

## **Experiences on a participatory ergonomics development process in a public health and welfare service center – Meal and cleaning personnel in focus**

Arto REIMAN, Päivi KEKKONEN

Industrial Engineering and Management, University of Oulu, Finland

**Abstract:** Employees at public service organisations face various kinds of physical and psychosocial hazards and risks for accidents at their daily work. This study focuses on meal and cleaning service employees employed by a public in-house enterprise. Focus is paid to a large public health and welfare service center where such services are provided. This participatory study with multiple data sources shows the variety of different development challenges. Solution proposals and potential problem solvers are identified during the participatory development process to show the complexity but also the potential that such a participatory ergonomics oriented development process can provide.

**Keywords:** Participatory ergonomics, root cause, stakeholder.

### **1. Introduction**

Public service organisations and their employees encounter various different challenges today due to, for instance, an increase in the average age of employees, a decrease in recruitment levels, and constant changes in work tasks, sites, and communities (Arnaboldi et al. 2015, Kekkonen and Reiman 2018, Reiman et al. 2017). Such challenges may give rise to different physical and psychosocial discomfort factors and risks for occupational accidents; all of which can have adverse effects on the work ability and productivity of the employees (Dul and Neumann 2009, Reiman et al. 2017). This study focuses on a municipal organization and the actors within it. Attention is paid to cooperation practices at the workplace level.

The core focus is on the employees of a public in-house enterprise providing meal and cleaning services to a large public health and welfare service center in a city in northern Finland. The objective of this study was to identify root causes for discomforts and risks that may cause adverse health effects to the meal and cleaning service personnel in their daily work tasks and processes. The root causes – later named as development challenges – were identified and further analysed in a participatory development process with the aim of developing solutions but also identifying key stakeholder groups that could have the most significant impacts in the prevention processes. Thus, not only meal and cleaning service personnel participated, but also their supervisors and other personnel from the health and welfare service center, i.e. health care professionals, management and other administrative and support service personnel. In addition, specialists from the occupational health (OH) services and occupational safety and health (OSH) unit were involved. Besides the process described above, this study aimed to initiate broader discussion on the management processes that take place at such workplaces, where stakeholders from different backgrounds act together with the ultimate aim of providing citizens appropriate and efficient health and welfare services.

## 2. Methods and material

This study is based on the premises of micro- and macroergonomics supplemented with a work system approach in the analysis phase (e.g. Carayon and Smith 2000, Hendrick 2008). In addition, as this study utilizes a participatory development approach, it can be associated to the concept of participatory ergonomics (e.g. Haines et al. 2002). Challenges were identified by utilizing multiple sources of information and data collection methods. In the first phase, documents (risk analyses, OH & OSH surveys and statistics and personnel surveys) were analysed. The documents were received from various sources inside the city organisation, including human resources department, OSH unit, OH service unit and the enterprise itself. Document analyses were complemented with observations and interviews at the health and welfare service center facilities. Two researchers performed the observations during one working day. During the observations and break hours, the researchers also interviewed employees (n=4) based on a semi-structured interview form. Initial development challenges were identified from the material described above and further analysed in two participatory, multi-stakeholder development sessions, where root causes and solutions for the challenges were identified. At the sessions, a lean -philosophy oriented 5 \* Why –approach was applied (see Ohno 1988). In the sessions, the question “Why?” was expressed several times for each identified development challenge to identify the roots of the challenge; after which, the question was changed to “How?” to find out means to solve these challenges.

### 2.1 Findings and discussion

Identified development challenges were first categorised into seventeen different categories based on the session discussions and later by the researchers on five categories by applying the work system framework. From the original seventeen categories, thirteen could be associated merely to physical discomforts and four to psychosocial discomforts. The identifications were further analysed in the participatory ergonomics sessions in which the root causes and development proposals were identified and processed. Lastly, the development proposals were analysed to identify the relevant stakeholder groups that could contribute in solving (or minimising) identified challenges. The challenges, examples of solutions and identified problem solvers are shown in a simplified form in Table 1.

Table 1: Challenges, potential solutions and problem solvers categorised in a work system framework.

Work system element	Examples of identified challenges	Examples of solutions	Potential problem solvers
Work environment	<ul style="list-style-type: none"> <li>• Surface materials at the premises are challenging to clean</li> <li>• Furniture at the premises prevents efficient cleaning</li> </ul>	Improvements in information channels between the stakeholders	Facility management and designers, Health and welfare service center personnel and management, Cleaning and meal service management,
Work tasks	<ul style="list-style-type: none"> <li>• Heavy lifting at certain work tasks</li> <li>• Awkward body positions at certain work tasks</li> </ul>	Ergonomics training, Instructions, Mapping and testing potential ergonomic aids	OSH unit, OH service unit, Procurement, Cleaning and meal service management

Tools and technologies	<ul style="list-style-type: none"> <li>• Broken and/or unsuitable tools</li> </ul>	Improvements in information channels, Ergonomics training	OSH unit, Procurement, Cleaning and meal service management
Organisation	<ul style="list-style-type: none"> <li>• Unclear flow of information between the stakeholders</li> </ul>	A procedure to inform cleaning personnel, Sharing of information on good practices, Scheduling work tasks participatorily	Cleaning and meal service management, Health and welfare service center management
Employees themselves	<ul style="list-style-type: none"> <li>• Utilization of existing personal protective equipment</li> <li>• Rules and guidance not always obeyed</li> </ul>	Ergonomics aids acquisition procedure, Foreman support, Participatory discussion sessions	Cleaning and meal service management, Employees themselves

Based on the results, a conclusion can be drawn that the challenges can't be solved solely by the cleaning and meal service personnel themselves, but the process must include a variety of different stakeholders, ranging from the top management to foremen, internal experts and other units inside the city organisation. In addition, concerning potential technological and work environment related challenges, the development process should include for instance city's procurement unit and stakeholders contributing to work environment design, such as city architects and other personnel from the facility management. This would require a participatory and design oriented development approach that is led and facilitated by the top management of the city.

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