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Christopher DeMallie, 7, holds the microphone to the sound enhancement system that his mother, Suzanne DeMallie, right, says helped him to hear better during kindergarten last year. DeMallie says all students and teachers benefit when a classroom is equipped with such a system.

Soundadvice

Every county classroom should have device that amplifies the teacher's voice, says one Towson mother



Suzanne DeMallie has learned about auditory problems in classrooms the hard way. Now she is trying to get school officials to listen.

All classrooms should be equipped with sound enhancement systems, DeMallie claims.

"If you want our children to read better, they need to hear better," says the 37-year-old Wiltondale resident who used to be a certified public accountant with USF&G and is now a stay-at-home mother with three children. "Hearing is the foundation of literacy."

DeMallie says sound enhancement is especially important in school because a child's hearing does not fully develop until age 15, according to experts.

The major components of a sound enhancement system are a wireless microphone, which amplifies the teacher's voice, and mounted speakers that transmit the sound of the teacher's voice evenly around the room and make it louder than classroom noise - even though the teacher is speaking in a conversational tone.

Hearing-wise, the system gives every child a front-row seat, DeMallie says.

A puzzling change

Last September, DeMallie's 6-year-old son, Christopher, couldn't wait to begin kindergarten at Ascension Lutheran Church.

By October, however, he wasn't so happy about going to school and was full of reasons to stay home: He wasn't feeling well or had a sore throat.

His teacher met with DeMallie in early November and told her she suspected something was wrong.

Christopher was having trouble with some of the basics. He knew his letters, but he could not say the alphabet. During circle time, when the youngsters sit around the teacher to go over phonics and numbers, he would zone out, sitting

politely but withdrawing into his own world. If his teacher asked him a question, he would say, "I don't know," or he would make up a silly answer.

His teacher also pointed out that his speech was lacking for his age. He would misuse pronouns or leave off the endings of words.

DeMallie and her husband, Craig, a computer network engineer, set up educational testing for Christopher in January. The boy had passed the standard hearing tests given by his pediatrician and Ascension every time. But the results of this test were different.

Christopher could hear all right, but he had an auditory processing problem.

"His ear can capture the sounds," DeMallie said, "but between his ear and his brain there was a block that delayed or garbled the sounds. He couldn't discriminate between 't', 'v', 'd' and 'b'. The word 'fits' would sound like 'fist' to him."

That explained why phonics was so difficult for Christopher to learn and why he became disengaged during circle-time activities, which required students to listen to one another. Christopher's life changed for the better after his teachers followed the recommendations of Dr. Stephen Seipp, an author and clinical audiologist at the Hearing Assessment Center in Baltimore who specializes in auditory processing and hearing conservation. DeMallie had taken him to the center because she had heard about his work with children.

Christopher was subsequently never seated near an open window or a door. Because he has a strong right-ear

preference, he was seated so the teacher could talk into his right ear. And when the teacher spoke to him directly, she enunciated clearly.

"We saw immediate changes," DeMallie said. "Christopher's desire to go to school came back."

What made the biggest difference for Christopher, DeMallie says, was the portable sound enhancement system that a Utah company, Audio Enhancement, had given her for his classroom.

She had established a relationship with the company after seeing a CBS news program that featured the president of the company, Claudia Anderson, and had e-mailed Anderson. DeMallie later met Anderson when she came to town for a seminar.

For the sound enhancement system, Christopher's teacher wore a microphone no bigger than a large necklace, DeMallie says. It amplified her voice so it could easily be heard throughout the classroom.

Good for pupils, teachers

The research Suzanne DeMallie has done shows that sound enhancement systems have improved the behavior of not just hearing-impaired students, but of all the students in a classroom, and raised their test scores as well, she says.

A three-year study of sound-enhanced classrooms for third- and fourth- graders showed reading, math, language and spelling gains of 15 percent, according to California's Anaheim Public School System. Secondary students showed 10 percent gains after four years, according to the Oakland, Mich., school system.

DeMallie says schools that used sound enhancement systems also found they had fewer students being placed in special education or being diagnosed with attention deficit disorder.

For instance, many children who are so labeled have distorted hearing, neurodevelopmentalist Kay Ness concluded after her study, "Hearing, Learning & Listening." She suspects that up to 70 percent of children who take the drug Ritalin are on it for this specific reason, according to DeMallie's research.

The studies also showed that teacher absences decreased because teachers didn't have to strain their voices to be heard. The Dubuque, Iowa, system found a 36 percent drop in teacher absenteeism, she says.

One of her sources is Paul McCarty, a former school principal and an adjunct professor in environmental psychology at Brigham Young University in Provo, Utah, who has researched acoustics in the classroom and collaborated in nationwide studies for 10 years.

"Students who can't focus on the spoken word lose their desire to learn and their physical ability to learn," said McCarty, who says his passion is student achievement. "I really feel the answer is in the physical learning environment."

Adults and children hear differently in a noisy environment like a fully occupied classroom, McCarty explains.

The relative difference in sounds can be expressed in decibels, according to the League for the Hard of Hearing Web site.

Normal breathing creates a sound level of 10 decibels; a soft whisper, 30; a normal conversation, 60; a large office environment, 50; a car horn, 110; a firecracker, 150.

"The average hum of learning taking place is 60 to 70 decibels," said McCarty. "Add the screech of a chair being pulled back, and it's 90 decibels."

For an adult to focus on a voice in that environment would require a 4-decibel increase in that voice, he says. But a child under 15 would need at least a 15-decibel increase.

That explains why teachers are 30 times more at risk for voice stress than some other occupations, he said.

Question of priorities

DeMallie quoted McCarty and 19 other studies and papers in the material she sent to state Superintendent of Schools Nancy Grasmick in the spring.

Those were the cream of the crop of more than 50 that DeMallie says she read.

"I couldn't find one thing negative," DeMallie said.

In a letter in reply, Grasmick acknowledged DeMallie had done "a very thorough job of researching the issues related to classroom acoustics and advocating the benefits of classroom amplification systems."

Grasmick noted, "We firmly believe good acoustics are critical for the success of our diverse student body."

She said the Maryland Department of Education recognizes a place for sound systems in retrofitting existing buildings after partial acoustic modifications have been unsuccessful.

But she also said the state does not support sound enhancement systems in new construction. Instead, new classrooms should be built to the acoustical standards the state is developing, Grasmick said.

Sound enhancement systems can cost from \$1,500 to \$1,770 per classroom, according to DeMallie.

"The state is trying to take a financial shortcut, but in the long run these systems pay for themselves," she says, referring to reduced special education costs, savings in substitute teachers' pay and less need for supplementary instruction.

DeMallie also has presented the case for enhanced-hearing systems before the Stoneleigh Elementary School PTA and the Baltimore County Board of Education.

Board member John Hayden of Towson has become a supporter of her cause.

"She is doing a very good job of presenting the information," he said. "She's hotter than \$3 pistols about it."

"But we have a bushel basket of priorities thrown at us. It's in part a question of money."

Worth the price

Christopher is now a first-grader at Stoneleigh Elementary - without his portable hearing enhancement system.

DeMallie and her husband met with Stoneleigh school administrators and the school system audiologist Sept. 8 and were told that, based on county

guidelines, there was no need to put one in his class. A demonstrable hearing loss is justification for an enhancement system, but an auditory processing problem is not, according to current school system guidelines, school system spokesman Charles Herndon explained this week.

But there are protocols, he said, that the school can employ to make the most of a child's educational opportunities. For example, the teacher of a child with auditory- processing problems can use visual cues, position the child in the classroom for maximum hearing and clearly enunciate.

But Herndon noted that policies can change with time.

"We are constantly looking at enhancements to the educational process as more research becomes available," he said. But, he cautioned, "part of that is the funding that is available to us."

DeMallie says she and her husband didn't push the issue because the meeting with the audiologist was only about Christopher and because, for now, he is doing well.

"But we all agreed to monitor his progress and readdress this issue if he seems to be having difficulty," she said.

She plans to continue her campaign to get sound enhancement systems for all classrooms.

"School systems may worry about being able to afford them, but we can't afford not to have them," DeMallie said. "I'm fighting this battle not for Christopher - he's one of the lucky kids; he'll get preferential seating. I'm doing it for other kids who aren't going to be seated in the front of the classroom."