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## Can you hear me now?

By K.C. HOWARD

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Testing.

"If they hear me say that, the kids perk up," said Scott Taflin, a music teacher at Sunrise Acres Elementary.

"Test, test," Taflin said into a wireless microphone around his neck one day last week. The device broadcast his voice throughout classroom speakers so his students, whom he often asks to sing and dance around the room in a whirl of activity, can hear his directions clearly.

"It's wonderful for saving the voice," he said. "I just got done with laryngitis."  
All the classrooms at Sunrise are equipped with the sound enhancement systems, which include wireless and hand-held mics, a receiver, a sound equalizer and speakers.

District officials plan to install the systems at one elementary school in each of the district's five regions as part of a pilot program. Depending on the results, the district could purchase the equipment for all of its elementary schools.

Some educators tout the technology as a wonder system that can increase test scores, save teachers' vocal chords and energy, while allowing students to better understand them.

But at a cost of about \$1,600 per classroom, Clark County School District administrators are taking a wait-and-see approach.

After initially studying the impact of the equipment in classrooms, the district will probably try the system at another five schools, said Kathy Foster, the district's business manager.

It would cost about \$16 million to buy the equipment for every elementary school in the district, Foster said.

Officials are focusing on elementary students because research shows language acquisition is crucial at that age, particularly for non-English speakers.

"I certainly have more schools that would want it than I do have the funding," said Marsha Irvin, Northeast Region superintendent. "That's why I'm choosing schools where I know it will have the most impact financially."

The din of the average classroom of the chatter of students, hum of air conditioning or heating or prevents students from understanding all of a teacher's words.

Paul McCarty, an environmental psychology and human development professor at Brigham Young University, has studied technology in classrooms for a decade. In a research paper he

co-authored, he concluded that as many as one-third of all students miss 33 percent of verbal communication in a typical classroom.

The voice enhancement system allows even students in the far corners of the classroom to hear the teacher's instruction with the same clarity and tonal quality as their peers in the front row.

"It's very similar to how we put surround sound in our family rooms," said Jolene Wallace, Southwest Region superintendent. "We live in a loud society."

McCarty recently led research in Washoe County that compared 10 low-income schools, which had implemented audio enhancement, to a control group that hadn't. They found over a year that students who had teachers using the equipment had 8 percent to 12 percent gains on the Nevada criterion referenced tests over the year before.

"What was remarkable was the (low-income) schools collectively had increases in test scores, particularly in language arts and mathematics, while overall the district or the control schools showed either no improvement or negative," McCarty said.

Over the past three years, Washoe County has implemented the sound enhancement system in 25 elementary schools and two middle schools, spending about \$1.5 million, said Joe Gabica, the Washoe County School District's facility planning manager.

He said districts in Florida, Utah and Colorado are ahead of Nevada in implementing this technology on a large scale. "It's really an upcoming technology. As time goes on you're going to see this in more and more schools," Gabica said.

Washoe is setting aside about \$250,000 a year for the technology in hopes of implementing it throughout the entire district, he said.

But Foster is cautious about putting too much weight on research correlating the technology with increasing test scores.

"It's been hard to quantify it truly," she said. "Was it the system that did that? Or was it training in another way? Maybe they used a new textbook."

"It will be a large expenditure if we decide to roll it out to all of our schools." About three years ago, the Clark County School District placed the system in every classroom at Wendell Williams Elementary and Sunrise at a cost of about \$70,000 per school, Foster said.

A few other schools have installed the technology through their own fundraising.

Ken Ligon, the principal at Eisenberg Elementary, has had the technology at his school for almost six years and has raised money so each classroom is equipped with the voice enhancement systems.

"You're always looking for ways to improve the classroom and instructional environment," he said. "There is a lot that's done with the visual. Well, the auditory I think is very important."

When the system is down for a few days or hours for maintenance, he said teachers miss the microphones. They go home more tired when the sound systems aren't operating, he said.

It also helps students with hearing problems and English-language learners hear the nuances of speech, he said.

The technology keeps everyone speaking in "inside voices," said Wendell Williams Elementary Principal Brenda McKinney.

"We have a lot of teachers that are very old-school and they come from the model of raising their voices for students when they're trying to break up talking," she said. Maintaining a low tone, relaxes students and keeps them listening. But it also prevents students from raising their voices too, McKinney said.

"They are a better audience if it's done on a consistent basis," she said of the students.

"From a teacher's standpoint or a librarian's for presentations, it's absolutely awesome to be able to just speak into that mic and use your regular voice. It saves them like crazy and they never have to raise their voice."