

About Our Organization

The Institute for Enhanced Classroom Hearing (ECH) was formed and legally incorporated in Maryland in July 2006. The IRS has determined ECH to qualify as a public charity under section 501(c)(3) of the IRC.

ECH was formed by a parent who successfully advocated for auditory improvements within the Baltimore County school system. She wanted to carry this message forward on a national level, so that all parents, teachers, politicians, and taxpayers could become aware of important auditory issues related to children in the classroom. Without intervention, these problems threaten to undermine the entire premise of our educational system.

Our Mission

To provide an educational service about the auditory issues unique to ALL children in a classroom setting and to advocate for the integration of wireless teacher voice enhancement technology (referred to as sound enhancement) to increase student achievement and improve teacher instruction.

Our Services

ECH offers an educational service to three primary audience segments:

The General Public—conveyed through our website, featured articles in publications and journals, media publicity, & presentations at educational conferences.

Current Teachers- In-service training in the form of an interactive workshop that educates teachers (with & without access to SES.) This information serves to prevent incorrect labeling of students' abilities & behaviors and increases receptiveness for SES technology. For those teachers that already have SES, it increases consistent use of the equipment and maximizes return on investment.

Prospective Teachers- An interactive lecture style format given to college & university students preparing for a career in education.

Donations/Contributions

Donations of any size are greatly appreciated. Checks can be made payable to The Institute for Enhanced Classroom Hearing and mailed to us, or made electronically through our website. All donations are tax deductible to the fullest extent allowed by law.

The Institute for Enhanced Classroom Hearing

Providing an educational service to
understand classroom auditory learning
and to improve every student's
academic potential.

The Institute for Enhanced Classroom Hearing

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Because
Every Child
Deserves a
Front Row Seat™

www.ClassroomHearing.org

The Problem

Children spend up to 75% of their school day engaged in auditory learning; yet research shows that **normal** hearing students cannot understand up to one-third of what their teacher is saying, resulting in a decreased desire and ability to learn.

Acoustics

- The average classroom fails the minimum acoustical standards established by the American Speech Language Hearing Association (ASHA) and the American National Standards Institute (ANSI).
- Excessive reverberation and ambient noise diminish a child's ability to understand what she/he is hearing within the classroom. In the average classroom, a teacher's voice is only 4 dBA louder than the background noise. It should be 15 dBA. (ASHA)
- Sound (the teacher's voice) drops by 6 decibels for every doubling of distance. This means that children seated in the middle to back rows are at a great disadvantage.

Immature Auditory Capabilities

- A child's hearing is not fully developed until age 15 (Crandell 1995; Flexer 2002). Children do **not** hear and process what they hear, the same as an adult.
- All children need a quieter room and louder signal (the teacher's voice) for auditory learning (Anderson 2001).
- Children need the teacher's voice to be at least 15 decibels louder than the background noise for intelligible comprehension. This is known as the Signal-to-Noise Ratio (SNR). Adults would only need an SNR of 4 to 6 decibels to attain the same understanding.

Hearing Problems Encountered by Children

- 43% of primary-level students fail a minimal 15dB HL hearing screening on any given day (MARRS-US Dept. of Ed. Study).
- 14.9% of children have a permanent hearing loss (AMA).
- 10-15% of all elementary school children are experiencing a mild hearing loss associated with OME (middle ear infections) on any given day of the week (Crandell, Smaldino, & Flexer).

The Solution

Give every child a front row seat!

Modify the acoustic environment to bring the teacher's voice closer to each student, so that ALL students will hear the teacher's voice at least 15 dBA louder than the noise in the room.

This is the theory behind a technology known as a Classroom Sound Enhancement System (sometimes referred to as a Classroom Amplification System.)

What is a

Classroom Sound Enhancement System (SES)?

- Teacher's voice is transmitted from a wireless microphone to mounted speakers which amplify it 8-10 dB above the ambient room noise.
- 4-6 (ceiling) speakers evenly distribute the voice around the room; i.e. surround sound effect.
- Desired SNR of +15 dB is achieved in ALL areas of the classroom, regardless of student proximity to teacher.
- All children get a "front row" seat.

What is the Cost of

Classroom Sound Enhancement Systems?

- Estimates vary depending on the type of system and the number of speakers.
- The average cost is \$1,500 to \$1,700 per classroom including installation and in-service training; basically equivalent to 1 computer.
- Average cost per pupil, per day (assuming 25 students per class, 180 school days per year) is 37 cents. This is only \$.04 per student per day, when amortized over a life of ten years. This is less than the cost for other instructional equipment that is used less often such as a TV and VCR or computer with reference bundle.

Hearing is the Foundation of Learning

The Research

In 1977, the U.S. Dept. of Education conducted a study referred to as the MARRS project (Mainstream Amplification Resource Room Study.) They found that when the teacher's voice was amplified, **ALL students regardless of hearing ability** showed significant gains in academic achievement, and were noted to achieve in reading and language arts at a faster rate, to a higher level, and at one-tenth the cost of resource room instruction.

Since then, over 50 additional studies have reported the following benefits of using sound enhancement technology in the classroom:

Benefits to Students

- Improved student attention.
- Decreased request for repeated instructions.
- Average 10-15% increase in academic test scores across the board (in all subjects.) 16% increase in test scores for ESOL children.
- Increased literacy rates.

Benefits to Teachers

- Reduced teacher absences from vocal illnesses.
- Improved classroom management: students more on-task, reduced discipline problems, improved student motivation & participation.
- Increased physical stamina.

Benefits to School Districts

- Cost savings in reduced Special Education referrals (up to 43% decline).
- Cost savings in reduced teacher absenteeism (a 36% decline in Iowa).
- Improved standardized test scores.



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Seeing is Believing, But Hearing is Achieving™