

SMART Table™ special report

How to make learning creative and fun

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THE SMART TABLE INTERACTIVE LEARNING CENTER TRANSFORMS LEARNING

Learning and play come together with the first touch

One touch on the SMART Table interactive learning center is never enough. Young students are drawn to the world's first multitouch, multiuser interactive table because they know that it is special. Children today expect technology to be a part of their lives, and they approach the SMART Table with a natural curiosity and eagerness to incorporate it into their activities. Here, work and play come together, as groups of early education students engage simultaneously in hands-on activities – sharing their knowledge and ideas, and learning skills that will reach beyond the classroom.

As an interactive learning center, the SMART Table is designed to encourage collaboration, discussion and consensus building through digital lessons, educational games and interactive learning activities. The possibilities for fun and teamwork abound, and even the youngest students can get started with minimal instructions. Groups of two to eight students can simultaneously touch and manipulate objects on the surface – from animals and coins to maps of the human body and painting palettes – in a spirit of play suited to each child's learning needs and interests. And if the SMART Table takes a bump or two while kids shift from one activity to another, no need to worry – its durable construction holds up in active classrooms.

But the interactive learning center is not just for children. As an educator, you can use the SMART Table Toolkit to customize a range of high-quality applications and lesson activities. Applications require students to work together on a problem and then reach consensus before giving their answer. The lesson activities help children learn and apply age-appropriate skills, such as reading and counting, and social skills, such as teamwork and collaboration. Both applications and activities can be downloaded from the [SMART Table content page](#). You can also import your own digital content.



The SMART Table complements the SMART Board™ interactive whiteboard and other SMART products, enabling you to create interactive lessons and transition smoothly between whole-class and small-group learning.

SMART provides the support and learning opportunities needed to make the most of the SMART Table. If you would like to see how the SMART Table and other SMART products can help you enhance whole-class, small-group and individual learning, we invite you to take the [SMART Classroom Tour](#). You can also converse with teachers who are using the SMART Table, and share your experiences and ideas on the SMART Exchange™ online community at exchange.smarttech.com. The website houses community forums and teacher support networks, and organizes content by country to provide local, standards-correlated resources – it enables you to quickly and easily add relevant digital content, in a variety of formats, to SMART Table lessons. And check out our [YouTube video](#) to see how the SMART Table can enhance the way your students play and learn together.

It all begins with just one touch.



APPROPRIATE FOR ALL CHILDREN, NO MATTER THEIR ABILITY OR LEARNING STYLE

"Everyone wants it, and wants to see what it can do."

That's what Kyle Berger, Executive Director of Technology Services for Alvarado Independent School District (ISD), in Texas, says about the SMART Table interactive learning center. Since Berger first discovered the SMART Table at a convention last year, and immediately bought 10 for classrooms in his district, he says they have "added new meaning to student-centered technology."

"Instead of being just another center in the classroom, it really changes the dynamics of that center," says Berger. "The kids get so excited to interact with the table, but they have to interact with each other, too. One child can't just say, 'I want to go.' They all have to agree. The table takes the old elementary center model and brings it into the 21st century."

Parents can rest assured that lessons learned at traditional classroom centers – everything from taking turns and cooperating, to adding objects and learning about cause and effect – are still very much at the center of learning with the SMART Table. But instead of being limited to the scope offered by a sand or water table, for example, the SMART Table can grow along with children as they rise to new challenges and become more sophisticated thinkers, all under the guise of play.

Children today learn to interact with technology in their early years, before they even enter the school system, and districts like Alvarado are ready to encourage them further. Alvarado ISD's technology department serves the technological needs of approximately 3,400 students (many from economically disadvantaged homes) and staff, and is seen as a state leader in educational technology. The focus of the district's technology department is to fully integrate technology into student instruction, and the SMART Table fits nicely into that mandate.

Berger and other educators realize that students today learn differently, and they are finding ways to bridge the gap between the way students learn and instructional methods that have not necessarily kept pace. Classrooms today are also filled with a diverse range of students with different learning styles. Some are primarily visual learners, some are auditory and some kinesthetic. Some speak English as a second language, while others may struggle with physical, mental, behavioral or emotional challenges. But children still need to learn fundamentals like mathematics, science and reading, and they are less likely to look to textbooks and teachers writing on a blackboard for that knowledge. Instead, technology is central to their learning experience.

In this context, the SMART Table puts technology at students' fingertips. With multitouch functionality for up to eight children at one time and a design that supports universal design for learning principles, the SMART Table is appropriate for all children, no matter their ability or learning style. Counting becomes easy when each press of a child's finger is added up on the table's touch-sensitive screen. Children can also point at a picture (if not with their fingers, then with their elbows or another tool) and magically enlarge it so that it can be discussed with their table mates. Interaction and collaboration grow with each screen, as students answer questions, match pictures or words and categorize together.

"Learning opportunities which start to engage them in technology, especially in those primary years, will better prepare them for the future," says Berger, "because when they complete their education, they may be working in an industry that doesn't exist yet. The teaching methods have had to change, and we have had to develop programming around that as well," adds Berger. "Technology integration in the classroom often rests in the hands of the teachers."

While introducing some educational technology can mean steep learning curves for teachers, the SMART



Table makes integration easy from the moment it arrives in the classroom. Once it is plugged in, it is quite literally ready to go.

The SMART Table also provides optimum flexibility, both in terms of teaching style and content. Thanks to the SMART Table Toolkit, teachers can access ready-made activities, adapt existing activities to suit the particular needs of their classes or create entirely new activities. As students learn and grow, teachers can refine and redesign activities to keep the class challenged and engaged. Backed by a growing community of teachers sharing content online, the selection of resources and lesson activities for the SMART Table continues to grow as well.

"SMART has always been known to reach out and ask for input from its customers and invite them to share their ideas through their website," says Berger. "There is a great amount of content already available... It's so simple for teachers, in under five minutes, to create the lesson they need."

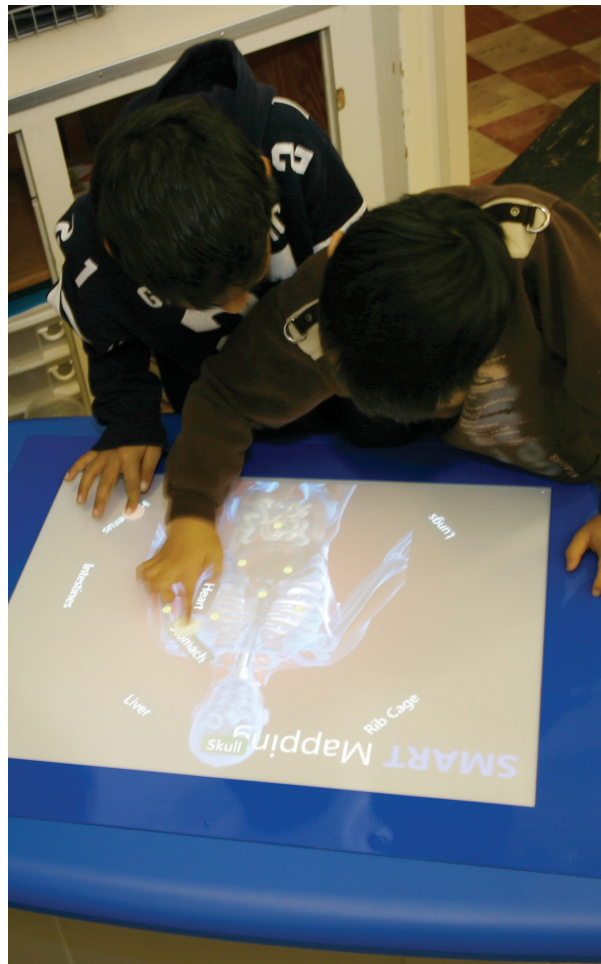
Educators who are already fans of the SMART Board interactive whiteboard are happy to discover that the SMART Table complements it and other SMART products. Teachers can create interactive lessons that transition smoothly from the interactive whiteboard to the interactive learning center and back again. Janie Henderson, instructional technologist with Alvarado ISD, has been hearing nothing but praise from teachers in the district about the SMART Table interactive learning center.

"The teachers and kids are all very excited about it, especially all the different options for lesson plans they have to choose from," she says. "The teachers really like that they can customize the software to individualize the lessons for their classroom. The software is very user friendly and very intuitive, and the computer skills required are very basic, so it isn't

something totally new that the teachers have to learn."

She adds that teachers are also very happy that they don't have to invest a great deal of time teaching children how to use the SMART Table.

Henderson says, "The best part is that the students are so engaged that they don't even know they are learning, and that really shows the success of the product."



DYNAMIC TOUCH

Touch technology is here to stay

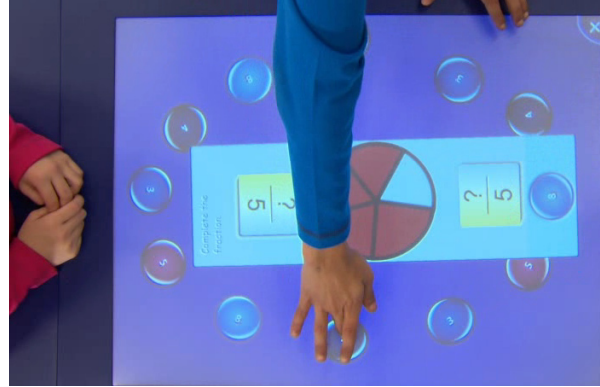
Banking, traveling, shopping. These and many other activities have been improved by touch technology, which has been around for 30 years. From adults who remember when computers took up entire rooms to children who are growing up accustomed to interacting with technology in everyday life, touch technology enables us to move through our world with greater ease.

Not that long ago, the angle at which a finger touched a screen created accuracy challenges for software developers. Patrick Baudisch, a computer scientist at the Hasso Plattner Institute in Potsdam, Germany, has improved the accuracy of touch screens by identifying exactly where individuals intend to point. His innovation, a fingerprint scanner, captures information on the orientation of a person's finger just as it touches the screen, and the finger's yaw, pitch and roll once it is in full contact. This information is used to develop a pointing profile that determines the center of a person's point, thus increasing accuracy and consistency for users.

Another challenge was figuring out how to accommodate multiple inputs or touches on one surface. SMART has mastered this issue, as the introduction of the SMART Table interactive learning center shows.

Most touch technology relies on the screen itself to capture and interpret the presenter's finger, stylus or pointer, which may not be reliable when it comes to sensing different tools or amounts of pressure. SMART's DVIT™ (Digital Vision Touch) technology, however, uses cameras and software to communicate finger, stylus or pointer position to a digital signal processor so the information remains precise and the screen surface remains unaffected. The cameras are housed in the product's frame.

Developing software to enable multiple users has been a boon. According to a [CNNMoney.com](#) blog, Fortune Brainstorm Tech, "SMART Table has only helped improve classroom dynamic and encouraged students to participate more in the learning process." It adds that "SMART Tables have been an incredible success already both for business and for students."¹



SOMETHING SPECIAL AT ISOBEL MAIR

Engaging special needs students

The giggles begin almost immediately as a group of young students from Isobel Mair, a special education school in East Renfrewshire, Scotland, begin drawing pictures of one another on the SMART Table interactive learning center. While one finishes, another decides that the picture needs a frame. As the children negotiate their way around each others' arms and hands, the lessons of creativity and cooperation they are learning are seemingly trumped by the fun that envelops the room.

Iain Hallahan, a teacher at the school, recalls with delight how the SMART Table became an almost magical exercise for those kids – "As a teacher, you could not have planned anything better. It was wonderful to see them interacting like this."

Isobel Mair is the only specialized provision in the authority. Its approximately 70–75 students, ages five to eighteen, have a broad range of additional support needs, from severe and complex learning disabilities to Autism Spectrum Disorder (ASD). Since the school first began using the SMART Table in April 2009, students and teachers alike have been drawn to the interactive learning center.

Hallahan says the children were instantly engaged with the SMART Table – without any instruction from the teachers. This is quite a feat for a group accustomed to making extraordinary efforts to master things mainstream students take for granted.



Research may explain why. A recent report, *Collaborative Puzzle Game: A Tabletop Interactive Game for Fostering Collaboration in Children with Autism Spectrum Disorder*, from researchers at the University of Trento (Italy) in the Department of Cognitive Science and Education and the University of Haifa (Israel) in the Department of Occupational Therapy², says that children with ASD “seem to be highly motivated by computer-based activities,” and have made significant gains in learning vocabulary, emotional expressions and social problem solving, using different kinds of multimedia packages.

Using computers is particularly helpful for people with ASD because they focus on the information on the screen while excluding distractions from sensory stimuli.

The report also notes that computers provide consistent and predictable responses, which can be particularly useful for people who, like those with ASD, often find their surroundings confusing and unpredictable. Hallahan noticed the same things with her students. One girl, who has a diagnosis of autism, found that repeating a multiple-choice question, and seeing the same answers over and over again, brought her comfort.

The report adds that “tabletop interfaces, in particular, have demonstrated their effectiveness as instruments for involving small groups of children with ASD in computer-based activities where social skills training was a major target.” Adds Hallahan, “For some [ASD] children who may be uncomfortable using the SMART Board because all eyes are on them, it’s a very natural dynamic to be part of a group where they are not on display. All they do is join in.”

To keep students moving forward, teachers make changes to lesson activities with the SMART Table Toolkit. “Before long, our pupils were working collaboratively, manipulating images and text by

spinning, sliding, enlarging and shrinking them. They all thought this was great fun!” says Hallahan.

Isobel Mair student, Joe, says the SMART Table is the best thing he has ever seen and compares it to a miniature SMART Board interactive whiteboard. Another student, Alison, gave it the thumbs up with her declaration that the table is “cool!”

Fabio, another student, said he likes to use his fingers to touch it. But even if a student isn’t able to use fingers to touch the surface, that’s not a problem. The SMART Table responds to touch, no matter whether it is an elbow, part of a hand or even a foot – children of all physical abilities can play and learn the SMART Table.

Teachers at Isobel Mair are not only pleased that this learning tool is able to focus the attention of their students. According to Hallahan, they’re also happy that activities can be customized within a few minutes. If a lesson plan isn’t going as expected, the SMART Table can quickly be adjusted to accommodate the needs of individual groups. Teachers can use existing SMART resources, including more than 6,600 learning objects from the Gallery in SMART Notebook™ collaborative learning software, for example, or images captured with the SMART Document Camera.

“The only thing I would suggest is that they make a table with longer legs as well,” laughs Hallahan. “Because we find that our older students with additional support needs can benefit from it just as much as the younger ones.”

1. Thai, Kim. (2009, November 9). Touch technology: A round-up. Fortune Brainstorm Tech. Message posted to brainstormtech.blogs.fortune.cnn.com/2009/11/09/touch-technology-a-round-up

2. Battocchi, Pianesi, Tomasini, Zancanaro, Esposito, Venuti, Ben Sasson, Gal & Weiss. (2009). *Collaborative Puzzle Game: a Tabletop Interactive Game for Fostering Collaboration in Children with Autism Spectrum Disorders (ASD)*. 198.



GETTING IN ON THE GAME

Leading technology company develops first third-party application for the SMART Table

The fun factor for the SMART Table has just been ramped up by Image Reveal, the first third-party interactive learning application developed for the SMART Table.

Vectorform, a global leader in the creation of interactive and multitouch activities, and in multitouch computing in education, was contracted by SMART to develop content for the SMART Table.

Image Reveal enables young users to collaborate while answering a series of multiple choice questions in a game format. Students can choose either a short or long game, and then pick a subject area, such as math, science or social studies. Each correct answer uncovers part of a hidden image until it is fully visible, and students can guess what the hidden image is in order to win the game. For more complex questions, the application's scratch pad feature can be used to work out answers before making a selection. As with other SMART Table applications, students probably won't realize they are learning – they'll just know they're having fun.

Teachers love the flexibility of Image Reveal. Using the SMART Table Toolkit, they can customize content, including subject area, hidden image, questions and answers, and they can use images to tailor questions and answers for pre-literate learners. The application is also flexible enough for use in higher grades and is compatible with the Microsoft® Windows® operating systems.

Check out [YouTube](#) to see how [Image Reveal](#) is used on the SMART Table. Existing SMART Table

owners can download Image Reveal it at no cost from the Image Reveal [application page](#).

The SMART Table was introduced as the world's first multitouch, multiuser interactive learning center for early education in October 2008 and, until now, all learning applications for it have been designed by SMART.

Kurt Steckling, Vectorform president, was excited by the prospect of collaborating with SMART to develop an application for the SMART Table, which he called a groundbreaking product.

"SMART has been an industry pioneer in bringing touch technology not only to students, but to thousands of parents, teachers and communities around the world, and I can't think of a better fit for the kind of user experiences we create than this working relationship," he says.

Nancy Knowlton, SMART's CEO adds, "Working with Vectorform on our first third-party application for the SMART Table interactive learning center ensures we can quickly provide quality content that enhances the learning experience of early education students around the world."

But no one is more excited about the SMART Table, Image Reveal, and other games and applications, than the children who are using it to explore, learn and collaborate with each other every day.

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