

A HISTORY OF QUALITY

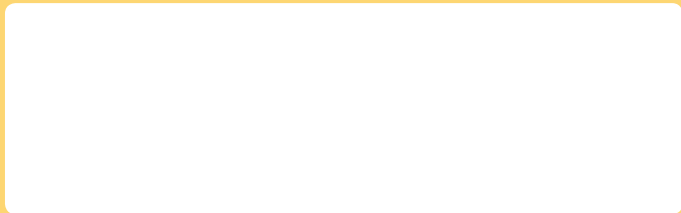
Headquartered in California, FrontRow is a division of Phonic Ear, whose wireless technology has helped build more engaging learning environments since 1963. As part of the \$1 billion William Demant group, FrontRow is the only ISO-registered and FDA-cleared supplier of active learning technology in the market. In addition, Educational

Underwriters has verified the research upon which FrontRow products are based. For research materials and references from some of the 3,000 districts using FrontRow, please contact us at one of the numbers below.



23% of North American districts use FrontRow

For more information visit www.Howard.com or call us at 888.912.3151.



www.howard.com



©2007 Phonic Ear Inc. Phonic Ear, FrontRow, and the names of FrontRow products are trademarks or registered trademarks of Phonic Ear Inc. in the US and other countries. VCS302 and Texas Instruments are trademarks of Texas Instruments Incorporated. EnergyStar and the EnergyStar mark are registered U.S. marks.

828-6880-114/Rev D/5026/0307



Teachers using a FrontRow mic can be understood clearly by all students.

Why sound is the weakest link in the learning chain

And how FrontRow sound systems strengthen instructional quality

Each day, schools' investments in people, curricula, and technology can be undermined when students miss 25% of what teachers say. That's if they're lucky enough to have a good seat: children in the back row may even miss 40%.¹

Why? Noisy air conditioning. Unfamiliar material. Inexperienced listeners. Children are naturally vulnerable to misunderstanding new concepts because they can't reconstruct key words and phrases they've missed.

This is why over 20% of US and Canadian districts use FrontRow sound systems to clarify and evenly distribute the teacher's voice throughout the classroom.

Ensuring clear communication no matter where children sit, a FrontRow classroom is a more focused, productive, and happy classroom.

¹ Source: Crandell, C., & Smaldino, J. "An Update of Classroom Acoustics." *The Volta Review* 96 (1993): 291-306.



frontrowTM
for active learning

HOW FRONTROW WORKS

1

Teacher mic

Lightweight mic sends teacher's voice to receiver. Teachers speak in a normal conversational tone, reducing vocal stress.

2

FrontRow receiver

Combines teacher, student, computer, and video system audio before sending to speakers.

3

Speakers

Evenly spread sound throughout the classroom, so students have equal access to auditory learning.

Tech integration

Play audio from MP3 files, DVDs, and streaming video. Even record lessons for podcasting.

Better listeners

Every seat is a good seat for student attentiveness, comprehension, and test scores.

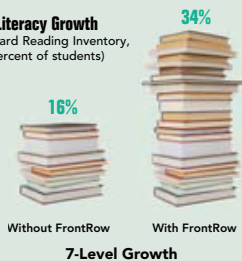
More participation

Pass-mic supports student presentation skills and builds confidence.

FrontRow sound systems clarify and evenly distribute sound — the voices of the teacher and individual students, plus multimedia audio — giving every student equal access to the lesson.

How FrontRow promotes student success & teacher happiness

Literacy Growth (Standard Reading Inventory, percent of students)



Test scores you'll want to show & tell

In a five-month study of 85 research and 81 control first-graders in the Broward County (Florida) Public School System, students in classrooms using FrontRow achieved significantly greater ($p < .027$) IRI-measured literacy gains.

Why it works

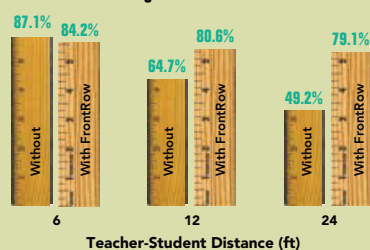
Because they increase speech clarity and phonemic awareness, FrontRow sound systems can significantly enhance the effectiveness of instructional programs — particularly in reading and spelling, but math scores are shown to improve as well.

Source

Darai, Beata, Aud, FAAA. "Using Sound Field FM Systems to Improve Literacy Scores." *Advance for Speech Language Pathologists and Audiologists* 10 July 2000: 1-2.

Further studies available at www.gofrontrow.com

Mean Word Recognition Scores for ELL Students



Connect with English learners

When researchers measured the word perception of 20 English language learners (aged 8 to 10) at various distances from the teacher, they found the children's performance significantly improved ($p < 0.0001$) when using a sound system.

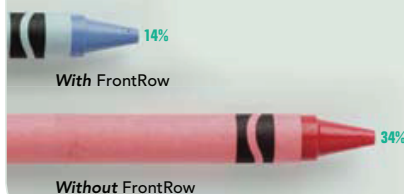
Why it works

By ensuring that the teacher's voice is clarified and evenly distributed around the room, FrontRow systems can be tremendously helpful to English language learners — who have particularly strong speech perception difficulties when seated in the middle or rear of the classroom.

Source

Crandell, Carl C., Ph.D. "Effects of Sound Field FM Amplification on the Speech Perception of ESL Children." *Educational Audiology Monograph* 4 1996: 1-5.

Percent of Teachers Taking Voice-Related Sick Days



Recess for your voice

In a survey of 56 Dubuque (Iowa) public school teachers, researchers compared sick days due to voice or throat problems before and after using a sound system. Teachers using the sound system reported a decline from an average of .93 sick days per year to .34 sick days per year — a reduction of 63%.

Why it works

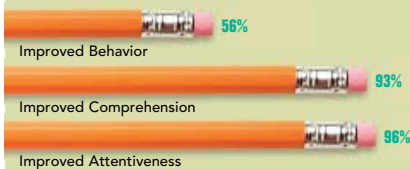
Because they need to project their voice to back of the classroom, half of all teachers will experience a voice disorder during their career. FrontRow systems eliminate this added strain. Most teachers using FrontRow report more energy and greater teaching satisfaction.

Sources

Allen, Laurie, MA, CCC-A. "The Effect Sound Field Amplification Has on Teacher Vocal Abuse Problems." *American Academy of Audiology poster session* 1996.

Voice Academy. National Center for Voice and Speech. University of Iowa. 8 Feb 2007. www.uiowa.edu/~shcvoice/slp.html

Student Attention & Behavior (as reported by teachers and principals)



0 to 100% attention in 5 seconds

A three-year project involving 55 kindergarten through second grade classrooms in Escambia, Orange, Pinellas, and Sarasota (Florida) public schools found teachers were in 96% agreement that student attentiveness, listening, and comprehension improved when using FrontRow.

Why it works

Listening is hard work. By making sure that the teacher's voice is highly intelligible to all students, FrontRow makes it easier to listen. As a consequence attentiveness, understanding, and behavior nearly always improve.

Source

Rosenberg, Gail, et al. "Improving Classroom Acoustics (ICA): A Three-Year FM Sound Field Classroom Amplification Study." *Educational Resources Information Center*. 9 Mar 2007. www.eric.ed.gov/ERICDocs/data/ericdocs2/content_storage_01/0000000b/80/0d/da/82.pdf

For more information visit www.Howard.com or call us at 888.912.3151.

Technology for the sake of teaching



Digital intelligence. Faster than the speed of thought — a blistering 500 times per second on the VC5502™ processor by TEXAS INSTRUMENTS — the ADAPTO platform automatically adjusts sound quality, power usage, and other complex details. ADAPTO adapts so teachers can teach.



OptiVoice™ clarity. A powerful tool for test-taking, directions, and ELL instruction. Fragile consonant sounds carry about 75% of the meaning in speech but are easily destroyed by background noise. OPTIVOICE strengthens these critical sounds, doing the work of a 12-band equalizer with a single switch.



SmartCharge™ peace of mind. The greatest killer of electronics is accidental recharging of alkaline batteries. SMARTCHARGE technology only charges batteries that are safe to charge — protecting your investment for years to come.



Energy Star saves money (and maybe the planet). Products that earn the ENERGY STAR® — strict energy efficiency standards set by the US Government — use up to 50% less energy.



Earth-friendly design. FrontRow's design and manufacturing practices keep lead, mercury, PBDE and other toxins out of its products — and out of the environment.



Lead Free

DUO™ speaker coverage. How can one speaker cover the entire room? It can't, no matter what anybody tells you. FrontRow's two-speaker line array technology reinforces and spreads more sound energy throughout the listening zone, making it the only all-in-one speaker able to cover an entire classroom.



At FrontRow, we measure technology leadership by how well it impacts student success. Our goal is to make teaching and learning easier and more effective, and so our core design principle is “strength inside, simplicity outside.” Year after year, FrontRow's California-based engineers have delivered more exciting innovations to fulfill that vision than any other sound system builder.



FrontRow's 6-phase product development process ensures that technology investments meet criteria for simplifying use, improving instructional quality, increasing reliability, and supporting long-term savings.



FEATURES

RECEIVER

- Adapto® Digital Platform
 - Digital Signal Processing
 - Automatic feedback suppression
 - Intelligent power management
- One-touch operation
- 2 channel infrared
- 2 stereo aux-inputs
- 1 mono aux-output for podcasting
- Integrated infrared sensor
- OptiVoice™ enabled
- ENERGY STAR® qualified
- Lead-free construction

PENDANT MICROPHONE

- Lightweight and comfortable
- Excellent sound quality
- Easy-to-reach mute button
- 2 integrated directional mics
- 2 channel (switchable) IR transmitter
- SmartCharge™ failsafe charging
- Lead-free construction



From feedback suppression to energy management, FrontRow Pro Digital's ADAPTO platform spares schools unneeded chores, costs, and complexity.

A TYPICAL PACKAGE

- Receiver
- Pendant microphone
- Four wall/ceiling speakers
- Optional student pass-mic

Adaptive intelligence makes FrontRow Pro Digital the most time-saving, energy-saving, hassle-free way to improve learning in every classroom

Because it invisibly handles tough tasks — like monitoring sound quality, suppressing feedback, and optimizing power use — FRONTROW PRO DIGITAL is as easy on school budgets as it is to use. Classroom sound has never been this smart.

One-touch operation makes it easy to use and manage

With FRONTROW PRO DIGITAL, teachers need only turn on the mic to start teaching. The receiver automatically wakes up from its energy-saving sleep mode, and goes back to sleep when the mic is turned off. Adaptive intelligence simplifies use and saves power.

Better installations, unrestricted teaching

FRONTROW PRO DIGITAL's powerful ADAPTO platform monitors sound quality 500 times per second to suppress feedback before it starts. That means installers are

free to place speakers where they'll perform best (and do it more quickly). And since teachers can move freely without fear of harsh interruptions, it's easier to focus on teaching calmly and clearly.

Uses at least 63% less energy

The FRONTROW PRO DIGITAL is the only ENERGY STAR qualified sound system for classrooms. Its ADAPTO core intelligently optimizes power consumption to use well under half the electricity of other sound systems on the market. FRONTROW designers make it an easy choice to be in harmony with green building initiatives, offering smarter use of school budgets and global resources.

So easy, the hardest thing about the FrontRow ToGo is taking it out of the box

Completely installation-free, FRONTROW ToGo is the only "all-in-one" sound system with DÜO™ Technology. Its two precision-mounted speakers provide amazingly even coverage of the entire classroom in a way that few multi-speaker systems (and no single speaker) can match.

Goes from class to playground to assembly

FRONTROW ToGo goes anywhere students need to listen. Its powerful built-in battery lasts eight hours, and at just 6.4kg/14lbs, it's easier than ever to clarify your voice in the classroom, cafeteria, gym, or play field.

FEATURES

RECEIVER/SPEAKER

- Installation-free setup
- Portable, battery powered
- Simple, teacher-friendly controls
- 2 channel FM receiver
- 1 aux-input
- 1 aux-output for podcasting
- DÜO™ speaker technology
- OptiVoice™ enabled
- Lead-free construction



TRANSMITTER

- Lightweight and comfortable
- Excellent sound quality
- SmartCharge™ failsafe charging
- Lead-free construction

- ### A TYPICAL PACKAGE
- 2 channel receiver/speaker
 - Body-worn transmitter
 - Boom microphone
 - Transmitter charging stand
 - Optional student pass-mic
 - Optional carrying bag



Able to go beyond the classroom, FrontRow ToGo's all-in-one design and built-in battery make it a favorite for outdoor learning, physical education, assemblies, and other situations demanding portability.