

The Evolving Intelligent Classroom

March 2008
Dell

The use of technology in the classroom continues to prove its value. Educators are continually finding new and creative ways to enhance the learning experience with a unique combination of teaching skills and technology enablement. Technology in the classroom engages students in the process, inspires creativity and interaction, and helps teachers assess student comprehension in real time.

There is a long list of technologies, software and devices that comprise today's "intelligent classroom." Wireless systems and student computing devices form the foundation. The center of an intelligent classroom solution is the projector and screen, which can be combined with a variety of technology options, including:

- Wireless pads, which allow teachers to annotate and control presentations.
- Interactive whiteboards to enable documentation of notes that can be saved electronically and sent via email or stored on the network.
- Polling applications and devices that let students respond instantly to questions, supporting an interactive, dynamic lesson.
- Document image cameras for sharing text, graphics or 3D objects on-screen.
- Multimedia devices (i.e. DVD, VCR,) and TVs or LCD screens to enable teachers to share media with the entire class.
- Digital cameras and camcorders that enable students to capture images and create dynamic presentations they can share with their peers.
- Personal and workgroup printers for hard copy output of key items.
- Notebooks, desktops, handhelds, and tablet PCs to connect students with teachers and peers, and enable active participation in the learning process.

Selecting Your Technology Classroom Solution

With numerous users to please, a budget to meet and an exciting array of available technology options, there are many considerations when building an Intelligent Classroom solution. These eight steps will help ensure that you meet the needs of your stakeholders and optimize the placement and use of your technology:

1. **Obtain faculty buy-in and input:** They are the ones who will use the technology you implement.
2. **Keep it simple:** Implement the technology you need and make it easy to manage.
3. **Provide support:** Do you have the staff needed to support the technology you are implementing?
4. **Stay current:** Regularly review the quality, currency and usefulness of your Intelligent Classroom tools.
5. **Be informed:** Stay up on the latest technology; it will help you conduct realistic assessments of your equipment.
6. **Motivate interaction:** Incorporate technology to enable collaborative learning and facilitate movement around the classroom.
7. **Make it user-friendly:** Make classroom technology simple, friendly and non-intimidating to encourage use by all.
8. **Sweat the details:** Ponder a variety of scenarios in which your technology will be used and account for the details of each scenario.

With limited time and budgets, even these eight steps can present challenges. Luckily, consultants and technology providers can help you:

- Get the most out of existing technology
- Decide when to buy
- Identify which Intelligent Classroom solutions can meet your schools needs

Simplifying IT and Optimizing Your Technology Investment

To get the most out of your Intelligent Classroom solution, students, faculty and staff must 1. Know how to use the technology and 2. Have support to keep things up and running. Training and support is essential to enabling this interactive approach to learning. With Dell as your partner, you'll work with technology experts who specialize in implementing cost-effective, reliable education solutions and can provide the support you need to help simplify your IT operations.

Each modular solution was designed to reduce complexity for both new classroom construction and building upon existing technology. Whichever modular solution you select we have found, after thousands of Dell Intelligent Classroom deployments, implementation of the below is key to optimizing your technology investment.

Integrating the Intelligent Classroom

The challenge for many schools is pulling all the various pieces of the solution together. From assessing needs, planning the project, selecting components, choosing vendors, negotiating pricing, implementing, and supporting long term, deploying an intelligent classroom can be a daunting and complex task. To

address this challenge, Dell created the Dell Intelligent Classroom™ solution – an integrated suite of software and hardware products. Dell’s end-to-end solution provides all the components needed, plus services to assess, plan, implement, support and train, from a single source – Dell.

Dell products include interactive products such as boards, student response systems, and portable annotation devices from Promethean™ and Interwrite Learning™; digital presenters for displaying books, pictures, transparencies, and 3-dimensional objects; creative software from Adobe®; collaborative learning software from DyKnow™ and CrossTec®; and projectors. Dell systems designed to support the Intelligent Classroom solution include Optiplex™ desktops; Latitude™ notebooks, featuring the new Latitude XT tablet; Precision™ workstations; PowerEdge™ servers; Dell storage; and PowerConnect™ switches.

Training and Professional Development

In support of its Intelligent Classroom solution – to help ensure the full benefits of the technology are utilized by teachers and students – Dell provides a variety of professional development courses and support modules designed for professional educators and school administrators. These courses were designed with standards outlined by the Partnership for 21st Century Skills infused in the curriculum and grounded in research on high-quality staff development and instruction, as well as ISTE NETS standards.

Dell’s Intelligent Classroom professional development program helps teachers utilize alternative instructional strategies designed to optimize the potential of the technology while providing an environment designed to stimulate group participation, dynamic modeling and problem-solving. Intelligent Classroom course modules support a more active learning experience for teachers and students, thus helping to promote deeper understanding, more learner engagement and a chance for learners to take a more active role in their own education. The Dell Intelligent Classroom modules include a preliminary and midpoint assessment to gauge progress, introductory training at the teacher and leadership level, a monthly technology integration status call with customer support, as well as online resources and tools to support teachers in finding, acquiring and delivering high quality instruction.

Dell Intelligent Classroom workshops are two day programs available for Multimedia, Collaboration and Classroom on Wheels. The **Multimedia workshop** includes instruction on use of the camera, graphic and photography software, and digital storytelling. The **Collaboration workshop** includes an introduction to the notebook, use and utilization of whiteboard technology in the classroom, planning and collaboration in the Intelligent Classroom, and instruction on graphic and photography software and the Student Response

System. The **Classroom on Wheels workshop** includes an introduction to the notebook, integrating notebooks into the curriculum, using the interactive pad, creating technology rich lessons, using the Student Response System, and using data to drive instruction.

In addition to these workshops, Dell offers courses to help integrate technology into elementary schools as well as middle school and high school math, science, social studies, and language arts classes. Classroom Coaching for Teachers and Classroom Leadership for Administrator courses are also available. And Dell's online eXchange provides 25 web-based courses for teachers and administrators supplemented by technical guides, professional learning module, real time performance support and curricular examples. Also included in the eXchange is Dell's exclusive Collaboration Center, where educators can easily share curriculum and lesson ideas, technology integration tips and even success stories.

The Advantages of a Good [Intelligent Classroom] Education

A well integrated and utilized intelligent classroom solution can have many benefits. Students have an enhanced learning experience through the engagement and interactivity of an intelligent classroom. They are also better prepared for the future through the use of emerging and integrated technologies. Faculties find new ways to engage and assess students, with the ability to add new dimensions to their curriculum, and with real time feedback on comprehension. Faculty also find themselves more productive, and learning and augmenting their teaching styles in creative and interesting ways through technology. Districts find improved levels of staff interaction as well as recognition for leading-edge educational techniques. And with Dell's Intelligent Classroom solution, the administration and IT support staffs enjoy the advantages of a single-source for procurement, integration, and support, providing accountability and low costs to operate and maintain.

Benefits for students and teachers abound, as noted by Lori Harper, Science Teacher, St. Joseph's Academy Baton Rouge, Louisiana, and Lee Grams, Math Teacher, Bellevue School District Redmond, Washington, respectively:

"Students have become empowered. They help each other. It's opened their eyes to so much more than they ever thought existed."

"I can create math problems at home and call them up on the electronic whiteboard connected to my notebook in class. Students can drag and drop shapes and manipulate them to see if they will fit in a pre-configured space. This kind of hands-on interaction enriches the entire learning experience."