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Using Audio Systems in Schools

By Amie Gordon-Langbein and Mary Metinger

Young people spend at least 45% of their school day engaged in active listening activities and yet, varying degrees of hearing losses are common in school aged children. A recent study in the Journal of the American Medical Association showed that 14.9% of children ages 6-19 have some degree of hearing impairment. This is because middle ear infections, colds and allergies frequently plague young children, all of which can have an accompanying temporary hearing loss.

Studies estimate that this type of hearing loss affects as many as 20% of a lower elementary school class on any given day, and that 80% of young learners will have this type of fluctuating hearing loss during the academic year. Today's classrooms are primarily auditory verbal environments. Therefore, utilizing technology to enhance listening ultimately allows all children to learn more efficiently. One solution is a "sound field amplification system."

Sound field amplification systems function like mini public address systems. They consist of several parts: a teacher-worn wireless microphone, a transmitter, a receiver and one to four speakers placed strategically within a classroom. They amplify the teacher's voice equally throughout the classroom. This is important because classrooms are notoriously poor acoustical environments.

First and second graders at Rolling Hills Elementary in Holland, PA, participated in a study to assess whether sound field systems improved auditory discrimination abilities in classrooms. Two sets of questions were tape-recorded. Each assessed the children's ability to identify initial consonants in spoken words. One was presented to the children without sound field technology, and one was presented with the sound field system operating.

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Students showed an average improvement on the test of 45% with the sound fields in the classrooms. Equally as important, without the sound fields in the classes, the children missed on average 42% of the test questions.

The principal, teachers and students completed questionnaires regarding the sound field systems. Most stated that overall attention spans improved, students followed directions more easily and they showed less hesitation when beginning their work. The majority of students said it was easier to hear the teachers, and that the teachers did not have to yell or raise their voices.

In striving to plan successful academic programs, teachers and administrators need to consider the sheer numbers of students who may not hear well on any given school day. Sound systems are an easy, cost effective way to address these issues, while also assuring that all students listen and learn productively throughout the school year.

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