



Soundfield Amplification

What is Soundfield Amplification?

A Soundfield system is designed to evenly distribute sound around a room to make sure the teacher's voice is equally loud in all parts of the classroom. It is also designed to overcome some of the difficulties that students experience in understanding speech when the teacher isn't directly facing the listener, such as when the teacher turns to write on the board. It helps to make the teacher's voice easier to hear and as a result it usually reduces the overall loudness of the classroom.

How does it work?

A Soundfield system is like a miniature radio station. The teacher wears a wireless microphone which sends a signal to a base station or amplifier using either radio or Infrared transmission. Depending on the type and size of the school, one transmission method may be more appropriate than the other. FM transmission (like radio) can cover a greater distance but may 'leak' into adjoining classrooms. An Infrared system uses light waves which allow it to be contained within the one room. However, some interference from bright sunshine in the room may occur.

What Equipment is required for Soundfield Amplification?

Soundfield equipment consists of:

- * Microphone or transmitter;
- * Amplifier or receiver; and
- * Speakers and cables.

This type of system is also known as a classroom amplification system.

Which children may benefit?

Great benefit has been provided for children with a mild or unilateral hearing loss.

Children whose first language is not English have also been able to benefit greatly from this type of system, where English is used in the classroom. In fact, all children can benefit from the increased ability to hear in a classroom when using this type of system.

Some of the main benefits reported from feedback by teachers and continuing research include:

- * The ability of all students to hear the teacher including those students with a mild hearing loss as well as those using hearing aids or cochlear implants;
- * Increased student attention to, and understanding of, verbal instruction;
- * Greater student understanding of verbal directions leading to improved behaviour;
- * Less distraction from outside noises;
- * Improved overall alertness and participation;
- * Improved attention span and listening skills;
- * Increased student achievement;
- * Reduced teacher fatigue, in particular voice fatigue;
- * Improved reading fluency;
- * Improved vocabulary; and
- * Improved comprehension.

Why are these benefits important?

To learn to speak a language fluently, one has to hear the language clearly.

Spoken language is the main means of instruction in the classroom particularly in the early years. Children need to be able to break down and separate sounds in the spoken word (phonological awareness), in order to learn to read successfully.

The spoken sounds therefore have to be heard accurately. Good speech intelligibility is even more critical for children who are learning in a language other than their first language.

Older children and adults are able to use their knowledge of the language to fill in 'gaps' that may occur when listening. These gaps may occur because of poor classroom acoustics, distance from the teacher and interference from other background noise. Young children do not have the linguistic knowledge to be able to fill in the gaps or they may not have sufficient knowledge to realise that the information they are hearing is incomplete.

Young children also have little skill at sorting out the signal from the background noise. This skill develops over time and is not fully developed until they are in their early teens.

Further Information

A number of different Soundfield systems are available commercially and more information is easily obtained from the internet.

Some brands of system include Phonic Ear and LightSPEED. Further reading is available in:

Soundfield FM Amplification. Theory and Practical Applications. Crandell, C; Smaldino, J. and Flexer, C. Singular Publishing. 1995.