



## Connected Learning: Follow Five Imperatives to Thrive in Challenging Economic Times

### What You Will Learn

Schools, colleges, and universities are being squeezed from two directions: lower budgets and higher expectations for educating the 21<sup>st</sup> century workforce. This white paper, intended for education, business, and technology leaders in schools, colleges, and universities, explains how educational institutions around the world are not just surviving, but thriving, by using their network platform to follow five strategic imperatives:

- Shape sustainable local and global economies
- Optimize to better educate
- Unlock workforce potential
- Engage students
- Enhance safety for students, faculty, and staff

### New Challenges and Opportunities in Education

The 21<sup>st</sup> century has brought new challenges to schools, colleges, and universities. The current generation of learners has grown up with video sharing, social networking, and other Web 2.0 technologies, and engages best when these capabilities are used in the classroom. Employers competing in a global economy need a workforce equipped with 21<sup>st</sup> century skills, such as collaborative problem solving and media literacy. Constrained budgets have underscored the importance of administrative and operational efficiency. And the safety and security of people, property, and information rank as top concerns for educational leaders and parents alike.

Meeting the new needs of today's connected generation and their future employers requires an alternative to an educational system that has changed little in 200 years. Schools, colleges, and universities around the world are succeeding by harnessing the power of their network platform. Cisco believes that network-enabled applications bring many advantages to educational institutions, allowing them to pursue five specific imperatives: shape a sustainable economy, optimize business processes to better educate, unlock workforce potential, engage students, and create secure learning environments.

### Achieve and Shape Sustainable Economies

Innovation is fueled by the trio of infrastructure, talent, and investment. When these ingredients come together, they act as a catalyst for innovation and associated economic growth. A targeted investment in the next-generation classroom not only builds the foundation for the 21<sup>st</sup> century workforce, but also immediately creates skilled jobs that are in high demand, including:

- Network administrators and managers
- Technical support staff
- Sustainability leaders
- Network analysts
- Project managers
- Digital content developers
- Additional teachers to supervise distance learning courses

In the long term, introducing broadband and next-generation learning tools into schools strengthens economies by fostering strong academic skills as well as the new skills required to compete in the 21<sup>st</sup> century. New skills include media literacy and collaboration using Web 2.0 tools such as wikis and web-based conferencing. Even the most basic technology skills help to prepare students for the workforce. For example, the Cristo Rey Jesuit High School for disadvantaged youth, in Minneapolis, Minnesota, gives its students experience with business-class voicemail whenever they will be absent from school or their corporate internship.

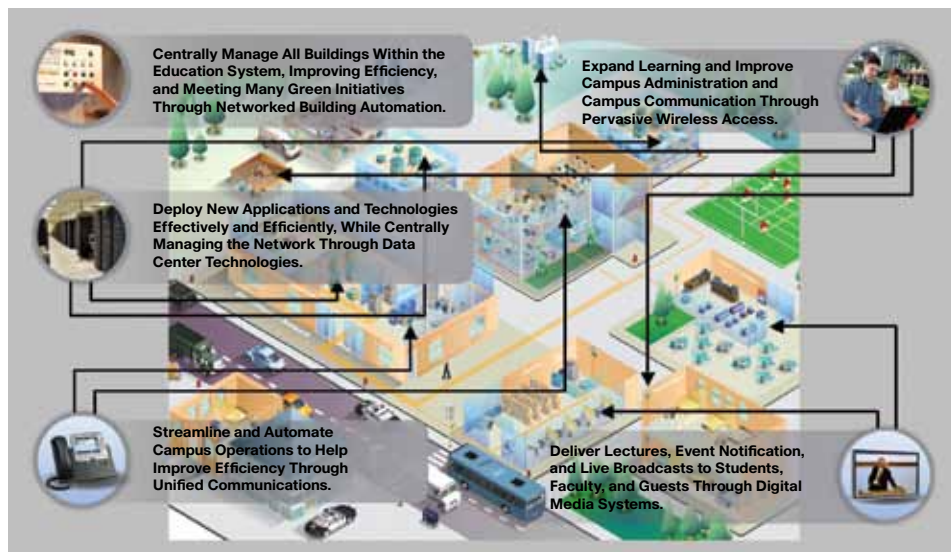
Training for these jobs is readily available. For example, Cisco® Networking Academy® is a proven model for 21<sup>st</sup> century learning that equips students with the IT and networking skills necessary to compete in a global economy. Its curriculum is available in more than 2000 partnering academies in the United States alone, including high schools, community colleges, and four-year educational institutions.

### Optimize to Better Educate

By optimizing administrative and operational processes, educational institutions save time and money that they can redirect to education or student and staff safety. Institutions often begin by building a unified infrastructure that takes the place of separate networks for voice, video, data, safety and security, bell systems, public address, and more. Ft. Bragg Unified School District in California saved US\$500,000 by installing a single unified network on all seven campuses instead of separate networks for voice, data, and alarms and bells. Concordia University in Montreal, Canada, consolidated from 3800 to 300 phone lines by deploying a unified communications solution. San Diego City Schools expects to save \$5.5 million over five years from IP telephony, and an equal amount from using its network infrastructure for interactive video training. Brandeis University saved the hundreds of thousands of dollars it would have cost to build a separate campuswide public address system by sending announcements to the built-in speakers of IP phones in every office, public area, and dorm room.

Once the network platform is in place, educational institutions can use it for applications that streamline administration and operations to save time, money, and energy (Figure 1). For instance, teachers and staff for Mobile County Public Schools, Alabama, watch in-service speakers on a desktop video portal, saving the time, fuel costs, and carbon emissions associated with driving up to 50 miles and rental costs for a large meeting space. The Albuquerque Public School District of New Mexico saves \$30,000 for each professional development class that it delivers online.

Figure 1 Improving Administrative Efficiency Saves Time and Money



Schools and universities that use the network to save energy also free up money for education. Ave Maria University in Florida saves \$600,000 annually on energy by centrally monitoring thousands of sensors and controlling the building systems connected to the same network. Lights turn on and off automatically depending on whether a motion sensor detects a person in the room. And classrooms monitor the number of people who have entered and adjust the climate appropriately.

The network also helps to optimize communications with students, staff, and visitors. One way is by publishing event and emergency information on digital signage systems. This enables more timely, eye-catching communications at the same time it reduces paper and printing costs and campus clutter.

Finally, schools, colleges, and universities can extend instruction to learners in any global location, increasing revenues without building more classrooms. Bapatla Engineering College in India delivers live and recorded lectures to students in any location. Similarly, Plymouth University in the United Kingdom broadcasts lectures over the network to medical and dental students throughout the southwest of England, in collaboration with the University of Exeter and local National Health Service trusts and hospitals.

### **Unlock Workforce Potential**

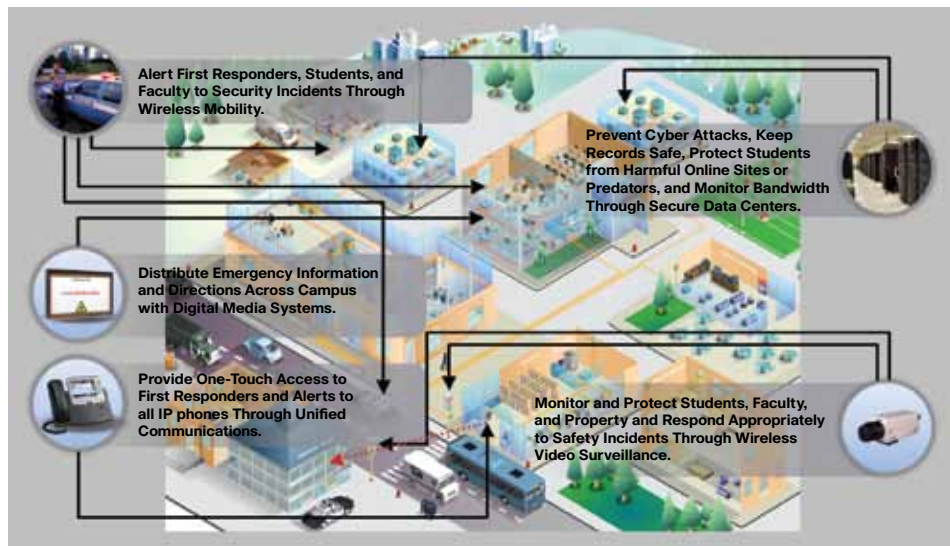
Educational institutions unlock workforce potential when they enable faculty and staff to work securely from anywhere, anytime, using any device. For example, mobile employees who work for the facilities or IT department can respond to issues more quickly when they can use wireless IP phones to receive calls to their phone number from any location on campus. University faculty members save time when they can securely access email and departmental applications from any location, not just their office.

Productivity also increases when employees are given the tools to collaborate readily with students, parents, and colleagues. The University of North Carolina, Charlotte uses a presence-aware system to speed up decision-making. Administrators who need an immediate answer to a question can look at experts' presence information to see who is available right now, saving the time to call multiple people and leave voicemail. If the expert is on the phone, the administrator can send an instant message for an immediate answer. Similarly, the university's contact centers (IT help desk, financial aid, graduate admissions, student accounts, and registrar's office) use a network-based contact center application to direct calls to a qualified agent in any location, making it faster for students, parents, or employees to reach the right person.

More productivity gains arise when educational institutions develop custom applications to automate and optimize administrative processes. At Brandeis University, for example, managers previously spent one full day each week calculating their employees' hours. Now they spend just one hour, because employees sign in and out of shifts on any nearby IP phone, which is integrated with the university's time and labor system.

### **Engage Learners**

Student success begins with student engagement. New classroom technology allows students to interact with each other and their teachers, access multimedia content anywhere and anytime, and hone 21<sup>st</sup> century skills such as collaborative problem solving (Figure 2). By engaging students with innovative teaching methods and inspiring new technologies, schools can bring renewed excitement to the classroom, while also contributing to employability and social equity.

Figure 2 Next-Generation Learning Environments Help Prepare Students for the 21<sup>st</sup> Century Workplace

Teachers and professors can augment classroom instruction by assigning videos to be viewed on the school's network, either on classroom PCs or at home. When several students or an entire class need to watch a video, teachers can easily show it in the classroom over the network. At Duke University, students can use a high-bandwidth wireless network to use applications previously only available over wired networks, including streaming audio and video for the classroom, library research, foreign language laboratories, and production of films for the annual student film festival.

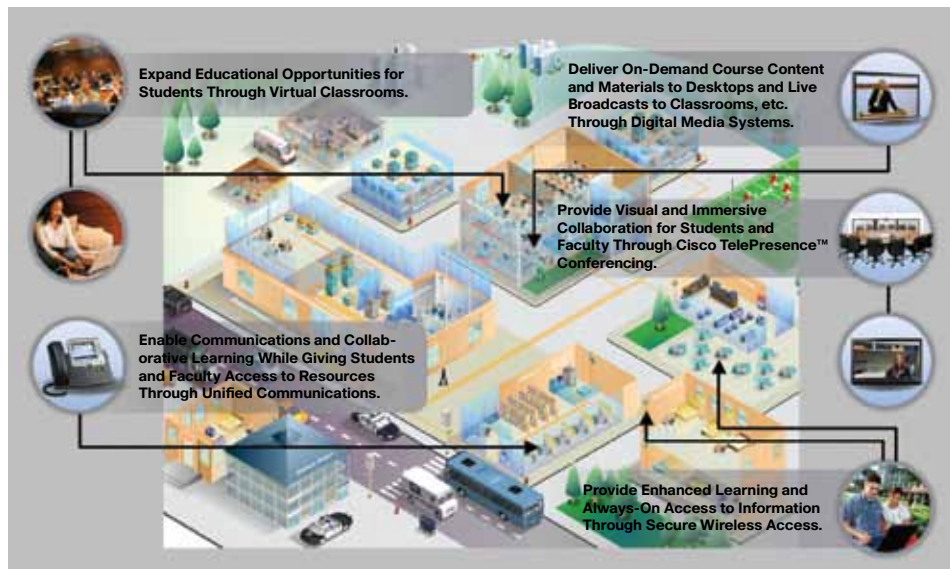
Another way to engage the connected generation is through online interaction. During classroom presentations or lectures, teachers can administer instant polls and surveys for students to take using PCs and wireless laptops. Educators can engage students and provide individualized instruction using Web 2.0 tools such as podcasts, blogs, and wikis.

The combination of video and interaction enables schools, colleges, and universities to extend instruction to students in any location in the world with a network connection. Cleveland County Public Schools uses videoconferencing to offer Advanced Placement courses to students in schools without enough enrollment to justify a separate teacher. Teachers can easily control what students in each classroom see or hear from the other classroom. Academic scores are the same for students in both classrooms. Broward County School District in Florida uses a web-based conferencing application for students who are too ill to attend school and for those in its expulsion abeyance program. Students can participate in the voice conference and use a browser to view the words or images that the teacher draws on a tablet connected to their PC.

### **Enhance Safety and Security for Students and Staff**

Safe and secure schools and campuses are more conducive to learning, and they also gain an advantage in attracting students (Figure 3). Challenges include protecting the privacy of student records and school information, preventing infections that could damage the network, enhancing physical safety, and encouraging good behavior.

Figure 3 A Safe Campus Is Conducive to Learning



Many campuses start with centralized IP video surveillance and access controls. Elon University in North Carolina uses such a system to view real-time or archived video from cameras deployed in parking lots, entrances, and walkways. Similarly, Moss Point School District in Mississippi uses a video surveillance solution to monitor all hallways and the campus perimeter in all district buildings.

Mass notification systems have also become a high priority on campuses. Schools, colleges, and universities are improving communications during emergencies by distributing updates by email, text messages to mobile phones, and digital signs. When a shooting occurred in the community, the College of Southern Nevada avoided panic by publishing messages on digital signs that explained the event and the actions taken.

The network also enables communications interoperability between campus safety organizations and first responders using different radio systems, as well as campus administrators using phones or mobile phones. Bryant University, in Smithfield, Rhode Island, uses a communications interoperability solution for emergency response as well as day-to-day operations. Town fire or police departments that are dispatched to the campus can communicate with the university's public safety personnel as they drive to the scene, which increases their situational awareness. The university president can communicate with public safety personnel from home during a hurricane. And during graduation ceremonies, the facilities and maintenance groups can coordinate crowd control because they can communicate directly despite having different radio systems.

Today's physical security solutions are connected to the IT infrastructure, making it even more important for campuses to protect the network from attacks, infection, and unauthorized access. British Columbia School District 23 can confidently allow students to use wireless laptops because it uses network security solutions to authorize users, confirm the laptops are infection-free, and enforce district usage policies.

### Connected Learning Solutions

Every organization mentioned in this white paper meets its goals with Cisco solutions:

- Cisco Unified Communications: Communicate securely within the school and with first responders, using a single IP network that carries voice, video, and data.
- Cisco Network and Information Security: Protect your wired and wireless networks and information using advanced network access control, user authentication, and authorization for students, faculty and staff.



- **Cisco Physical Security:** Monitor and protect students with video surveillance and access control capabilities that enable faster threat detection and response.
- **Cisco Mobility and Wireless:** Provide high-speed, next generation wireless access while keeping out unauthorized users and preventing malicious attacks. Add wireless video surveillance cameras to support real-time video surveillance monitoring from anywhere on campus.
- **Cisco Digital Media System:** Immediately disseminate emergency updates and critical information on digital signs throughout campus. Provide staff training and multimedia learning content on the desktop video portal.
- **Cisco Connected Real Estate:** Implement a single, resilient multiservice IP network for voice, video, data, heating, lighting, and HVAC systems. Central monitoring and automatic controls can save money every month.
- **WebEx Collaboration:** Expand the reach of courses to remote learners, provide rich interactive environments for online classes, and enable collaborative online conversations between teachers and students.
- **Cisco Consulting Services:** Ensure teachers and students can effectively use new tools for collaboration, communications, and learning by engaging our experienced educational consultants to provide online or on-campus training.

### Why Cisco?

Cisco understands the five imperatives to thrive. We work closely with schools, colleges, and universities to anticipate and respond to the demand for new teaching approaches that promote employability and social equity. Educational institutions use Cisco solutions to provide the secure communication and real-time interaction that students, faculty, and staff expect while enabling a safe environment, improved administrative efficiency, and access to engaging learning opportunities. We offer the educational system our:

- **Strong understanding of and commitment to education:** Cisco recruits employees with education backgrounds to help guide product development for all sizes of schools. Cisco is a strategic partner in the Global Education Initiative, led by the World Economic Forum, as well as other worldwide education programs. Cisco's largest education initiative is Cisco Networking Academy, a proven model for 21<sup>st</sup> century learning that equips students with the IT and networking skills necessary to compete in a global economy. More than 800,000 students have participated in the United States alone, and 2.6 million worldwide.
- **Cisco Capital finance programs:** Innovative financing enables schools to easily acquire, deploy, and optimize their solutions. Options include Tax-Exempt Lease Purchase (TELP), Fair Market Value Lease, and Cisco Technology Migration Program.
- **Open standards-based solutions:** Cisco's standards-based solutions interoperate with hardware and software from other vendors, enabling schools to extend the value and life of their investment in Cisco.
- **Commitment to customer service and customer success:** In addition to hardware and software products, Cisco provides a broad range of service offerings to schools, colleges, and universities to help them realize success.
- **Technical expertise:** Cisco and our partners help to make networks, applications, and people work better together. We make sure your Cisco products and network operate efficiently and benefit from up-to-date system and application software. Cisco Advanced Services integrates solutions from Cisco and our partners and help lower operational costs, increase network availability, and optimize performance.

## Conclusion

Educational institutions around the world are making bold changes to thrive in the current economic climate. They are succeeding by capitalizing on their current network investments to collaborate with all participants in the educational system: teachers, administrators, students, safety officers, and the wider community.

Educational institutions can provide all of the services that help them thrive over one wire, and using one management system. Taking full advantage of the power of the network will help the educational system thrive in the 21<sup>st</sup> century. The measures of success are shaping a sustainable economy, optimizing operations to better educate, engaging today's new generation of learners, unlocking workforce potential, and enhancing security to create an environment conducive to learning.

## For More Information

To read about Cisco solutions for education, visit: [www.cisco.com/go/education](http://www.cisco.com/go/education)



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