Perceived acoustic environment, work performance and well-being - survey results from Finnish offices

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ABSTRACT

The aim of the study was to investigate workers' perceptions of the acoustic environment of offices and study its relations to work performance and well-being. Questionnaire results from 11 companies and 689 respondents were analyzed. Occupants in private rooms and open offices were compared. Noise was the main indoor environmental problem in open offices. Speech was the most distracting source of noise in both office types but the degree of disturbance was lower in private rooms. About half of open office occupants and 20 % of occupants in private rooms were dissatisfied with acoustics. Office noise disturbed particularly conversations and tasks relying on working memory and verbal processes, such as text comprehension and creative thinking. Routine tasks were little disturbed by noise. In open offices, attempts to cope with noise reflected risk factors to individual productivity and well-being, such as taking extra breaks, compromising the quality of work, working overtime and exerting oneself harder. Self-estimated waste of daily working time due to noise was twofold in open offices. Open office workers experienced more stress symptoms, particularly overstrain and difficulties in concentration, and attributed these symptoms to office noise to a greater extent than workers in private rooms. Possibilities to influence issues related to one's work and work-space privacy were lower among open office occupants. The results suggests that private rooms are superior to open offices in all respects.

INTRODUCTION

There is an increasing worldwide trend to build open offices instead of private room offices. Open offices are preferred because of better space economy, spaciousness and flexibility. Open offices are also assumed to facilitate teamwork and information sharing. However, there is continuous debate on the positive and negative effects of open offices on work performance and well-being. According to a meta-analysis carried out by DeCroon et al. (2005), there is strong evidence that working in open offices reduces worker's psychological privacy and job satisfaction. Some evidence exists that cognitive workload increases in open offices.

Cross-sectional office surveys that have compared different office lay-outs, e.g. Becker et al. (1983), Danielsson (2005), Pejtersen et al. (2006) and Jensen et al. (2005), have shown that the most severe factor causing office dissatisfaction is noise. Danielsson (2005) compared several office lay-outs and concluded that dissatisfaction with noise and privacy was highest in large open offices and lowest in cellular offices. Pejtersen et al. (2006) found that the percentage of occupants complaining about noise was ten-fold in large open offices compared to cellular offices. The same study demonstrated an association between office size and several symptoms, including fatigue, headache and difficulties in concentration. Open office occupants

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