

## **Abstract EFAS/DGA 2007**

### **Prediction of speech perception from the acoustic conditions of unoccupied classrooms**

Mora Espino, R. (1), Zenker Castro, F. (2), Rodríguez Jiménez, M.C. (3), Mesa Suárez, J.L. (4), Coello Marrero, A. (4), Barajas de Prat, J.J. (3)

(1) Clínica Barajas

(2) Fundación Dr. Barajas

(3) Universidad de la Laguna

(4) Consejería de Educación, Cultura y Deportes del Gobierno de Canarias

It is well recognized that the acoustical environment in a classroom is an important variable in the psychoeducational achievement of hearing-impaired children. For teens and young adults having normal speech processing in noise, ambient noise levels not exceeding 40 dBA are suggested as acceptable, and reverberation times of about 0.6 s are concluded to be optimum. Hearing-impaired children may require levels of ambient noise and reverberation times as low as only 21.5 dBA and 0.4 s respectively. The purpose of this study was to measure reverberation times, background noise levels and Speech Audibility Index (SAI) values in unoccupied classrooms. Estimations of speech perception were established for simple and complex sentences with familiar and unfamiliar content. In one-third of the classrooms the reverberation times were found to be longer than 0.9 s. at one or more frequencies ranging from 250Hz to 8 kHz. In most of the unoccupied classrooms, the background noise level was 45 dB(A) or less. Most classrooms had SAI values that reflected fair intelligibility, but very few classrooms had SAI values indicating excellent intelligibility. Educational implications of these data, such as acoustical modification of the classroom and/or the utilization of frequency modulation sound field amplification systems, are discussed.

