

ACOUSTICS2008/2533

Noise - A Stress Factor? Acoustic Ergonomics at Schools

Gerhart Tiesler^a and Markus Oberdoerster^b

^aUniversity of Bremen/ISF, Grazer Str. 4, D-28359 Bremen, Germany

^bSaint-Gobain Ecophon GmbH, Taschenmacherstr. 8, D-23556 Luebeck, Germany

Description of teaching reality is the main topic of this interdisciplinary examination about "acoustic ergonomics of schools". In the first step we analyse how different teaching methods affect basic noiselevel and working noiselevel. Which effect has an altered room acoustics on the sound levels in the context of each teaching method. The data records available as timeseries allows for the first time analysing single phases of lessons, which are characterized by certain pedagogical characteristics or individual instruction phases. Is it correct to speak of "noise stress" or is this stress an emotional reaction to the kind of? Based on recordings of teachers heartrate we analyse in the third step the effects of noise level on the workload of the teachers as a stress reaction. A distinction is made on the subject of different teaching methods, and on the basis the different room acoustic conditions. In one primary school we had four classes with a $RT > 0.5s$ and four further classes with a $RT < 0.5s$. At a second primary school we analysed the effect of the room acoustic refurbishment. Finally we investigate factors of fatigue. Which effect has CO₂ in the classroom on all people, and the working noise level?