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"Gheorghe Asachi" Technical University of Iasi, Romania

INVESTIGATION OF ACOUSTIC COMFORT IN UNIVERSITY PUBLIC EXPERIMENTAL ROOMS

Donglei Zhang[1], Jianxin Peng[1,2*], Shien Lin[1], Yingying Yan[1], Bangkai Zhang[1]

[1]*School of Physics and Optoelectronics, South China University of Technology, Guangzhou, China*
[2]*Anhui Provincial Key Laboratory of Architectural Acoustic Environment, Hefei, China*

Abstract

University public experimental rooms are the main place of experimental teaching and learning in universities, and a comfortable acoustic environment provides an important guarantee for students to successfully complete their experiment. This study focused on the acoustic environment in university public experimental rooms. Subjective evaluation data from students were collected through questionnaires and objective acoustic parameters were measured in ten public experimental rooms. The results showed that students generally gave high ratings for attention, speech intelligibility, and quietness in these rooms, but most perceived some reverberations. The objective acoustic parameters indicated variations in Background Noise Level (BNL) and Reverberation Time (RT) among different rooms. The main noise sources included experimental instrument noise and speech communication voices. Correlation analysis revealed that BNL was correlated with reverberation and quietness, and RT was related to speech intelligibility. Moreover, students' emotional valence was significantly correlated with quietness, speech intelligibility, etc. The model constructed based on subjective evaluation factors had a better prediction effect on emotional valence than on arousal. This study revealed the relationship between subjective evaluations and objective parameters in the acoustic environment of university public experimental rooms, providing important experimental data references for study on the acoustic environment of university public experimental rooms.

Key words: acoustic comfort, background noise level, public experimental room, questionnaire survey, reverberation time

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* Author to whom all correspondence should be addressed: E-mail: phjxpeng@163.com; Phone: +8620 87113934; Fax: +8620 87112837