Contrasting participatory ergonomics program elements with standard requirements for occupational health and safety management systems

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• Last year’s talk: Reflecting on a program of participatory ergonomics interventions - A multiple case study
• In this talk I want to extend this topic and ask why implementing a [stand-alone] [participative] ergonomics program is common?
• Why does MSD prevention seem to be handled differently from other prevention activities?
• What might be the challenges and barriers to integrating MSD prevention into management systems?
To contrast the program elements described in well-cited participatory ergonomics (PE) program literature with the requirements in occupational health and safety management system (OHSMS) standards such as OHSAS 18001.
Management Systems

Occupational Health and Safety Management System (OHSMS)

OHSAS 18001: Occupation Health and Safety Assessment Series
1. Quality Management System (QMS)
2. Environmental Management System (EMS)
3. Occupational Health and Safety Management System (OHSMS)
Figure 2.0: Steps in the MSD prevention framework

Establish a foundation for success

1. Recognize MSD hazards and related concerns
2. Do MSD Hazards or Related Concerns Exist?
3. Conduct an MSD risk assessment
4. Increased Risk of MSD and/or Other Indicators that Controls are Required?
5. Choose and implement MSD hazard controls
6. Follow up on and evaluate success of implemented controls
7. Communicate results and acknowledge success

Figure 1
Elements of an OHSMS and the Ergonomics Process

Act (continual improvement)
- Continual Improvement:
  - Management review
  - Continual improvement

Plan (planning)

- Planning:
  - Commitment, leadership, and participation
  - Legal and other requirements
  - Objectives and targets
  - Recognize and manage change

Evaluate the Ergonomics Process:

- Evaluation of Ergonomics Process
- Documents and records
- Monitoring and measurement of the Ergonomics Process
- Reporting, investigation, and analysis
- Internal audits

Implementation: Application of Ergonomics

- Application of Ergonomics in health and safety:
  - Identification and elimination of hazards and risk assessment
  - Hazard elimination and risk control
  - Monitoring and follow-up of preventive and protective measures

- Application of Ergonomics in design:
  - Plan and anticipate
  - Detailed design
  - Installation and training
  - Operation and maintenance
  - Decommissioning and disposal

Do (implementation)
What is OHSAS 18001?

OHSAS 18001 is an *Occupation Health and Safety Assessment Series* for health and safety management systems. It is intended to help organizations to control occupational health and safety risks. It was developed in response to widespread demand for a recognized standard against which to be certified and assessed.

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**OHSAS 18001: Occupation Health and Safety Assessment Series**
Research Questions

1. Based upon the elements contained in OHSMS, what elements are described in the Participative Ergonomics (PE) literature?

2. What are the similarities and differences between OHSMS and PE elements?

3. What elements may help improve the implementation, effectiveness and sustainability of PE programs OR enhance OHSMS for the prevention of MSD?
Methods

No single description of Participative Ergonomics exists, so the peer-reviewed literature was used to determine commonly accepted elements of programs aiming to prevent MSDs

- Total citations and average citation per year were determined for 52 papers cited in a recent systematic review of PE, (van Eerd et al., 2008).
- Papers with a total citation of ten or more and an average citation of one or more per year were included.
- 20 papers were selected

Information relevant to the OHSMS themes were then extracted from the selected papers by 2 persons independently and tabulated
No single definition of Participative Ergonomics seems to exist so the peer-reviewed literature was used to synthesize one.

- Total citations and average citation per year were determined for 52 papers cited in a recent systematic review of PE (20xx).
- Papers with a total citation of ten or more and an average citation of one or more per year were included.
- The general themes from OHSMS, e.g., OHSAS 18001, were described. Information relevant to the OHSMS themes in the selected papers on PE was then extracted.

### Results

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In the PE literature... 9 elements described

1. for scope, PE was usually implemented at departmental or similar level;
2. the majority of PE papers addressed hazard identification, risk assessment and determining controls;
3. more than half of the papers indicated the objectives and program;
4. most of the PE papers described the resources, roles, responsibility, accountability and authority, while the financial resources were described by a few papers as being provided by a company’s leadership;
5. more than half of the papers described the competence and awareness training sessions and seminars;
6. about half of the papers provided some information about participation and the consultation element;

7. the majority of papers provided information about the performance measurements and monitoring of their project/program;

8. information about the application, general requirements, legal and other requirements, policy, control of documents and records, operational control and incident investigation were typically not provided;

9. A small amount of information was provided about communication, management review, and documentation;
No single definition of Participative Ergonomics seems to exist so the peer-reviewed literature was used to synthesize one.

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Increased Risk of MSD and/or Other Indicators that Controls are Required?

Y

Choose and implement MSD hazard controls

Follow up on and evaluate success of implemented controls

Communicate results and acknowledge success

N

N

Figure 1
Elements of an OHSMS and the Ergonomics Process
Ergonomics Change Program

Ergonomics Process

0: Start Up:
  a) Establish Support
  b) Team Formation
  c) Initial Training

Ergonomics and Safety Consulting Services

www.ergonomics.uwaterloo.ca/bprint.html
1. PE programs were usually implemented as a “project”
2. Practices seem to have been written by researchers for researchers.
3. There was little detail on implementation: this makes PE difficult to implement successfully by practitioners and organizations.
4. The PE approaches described did not speak to many elements in OHSMS and other management standards.
5. This silence may negatively affect the effectiveness and sustainability of PE initiatives
6. *Paying attention to management approaches and language could make prevention of MSD activities more effective and sustainable.*
Wells et al., (2013) found that ergonomists engaged in the prevention of MSD:

1. Most frequently used simple observational tools
2. Only employed more in-depth risk assessment when:
   a. Needed to understand, often for design
   b. Needed to persuade decision makers
3. Spend a lot of their time doing “Organizational Work”.*

1. Pay attention to management approaches, processes, procedures and language
2. Base MSD prevention activities (and other H&S activities) on Standards such as Z1004
3. Free ergonomists to spend time on Hazard ID, Design and Controls rather than “Organizational Work”*
4. Use the rich resources on hazard identification, risk assessment and controls from the PE literature....

5. Dig deeper into how PE interfaces with a company’s management approach.

We are currently performing an interview study with key informants and undertaking case studies in multiple companies, asking questions such as:

- What is the importance and practicality of incorporating MSD prevention into an organization’s formal or existing management system?
- What do you think are the barriers and challenges for successful prevention of MSDs in organizations?
- Do you think prevention of MSDs is different from prevention activities in any other OH&S issue?
- Do you see a link between psychological hazards and psychosocial factors in the prevention of MSDs?
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- Nancy Theberge, Sociology and Kinesiology, uWaterloo, ON

Project Coordinator: Amin Yazdani, M.Sc.

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http://www.cre-msd.uwaterloo.ca/Project_Description.aspx


