

Employees' self-reports of lighting use behavior: A field study in single-occupant offices

P. Maleetipwan, T. Laike & M. Johansson

Lund University, Lund, Sweden

Introduction

Electricity constitutes half of the energy use in non-residential buildings in Sweden, and lighting is the main consumer (Statens energimyndighet, 2007). Consequently, employees' use of lighting products and technologies must be targeted in order to reduce the environmental impact caused by office environments.

The behaviors which save energy can be referred to as pro-environmental behavior. To assess such behavior, self-reports are widely used since it is inexpensive, easily obtained and does not impinge on the privacy of the participant or leads to other ethical related problems.

However, the validity of self-reports has been questioned. Though self-report is related to actual behaviors, it may still overestimate the frequency of the behaviors (Chao & Lam, 2011). Another problem of using some forms of self-reports is that they focus on behaviors which do not significantly reflect the change of acting pro-environmentally (Gatersleben, Steg, & Vlek, 2002).

This methodological study is part of a research project studying the employees' experience and use of different kinds of lighting control. It aims to assess the validity of employee's self-reported lighting use.

Method

The study took place in 18 single-occupant offices where the employees had individual control over electric light in their respective offices.

A diary was designed to assess how often the employees regulated the light during a working day. The 18 employees were asked to report how they regulated the ceiling lamps upon arriving and leaving their

respective offices. They also reported how they regulated the lighting conditions from their desk lamps and window blinds.

The employees filled in the diary for one working day, every two months from June 2009 to the end of May 2010, six working days in total. During the same period, digital measurement of presence and lighting energy use was run in the 18 offices. It recorded the data for every two minutes.

Results and discussion

Correlations between self-report of two behavioral variables, (i) the employee presence in his/her office, and (ii) the control of ceiling lamps on the one hand, and the digital measurements of i) presence, and ii) electric current of the ceiling lamp on the other hand are analyzed. Moreover, energy use calculations based on the self-reported data and as measured digitally are compared.

The results will be used as a reference for calculating energy due to human lighting use in future studies. The validity of the self-reported diary data is to be discussed as well as general implications of individual lighting regulation for energy use in non-residential buildings.

References

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