# Hear Better ?

## Study of the effect of Soundfield FM amplification systems on speech intelligibility in science labs in a secondary school

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May 2002

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## Abstract

Science labs are not acoustically friendly with excessive reverberation time and background noise levels, which interfere with listening and teaching. Soundfield FM amplification systems have been developed to provide a uniform soundfield throughout the classroom and increase signal to noise ratio. The effect on speech discrimination of such a system was investigated.

One hundred and thirty eight students (compromising five classes throughout year groups from Y.7 to Y.11 of a mainstream secondary school) participated in this research project. The objective measurements of acoustic parameters of three selected science labs and the Word Intelligibility by Picture Identification test (WIPI test) were conducted and questionnaires were given to students and teachers taking part in the study.

Reverberation Time and Background Noise Levels exceed those recommended by DfEE Guidelines in three selected science labs. All year groups including hearing impaired students improved their speech discrimination scores when the soundfield FM amplification system was applied. In the same conditions a decrease in the number of errors was produced for the majority of students with better scores appearing in the lower school (Y. 7, 8 and 9) than in the upper school (Y. 10, 11). No significant improvement in scores between boys and girls was observed under soundfield conditions. The hearing impaired group followed the same tendency as hearing groups in achieving better scores under soundfield conditions. Teachers are pleased with the system and would like to use it in the future.

The soundfield FM amplification system significantly improved speech discrimination in science labs and could be considered for use in other schools.



**Key words:** Soundfield FM amplification system, acoustic parameters, WIPI test.