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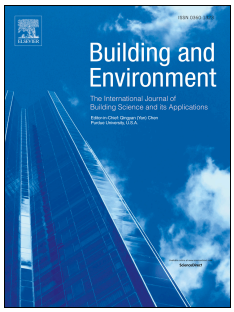

A study on pupils' learning performance and thermal comfort of primary schools in China

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A study on pupils' learning performance and thermal comfort of primary schools in China

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Abstract: Indoor environment in classroom is vital to pupils' perception, health and performance, especially thermal comfort. In this study, during the experimental process, thermal comfort parameters (air temperature, relative humidity, and air velocity) were controlled under different conditions, and the relationship between temperature and learning performance was investigated. Moreover, carbon dioxide concentration, acoustics, and illumination were maintained at the same level. Six groups were recruited to participate in the entire experiment under six temperature conditions. During each experiment, the participants voted on their perceptions of thermal sensation, thermal comfort, thermal satisfaction, and sick building syndrome symptoms, and undertook learning tasks consisting of ten items to evaluate performance. It was proven that thermal discomfort caused by high or low temperatures had a negative impact on pupil learning performance. The temperature variation affected not only thermal comfort, but also pupil well-being. The influence of temperature on learning performance testing varied differentially, depending on the task types. A quantitative relationship was established between the temperature and learning performance, with the highest performance recorded at a temperature of