Participatory design process for the involvement of volunteer personnel in ergonomic redesign.

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1. Introduction

Legislative changes in 2012 to the Work Health Safety Act – South Australia required employers to consider the safety and health needs of volunteer personnel together with paid employees. A private hospital in South Australia, sought ergonomic consultation in the redesign and upgrade of the hospital café where volunteer personnel from the community were engaged. Participatory design practices provided a means to engage the volunteer personnel and key stakeholders in safety and ergonomic design features of the café upgrade. Facilitated consultation with volunteers met due diligence requirements.

Over 6 month period, concurrent engagement by the ergonomist with volunteer personnel, hospital staff and architects achieved a review of the work tasks, training, job description and work space/ environment of volunteer personnel engaged in the café. The volunteer personnel role and hospital café working environment had not previously been evaluated from an ergonomic perspective. Work heights, work space, customer engagement, movement of personnel and access to storage in the café work environment were compromised. This case study looks at how open consultation with volunteer personnel through participatory design techniques facilitated a tailored ergonomic redesign in the modified café workspace.

2. Human Factors Project

Initial consultation at the scoping phase allowed direct input to the ergonomic considerations for the project. Participatory design techniques and practices were applied to help all stakeholders communicate and commit to the analyses, strategies and design outcomes of the café. Systematic reviews of the café work tasks were conducted. Establishing a baseline of the work practices prior to the café modification allowed determination of efficiency and effectiveness through applying job task analysis and workspace utilisation studies. Interviews were conducted with hospital personnel, enlisted volunteer personnel, architects and managers. Focus areas included job analysis, review of design and functionality of the physical work environment. Volunteer personnel job descriptions and volunteer training program were also evaluated. The review identified gaps in the volunteer personnel task and training profiles. Specific consideration was made of the anthropometric requirements of the representative volunteer sample group. These were applied for reach, storage, work heights, passing spaces, entry and egress.

Following confirmation of the working design of the café, a low cost, easily implementable mock-up of the work space was constructed. Volunteer and hospital personnel rehearsed key tasks in the mock up space and critiqued the safety, efficiency and effectiveness of the design. Multiple real time prototypes were made and tested. Immediate feedback was sought and implemented. Modifications to the design and to proposed work tasks were made accordingly. This significantly reduced the time from testing to construction and enabled a tailored solution for the hospital volunteer personnel and users of the facility.

3. Conclusions

Open consultation at the earliest stages of conceptualisation and participatory design practices were key components to the successful ergonomic analysis, design and subsequent use of the modified work environment. Engagement with the volunteer personnel and other key stakeholders consolidated an effective outcome that met the key objectives. The use of mock-ups enabled rapid prototyping of the design solutions and facilitated tailored ergonomic design solutions. Consultation with the architects throughout the design phase allowed timely modification and promoted consolidation of the design. Volunteer personnel involvement and the consideration of their identified requirements promoted ownership of the final design solution.

The participatory design approach effectively met the due diligence requirements contained in the 2012 Australian Work Health and Safety legislation. It led to an effective ergonomic designed solution that was enthusiastically embraced by the volunteer personnel and the users of the facility.
Acknowledgements
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References
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