NEXT-IN-CLASS

PBK

LISTENING AND LEARNING

How enhancing classroom audio promotes equity in the classroom, improving academic performance and the overall learning experience

Research shows that the ability to hear clearly in the classroom environment has a profound impact on student engagement, focus, comprehension, and performance (Blazer, 2007). Proper acoustics in the classroom benefit all students, not just those with unique hearing needs. As a teacher's voice competes with background noise levels, students seated further away are at a disadvantage and are more likely to lose focus and disengage. Classroom amplification systems provide an equal distribution of audio throughout the classroom, resulting in fewer distractions and direction repeats, and more attentiveness.

Claudia Anderson has two sons, Jeremy and Justin, who were born profoundly deaf. After realizing their inability to hear was affecting their speech, she began researching solutions. Research shows that a child with an auditory processing disorder may have trouble learning to speak, spell, read and/or use language (Dahlquist, 1998). Claudia traveled the country to meet with hearing experts and learn how acoustics, signal-to-noise ratio and background noise can affect a child's ability to hear clearly.

After learning more about the impact of hearing on a child's development, Claudia made changes in their home environment so that her sons could hear what she was saying any time she spoke – no matter where she was. Additionally, in order for her sons to succeed academically, they would need changes to the traditional classroom environments of which they were a part.

75%
Average amount of school time a student spends engaged in listening activities.

80%
Average amount of instructional material a student receives verbally.

Claudia conducted more research and discovered a sound system that fills classrooms with 360-degree immersive sound. Once deployed, it quickly became evident that the sound system helped not only Jeremy and Justin, but all students in the classroom. The microphone a teacher wears produces loud, clear sound; in return, all students have a better opportunity to learn.

Their experience is consistent with academic research on audio improvements in learning environments. For example, students in amplified classrooms score 10% higher on standardized achievement tests than students in unamplified classrooms (Gertel, McCarty & Schoff, 2004).

The average Texas classroom accommodates 22 students in PK–4th grades and an average of 25 students in 5th–12th grades. Noise levels can quickly rise as students participate in class by asking questions, engaging in group activities, or simply discussing course materials.

Bottom line – a student's ability to hear is essential to learning. As much as 80% of what students learn is delivered through the teacher's spoken communication. Even with new multimedia technology, successful implementation depends on the student's hearing abilities (Johnson). Various sources of ambient noise such as computer equipment, heating and cooling systems, hallway noise, bare floors, and rooms with high ceilings can increase reverberation time and reduce occupants' ability to hear and process instruction. Adequate acoustics are critical for all students - not just those with hearing disabilities - to succeed academically.

30%

Average amount of academics missed by students who sit in the back of a classroom.

10%↑

Average improvement on standardized achievement test scores when enhanced audio is provided in the classroom.

Classroom audio systems offer a solution that benefits all classroom occupants. By employing a simple wireless microphone that captures the teacher's voice and transmits it to speakers in the room, every student can hear the instructor, no matter where they are located in the classroom. These systems are relatively inexpensive, but the academic benefits are profound. With audio enhancement in the classroom, students show a marked increase in engagement, improved focus, increased comprehension and higher test scores; simultaneously, teachers benefit from reduced vocal strain, fewer repeated instructions, and ability to speak in a natural tone (Blazer, 2007).

HOW IT WORKS

The teacher wears a wireless microphone

The microphone transmits audio to strategically located speakers in the classroom to evenly distribute sound to all students

Depending on building type, integration adds an average of approximately 50-cents per square foot.

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