NOTES FROM THE FIELD

A Changed Classroom

By Donna Langenderfer
SMART Exemplary Educator
Olmsted Falls High School
Olmsted Falls, Ohio

The focal point of my high school math classroom is the SMART Board interactive whiteboard. Either I’m using it with SMART Notebook collaborative learning software to write notes or illustrate a concept, or my students are using it to demonstrate what they know. The SMART Board interactive whiteboard and SMART Notebook software make teaching more efficient, which means I have more class time with my students.

For example, equations and formulas with symbols used to take forever to type and group together, but with the equation editor in SMART Notebook Math Tools, I can type an equation quickly just by clicking on the appropriate symbol. The geometry features make polygons interactive – students can drag a vertex and watch the angle and side measures change. And the graphing tool for algebraic equations enables me to type a function and have the matching graph appear. The way the equation and graph are connected allows students to see what the changes in one will do to the other, making these concepts easier to grasp.

My students and I are also fortunate to have a SMART Response XE interactive response system, a SMART Document Camera and a SMART Slate wireless slate. My students love the instant responses that the SMART Response XE provides. And I love all the math and text capabilities it has. Because I teach statistics, I appreciate that I can export assessment results for all types of statistical analyses. The intelligent grading feature is a huge plus for math classrooms because it allows for mathematically equivalent answers. Sometimes we use the SMART Response XE system for a quick check of individual understanding in the middle of class, for a group working together to solve a set of problems or for testing at the end of a unit. Regardless of how we use the SMART Response system or any of our other SMART products, my students are always engaged in and excited about learning!
When you're looking for specific research on the role of technology in education, visit the research and data section on our website to find independent studies covering a variety of disciplines and grade levels from educators around the world. Following are four studies that explore the motivational impact interactive whiteboards have on math students.

**Math Motivation with SMART Board Technology.** In this report, Marcy Savoie from Woodland Elementary School in Edwardsville, Illinois, investigated the motivating effects that SMART Board interactive whiteboards have on math students with learning disabilities.

**Improving Student Motivation and Performance in Math.** Jessica K.D. Preisig from Powdersville Middle School in Greenville, South Carolina, compared the academic performance and motivation of students who were taught fractions on a SMART Board interactive whiteboard with that of students who received conventional math instruction.

In both reports, results showed that using SMART Board interactive whiteboards increased motivation for learning math and that students were more interested, excited and engaged and had an easier time understanding concepts.

**Increasing Math Test Scores with the SMART Board Interactive Whiteboard.** Tammy Oleksiw from Parma Community School in Parma, Ohio, found that in addition to enhancing motivation, attentiveness and comprehension, SMART Board interactive whiteboards helped increase test scores in her third-grade math class. After introducing the interactive whiteboard into her class, for the first time, 100 percent of her students passed the Ohio Achievement Test – 95 percent increased their test scores by at least 10 percent. Two of her students scored in the advanced category and three students were accelerated.

**The Value of Interactive Whiteboard Technology in Supporting Teacher Practice and Student Mathematics Achievement.** In this report, teachers were asked to indicate the degree to which SMART Board interactive whiteboards were used in their classrooms and the impact on teaching and learning. At the end of the two-year project, the vast majority of teachers who participated said having a SMART Board interactive whiteboard in the classroom was the primary factor for remaining at the same teaching placement. Teachers who did move to new schools lobbied their new administrators to purchase SMART Board interactive whiteboards for their classrooms. Overall, participating teachers were nearly unanimous in their belief that SMART products added significant value to their teaching – particularly for math instruction.
View a SMART Webinar about Building Motivational Math Lessons

If you missed the webinar Get in Touch. Find Inspiration. Multiply Student Engagement, you have another opportunity to attend via SMART’s on-demand viewing. The webinar shows how K–12 teachers are delivering visual and interactive math lessons to boost student understanding. This complimentary one-hour webinar also brings together educators who share useful teaching strategies and discuss current issues in mathematics.

Find out how to
• Use educational technology to improve math instruction by engaging students in inquiry, discovery and learning
• Employ visual and interactive lessons to make learning math formulas fun, exciting and more engaging
• Implement strategies for improving math education for global competitiveness
• Assess understanding instantly and track test results and student performance
• Support multiple learning styles by creating interactive lessons that can help your students grasp difficult concepts and retain more information

Register now to view the webinar.

FEATURE ARTICLE

Experiencing Exponential Growth in Math

"Math is a beautiful and elegant way of understanding our natural and human-made world."

This sentiment from Dr. Cathy Bruce may explain why she has chosen a career that focuses on enhancing the teaching and learning of mathematics. Read the full article.

SMART Response Question Sets

Find a database of SMART Response question sets on the SMART Exchange website. The majority of the questions are correlated to state and provincial curriculum standards.

Try one of the following SMART Response question sets with your math students.

Measure Up!
First-grade students can test their ability to use a ruler to measure various objects.

Shapes
First- and second-grade students can test their ability to recognize various shapes.

Angles
Fourth- and fifth-grade students can test their ability to measure angles.

Scientific Notation
Students in grades 6–9 can test their knowledge of scientific notation.

Powers
Students in grades 7–9 can test their knowledge about integers – to the power of, squared and cubed.

Pythagorean Theorem, Part Two
Students in grades 10–12 can test their knowledge of the theory developed by Pythagoras.
NEWS

Visit SMART at NCTM 2011

NCTM is hosting its Annual Meeting and Exposition in Indianapolis, Indiana, from April 13 to 16, and SMART will be there. Visit us at booth 1041 to watch a series of math presentations throughout each day of the show and to learn tips for enriching your math lessons. You’ll also get a hands-on look at the following SMART products that support math instruction.

**SMART Notebook Math Tools**, developed for middle and high school math classrooms, helps make lessons interactive, visual and easier to understand. You get built-in features such as an equation editor, a custom graph builder and measurement tools. Mathematical symbol recognition has also been added to the handwriting recognition feature, and you’ll find more shapes that can be easily manipulated. [Register](#) for a 30-day trial today!

The **SMART Response XE interactive response system** was created to meet the sophisticated needs of secondary math and science students. It includes a full QWERTY keyboard, which allows students to input equations and true-or-false, multiple choice or text-based answers. It also includes an intelligent grading feature that allows for a range of answers you’ll accept as correct. The SMART Response XE system is one of SMART’s five interactive response systems. Visit our website to find the system that best suits your classroom.

The **SMART Board 800 series interactive whiteboard** is our newest series of interactive whiteboard, featuring multitouch and touch gesture capabilities when used with **SMART Notebook 10.7 software**. The 800 series features **object awareness** and **freestyle interaction**, so two users can work together anywhere on the surface of the interactive whiteboard and perform different actions. That means you can be using a pen to highlight text while your student uses a finger to manipulate digital objects or draw diagrams.

SMART SHOWCASE SCHOOL PROFILE

Finding Multiple Ways to Make Math Exciting

How do you get students excited about math?

It’s a question that many teachers have puzzled over, but one to which teachers at SMART Showcase School J.F. Drake Middle School in Auburn, Alabama, think they’ve found an answer. And the SMART Board interactive whiteboards that are installed in every one of the school’s classrooms are a big are a big part of it. [Read the full article](#).

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**CLASSROOM CONTENT**

Jeff’s SMART Notebook Tips

Each month in this column, you’ll find a new tip from Jeff Taylor, Product Manager for SMART Notebook software. This month, Jeff explains how to manipulate the compass tool for your math lessons.

**Change the radius**

Press the Measurement Tools icon in the toolbar, select the compass and drag it to your SMART Notebook page. Press the tab of the right arm that holds the pen and drag it to your desired radius. You can also move the compass around the page by pressing in the area of the compass that shows the degree and radius and dragging it to where you’d like the compass to appear.

**Draw a circle or an arc**

Press on the tip of the pen and drag it to your desired shape. You can change the color of your shape by selecting a different pen color from the toolbar or picking up a pen from the Pen Tray and retracing the shape with the pen in the compass. You can also switch the pen from one side of the compass to the other by pressing on the double-green arrow found at the top of the pen.

Download SMART Notebook 10.7 software [here](#).
Amplify Results with the New SMART Audio Classroom Amplification System

Classrooms can have a myriad of auditory distractions. Whether it’s the music class next door, a city bus driving by or the hum—okay, roar—of the air-conditioning system, sometimes the sounds that students need to be listening to aren’t the ones that they hear.

Studies have shown that 45 percent of learning takes place by hearing and seeing, and this percentage is higher for students in younger grades. If students can’t hear a lesson, it can affect their engagement, their ability to understand instructions and even their behavior in the classroom.

The SMART Audio classroom amplification system ensures that your lessons are clearly amplified throughout the room, improving the overall teaching and learning experience. And our newest version of the SMART Audio system is the easiest way to add audio to your lessons, while enhancing the overall sound distribution in your learning environment.

Sensational learning
This new version of the system seamlessly integrates with SMART Notebook collaborative learning software. The SMART Audio icon appears in the software’s interface when you are connected to a SMART Board interactive whiteboard. You can easily control up to five separate audio inputs, so if you are showing a movie using a DVD player, you can instantly control the volume without interrupting the flow of the lesson. This integration also ensures that teachers can seamlessly control audio when using a SMART Board interactive whiteboard, a SMART Podium™ interactive pen display or a SMART Slate wireless slate.

With SMART Audio, you can give verbal instructions, enable student discussion, show a video on your SMART Board interactive whiteboard or play an audio file, and the sound is amplified to all areas of the classroom.

The system is also easily incorporated into a school’s existing infrastructure, such as intercom and paging systems, so school-wide announcements can be broadcast through the system’s four ceiling- or wall-mounted speakers.

All-around sound
The system includes a wireless infrared microphone, four speakers, a control unit that provides a USB interface to the computer and a room module that combines an amplifier and infrared sensor.

The microphone makes it easy for you to communicate with your students, without having to raise your voice to be heard. You’ll find buttons on the microphone that enable you to control the microphone volume. The microphone also includes a programmable button for managing external devices, such as a room control system.

The new SMART Audio system is available to order April 15. Visit smarttech.com/wheretobuy for more information.

Fast Facts

• Complete audio system—Incorporate a system that includes four ceiling- or wall-mounted speakers, a wireless infrared microphone, a room module that combines an amplifier and infrared sensor and a control unit that connects to the interactive whiteboard or computer via USB

• Integration with SMART products—Adjust the audio without interrupting your lesson. SMART Audio has its own menu within SMART Notebook software, enabling you to control up to five separate audio inputs. You can also access SMART Audio from the SMART Tools menu.

• Even sound amplification—Mount the system’s four speakers throughout your classroom—either on the ceiling or the walls, for even sound distribution no matter where students are seated in the classroom.

• Versatile microphone—Offers a lightweight, infrared wireless microphone that can be used by either teachers or students and features buttons that make it easy to control or mute the volume. The microphone also has a button that can be programmed to manage your room control features or page your school’s main office.

• Multimedia device compatibility—Incorporate your current audiovisual equipment into the system setup of SMART Audio to engage your students and ensure your equipment is being used to the fullest. The system works with DVD players, iPods and your library of digital content.
Sound can make a lesson more creative, understandable or just plain fun!

Whether you are finding videos on the SMART Exchange website, using audio files from the Gallery in SMART Notebook software or creating your own podcasts, following are seven reasons why sound is an invaluable addition to teaching and learning:

1. Meets the needs of auditory learners
2. Helps with pronunciation and enunciation when learning a new language
3. Makes historical moments resonate
4. Provides positive feedback. Who doesn’t love hearing the Good job! manipulative from the Gallery of SMART Notebook software?
5. Instills an appreciation for music
6. Helps with understanding how acoustics and reverberation work
7. Encourages students to express themselves through songs and chants

Celebrating Sound

Up Next

Be sure to read the May issue of EDCompass newsletter. You’ll find information on SMART’s professional development offerings, with inspiring stories, tips, ideas and opportunities for using your SMART products.

Ask AJ

We spoke with Akaljot (AJ) Dhillon, Product Manager for SMART Audio, about the importance of classroom amplification systems and how the new SMART Audio system will benefit teaching and learning.

EDCompass When students can’t clearly hear the lesson, how does it affect their ability to learn?
AJ Every individual learns differently, but studies show that between 20 and 30 percent of the population tend to remember through what is heard. So a student’s ability to hear has a great impact on both grades and engagement.

EDCompass Do you have an example of the correlation between listening and learning?
AJ We actually installed a trial unit of the SMART Audio 340 in a classroom in Alberta. There was a student with hearing impairments in the class – her parents could not afford a hearing aid and they felt that placing her in a special needs class would stigmatize the family. And so the student’s only option was to learn to read lips. The teacher was ecstatic with the impact SMART Audio had on that student. She was much more engaged in learning and more willing to participate in the lessons. The opportunity for students to hear their teacher is something that shouldn’t be taken for granted.

EDCompass How is the new SMART Audio system different?
AJ SMART Audio has been completely revamped with the introduction of the 340 model. We designed it with the teacher in mind – the microphone is lighter and more compact, we’ve conveniently placed volume control on the microphone and we’ve moved the volume control for all inputs from the hardware unit to a software mixer window. This greatly simplifies how teachers control the audio in the classroom because they no longer have to search for the controls.

Teachers can also choose from three versions of this new system – a model with wall speakers, one with ceiling speakers and one without speakers. We chose these versions to best match common classroom configurations. If a classroom already has speakers, we provide a retrofit system that does not include speakers.

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