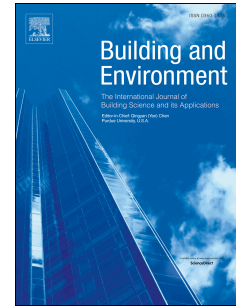


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# Field study on adaptive thermal comfort in typical air conditioned classrooms

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**Abstract:** This study investigates adaptive thermal comfort in air conditioned classrooms in Hong Kong. A field survey was conducted in several typical classrooms at the City University of Hong Kong. This survey covered objective measurement of thermal environment parameters and subjective human thermal responses. A total of 982 student volunteers participated in the investigation. The results indicate that students in light clothing (0.42 clo) have adapted to the cooler classroom environments. The neutral temperature is very close to the preferred temperature of approximately 24°C. Based on the MTSV ranging between -0.5 and +0.5, the comfort range is between 21.56°C and 26.75°C. The lower limit is below that of the ASHRAE standard. Of the predicted mean vote (PMV) and the University of California, Berkeley (UCB) model, the UCB model predictions agree better with the mean thermal sensation vote (MTSV). Also, the respective fit regression models of the MTSV versus each of the following: operative temperature ( $T_{op}$ ), PMV, and UCB were obtained. This study provides a better understanding of acceptable classroom temperatures.

**Keywords:** Classroom; Air conditioned; Thermal adaptation; Thermal sensation; Prediction models

## 1. Introduction

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