. Cole

Relations industrielles / Industrial Relations, vol. 64, n° 1, 2009, p. 50-74.

Pour citer cet article, utiliser l'information suivante :

URI: <http://id.erudit.org/iderudit/029538ar>

DOI: 10.7202/029538ar

Note : les règles d'écriture des références bibliographiques peuvent varier selon les différents domaines du savoir.

Ce document est protégé par la loi sur le droit d'auteur. L'utilisation des services d'Érudit (y compris la reproduction) est assujettie à sa politique d'utilisation que vous pouvez consulter à l'URI <https://apropos.erudit.org/fr/usagers/politique-dutilisation/>

Érudit est un consortium interuniversitaire sans but lucratif composé de l'Université de Montréal, l'Université Laval et l'Université du Québec à Montréal. Il a pour mission la promotion et la valorisation de la recherche. Érudit offre des services d'édition numérique de documents scientifiques depuis 1998.

Pour communiquer avec les responsables d'Érudit : info@erudit.org

Sustaining Management Commitment to Workplace Health Programs: The Case of Participatory Ergonomics

Shane M. Dixon, Nancy Theberge and Donald C. Cole

This article investigates management commitment to workplace health and safety through an analysis of the implementation of participatory ergonomic (PE) interventions in three worksites. The PE programs were established to address the burden of work-related musculoskeletal disorders. Drawing upon interview and observational data, the analysis examines the evolution of managerial support for PE programs over time and in the context of pressures internal and external to the worksites. Ergonomic Change Teams in all three sites experienced problems establishing authority to act as change agents and in accessing employee time to carry out their activities. Resolution of these problems was heavily contingent on the commitment of senior management, and the efforts of individual management personnel to intervene in support of the PE program. Our findings highlight that “management” is not a monolithic entity and managerial structures are often marked by divisions in priorities, including health and safety.

KEYWORDS: musculoskeletal disorder, managerial support, ergonomic change team, occupational health and safety

Introduction

An approach to workplace health and safety that is gaining increasing acceptance is participatory ergonomics (PE), which aims to reduce workers' exposure to musculoskeletal disorders. While there are numerous definitions of PE, one of the most widely cited is that of Wilson and Haines (1997: 492–493): “the involvement of people in planning and controlling a significant amount of their own work activities, with sufficient knowledge and power to influence both processes and outcomes in order to achieve desirable goals.”

Discussions of PE consistently stress the significance of management commitment to these efforts. Wilson and Haines (1997) and Haims and Carayon (1998) indicate the importance of management support to the success of participatory ergonomics programs. More recently, Lee (2005: 552) has observed that, “the first step for ergonomics circles

Shane M. Dixon is a Ph.D. Candidate at the Department of Sociology of the University of Waterloo, Waterloo, Ontario (sm2dixon@uwaterloo.ca).

Nancy Theberge is Professor at the Departments of Kinesiology and Sociology and member of the Centre of Research Expertise for the Prevention of Musculoskeletal Disorders, University of Waterloo, Waterloo, Ontario.

Donald C. Cole is Associate Professor at the Dalla Lana School of Public Health of the University of Toronto and member of the Institute for Work and Health and of the Centre of Research Expertise for the Prevention of Musculoskeletal Disorders.

Acknowledgements: The authors extend their gratitude to the workplace participants for generously sharing their perspectives and allowing us to observe the programs over time. We also appreciate the reviewers' helpful comments. Funding for the research was provided by the Workplace Safety and Insurance Board of Ontario Research Advisory Committee's Solutions for Workplace Change grant program (grant # 980 008, # 01 041).

starts with a commitment by management.” Case studies of the implementation of ergonomic programs also frequently cite the significance of management support for the success of programs (Dale, 2004; Halpern and Dawson, 1997; Laitinen *et al.*, 1997; Moore and Garg, 1998; Torma-Krajewski *et al.*, 2007) or, alternatively, the barriers posed by lack of support (Bohr, Evanhoff and Wolf, 1997; Jensen, 1997; Polyani *et al.*, 2005; Rosecrance and Cook, 2000). The importance of management commitment to PE programs is one instance of the emphasis on management commitment to health and safety generally. In a review discussion of firm-level organizational practices and work injury, Shannon (2000: 157) notes that perhaps the most important factor is “top management’s commitment to safety. Regardless of the type of study, the finding that such commitment is important is consistently supported by study after study. It can perhaps be seen as the sine qua non for safety.”

This article investigates management support to participatory ergonomics programs. The analysis is particularly attendant to variations in the commitment of senior and middle levels of management to the PE process. Research suggests that variations among management personnel in authority and organizational responsibilities influence their support for new programs. In a study of the implementation of a participative work program, Vallas (2003) noted that production managers pushed for more centralized control over work arrangements, while human resources managers, who had less authority within the managerial structure, pushed for a more participatory style. Vallas (2003: 245) notes that the human resources managers’ arguments were not acted upon as they “were simply overwhelmed by their more potent counterparts within the firm.” In a study of the implementation of information technology, Harley *et al.* (2006) noted that middle managers and supervisors, especially those who were not directly involved in the process, resisted changes as they sought to protect their own interests and shield themselves from added work associated with the new technology. As Harley *et al.* (2006: 73) point out, “From this perspective, middle managers and supervisors are not simply seen as managers performing the tasks of senior management at a lower level. They are in a contradictory location with different degrees of identification with, and responsibility for, the strategic control imperatives of senior management and the operational and work experience concerns of workers.” Balogun (2003) found that managers’ resistance to organizational change was linked to the limited amount of time and resources they had both to usher in the changes requested by senior managers and to “keep the business going.” Commenting on his study’s findings, Balogun (2003: 80) noted that, “perceived middle-manager resistance may stem more from organizational constraints, such as lack of support and time, which prevent them carrying out the changes asked of them rather than deliberate obstruction.” Importantly, a theme that percolates through the studies above is that managers at different levels, and in different positions, may not pursue company interests (such as health and safety) and initiatives (such as PE programs) with the same degree of commitment.

This article’s examination of management commitment to health and safety consists of an analysis of the implementation of PE programs in three workplaces. The focus of the analysis is the evolution of managerial support for PE programs over time, as they unfold in the context of pressures, both internal and external, to the worksite;

the most significant of these is production pressures. In developing this discussion, the analysis considers the varying and sometimes conflicting obligations and commitments of middle and senior levels of management and how these affected support for the interventions and the ultimate success of the ergonomic programs. In particular, the discussion considers management support in the form of (1) delegating authority for ergonomic changes to an Ergonomic Change Team (ECT); and (2) commitment of resources to the PE process, of which the most important resource is employee time.

Lead-up to the PE Projects

The analysis provided here is taken from a multi-site research project on participatory ergonomic interventions. The research evolved to deal with the burden of soft tissue musculoskeletal disorders (MSD) caused or aggravated by work, often referred to as repetitive strain injuries. The objectives of the project were to investigate the conditions that enable, or hinder, the implementation of sustainable PE programs in worksites, and to evaluate the health outcomes of PE interventions. The present analysis is concerned with the first of these goals and discusses interventions in three mid-sized, unionized workplaces, which were each branches of a larger corporation, and located in Ontario, Canada: a plant that manufactures automotive interiors, another manufacturing site that produces components for office equipment and household appliances, and a courier company. In the discussion that follows, these sites are referred to respectively as Automotive Plant, Furniture Plant, and Courier Co.

The interventions were collaborative efforts of a university-based Research Team (RT), management, and the unions. In all three cases, the associations were initiated by corporate-level management who approached the RT seeking a means to address their companies' high rates of musculoskeletal injuries. Initially, the management of each company and research team spoke informally. Following these early discussions, a formal dialogue began, consisting of a series of meetings that involved management, the RT and the union. In these meetings, the parties discussed the type and frequency of injuries in each facility, the production processes, and the core principles underpinning participatory ergonomics. One principle was that management and the union collaboratively undertake activities to address the companies' soft-tissue injuries. Another key element of the process was establishment of an ergonomic change team, which would receive training in problem identification and solution formation.

The RT and company management also discussed the terms of reference for the involvement of each party. The RT would be responsible for provision of training for the ECT members and facilitating the intervention process. Management agreed to (1) the establishment of an ECT with the mandate to identify workers' exposures to musculoskeletal disorders, devise solutions to reduce exposures, and implement those solutions; and (2) commitment of resources for the intervention process. The key resource was time to enable ECT members to meet and to carry out ECT activities. In the discussions surrounding the terms of reference for the project, the RT emphasized the importance of management support for the process generally, and for implementation of changes recommended by the ECTs.

During its discussions with the workplace parties, the research team also gave managers a sense of the expected costs and benefits of the interventions. The associated costs were indirect, in the form of releasing ECT members from their jobs in order to tend to ECT activities and direct, in the provision of financial resources to purchase materials required to make ergonomic changes or outsourcing the fabrication of the changes. The research team also described some of the benefits that may arise from the intervention, including potential reduction in injuries, training for facility personnel in the assessment of hazards and how to address them, and, at the conclusion of the intervention, the presence of a trained and functioning ergonomic change team.

Following the completion of meetings between the RT and company management in each site, in an effort to ensure that management and the research team had a shared understanding of the intervention process, the RT sent a letter of understanding to each of the companies. The letter restated some of the key points that were covered in the meetings, such as the allocation of employee time to the intervention process, the participatory nature of the intervention, and the importance of management's commitment to the PE program's success.

The Participatory Program Framework

Formation and Training of the Ergonomic Change Teams

Before each of the interventions began, the RT gave company representatives suggestions about the personnel who would be needed on the ergonomic change teams. Two main considerations were identified: (1) bringing together participants with different knowledge and skills appropriate for making ergonomic changes such as hourly workers, management representatives and technical specialists such as health and safety, human resources, and skilled trades personnel (Haines *et al.*, 2002; St. Vincent *et al.*, 2006; Van Eerd *et al.*, 2008); and (2) the notion of a "representative participation," model of participatory ergonomics (PE) (Haines *et al.*, 2002: 311–312) wherein personnel on a change team represent their work areas and are directly involved in the change making process.

Final determination of ECT composition rested with the workplace parties. The procedures for recruitment differed across the settings. In Furniture Plant and Automotive Plant, a primary criterion for membership on the ECT's was past or current experience on the plant Joint Health and Safety Committees (JHSCs). In Courier Co, membership overlap between the JHSC and ergonomic change team was intentionally avoided as there was a general understanding in the depot that the JHSC was ineffective and thus, a desire to avoid overlap in the composition of the ECT and JHSC. In this workplace, management identified potential participants and asked if they wished to serve on the ECT. The selection process resulted in each of the ECTs being composed of hourly workers, management representatives, and an ergonomist-facilitator, who was a member of the University Research Team. A detailed description of the membership for each ECT is provided later in the article.

Once the change teams were formed, the interventions began with a series of training sessions for ECT members conducted by members of the RT. These sessions lasted for four hours for four days in Furniture Plant and Courier Co, and three days, for six hours a day in Automotive Plant. The intent of the training was to give the teams an understanding of the underlying principles of ergonomics and risk analysis. This included instruction on task analysis, tool use to identify and measure risk factors, and the incorporation of ergonomic considerations into job design.

The ECTs also were provided with a systematic guide to the ergonomic change process. Called the Blueprint (Wells *et al.*, 2000), this guide is similar to resources used in other interventions (Burgess-Limerick *et al.*, 2007: 146; de Looze *et al.*, 2001; Nagamachi, 1995; St. Vincent *et al.*, 2006: 125–127). The Blueprint specified stages in which opportunities for ergonomic improvement were identified, solutions formulated, implemented and evaluated by workers, and then modified on the basis of the evaluation.

ECT Activities and Outcomes

Initially meeting weekly, then biweekly, and finally monthly, the change teams undertook a range of projects. Generally, the ECTs' decisions about which concerns to investigate were based on information from two sources: company injury reports and suggestions from workers in the facilities. Workers' suggestions were communicated to the ECTs either informally or through a suggestion box located on the shop floor. During the ECTs' meetings, the team members reviewed and discussed workers' suggestions.

The number of changes in the sites ranged from 11 in Automotive Plant to 14 in Courier Co to more than 40 in Furniture Plant. Post-intervention surveys of workers in the first two sites (conducted as part of a broader analysis of intervention outcomes) indicated that the changes generally were rated favourably (Laing *et al.*, 2005; Rivilis *et al.*, 2006). In Furniture Plant, evidence of workers' views of the changes is found in the interviews and fieldwork, which include frequent endorsement of specific changes implemented in the ergonomic process.

Methods

Data Collection

The interventions are examined using a multiple case study methodology. We treat the process of implementing PE interventions and in particular, management's role in this process, as our phenomenon of interest and follow a "collective case study" approach (Stake, 1994: 237). In such an approach, according to Stake (1994: 237), the cases, "may be similar or dissimilar, redundancy and variety each having voice. They are chosen because it is believed that understanding them will lead to better understanding, perhaps better theorizing, about a still larger collection of cases." Case studies typically involve the use of multiple data sources to compose a description of a single organization or phenomenon (Yin, 2003).

The data for the case studies discussed in this article are drawn from field notes and interviews. In each site, the field notes and interview data were gathered by a

member of the Research Team who worked independently from the other members of the RT, who facilitated the ergonomics interventions. Field notes were recorded in two contexts. First, detailed notes were taken at the ECT meetings, which were then developed into accounts of team activities and the involvement of the different parties in these activities. Second, field notes were recorded in the worksite, which included accounts of activity in the site and reconstructions of informal conversations between the field researcher and various members of the workforce, including hourly workers and middle and senior management.

At the completion of the intervention in each site, interviews were conducted with approximately 25 individuals, including ECT members as well as middle and senior management and workers who were not on the ECTs. The interviews examined both broad topics common to the research sites (such as management commitment), and specific issues that arose in a site, as these related to the broader research interests. The interviews followed a common semi-structured guide, which, for each site, was adapted based on an analysis of the site-specific field notes. The interviews were audio recorded and transcribed verbatim. The combination of observations of the ECT process over time and in-depth interviews with worksite participants provides a rich database that, to our knowledge, has few parallels in the literature to date on workplace occupational health and safety interventions.

Analysis of the Process

The field notes and transcribed interviews were imported into a qualitative software tool (QSR NUD* IST V4). For each data set, a preliminary coding scheme was devised and then revised on the basis of multiple readings of the raw data. Sections based on the codes were extracted and then examined to develop the analysis.

The examination of management commitment to the ergonomics process presented here concentrates on two main issues: (1) recognition of the ECT as a decision-making body and delegation of authority to the team to make changes in the worksite; and (2) provision of resources, and specifically employee time to enable the ECT to carry out its activities. The discussion proceeds by way of a narrative account of the activities of the ECT in each site, as they bear on these issues. As these accounts will show, the initial agreement by management in each site to support the ergonomics process by delegating authority and making time available proved difficult to realize.

Theoretical Framework

The analysis is grounded in the political process perspective on technological and organizational change (McLoughlin and Badham, 2005; Thomas, 1994). This perspective considers social formations such as organizational programs as established and maintained by actors in the setting, rather than as objective entities that exist independently of actors. Significantly, this means that programs do not act unilaterally on participants but are conditioned by the actions of those within the setting as well by broader social and organizational conditions. One of the important implications of this is that programs typically do not function in practice the way they were initially designed.

The political process perspective also conceptualizes the evolution of organizational programs as a set of decisions made by various groups over the length of the program's existence, not simply as a decision to adopt a program and not only at the time when terms of reference are established. Moreover, different groups within an organization have discrepant interests and authority to realize those interests, which in turn affect implementation. The salience of these points is that managers who may have made the decision to adopt a program and agreed to certain conditions do not fully control the program's implementation.

A political process approach also emphasizes the importance of conditions internal and external to the workplace, which may complicate or even inhibit individuals' abilities to determine the course of organizational programs. This is yet another way in which the perspective is attendant to conditions that influence programs as they unfold, and in ways that may depart from initial understandings and agreements.

In summary, the political process approach provides a way of looking at the evolution of organizational programs over time, in a manner that is attendant to both interactional and structural dimensions of social life. In the following analysis of the evolution PE programs, this approach is used to examine how these programs unfolded in a context characterized by the actions and interests of different participants, who had varying amounts of authority, in an environment marked by internal forces such as production pressures and external factors.

Case Studies

Case Study One: Automotive Plant

Automotive Plant is part of a larger company with sixty facilities in twenty countries including Canada, the United States, China, and India. It uses just-in-time manufacturing techniques to link with suppliers and customers, with substantial variation in production rates over time. In recent years, the plant suffered productivity and quality challenges, along with a poor health and safety record, and in an effort to improve the plant's efficiency, senior management appointed a new plant manager four months into the intervention.

Automotive Plant had 175 employees, of which 125 were hourly workers. The ECT was comprised of eleven representatives: five salaried managerial staff, four hourly workers and two ergonomist-facilitators. The managerial ECT members included the plant engineer, production manager, tooling supervisor, human resources manager and an additional human resources representative. The intervention lasted eleven months.

ECT Legitimacy and Authority

The ergonomics process was championed by key individuals in the corporate structure as an effort to deal with the aforementioned concern with productivity and quality. Locally, the plant manager at the outset of the intervention also endorsed the process, as did other management members of the ECT, in the view

that measures needed to be taken to address the plant's poor performance in both production and health and safety.

The initial months of the intervention were marked by the efforts of the ECT both to come together as a collective body and to establish a presence within the plant. In order to achieve these goals, the team adopted a strategy to initiate relatively simple changes, for example, modification of tools or small pieces of equipment, rather than more ambitious projects, such as reorganizing production lines. The rationale behind this strategy was both proactive and reactive. By pursuing changes that were feasible within a short period of time, the ECT felt it would have a positive experience working together and provide evidence to others, most notably workers on the plant floor, that the team was up and running. The reactive basis of the focus on small but manageable changes reflected a hesitancy to take on activities that might significantly interrupt the production process, and thus prompt management concern, if not interference. For the most part, members endorsed this strategy in the initial stages, when the team was attempting to establish itself, and felt it contributed to the effort to secure a presence and some legitimacy within the worksite.

Some nine months into the process, concern began to be expressed at ECT meetings about the slow pace of change, and a sense that the process was stalled. This reduced pace was a result of increased production activity in the plant due to a rise in product demand, which saw both hourly employees and management work overtime. The major effect of this on the ECT was that personnel were unavailable to carry out ECT activities. For the ECT's worker members, this was a telling sign that management commitment to the process was conditional on its not interfering significantly with production. When production demands increased, commitment to the ergonomics process was compromised.

At about the same time that production demands increased, the authority of the ECT was significantly challenged with the arrival of a new plant manager, who had a specific mandate to improve output. Toward this end, the plant manager and the production supervisor worked out what they thought would be a more efficient organization and flow of a finished-product packing line. The manager shared her/his ideas at production meetings and briefly, at one ECT meeting. However, the slow pace of ECT-initiated activity frustrated the newly appointed manager. Reasoning that s/he had a mandate to turn the plant around, a matter of "survival" as s/he saw it, the manager laid out a tight timeline and instituted the proposed changes by working with the plant engineer and maintenance department, effectively bypassing further discussion by the whole ECT. This unilateral action clearly violated the terms of reference of the ECT as a co-operative labour-management venture, which both parties had agreed to. When ECT members went to corporate health and safety and expressed concern about the manager's actions, senior management virtually ordered the plant manager to consult further with the ECT. S/he then did so, but under her/his time-line, rapidly, and with the fundamental character of the packing line change remaining as s/he laid it out. Such a process was a clear violation of the participatory nature that the ECT expected.

Provision of Resources: Making Time for Ergonomics

In Automotive Plant, the most significant challenge to management's commitment of resources involved the provision of time to attend meetings and do the committee's work. Difficulties in participating in ECT meetings were experienced by both management and workers, as members of each group on occasion missed, or were called away from, meetings because they were needed on the shop floor.

Limitations on time to carry out activities were particularly salient for one of the key members of the ECT, the plant engineer, who had primary responsibility for designing and implementing equipment that was central to many changes. A recurring theme in ECT discussions throughout the intervention was the centrality of the plant engineer to all aspects of the process: what, when and how tasks were done. The plant engineer was a committed and interested member of the group and there was general agreement that when matters bogged down because of her/his failure to attend to an activity, the problem was not with the individual but with the demands of the production process, and management expectations that production should not be slowed by ergonomics activities. Field notes of ECT meetings often indicate that an activity was delayed because the plant engineer had been unable to attend to a task.

While both worker and management members of the ECT agreed that production took priority over the intervention process, these groups had different evaluations of this fact. For management, the dominant view was this priority was inevitable and understandable. The plant manager discussed the ergonomics initiative's status and where it stood relative to the plant's competing demands:

Nobody's saying, "you better work on ergonomics or you're in trouble." It's not that type of thing. It's not your top priority. It's RESULTS coming out of the plant. Of which, health and safety is one of them. Our health and safety record here is not very good. So there's pressure to improve that. There's pressure to improve our quality performance. There's pressure to improve our performance results. So there's keeping the plant running and meeting the customer demands and other factors. The health and safety side, there's lots of activity there. So all I'm saying is the plate is pretty full, and ergonomics is on the plate. But it's not the meat. It's the vegetables.

A worker representative on the ECT, in an observation that reflected an understanding (though not an endorsement) of the priority of the production process said, "we have accountants now who are production managers and health and safety is their last train of thought."

Another ECT worker representative described how the subordination of ergonomics to the production process affected her/his involvement, and what the problems encountered said about management's commitment. The representative said one of the "big downfalls" of the ECT's operations is:

Over the last year, couple years, (there have been) manpower shortages. You can't get necessary time off your own job to be able to focus on working on any of these projects. There was a number of times I had a hard time even to get to the meeting and I'd get to the meeting and the meeting had to be rushed so that we could get back to the line. And that's where I felt the company's commitment wasn't there. I felt other things were a priority over the ergonomics changes.

Management members of the ECT also experienced conflict between their jobs and attendance at ECT meetings. The plant manager recalled her/his reflections at times during meetings. "Oh man, I'm sitting in this meeting but there's so many things I should be working on and I really don't have—I have time for it but I don't have a LOT of time for it."

The problems in providing time for ECT members to participate in meetings and attend to ergonomics activities were never resolved in Automotive Plant. Indeed, as the above discussion of the effect of intensified production on support for the ergonomics process showed, problems of securing time for ECT activities were exacerbated over the course of the intervention process in response to increased production pressures.

Case Study Two: Furniture Plant

Furniture Plant is part of a corporation with plants in Canada, the United States, and Taiwan. It is one of the largest manufacturers of its product globally. In recent years, the company has experienced both a decrease in consumer demand and increased competition from foreign producers who have the advantage of a lower paid work force. In response to these pressures, the company restructured its Canadian operations by amalgamating plants and reducing its workforce and adopting lean production techniques to improve efficiency.

Furniture Plant had 300 employees, of which approximately 250 were hourly. The ECT consisted of nine members: two hourly workers, a supervisor, the health and safety manager, the plant manager, an environmental health and safety specialist, a production manager, a maintenance manager, and an ergonomist-facilitator, a member of the research team. The intervention in Furniture Plant lasted forty-eight months.

ECT Authority and Legitimacy

At Furniture Plant, the ECT was undermined by a lack of legitimacy in the eyes of key supervisory and management personnel, which compromised the team's ability to carry out its activities. One manifestation of this was lack of cooperation from some supervisors on the shop floor to ensure that changes were properly executed. As a result, on a number of occasions when the ECT attempted to implement changes, these initiatives often were not used, were underused or were used incorrectly.

Problems in securing cooperation also arose with two managerial personnel who played key roles in the ECT process. Over the course of the first months of the intervention, as the ECT began its activities, it became clear that it would be necessary to work with both the production and maintenance managers, neither of whom were initially ECT members. While the nature of the difficulties of working with each of these individuals was different, in both cases the problems negatively impacted the ECT's efforts.

The production manager had primary responsibility for factory layout and equipment design and thus was critical to many ECT activities. The main problem underlying the ECT's relation with the production manager at the outset of the process was a lack of communication. Since the production manager was not a member of the ECT, and thus not party to the team's discussions, s/he was often unaware of the details

and rationale for planned activities. The lack of communication meant that several ECT decisions were rendered redundant by subsequent actions on the part of the production manager, or that changes the ECT initiated, which required the go ahead from the production manager, languished while the ECT waited for this approval.

The maintenance department was responsible for preventative maintenance, ensuring that broken machinery was repaired, and the modification and/or installation of production equipment. As the link between the department and the ECT, the maintenance manager played a key role in the intervention process. In the case of the maintenance manager, the underlying problem was lack of support for the ECT, and the ergonomics intervention generally.

At the intervention's outset, the ECT sent their recommendations for changes that would address work hazards to the maintenance manager, who had the personnel and resources to implement the changes. Problems typically ensued, either in the form of the department's failure to complete the changes or taking an unreasonably long time to complete them. Eight months into the intervention, the plant manager, in an effort to more fully engage the maintenance manager in the process, brought him/her on to the ECT. The hope for improvement did not materialize and the ECT continued to struggle.

The maintenance manager became known to members of the ECT for her/his negative orientation to ECT activities, and the expectation that when asked to involve the maintenance department in the ergonomic initiative, s/he would say "no." His/her position on contributing to the initiative, expressed in an interview some twenty months into the intervention, was that "the maintenance department should never build anything. We're here to repair machinery." In an interview conducted at the conclusion of the intervention, the plant manager discussed the maintenance manager's orientation to the ECT process in the initial stages:

[The maintenance manager] like other skilled trades supervisors I've worked with before, their natural filter to find out where the priorities are is to say "no." And if s/he says "no" and people go away it's not important. So, even though s/he was on the team s/he hadn't really bought in yet and s/he was giving us the same answers in the team meetings as s/he was giving to me outside the team meetings. And so yeah there was that frustrating time period where all of a sudden we've got her/him in the meeting, but we are still third on the list [of priorities] to get anything done and we weren't getting anything done.

The difficulties in securing cooperation from unit managers posed significant obstacles to the ECT's effectiveness. Approximately twelve months into the initiative, the ECT was flagging, unable to ensure that the solutions it designed were implemented and those that were implemented were utilized. The delays frustrated ECT members who expressed doubt that the PE intervention could continue.

The lack of cooperation from floor supervisors was discussed at both the ECT meetings and in meetings between the ergonomist-facilitator and plant manager and occupational health and safety manager, respectively. The outcome of these discussions was the development of a strategy to raise awareness of the ECT within the plant, in order to gather support for its activities. To that end, the health and safety manager made several efforts to raise the profile and gather support for the

intervention process. These included organizing meetings and information sessions about ergonomics with floor supervisors. Additionally, ECT members began to closely monitor the implementation of changes on the shop floor in an attempt to insure they were being used correctly. In cases where they saw departures from proper usage, they informally talked to supervisors and reminded them of the purpose of the change, and, if new equipment was involved, how to make use of it correctly.

The difficulties in working with the production manager and maintenance manager were addressed by the interventions of other management personnel. To resolve the problems arising from lack of communication with the production manager, the health and safety manager and plant manager recruited the production manager to join the ECT. With the production manager now part of the team's deliberations, communication improved and the earlier problems of duplication and inefficiency were largely resolved.

The difficulties around the maintenance manager's lack of support for the process were addressed by the intervention of the plant manager, who met with the maintenance manager privately and indicated that the ergonomics program was a priority in the plant that should be balanced with production needs. Prompted by this directive, the maintenance manager became a more willing and active participant in the ECT's work. This point is developed further in the following discussion of the conflict between ergonomics and production pressures.

Production Pressures: Making Time for Ergonomics

In Furniture Plant, there were few problems around insuring ECT members were available to attend meetings. In this site, the main issue around the commitment of time to the ECT project involved employee time to implement changes. One of the key problems here was the lack of cooperation with the ECT process by the maintenance manager and his/her failure to make personnel available for tasks that were necessary for the ECT to complete its activities. On several occasions, when the ECT discussed an intervention that required the participation of the maintenance department, the manager indicated that completing these tasks would not be possible as the department was backed up and s/he simply did not have the personnel available to do the work.

In an interview, the maintenance manager described the "juggling act" of ensuring production, specifically keeping machinery operational, while trying to devote time to ergonomics:

If I have to choose, I'll pick production. That's just the way it is.... in general it's frowned upon having machinery down.... We can't just let it [machinery] go down, it's just not allowed. Whether anybody would actually say that out loud, probably not. ... We—everybody, every person who operates an industrial establishment is in business for one thing, that's to roll the machinery, if the machinery isn't putting out the product you're not gonna make the customer's order.

The maintenance manager's subordination of ergonomics to the production process was a specific point addressed by the plant manager who met with her/him to secure her/his cooperation. In an interview conducted on completion of the intervention the plant manager described this meeting as a "pep talk," in which s/he emphasized the need to balance the interests of ergonomics and production. Recounting that conversation,

the plant manager said s/he told the maintenance manager it was not acceptable to concentrate on preventative maintenance and breakdowns at the expense of ergonomics, and that time must be devoted to the ergonomics process. The ongoing commitment of the plant manager to the ergonomics process, which resulted in an intervention to secure the cooperation of a recalcitrant middle manager at a time when the process was floundering, was a key feature of the ergonomics process at Furniture Plant.

Case Study Three: Courier Company

The intervention in the transport sector was carried out in a depot of a large courier company, which services customers in Canada and the United States. The company employs more than 10,000 workers in more than 100 facilities across Canada and has a fleet of more than 2000 delivery vehicles. At the time of the intervention, the company was financially healthy. In the courier industry, where the “product” sold to consumers is the ability to ship an item from one location to another quickly, firms try to maintain their competitive advantage by improving the speed and reliability of deliveries. Accordingly, the company places pressure on both managers and hourly workers to maximize customer service. As one senior manager stated,

TIME, TIME, TIME... And that's driven into the minds of the managers of the employees because [in] the... national call every morning all we do is rip guys if they didn't get packages to their... stops on time. We measure, on time, on time, on time. In their [district manager's] personal scorecard on time, on time, on time and we measure time, time, time. And you have to understand it's the nature of our business.

There were 150 employees at the courier facility; of these 135 were hourly workers. The ECT consisted of eleven representatives, including six hourly workers, a supervisor, a human resources representative, an administrative assistant, a health and safety manager from corporate headquarters, and an ergonomist-facilitator who was a member of the university research team. The intervention in Courier Company lasted for thirty months.

Establishing Authority and Legitimacy

In the courier facility, the operation of the ECT was significantly influenced by the nature of the corporate structure, in which much of the authority over plant operations lay with senior management personnel who were located outside the facility at corporate headquarters. This meant that the ECT operated at a distance from those with the power to approve and ensure the success of its activities. The significance of the separation of the ECT and those in positions of authority within the corporate structure was evident in several ways.

The most immediately apparent effect of the corporate structure on ECT activities was inefficiency in its operations. As the ECT began its deliberations, the need to consult with managers outside the facility and to gain their approval for ECT initiatives slowed the team's activities. Seemingly simple changes that the ECT undertook, such as the removal of small pieces of equipment from the depot's loading docks that were no longer used, required extended time to complete because of the need to gain approval from senior management.

The separation of senior management from the ECT had another effect, in that the physical distance highlighted the social and political differences among the ECT members. As the ECT became aware that carrying out its activities would require it to work with senior management, worker members of the ECT actively removed themselves from this process. The job of communicating with, and making a case for, ECT activities to senior management fell to the OHS manager, who was a member of the ECT, and, in some cases, to the ergonomist-facilitator.

In explaining their unwillingness to assume the role of spokespersons for the ECT, workers offered two related reasons. In some instances, they said they did not know the senior managers with whom the ECT needed to liaise, and thus it would be inefficient for them to represent the ECT in deliberations with management. At other times, workers said they felt they would have little influence upon management, who would not listen to them because they were workers. In contrast to their sense of their own lack of importance, workers said that the OHS manager had the “connections” and “authority” needed to deal with managers located at corporate headquarters. A representative account of the contrast that workers saw between their own, and the OHS manager’s influence was provided by one worker member of the ECT, who said the OHS manager could,

go to someone higher up and say “Listen we need this, this and this.” And he’ll say, “Sure, no problem.” [The OHS manager’s] part of that inner circle, part of the upper management, the upper echelon if you will, and that gives him a certain amount of authority and flexibility that the rest of the group does not have.

Significantly, some management members of the ECT agreed with this assessment. In interviews conducted near the completion of the intervention, both the OHS manager and the ergonomist-facilitator indicated that worker members were unable to capably represent the ECT to senior management. The ergonomist-facilitator said,

[a worker representative] ... didn’t volunteer for anything. Why? Because he is gonna sit on the phone and wait. [OHS manager’s] gonna walk into the office and say, “[senior manager], I need this.” And [worker representative’s] gonna talk to corporate for 30 minutes and he’s never gonna get by the secretary. So that is just, that’s the chain of command in the company ... But how do you get past it?... [A senior manager] says, “Go ahead and call me.” They [worker representatives] called him, waited for half an hour and he never got on the phone.

When the OHS manager was asked if there was anyone on the ECT, besides her/himself or the ergonomist-facilitator, who could represent the team in its discussions with senior management s/he identified the operations administrative assistant as someone who could fill this role. Asked if anyone else could, s/he said, “On the team right now? I’d say no...I’d say s/he’s the strongest personality...without question s/he is the only person right now that could do it...’cause [in contrast to] everyone else — [the operations administrative assistant] doesn’t take “no” for an answer all the time....”

The separation of the ECT and senior management was accompanied by limited support for the ergonomic initiative. Management’s responses to the ECT’s requests were often disappointing. Senior managers were largely unaware of the ECT or, if aware, either uninterested in, or resistant to, its activities. On several occasions, managers responded to the ECT’s recommendations for changes by arguing that the

changes were not warranted. Management's resistance to the ECT's recommendations prompted team members to negotiate with senior managers. In some cases, the ECT contacted a manager about a change and was told by the manager that he/she would look into it, but then the team received no response. To find out about their requests the ECT members had to contact management again, adding redundancy to the process. Difficulties in securing management support protracted the implementation process. Whether management was indifferent to or resisted the ECT's requests, their position undermined the authority and capacity of the ECT.

The low priority that management accorded to the ECT and the obstacles that this often imposed on its ability to make changes slowed its progress and damaged the ECT's morale. In one example of how this unfolded, the ECT initiated a request to design and prototype a four-wheeled cart for couriers to pull freight. This seemingly straightforward project, intended to improve equipment that is central to the company's main activity — moving freight — took 18 months to complete, due to difficulties in securing authorization from senior management for necessary funding, and lack of co-operation from the engineering department in designing the cart. Field notes and interviews detail a continuing series of requests for financial and technical support, which met with indifference or resistance. In some instances, initial indications of approval were not followed up with concrete action, requiring representatives of the ECT to revisit the issue and repeat the request, sometimes with continued lack of results. In the end, the cart was built, but the time and energy invested in this process, in large part because of management's initial indifference to the project, took a considerable toll on both the team's morale and its confidence in management's support for the ECT process. In an informal conversation with the researcher, one ECT member commented on the delay and said that if the ECT had been able to go ahead and build the cart instead of involving managers, the problem would have been resolved in a much shorter time.

Over the course of the thirty months of the intervention, the problems in communicating with, and securing support from, senior management were unresolved. The team continued to rely on the health and safety manager, and to a lesser extent, the ergonomist-facilitator, to make the case for its activities to senior management, with varying degrees of success. When the health and safety manager and ergonomist-facilitator were unavailable and an activity required communication with a manager at the company's head office, that contact was rarely accomplished. In the end, the team failed to gain authority over the intervention process, and the removal of worker members from negotiations with senior management limited their participation in some of the most significant aspects of ECT activities.

Production Pressures: Making Time for Ergonomics

Management members of the ECT in the courier facility generally were able to adjust their work routines to accommodate ECT participation. While worker participation was typically good at the outset of the intervention, within months problems began to appear in the form of supervisors' unwillingness to release workers to attend meetings because replacements were not available. Approximately eight

months into the intervention, the absence of worker representatives from meetings became a source of tension within the ECT. Supervisors expressed concern about the difficulties they were experiencing altering work schedules to accommodate workers' attendance at meetings. On several occasions when discussions of scheduling problems arose in meetings, the district manager expressed frustration with the demands the ECT made on the production process and noted that there were only so many couriers who could be spared and that freight had to be delivered. In an interview sixteen months into the intervention, the district manager described the challenges of scheduling people off for ECT meetings and how this influenced her/his initial commitment to the process:

Some days we are great [at scheduling people off] and some days we're not. This week, based on no injuries and nobody supposed to be on vacation we have a pool of six extra bodies to deal with absentees and things of that nature. I know there's been weeks when the ergo team tried to meet and we couldn't give them the couriers because there were no spares and two call-ins [e.g., sick day]. And we were trying to manage the business. So it's not etched in stone, we are not a manufacturer where there's two hundred employees and you get this guy to take over running a press while you borrow another guy. ... I was a real fan of [meeting] every other week or once a month. I didn't know how much time the ergo team needed but I was a real believer in preferably once a month and in the worse scenario, every other week. Only because it gives [a supervisor] as a scheduler a longer period time to plan to be sure to give you the people that you need.

Worker absence from meetings had substantive impacts on the intervention process. In several cases, change making activities were slowed or even halted because worker representatives who had knowledge about some aspect of the intervention were absent from meetings, or unable to carry out activities essential to an intervention. The ECT's morale also was affected. Two members threatened to quit the team due to management's failure to relieve workers for meetings. One member who *did* quit said part of the reason was because s/he was unable to make it to the meetings and even those worker representatives who were able to attend meetings questioned management's commitment to the intervention.

ECT members' concern about attendance problems led to some attempts to resolve this issue. One effort was to schedule meetings at what was believed to be a more convenient time. This had little effect because the underlying problem was not when meetings were scheduled, but the failure to provide relief for workers so they could attend the meetings. Because no concrete plan was developed to ensure worker representatives were relieved, meeting attendance by couriers remained spotty.

About eighteen months into the intervention, in a further effort to address this issue, the health and safety manager contacted a senior manager, who was supportive of the PE program, about the problems around releasing couriers for ECT meetings. In response, the senior manager directed the district manager to ensure that workers were able to attend meetings. This yielded some short-term results, as the team's courier representatives were able to participate in the next three meetings. Soon after, however, scheduling conflicts recurred and couriers once again had difficulty attending meetings. This problem persisted for the duration of the intervention.

Discussion

Drawing on a political process framework (McLoughlin and Badham, 2005; Thomas, 1994) this article examines management support for PE interventions in three sites. The analysis highlights the manner in which differential interests within management and between management and worker participants in the ergonomic intervention process affected the evolution of the programs. In line with the theoretical framework employed, the discussion makes clear that the evolution of the programs unfolded in response to internal and external pressures and in a manner that departed from the initial formal arrangements agreed to by management. The most significant departure concerned realization of management commitment to the process.

In all three sites, ECTs experienced problems both in establishing authority to act as change agents within the workplace and in accessing employee time to carry out their agendas. These problems were of course related: lack of authority led to inability to secure commitment of employee time, in some cases to attend meetings, and in others, to make ergonomic changes. In all these instances of problems around *time*, the underlying problem was management's failure to provide the human resources, in the form of replacement workers and the investment of both ECT members' and other employees' labour, to enable the ECTs to function effectively.

The findings reported here on limitations on time to devote to ergonomic concerns correspond with a common theme in the literature on PE interventions (Haims and Carayon, 1998). Rosecrance and Cook (2000: 260) found that participants in an ergonomic program in the newspaper industry cited "lack of time to devote to the project as one of the key limitations." In their evaluation of PE programs to improve the work conditions of operators who used visual display terminals, Westlander *et al.* (1995) reported that supervisors expressed frustration at the lack of time to devote to the intervention program. In a manner similar to the processes that operated in Automotive Plant and Furniture Plant, Liker, Joseph and Ulin's (1991) study in the automotive sector found the routine unavailability of skilled trades people, who implemented ergonomic changes, caused delays in the process of change making.

Within a common framework of difficulties securing authority and time to make changes, the manner in which the ergonomic program unfolded in each worksite was conditioned by local circumstances. In the automotive parts plant, a significant event was the arrival of a new plant manager, whose mandate to improve plant efficiency provided a context for transgressing upon the ECT's authority. This occurred at a time when the ECT was making progress working as a collective body. Senior managers' efforts to intervene and re-establish the authority of the ECT following the pre-emptive move by a new plant manager had little impact and the momentum the team had established early on in the process never returned.

A different dynamic played out in Furniture Plant. Similar to Automotive Plant, the ECT in Furniture Plant lacked legitimacy in the eyes of key individuals, which led to difficulties in securing the investment of employees' time to carry out ergonomic changes. Unlike Automotive Plant, in Furniture Plant the interventions of middle- and

senior-level management to affirm the importance of the ergonomics process and secure the cooperation of recalcitrant individuals contributed substantially to resolving the problems of lack of legitimacy and availability of personnel to carry out change activity.

In Courier Company, senior management's support for the ECT was mixed. For the most part, management's response to the ergonomic program was on the order of benign neglect. On some occasions, management actively resisted some of the ECT's recommendations. Both responses were powerful and significant hindrances to the ergonomics program.

Our findings highlight that "management" is not a monolithic entity and managerial structures are often marked by divisions in priorities and interests. While senior management in all sites was supportive at the outset of the process, it was middle management and supervisors who, for the most part, had to deal with the pragmatic issues around maintaining production once the intervention program was in progress. Given the pressures they faced, it is not surprising that securing their support was an ongoing challenge. Additionally, there were variations across the sites in the degree to which senior management's initial commitment was sustained throughout the course of the ergonomics program, and importantly, backed up by active intervention when the program encountered resistance.

Variations in support among different management levels and positions shown here are similar to those observed in previous research. Lawton and Haslam (2000) found that the effectiveness of an ergonomics intervention in an electronics company was hampered because some managers felt it was not their responsibility to carry out ergonomic activities. In an investigation in an automotive setting, Adler, Goldoftas and Levine (1997) found that while senior managers endorsed efforts to address ergonomic problems, support from middle managers was compromised by several factors, including resistance to making time to implement the company's ergonomic program properly, a finding that duplicates those reported here.

This examination of ergonomics change teams provides evidence that co-operative labour management ventures are "contested terrain" (Krahn, Lowe and Hughes, 2007: 316). In a discussion of Joint Health and Safety Committees, which bear some parallels to the ECTs discussed here in that they are co-operative labour-management bodies concerned with occupational health and safety, Krahn, Lowe and Hughes indicate that some of the main struggles that occur in these bodies concern inequities in power and influence that disadvantage workers in the joint committee process (Krahn, Lowe and Hughes, 2007: 316; see also Walters, 1985). This concern was manifest in all three sites as worker representatives experienced frustration over the limited authority granted to the ECTs. In the most dramatic manifestation of this, a perceived lack of influence prompted workers in Courier Company to actively remove themselves from some key elements of the ergonomics process. Krahn, Lowe and Hughes also cite research (Lewchuk, Robb and Walters, 1996: 228) evidence that management may ignore joint committees, even when they are supported by legislation. This too occurred in the ergonomic programs examined here, where in each site management at some point failed to co-operate or actively usurped the authority of the ECT.

Finally, the fundamental problem that the interventions encountered in all sites was the *status of occupational health and safety*. A significant issue here was the entrenched position of production relative to other concerns, most notably for this discussion, the prevention of musculoskeletal injuries. In particular, there were conflicts over both the resources invested in occupational health and safety and control over the organization and pace of work, with priority given to maintaining (or increasing) productivity, at the expense of investment in addressing hazards that exposed workers to musculoskeletal injury.

The analysis presented here highlights the structural constraints that condition support for occupational health and safety interventions. As Liker, Joseph and Ulin (1991: 133) point out, "These programs are not central to getting the product out the door. They are therefore not of foremost importance to the participants, particularly not to middle managers." They are accorded what Frick (1990: 378–79), drawing upon Aminoff and Lindström (1981), calls "side car" status, as "an activity which is tacked on to the main activities and which does not influence the general development of the working environment." Our findings provide support for Walters' (1985; see also Hall, 1993) contention that the choices managers face in dealing with workplace hazards are embedded in the structural contradictions between the interests of capital and the promotion of, and investment in, health and safety.

It is important to recognize that significant, structural tensions between OHS and production are not the only impediments to securing management support for health and safety initiatives. Challenges to managerial support may come from multiple sources. For instance, managers may resist new initiatives, whether health and safety or production oriented, in order to stave off heavier workloads for themselves and/or workers in their units or departments. Even in the case of production-oriented programs, some managers may be resistant because their own interests (e.g., retaining control over decision making in order to protect their employment status) conflict with program goals (e.g., Knights and Murray, 1994; Vallas, 2003). While production pressures are one among many sources of managerial resistance to health and safety initiatives, their persistence and power warrant a particular need for recognition and vigilance in countering their effects on commitments to health and safety.

Conclusion

The article contributes to a growing body of research that examines management's role in workplace programs to improve occupational health and safety. Following a political process framework, the article examines how an organizational program evolved in ways that depart from the original design and that within this process, management positions on issues such as workplace health and safety are fluid and responsive to shifting pressures, both internal and external to a given workplace. Our findings highlight that conceptualizations of management must recognize heterogeneity in regard to level (senior and middle) and responsibility (production, health and safety) within an organization. Additionally, differences within organizations in access to resources and the vested interests of labour and management affect the evolution of

these programs. One important implication of this is that agreements of commitment forged at an intervention's outset cannot be treated as stable over time.

On the basis of the research presented here, we conclude by suggesting the integration of the following set of questions into the planning process for workplace health and safety interventions: (1) Does the organization have the personnel available to investigate, fabricate and implement changes to address work hazards? (2) Have the intervention's goals and the means for implementing them been agreed upon, and committed to, by different levels of management? (3) Have managers at the operational level been consulted on the process and the need to engage with deliberative bodies such as ECTs, even at the expense of ceding some of their authority? (4) Has consideration been given to enabling these same managers to access the necessary resources to meet competing production and occupational health and safety goals? Reflection on these issues will further the project of empowering joint worker-management bodies to engage in effective health and safety initiatives.

References

- Adler, Paul S., B. Goldoftas, and D. I. Levine. 1997. "Ergonomics, Employee Involvement and the Toyota Production System: A Case Study of NUMMI's 1993 Model Introduction." *Industrial and Labor Relations Review*, 50 (3), 416–437.
- Aminoff S. and K. G. Lindström. 1981. "Effektivare Former för Skyddsarbetet och Skyddsarbetets Organisation." Garpendingberg: Skogshögskolan.
- Balogun, J. 2003. "From Blaming the Middle to Harnessing its Potential: Creating Intermediaries." *British Journal of Management*, 14, 69–83.
- Bohr, P. C., B. A. Evanhoff and L. D. Wolf. 1997. "Implementing Participatory Ergonomic Teams Among Health Care Workers." *American Journal of Industrial Medicine*, 32, 190–196.
- Burgess-Limerick, R., L. Straker, C. Pollock, G. Dennis, S. Leveritt, and S. Johnson. 2007. "Implementation of the Participative Ergonomics for Manual Tasks programme (PERforM) at Four Australian Underground Coal Mines." *International Journal of Industrial Ergonomics*, 37, 145–155.
- Dale, L. 2004. "Partnering with Management to Implement Ergonomics in the Industrial Setting." *Work: Journal of Prevention, Assessment and Rehabilitation*, 22 (2), 117–124.
- de Looze, M. P., I. J. M. Urlings, P. Vink, J. W. van Rhijn, M. C. Miedema, R. E. Bronkhorst and M. P. van der Grinten. 2001. "Towards Successful Physical Stress Reducing Products: An Evaluation of Seven Cases." *Applied Ergonomics*, 32 (5), 525–534.
- Frick, K. 1990. "Can Management Control Health and Safety at Work?" *Economic and Industrial Democracy*, 11, 375–399.
- Haims, M. C. and P. Carayon. 1998. "Theory and Practice for the Implementation of 'In-House,' Continuous Improvement Participatory Ergonomic Programs." *Applied Ergonomics*, 29 (6), 461–472.
- Haines, H., J. R. Wilson, P. Vink, and E. Koningsveld. 2002. "Validating a Framework for Participatory Ergonomics." *Ergonomics*, 45 (4), 309–327.
- Hall, A. 1993. "The Corporate Approach to Occupational Health and Safety: A Labour Process Analysis." *Canadian Journal of Sociology*, 18 (2), 1–20.
- Halpern, C. A. and K. D. Dawson. 1997. "Design and Implementation of a Participatory Ergonomics Program for Machine Sewing Tasks." *International Journal of Industrial Ergonomics*, 20, 429–440.

- Harley B., C. Wright, R. Hall, and K. Dery. 2006. "Management Reactions to Technology Change: The Example of Enterprise Resource Planning." *Journal of Applied Behavioral Science*, 42 (1), 58–75.
- Jensen, P. L. 1997. "Can Participatory Ergonomics Become 'The Way We do Things in this Firm': The Scandinavian Approach to Participatory Ergonomics." *Ergonomics*, 40 (10), 1078–1087.
- Knights, D. and F. Murray. 1994. *Managers Divided: Organization Politics and Information Technology Management*. Toronto: John Wiley and Sons.
- Krahn, H. J., G. S. Lowe, and K. D. Hughes. 2007. *Work, Industry and Canadian Society*. 5th edition. Scarborough: Thomson Nelson.
- Laing, A. C., M. B. Frazer, D. C. Cole, M. S. Kerr, R. P. Wells, and R. W. Norman. 2005. "Study of the Effectiveness of a Participatory Ergonomics Intervention in Reducing Worker Pain Severity Through Physical Exposure Pathways." *Ergonomics*, 48 (2), 150–170.
- Laitinen, H., J. Saari, M. Kivistö, and P.-L. Rasa. 1997. "Improving Physical and Psychosocial Working Conditions Through a Participatory Ergonomic Process. A Before-After Study at an Engineering Workshop." *International Journal of Industrial Ergonomics*, 21, 35–45.
- Lawton, C. and R. A. Haslam. 2000. "Organizational Issues as Obstacles to Intervention for Musculoskeletal Complaints." *Contemporary Ergonomics*. P. T. McCabe, M. A. Hanson and S. A. Robertson, eds. London: Taylor and Francis, 333–337.
- Lee, K. S. 2005. "Ergonomics in Total Quality Management: How Can We Sell Ergonomics to Management?" *Ergonomics*, 48 (5), 547–558.
- Lewchuk, W., L. Robb, and V. Walters. 1996. "The Effectiveness of Bill 70 and Joint Health and Safety Committees in Reducing Injuries in the Workplace: The Case of Ontario." *Canadian Public Policy*, 22 (3), 225–243.
- Liker, J. K., B. S. Joseph, and S. S. Ulin. 1991. "Participatory Ergonomics in Two U.S. Automotive Plants." *Participatory Ergonomics*. K. Noro and A. S. Imada, eds. London: Taylor and Francis, 97–138.
- McLoughlin, I. and R. Badham. 2005. "Political Process Perspectives on Organization and Technological Change." *Human Relations*, 58 (7), 827–843.
- Moore, J. S. and A. Garg. 1998. "The Effectiveness of Participatory Ergonomics in the Red Meat Packing Industry: Evaluation of a Corporation." *International Journal of Industrial Ergonomics*, 21, 47–58.
- Nagamachi, M. 1995. "Requisites and Practices of Participatory Ergonomics." *International Journal of Industrial Ergonomics*, 15, 371–377.
- Polyani, M. F., D. C. Cole, S. E. Ferrier and M. Facey. 2005. "Paddling Upstream: A Contextual Analysis of Implementation of a Workplace Ergonomic Policy at a Large Newspaper." *Applied Ergonomics*, 3 (2), 231–239.
- Rivilis, I., D. C. Cole, M. B. Frazer, M. S. Kerr, R. P. Wells and S. Ibrahim. 2006. "Evaluation of a Participatory Ergonomic Intervention Aimed at Improving Musculoskeletal Health." *American Journal of Industrial Medicine*, 49, 801–810.
- Rosecrance, J. C. and T. M. Cook. 2000. "The Use of Participatory Action Research and Ergonomics in the Prevention of Work-related Musculoskeletal Disorders in the Newspaper Industry." *Applied Occupational and Environmental Hygiene*, 15, 255–262.
- Shannon, H. 2000. "Firm-level Organizational Practices and Work Injury." *Injury and the New World of Work*. T. Sullivan, ed. Vancouver: University of British Columbia Press, 140–161.
- St. Vincent, M., M. Bellemare, G. Toulouse, and C. Tellier. 2006. "Participatory Ergonomics Processes to Reduce Musculoskeletal Disorders: Summary of Quebec Experience." *Work: Journal of Prevention, Assessment and Rehabilitation*, 27, 123–135.

- Stake, R. E. 1994. "Case Studies." *Handbook of Qualitative Research*. N. K. Denzin and Y. S. Lincoln, eds. Thousand Oaks, CA: Sage Publications, 236–247.
- Thomas, R. J. 1994. *What Machines Can't Do: Politics and Technology in the Industrial Enterprise*. Berkeley: University of California Press.
- Torma-Krajewski, J., L. Steiner, P. Lewis, P. Gust, and K. Johnson. 2007. "Implementation of an Ergonomic Process at a US Surface Coal Mine." *International Journal of Industrial Ergonomics*, 37, 157–167.
- Vallas, S. P. 2003. "Why Teamwork Fails: Obstacles to Change in Four Manufacturing Plants." *American Sociological Review*, 68 (2), 223–250.
- Van Eerd, D., D. Cole, E. Irvin, Q. Mahood, K. Keown, N. Theberge, J. Village, M. St. Vincent, K. Cullen and H. Widdrington. 2008. *Report on Process and Implementation of Participatory Ergonomic Interventions: A Systematic Review*. Toronto: Institute for Work and Health.
- Walters, V. 1985. "The Politics of Occupational Health and Safety: Interviews with Workers' Health and Safety Representatives and Company Doctors." *Canadian Review of Sociology and Anthropology*, 22 (1), 57–79.
- Wells, R. P., R. Norman, M. Frazer, and A. Laing. 2000. *Ergonomics Program Implementation Blueprint* <<http://www.ergonomics.uwaterloo.ca/bprint.html>>.
- Westlander, G., E. Viitasara, A. Johansson and H. Shahnava. 1995. "Evaluation of an Ergonomics Intervention Programme in VDT Workplaces." *Applied Ergonomics*, 26 (2), 83–92.
- Wilson, J. R. and H. M. Haines. 1997. "Participatory Ergonomics." *Handbook of Human Factors and Ergonomics*. 2nd edition. G. Salvendy, ed. New York: Wiley, 490–513.
- Yin, R. K. 2003. *Case Study Research: Design and Methods*. 3rd edition. Thousands Oaks: Sage Publications.

RÉSUMÉ

L'implication soutenue de la direction à l'endroit des interventions en matière de santé et de sécurité au travail : le cas d'une ergonomie participative

Les travaux sur la santé et la sécurité dans les établissements mettent l'accent sur l'importance de l'implication de la direction. Une approche en matière de santé et de sécurité au travail qui devient de plus en plus acceptée est l'ergonomie participative (EP), qui cherche à réduire l'exposition des travailleurs à des troubles musculosquelettiques. Les débats en ergonomie participative font de façon constante ressortir l'importance d'un engagement de la part de la direction (Haims et Carayon, 1998).

Des travaux ont rassemblé les éléments d'un cas convaincant au sujet de l'appui de la direction pour réussir des interventions en santé et sécurité au travail, mais on connaît peu d'analyses du processus qui conduit à l'engagement de la direction et à son maintien. Le fait de se demander ce qu'est la nature des relations entre des influences d'ordre structurel, tels que les impératifs de la production, et les activités de la direction peuvent améliorer notre compréhension du support de la direction.

Cet essai analyse l'engagement de la direction en matière de santé et de sécurité au travail par le biais d'une évaluation de la mise en œuvre d'un programme d'ergonomie participative dans trois établissements : un constructeur automobile, un fabricant de meubles et un service de messagerie. Les interventions débutèrent avec la formation

d'une équipe de facilitateurs en ergonomie participative dans chaque établissement, qui regroupait des travailleurs horaires, des représentants de la direction et un facilitateur en ergonomie, ce dernier étant un membre de l'équipe de recherche universitaire. L'analyse se centre sur l'évolution de l'appui de la direction au programme d'ergonomie participative sur une période de temps, comme il se déploie dans un contexte de pressions à l'emplacement du travail, tant à l'interne qu'à l'externe, surtout celles liées à la production.

Les interventions sont évaluées à l'aide d'une approche cas multiple et les données des études de cas sont tirées des entrevues effectuées sur le terrain et des notes prises. Dans chaque emplacement, les notes venant du terrain furent enregistrées sur les lieux du travail et au cours des rencontres de l'équipe. Les notes prises sur le terrain fournissaient un compte-rendu des activités sur le site et les reconstructions d'échanges informels entre les chercheurs sur le terrain et différents membres du personnel, incluant des travailleurs horaires, des cadres intermédiaires et supérieurs. Dans chaque emplacement, des entrevues ont été conduites avec environ une vingtaine de personnes, incluant des membres de l'équipe d'intervention, également de la direction supérieure locale et des travailleurs différents de ceux membres de l'équipe d'intervention.

Les notes prises sur le terrain et les entrevues transcrites furent traitées à l'aide d'un logiciel d'analyse de type qualitatif. Pour chaque ensemble de données, un schéma de codification préliminaire a été mis au point et par la suite révisé en ne retenant que les lectures multiples du matériel recueilli. Les sections basées sur les codes ont été retirées et ensuite évaluées pour procéder à l'analyse.

L'analyse est ancrée dans une perspective de processus politique en matière de changement technologique et organisationnel (McLoughlin et Badham, 2005; Thomas, 1994). Cette approche fournit une façon d'envisager l'évolution dans le temps des programmes organisationnels, une manière qui se préoccupe des dimensions structurelles et interactionnelles de la vie en société. Dans l'analyse qui suit de l'évolution des programmes d'ergonomie participative, cette perspective est retenue en vue d'évaluer comment ces programmes se déroulent dans un contexte marqué au coin des activités et des intérêts divergents des acteurs, qui commandent des degrés divers d'autorité, dans un milieu caractérisé par des forces internes telles que des pressions venant de la production et par des forces externes.

Cette vision considère les formations sociales comme des programmes organisationnels tels qu'ils sont façonnés par les actions de ceux de l'intérieur aussi bien par l'effet des contextes organisationnels et sociaux plus larges. La perspective d'un processus politique conçoit également l'évolution des programmes organisationnels comme un ensemble de décisions prises par des groupes divers dans le temps, et non simplement comme une décision de retenir un programme en particulier. De plus, divers groupes au sein d'une organisation ont des intérêts divergents et une autorité pour actualiser ces intérêts, qui en retour exercent une influence sur la mise en œuvre. L'approche du processus politique met également l'accent sur l'importance des conditions internes et externes aux lieux de travail, ce qui complique et parfois même empêche l'exercice chez les individus de leurs aptitudes à donner une direction au développement de programmes organisationnels.

Nos conclusions indiquent que les équipes d'ergonomie dans les trois établissements ont rencontré des problèmes d'attribution de l'autorité de procéder à titre d'agents de changement au sein du lieu de travail et des problèmes d'évaluation du temps des

salariés à réaliser leurs agendas. Ces problèmes étaient intimement reliés : l'absence d'autorité entraînait une inaptitude à obtenir l'engagement du temps des salariés, dans certains cas le temps d'assister aux rencontres des équipes de changement et, dans d'autres, d'effectuer des changements de nature ergonomique. Dans tous ces exemples de problèmes rencontrés eu égard au temps, la direction ne réussissait pas à fournir le personnel que les équipes de changement nécessitaient. Pendant qu'un évènement de nature locale affectait la façon dont le programme de caractère ergonomique se déroulait dans chaque lieu de travail, des difficultés d'obtenir l'autorité et le temps de faire des changements ont entravé le succès des interventions dans les trois emplacements.

Nos conclusions mettent en évidence le fait que la direction des établissements ne forme pas un bloc monolithique et que les structures de direction sont souvent marquées par des divisions au plan des priorités et des intérêts. Dans tous les emplacements, la direction supérieure appuyait le lancement des interventions, mais c'était les cadres et les superviseurs qui généralement s'intéressaient aux enjeux pratiques inhérents au maintien de la bonne marche de la production une fois l'intervention en cheminement. Étant donné le caractère des pressions qu'ils devaient supporter, le fait d'obtenir leur appui présentait un défi continu. De plus, au passage d'un emplacement à l'autre, la direction supérieure différait quant au maintien de son engagement initial au cours du déroulement des programmes en ergonomie et plus particulièrement, lorsqu'un programme rencontrait une certaine résistance, elle apportait son renfort par une intervention efficace.

Le problème principal que rencontraient les interventions résidait dans le fait que les programmes de santé et de sécurité au travail se voyaient accorder une importance secondaire en étant subordonnés aux objectifs de la production. Un enjeu important ici était la position retranchée de la direction eu égard à la prévention des accidents d'ordre musculosquelettique. D'une manière plus particulière, des conflits se présentaient quant aux ressources affectées à la santé et à la sécurité, sur l'organisation et le rythme du travail, tenant compte de la priorité accordée au maintien ou à l'accroissement de la productivité aux dépens d'un investissement dans les enjeux de sécurité de nature ergonomique.

En poursuivant un cadre de référence de l'ordre d'un processus politique, cet essai évalue la manière dont un programme organisationnel dans son évolution s'éloigne de sa conception initiale et, à l'intérieur de ce processus, la manière dont les positions de la direction en matière de santé et de sécurité deviennent volatiles et sensibles aux pressions, tant à l'interne qu'à l'externe, dans un emplacement donné. Nos conclusions mettent en évidence l'obligation pour la direction, au moment de la conceptualisation d'un programme, de tenir compte de l'hétérogénéité propre à un niveau (direction supérieure et cadre moyen), de l'objet de la responsabilité (que ce soit la production, la santé ou la sécurité au travail) au sein même d'une entreprise. De plus, des différences au sein des organisations quant à l'accès aux ressources et aux avantages acquis de la direction et des travailleurs ont un impact sur le déroulement d'un programme. Une implication importante qui en découle est à l'effet que des ententes d'appui à une intervention au moment de son lancement ne peuvent être envisagées comme stables dans le temps.

MOTS-CLÉS : trouble musculosquelettique, appui de la direction, équipe de facilitateurs en ergonomie, santé et sécurité au travail

RESUMEN

Sustentar el compromiso de la gerencia respecto a los programas de la salud en el lugar de trabajo : El caso de la ergonomía participativa

Este artículo investiga el compromiso de la gerencia respecto a la salud y seguridad ocupacional mediante un análisis de la implementación de las intervenciones de ergonomía participativa (EP) en tres centros de trabajo. Basado en entrevistas y datos de observación, el análisis investiga la evolución del apoyo de la gerencia a los programas EP a través del tiempo y en el contexto de presiones internas y externas al centro de trabajo. Los equipos de cambio ergonómico en los tres lugares experimentaron problemas en cuanto a establecer la autoridad para actuar como agentes del cambio y en cuanto a la liberación de tiempo de los empleados para llevar a cabo sus actividades. La resolución de estos problemas dependió en gran medida del compromiso de la alta gerencia y de los esfuerzos individuales del personal de gerencia para intervenir en ayuda a los programas EP. Nuestros resultados hacen resaltar que la gerencia no es una entidad monolítica y que las estructuras de gestión son frecuentemente marcadas por divisiones respecto a las prioridades, incluyendo la salud y la seguridad.

PALABRAS CLAVES : desorden musculo esquelético, apoyo de gerencia, equipo de cambio ergonómico, salud seguridad ocupacional