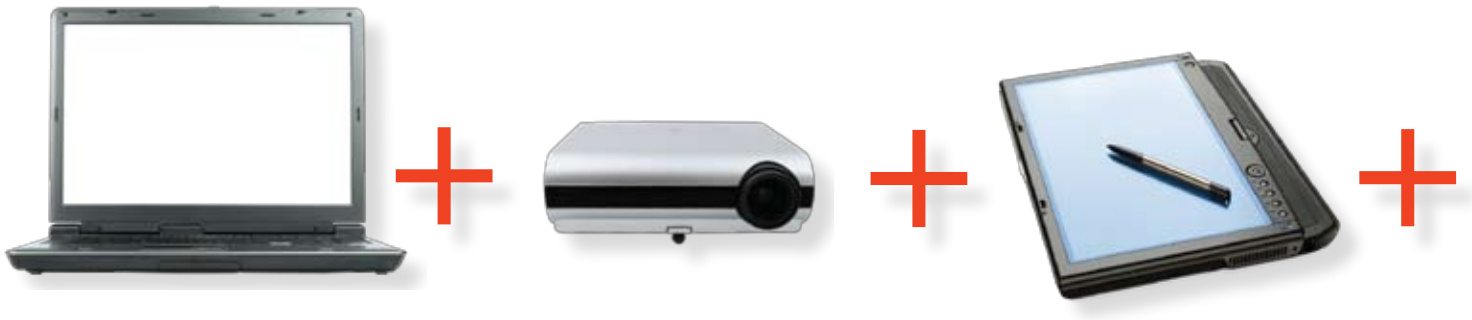
By Keith Vallis and Peter Williamson

Build Your Own Board Bright



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Interactive whiteboards are all the rage in classrooms across the world these days, and for good reason. Like most technology, they hold students' attention much better than a traditional lecture-and-blackboard lesson ever could. They also solve the problem of having only one classroom computer for 30 students by projecting the screen at the front of the room, and they make it easy and fun for both teachers and students to interact with educational software.

Whiteboards have become so popular that students have begun to expect them in every classroom, and some parents are measuring the value of schools as centres of technology excellence by the number of boards they own. In some countries, departments of education have even mandated that all schools have them. And teachers without whiteboards are starting to feel as if they are on the cyberhighway off-ramp.

But are interactive whiteboards the best choice for every classroom?

How to Make a Brightboard

Many teachers believe the only way to project the contents of a computer is onto an interactive whiteboard, but this is not true. Any computer can connect to a projector, and any software can be projected onto a wall.

> Teachers can build and guide lessons from the back of even the largest classroom or from the midst of group activities, and students can contribute to and construct their learning individually or in groups without having to walk to the front of the room, where they're forced to be the centre of attention in the glare of a bright projector.

Hook up a Bluetooth-enabled pen tablet and a wireless keyboard, and you have an interactive brightboard—a setup with all the functionality of a whiteboard, at a fraction of the cost.

To use a brightboard, the teacher can bring his or her laptop to class and attach it to a docking station that is permanently connected to power, to the school network and Internet, to a projector and amplifier, and to one or more wireless pen tablets and keyboards. The teacher can control the laptop from anywhere in the room with the pen tablet and enter data with the keyboard. Multiple pen tablets and keyboards will work simultaneously, so students working alone or in groups—with one student "driving" the tablet while another types on the keyboard—can interact with the software together. Teachers can build and guide lessons from the back of even the largest classroom or from the midst of group activities, and students can contribute to and construct their learning individually or in groups without having to walk to the front of the room, where they're forced to be the centre of attention in the glare of a bright projector.

The computer can use the same software a whiteboard would use, or you can use any high-quality, tried-and-trusted interactive classroom application that takes advantage of the multimedia and calculating power of your computer. Many software programs that have been around for a long time, like Inspiration, already have interactivity built in. Anything you can pull up on your computer, including Web 2.0 programs, such as Google Earth and Google Sketchup, can be projected on a wall using the brightboard setup. Other good programs to use include Geometer's Sketchpad, any computer-aided design program, the Pintar VirtuaLab series, and Poly (a free 3D geometric shape manipulation tool).

Students can use Geometer's Sketchpad, for example, to stretch, flip, and turn shapes while the computer cal-

boards Offer a Cost-Effective Alternative to Interactive Whiteboards

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Students and teachers can participate in a brightboard lesson from anywhere in the room.

culates and displays the changes in angle sizes in real time as a result of the user's input. The main difference between a brightboard and a whiteboard is that those same Geometer's Sketchpad manipulations can be driven from anywhere in the room, with a wireless mouse or pen tablet passed quickly from one user to another. You don't need to be tied to the board at the front of the room. And just as a whiteboard will remember what is written on it and make the notes available to students in digital form, the pen tablets can allow users to save and transmit their handwritten notes using the software that comes with them or open source software such as Skrbl, an online collaborative whiteboard.

Another brightboard bonus is that the projection area at the front of the room can be as large as the wall and projector will allow. You don't need to buy a display screen; just paint the wall white. Brightboards will also work in large school halls or theatres with the same interactivity, and even the people at the back will be able to see clearly. If the school delivers video on demand via the computer network, students can also view instructional video on a big screen.

In these budget-conscious times, perhaps the biggest benefit of a brightboard is the cost. If your school already has projectors and computers—which may be required to operate whiteboards, anyway—in each classroom, your only hardware expense is the pen tablet, and you can buy 10 wireless pen tablets for the price of one $3,000 whiteboard. Because of the smaller size of the components, brightboards are also more portable than whiteboards, allowing you to share pen tablets among classrooms to save even more money.

Which Board Is Best for You?

Whiteboards are still more appropriate than brightboards in some cases. For instance, young children and pre-adolescents may be better suited to the whiteboard model. Classes for these age groups are typically smaller, and the children often sit on the floor or clustered closely around the whiteboard. The tactile nature of the board—so long as the children can reach to the top of it—the colour and movement, and the ability to walk and talk while they click and drag present engaging opportunities for teachers of young children.

In contrast, adolescents are more comfortable when they are all facing the screen rather than being asked to "star" at the front of the room before peers. This configuration also allows the teacher to be out among the classroom participants rather than holding court at the front of the room like a "sage on a stage" while staring into a bright projector and jumping around shadows so the screen is visible to all. A powerful dynamic emerges in classrooms when the teacher's control is appropriately shared with students.

There is a place for both models, but teachers and administrators must consider many factors, including cost and how the board will fit in with a particular course's pedagogy: How will the board be used to achieve teaching and learning? Is it the software that does most of the work? If so, what is the most appropriate way to have your students interact with the software—at the front of the class or from elsewhere in the room?

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One thing that should not influence the decision is bells and whistles. Much of the interactivity of whiteboards is in the software and the way the teacher uses it. The best software demonstrated on whiteboards was around long before the boards themselves were, and its effectiveness has always come down to teacher ability rather than whether it's displayed on a board, run on 30 computers, or projected onto the side of a barn.

Whether a school decides to go the whiteboard route or to try the brightboard approach, it must provide complete training and technical support, and the technology needs to be fully accessible. Don't think you can blow the budget on one interactive whiteboard, set it up in a room, and bring every class to it for lessons. If a teacher is going to use it regularly, it needs to be at his or her fingertips. When money is tight, perhaps it is better to set up more affordable interactive brightboards in every classroom than to spring for fewer whiteboards

Need more ideas for what to spend the leftover funds on? How about good software, computers, and projector and amplifier systems? And instead of sending teachers to interactive whiteboard conferences, send them to conferences about how to teach English, history, or geography, or about how to use other technology in innovative ways to engage learners and extend learning.

Resources

Geometer's Sketchpad: www.dynamicgeometry.com
Google Earth: http://earth.google.com
Google Sketchup: http://sketchup.google.com
Pintar VirtuaLab series: http://www.pintarmedia.com
Poly: www.peda.com/poly
Skrbl: www.skrbl.com

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Peter Williamson has spent a considerable number of years exploring the blind alleys and cul-de-sacs of computers in education. He is currently the architect, driving force, and dogsbody for implementing technology at one of Sydney's leading independent schools.