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CAMPUS TECHNOLOGY
Empowering the World of Higher Education
January 2012

STEPPING INTO THE FUTURE

Creating 21st century facilities that emphasize form, function, and cutting-edge tech p. 36

+ WHAT'S HOT, WHAT'S NOT FOR 2012

CT INNOVATORS: WHERE ARE THEY NOW?

The CUNY Graduate School of Journalism turned a 90-year-old building into a flexible space for collaboration and connectivity.

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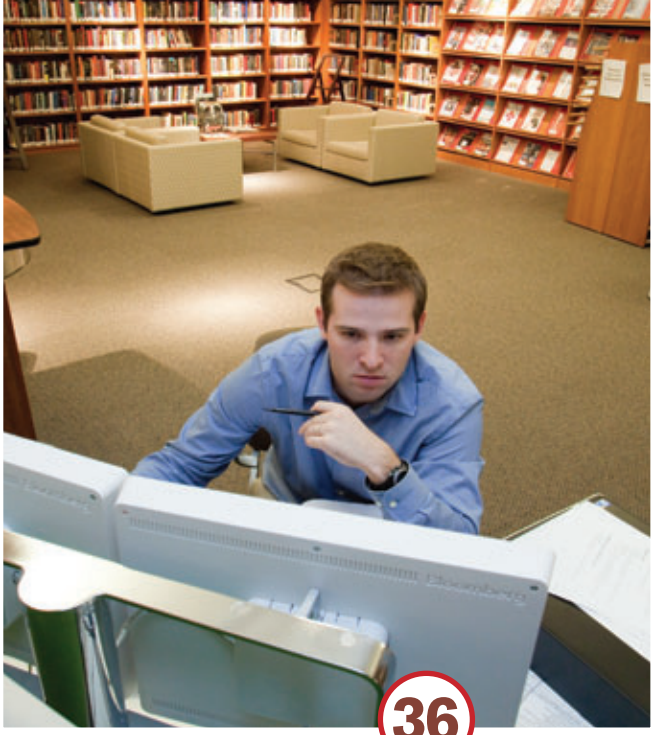

Features

Enter by Feb. 15: 2012 Campus Technology Innovators Awards. See page 21.

New Year's Resolution? Yoga

For IT, flexibility is the key to long-term health.

I've never had much truck with New Year's resolutions. Making life decisions after a week of holiday hedonism has always struck me as a bit risky—and, in my case, doomed to fail. More important, you can't predict what might throw your plans into a tailspin.

If everyday life is full of uncertainty, the same is also true of ed tech. If you want proof, just take a look at "2012: What's Hot, What's Not," on page 30. At the beginning of 2011, for example, who would have bet against the Apple iPad? Yet here we are, a year later, and three eminent futurists on the article's panel are still questioning the real purpose of the iPad in education—and hearing the footsteps of the Android OS grow ever louder.

Let's face it. It's tough to predict the technologies and applications that will take center stage. And it's even tougher to know how long they will stay there. So how does an IT shop plan for the future? The key, it seems, is flexibility: building organizations, structures, and systems that can incorporate new technologies and pedagogies without major upheaval.

It's a lesson that has been taken to heart at Harvard Business School. In "Mission Support," on page 20, CIO Stephen Laster describes his IT group's efforts to build a learning ecosystem to support a new approach for the school's MBA program. "If the last 10 years have taught us anything, it is that technology innovation is unpredictable," he writes. "If you do not create flexibility today, you will pay for being brittle tomorrow."

The need for "future-proof flexibility," as Laster describes it, is more important now than ever. We are living in an era of tremendous flux. On one hand, higher ed is being roiled by budget cuts and soaring tuition costs; on the other, emergent technologies such as the cloud are opening up new opportunities—and potential pitfalls.

One thing is certain, though. The landscape you wake up to today will be different 12 months from now. And your IT shop and your systems need to have the flexibility to respond to the new reality, whatever it may be.

Nowhere is this more vital than in the realm of facilities. We tend to think of buildings as forever—they are certainly a long-term investment. So any new construction or retrofit needs to be done with maximum flexibility built in. Not only does the technology change over time (how many libraries sport dozens of unused access ports?), but so does the pedagogy (sage on the side, anyone?).

In "Back to the Future," on page 36, we look at some of the innovative ways the CUNY Graduate School of Journalism has created learning spaces with an emphasis on flexibility and collaboration. For still more ideas, I encourage you to attend School & College Building Expo 2012, Jan. 24-26, in Orlando, FL (*scbexpo.com*).

For someone who hasn't touched his toes since kindergarten, I realize I shouldn't be preaching about flexibility. That's why my New Year's resolution is to do yoga. On that, I'm flexible, though. **CT**

—Andrew Barbour, executive editor
abarbour@1105media.com

CAMPUS TECHNOLOGY

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REACHING THE STAFF
Staff may be reached via e-mail, telephone, fax, or mail. A list of editors and contact information is also available online at *campustechnology.com/pages/contact-us.aspx*.

E-MAIL: To e-mail any member of the staff, please use the following form: FirstinitialLastname@1105media.com.

CORPORATE OFFICE
(weekdays, 8:30 am to 5:30 pm, PT)
Telephone (818) 814-5200;
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Building a Next-Generation Security Program for Higher Education
How campus IT security professionals manage the growing list of educational and administrative demands taxing their networks.

Rethink Your Architecture: Planning for the Future With Windows 7
IDC analyst Al Gillen reveals what you need to know about migrating to Windows 7 and offers a step-by-step plan for a seamless deployment.

More Insight. Better Education
How campuses can use advanced analytics to boost student performance, identify at-risk students, improve course offerings, measure effectiveness of expenditures, and better target outreach efforts.

How to Manage Growing Digital Content Needs Through Virtualization
School officials and IT staff are managing digital content issues at multiple points—the computing device, the application, and the server—all through virtualization. Find out how.

Trending Articles on *CT*

- **7 Ways to Streamline Student Services** *campustechnology.com/1111_services*
- **Wikipedia Tops List of Plagiarized Sources** *campustechnology.com/0112_wikipedia*
- **From Computer Lab to Sandbox** *campustechnology.com/0112_sandbox*

Q&A

Informal Collaborative Learning at the Tipping Point
Santa Clara University's (CA) Ron Danielson thinks we've reached the point where informal collaboration spaces play as important a role on campus as formal classrooms.

campustechnology.com/0112_collaborative

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Feb 12 - 17
The Data Warehousing Institute
World Conference: Data Strategy for Your Enterprise
tdwi.org
Las Vegas

Mar 4 - 7
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Bribery Works

*The December story "Many Happy Returns" (*campustechnology.com/articles/2011/11/28/many-happy-returns.aspx*) looked at strategies to boost student response rates for online course evaluations.*

I ask my students to complete online surveys through our CMS and I "bribe" them. Students can get 0.5 percent of their grade for a mid-semester evaluation (to which I respond, and even make reasonable changes in the course) and another 0.5 percent for submitting a final course evaluation. The mechanism for maintaining anonymity is built into the CMS: The surveys are anonymous, but a quiz awarding the 0.5 percent is conditional on submitting the evaluations. I know who evaluated the course, without knowing who said what. More to the point, students get to participate in how the course is taught, and in some respects even what is taught—for which they earn extra credit. So maybe it's not all bribery!

Anonymous
Comment posted on *campustechnology.com*

Online Ed Success

*In the November feature "6 Easy Steps to Online Success" (*campustechnology.com/articles/2011/10/24/6-easy-steps-to-online-success.aspx*), **West Texas A&M University** educator Richard Rose shared tips for developing a successful online learning program.*

It is very important for instructors to put forth a quality amount of effort to make the course presentable. Also the 24-hour rule is true as well; it can be absolutely dreadful for an instructor to take a week to get back to a student. The instructor should at least clear his or her e-mail queue once or twice a day. There is a bright future for online education with the rise of more advanced computer technology; bright minds just need to take advantage of the benefits technology can bring to online classes.

Marcus
Michigan
Comment posted on *campustechnology.com*

I think the suggestion of contacting students once per semester is right on point, particularly with traditionally aged college students. While savvy with texting, Facebook, and gaming, these students are not tremendously tech savvy or mature enough learners to be on their own for long times and achieve their learning goals. I routinely hear from students that the synchronous meeting times are valuable resources and help energize them to continue with the course.

Mike
Comment posted on *campustechnology.com*

Netbook Praise

*In "Do Netbooks Have Net Worth?" (*campustechnology.com/articles/2011/11/01/do-netbooks-have-net-worth.aspx*) from our November issue, we examined the benefits of netbooks for higher education.*

I use my netbook almost exclusively for web development—it's convenient to carry around, and the reliance on a non-mobile OS allows me to code more efficiently than on any tablet.

Anonymous
Comment posted on *campustechnology.com*

A quality netbook is a smart purchase—portable, good to great battery life, and a productive tool. If you are a gamer then you should be looking at a desktop. If you are looking to make a statement, spend the money you will save—by not buying a more expensive but no more useful device—on a new coat.

geek
Comment posted on *campustechnology.com*

Mobile Development

*The November story "Mobile Strategy, or Moving Target?" (*campustechnology.com/articles/2011/11/01/mobile-strategy-or-moving-target.aspx*) looked at key decisions faced by colleges and universities developing their mobile presence in a rapidly changing environment.*

It seems to me that the university's mobile apps may become permanent requirements, in that the mobile device world is unlikely to go away anytime soon. One detail, though, is the question of how capable mobile devices themselves will become. Will they become capable of handling regular, full-scale web applications so that the mobile-specific interface, with built-in limitations to accommodate today's mobile devices, becomes secondary? If mobile applications remain in demand, the university's mobile apps are likely to become a central part of the institution's identity and therefore destiny, so the university will want to own its development and maintenance as much as possible. The catch is the devices themselves can outgrow the current generation of apps and operating systems, and in the long term perhaps they can outgrow the need for special accommodations altogether.

Bart Schuster
Kansas
Comment posted on *campustechnology.com*

Opening Up to OER

*In the online Q&A "Open Education Resources: Feedback From the Social Web" (*campustechnology.com/articles/2011/11/30/open-education-resources-feedback-from-the-social-web.aspx*), **Rio Salado College**'s (AZ) Michael Cottam discussed the value of open educational resources.*

I will push to have the open content courses accepted to meet re-certification requirements for staff. High-quality courses for free...a teacher's dream. These also offer great resources as both readings for students and video lectures

for use with classes. As we go 1-to-1 this really takes off.
Joe Dan Johnson
Nelson County Public Schools
Virginia
Comment posted on *campustechnology.com*

Our department is just looking into how OER could enhance some of our basic courses where no single print textbook matches our needs. We plan to create a custom text, but the OER will reduce our efforts and hopefully give our students several viewpoints on crucial topics.
James Irwin, Jr.
Bradley University
Peoria, IL
Comment posted on *campustechnology.com*

We agree that evaluating OER is critical and appreciate your focus on this. In early November 2011, Achieve (*achieve.org*) and OER Commons (*oercommons.org*) released an "open" tool for rating the quality of OER for teaching and student learning. This tool dramatically increases the value of OER and allows educators to draw upon peer knowledge when evaluating the usefulness of a resource for their classroom. Those who are interested can see more at *achieve.org/oer-evaluation-tool*.
Letha Goger
OER Commons Digital Librarian/ISKME
Half Moon Bay, CA
Comment posted on *campustechnology.com*

Saylor.org used more than 90 percent of the **University of South Florida**'s open courseware (*numericalmethods.eng.usf.edu*) in Numerical Methods for its ME205 course: *saylor.org/courses/me205*. It is a worthy initiative, and since it is providing financial incentives (not to us as we already had our resources available under the Creative Commons license), it may prove successful.
Autar Kaw
University of South Florida
Tampa, FL
Comment posted on *campustechnology.com*

Is Privacy Dead?

*In our News Update e-newsletter, "Carnegie Mellon Research: Internet Privacy Is Hard to Find" (*campustechnology.com/articles/2011/11/07/carnegie-mellon-research-internet-privacy-is-hard-to-find.aspx*) reported on a **Carnegie Mellon University** (PA) study about the challenges of protecting online privacy.*

If I may play the devil's advocate here for a moment, I'd venture to guess that advertisement blockers have been facing a David vs. Goliath situation since ads hit the web. The sites set up by the advertising industry [to enable users to block ads] are clunky, they're hard to find (they're not advertised, ironically), and I've found they don't work very well, if at all. Add to that the resultant complacency among users which comes about due to the difficulty of implementing privacy controls, and the fact that advertisers and website owners are coming up with new methods every day that subvert user attempts to be free of prying eyes (e.g., persistent Flash cookies, Facebook's following users even after they've logged out). I have friends who believe that privacy is a thing of the past, and that the ubiquity of internet usage in our daily lives removes the possibility of our personal information remaining private. I don't want to go down that road, but I'm beginning to feel that we don't have a choice in the matter.
BW
Comment posted on *campustechnology.com*

To Call or Not to Call

*"For-Profit Colleges Lax in Follow-up to Prospective Students" (*campustechnology.com/articles/2011/11/14/for-profit-colleges-lax-in-followup-to-prospective-students.aspx*), from our News Update e-newsletter, reported on a study on for-profit institutions' responsiveness to prospective students.*

I have worked in both [for-profit and nonprofit] sectors, and the claims being made on both ends are ridiculous. We hear all the time that we call "too soon" or "too often." Immediate response from a for-profit usually tips off the "stalker" insinuation. Even though prospective students *requested* the information, an immediate reply comes across as too much, or they assume that we are trying to "force or coerce" them to enroll—when in actuality, we are trying to understand exactly what they need, and why they asked for more information. Immediate response from a not-for-profit institution could be taken the same way, depending on the receiver. When it boils down to it, people who are interested in schools should not submit their personal contact information if they don't want to be contacted. Moreover, a simple fix to any unwanted calls is to ask to be placed on the national DNC list.
Anonymous
Comment posted on *campustechnology.com*

A quality netbook is a smart purchase—portable, good to great battery life, and a productive tool.

When I inquired about graduate programs at a for-profit university, I was afraid I would be stalked by a high-pressure sales team just because I wanted information. Instead, I've had the best possible experience in my graduate program. No pressure, but always someone available (an actual person even) when I need them. The public college where I work, on the other hand, has worse customer service than your average McDonald's.
Alanna
Comment posted on *campustechnology.com*

When it comes right down to it, colleges (for-profit/nonprofit) are there to make a buck. The nonprofits seem to have a more vested interest in keeping students happy and coming back. They usually have lower fees and have to keep up the volume to stay afloat. For-profits usually have higher rates, try to get the money up front, and don't seem to really care. They already have your money, know you're hooked, and move on to find other fish. I finished my master's using two different schools, and it was painful.
Don
Comment posted on *campustechnology.com*

E-mail us at *editors@campustechnology.com*, or join the conversation on the web at *campustechnology.com*. Letters are edited for length and clarity.

Campus+Industry

TECHNOLOGY HAPPENINGS IN HIGHER EDUCATION

NEWS

CALL FOR ENTRIES. The 2012 Campus Technology Innovators call for entries is now open! We seek innovative colleges and universities that have deployed extraordinary technology solutions to campus challenges. Go to *campustechnology.com/innovators* to enter by Feb. 15.

CAMPUS TECHNOLOGY innovators AWARDS 2012

ACADEMIC SOCIAL NETWORK. As part of its increasing emphasis on technology in education, **Virginia State University**'s Reginald F. Lewis School of Business has deployed Going-On Networks' Academic Engagement Network to boost student engagement. The academic social network utilizes smart-stream technology, which lets students share and publish content using activity streams similar to those on Facebook. Other features include: Community Builder, which creates customizable online communities such as study groups, program communities, social classrooms, and faculty collaboratives; Virtual Commons, which provides live streams of activities, events, and other materials; Campus Channel, which lets users publish information to specific individuals or groups in online communities; and Identity & Network, which allows users to develop custom profiles and an integrated portfolio. Read more at *campustechnology.com/articles/2011/11/09/virginia-state-taps-social-tools-for-student-engagement.aspx*.

GMAIL FOR ALUMNI. The **University of Texas at Austin** is offering lifetime e-mail to its alumni at no charge. The Gmail-powered e-mail system—named UTmail—was rolled out last spring to 35,000 existing students; UT has extended the service to its more than 450,000 alumni as a way to keep them connected to the university. All UTmail users receive a free *@utexas.edu* address, 25 GB of storage, and enhanced privacy features, including restricted commercial data mining. UTmail, unlike standard Google Gmail, is not processed by Google's advertising system, so messages are delivered in an ad-free environment.

Courtesy of Kenneth Schabow

A CLOUD-BASED recruitment tool allows Kettering University to track prospects' interactions with Facebook and Twitter.

TECH-ENABLED RECRUITMENT. **Kettering University** (MI) has selected the cloud-based TargetX Student Recruitment Manager to help meet aggressive enrollment goals for its undergraduate and graduate degree programs. Developed for college recruiting and admissions, the SaaS-based tool uses the Force.com platform and can track prospects' social interactions with Facebook and Twitter. Force.com includes an app exchange that provides approximately 850 add-on applications, including videoconferencing, computer-telephony integration, and social media activity tracking. It also allows for real-time data transfer to and from campus information systems and can generate up to 40 standardized reports.

SECURING HPC IN THE CLOUD. **Indiana University** has partnered with high-performance-computing vendor Penguin Computing to set up a secure community-research cloud, with the goal of alleviating researchers' concerns about where their sensitive data physically reside in the cloud. The POD (Penguin Computing on Demand) IU service will be maintained in a secure data center in the US, run by Indiana U (the computers will be owned by Penguin). The data center is built to withstand an F5 tornado, and 24-hour security will be provided by the university's Global Research Network Operations Center. The first institutional POD IU users include the **University of Virginia**, the **University of California, Berkeley**, and the **University of Michigan**. Other schools and federally funded research centers can also purchase computing time from Penguin.

STUDENT-ENGAGEMENT TOOL. **St. Thomas University** (FL), **Eastern New Mexico University**, and **Universidad Interamericana de Puerto Rico** have all implemented Copley Square, an application from Copley Retention Systems intended to keep students more engaged with their learning programs. Features of the system include internal Twitter-like communication and a study group manager that helps students meet up with peers. Students can meet in person or online via "On Demand Video MeetUp" rooms. During video meetings, participants can see and hear each other; share, mark, and save documents; and the meetings themselves can be recorded and shared. Video "meetups" can also occur between students and tutors, counselors, instructors, or others within the campus community.

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Campus+Industry

NEW FREE LMS. Three former **University of Pennsylvania** students have launched Coursekit, a free learning management system that emphasizes social networking. The formal release came after 30 universities participated in a pilot program this fall. The New York-based company has signed on 82 student interns at 48 campuses across the country to help promote the LMS and has more than 3,000 users so far. Coursekit uses a Facebook-like interface to let students and instructors share resources. Read more at *campustechnology.com/articles/2011/12/05/former-u-pennsylvania-students-launch-lms.aspx*.

BUILT IN-HOUSE. The **University of Wisconsin-Milwaukee** has seen more than 9,000 downloads of a mobile campus app built in-house last September. Developed in JavaScript using the open source development platform Appcelerator Titanium, the app allows students with iPhone or Android devices to view real-time course schedules and bus schedules; check if washing machines and dryers are available for use; see a university calendar of events; locate classes with GPS maps; e-mail or call professors; register for courses; and more. Read more at *campustechnology.com/articles/2011/12/13/u-wisconsin-rolls-out-mobile-app-built-on-open-source-platform.aspx*.

CLOUD GROWTH. A recent industry forecast from Cisco predicts that cloud computing will account for 33 percent of all data center traffic by 2015—triple the current percentage and about 12 times the total current volume. According to the Global Cloud Index (2010-2015), an estimate of global data center and cloud-based Internet Protocol traffic growth and trends, data center traffic will quadruple to reach 4.8 zettabytes annually by 2015, with cloud computing the fastest growing component. Read more at *campustechnology.com/articles/2011/11/30/cloud-computing-traffic-could-reach-1.6-zettabytes-annually-by-2015.aspx*.

GOING BOOK-FREE. Seven out of 10 undergraduates at the **University of California, Riverside** don't buy textbooks, preferring to rent them, rely on instructor-provided materials, or go without, according to a recent "Undergraduate Experience Survey" from the university. According to Steven Brint, vice provost for undergraduate education, the economic downturn may be part of the reason why there are fewer book purchases, but it's not the whole story. "Many instructors are putting course materials on their iLearn [Blackboard Learn] sites," he explains. "Others have made a sufficient number of copies of books available on library reserve. These changes may reduce the sense among students that textbook purchases are necessary." Read more at *campustechnology.com/articles/2011/11/29/some-undergrads-skipping-textbook-buying.aspx*.

Purdue University photo/Andrew Hancock

PURDUE'S "CARTER" SUPERCOMPUTER is built on Intel chips not yet on the market.

CUTTING-EDGE CHIPS. A new supercomputer at **Purdue University** (IN) features Intel Xeon E5 "Sandy Bridge" eight-core, 2.6 GHz processors, which haven't yet been released to market. The HP Cluster Platform 3000 SL6500, nicknamed "Carter" for Purdue alumnus Dennis Carter, has a total of 10,368 cores and runs the Linux operating system. "Carter is running twice as fast as the supercomputer we were using and is using only half of the nodes," says Michael Baldwin, an assistant professor of atmospheric science at the university. Purdue faculty members cooperatively pooled their research money to fund the system. It is being used for a variety of scientific research projects, including identifying cancer stem cells, predicting hazardous weather, studying the quantum effects of future computer chips, and analyzing the atmospheric effects of greenhouse gases. *Read more at campustechnology.com/articles/2011/11/28/purdue-builds-top-100-supercomputer-on-unreleased-chips.aspx*.

24/7 HELP DESK. The Division of Information Technology at **The George Washington University** (DC) recently unveiled a 24/7 help desk to assist with issues that include password and access problems, hardware setbacks, and software incompatibility. According to CIO David Steinour, the need for around-the-clock support has grown along with the numbers of students, faculty, and staff who use computers and mobile devices on campus. The growth of GW's distance-learning and executive-education programs compounded the need. By taking staff from existing resource pools and centralizing them within a single support center, GW was able to expand to 24/7 service without adding resources, says Edward Martin, deputy CIO. Read more at *campustechnology.com/articles/2011/11/18/gwu-ups-investment-in-help-desk-support.aspx*. **CT**

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Green Flash

Our environmental challenges are profound, but the solutions don't have to be. Here are 5 quick green initiatives that your institution can implement this year.

AN EXPLODING WORLD POPULATION. The rising cost of energy. Climate change. Big problems require big solutions, right? Not so, says Rory Sutherland, an ad executive who gave a scintillating TED talk last year in which he posited that our biggest challenges can best be tackled with not-so-flashy solutions. Translation: When it comes to sustainability, sometimes it's good to sweat the small stuff.

This is not to say you should cancel plans for your school's large-scale solar installation. After all, institutions of higher learning have become green trendsetters for the entire nation. (Nearly 700 schools, for instance, have signed the American College & University Presidents' Climate Commitment, which sets schools on the path to climate neutrality.) But in focusing on building institutional support for that biomass cogeneration plant, have you overlooked minimizing paper waste in the computer lab? What are you doing about students tossing old cell phones in the trash?

Scotty Reifsnyder

The real selling point for small-scale solutions is time: Whereas a solar project might take years to plan, a recycling initiative for cell phones might take only days. Here are five sustainability solutions so simple to deploy that there's no excuse not to adopt them this year.

1) Change Your Font

Victor Gosnell, chief technology officer at **Randolph College** (VA), is no stranger to large-scale green initiatives. After he assumed his post at the university in 2009, his inaugural project was an overhaul of the school's data center, complete with an $85,000 initial investment. But that doesn't mean he and his staff aren't on the lookout for smaller solutions. "We continuously keep our eyes open for new ways to save resources, time, and money," says Gosnell. A recent study from Printer.com, for example, really caught his attention. Sent to Gosnell by his campus sustainability coordinator, the study claimed that institutions can slash printing costs by a third—simply by choosing the correct font.

With printer ink costing upward of $8,000 a gallon, Gosnell didn't hesitate. The decision to switch the default fonts in the computer labs was made on Sept. 15, and implementation began on Sept. 19. Gosnell selected Century Gothic, which is 31 percent more efficient than Arial, thanks to its thinner print line. (Ecofont, which saves ink by printing tiny holes in the typeface, comes a close second.)

It's too early to predict the savings, but Gosnell doesn't foresee any opposition to the switch on campus. "Our anticipation is that most users will not even notice or care that the change was made," he says.

2) Recycle Small E-Waste

With all that ink saved, it's likely that Randolph will be left

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OPENING KEYNOTE

W. GARDNER CAMPBELL, PHD
Director, Professional Development and Innovative Initiatives, Division of Learning Technologies, and Associate Professor of English
–Virginia Polytechnic Institute and State University

SCHOOLERS AND YEARNERS: LEARNING IN THE DIGITAL AGE

WEDNESDAY KEYNOTE

MICHAEL WESCH
Associate Professor of Cultural Anthropology
–Kansas State University

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with fewer empty printer cartridges. Even so, they need to be disposed of properly, advises Christina Erickson, sustainability coordinator at **Champlain College** (VT). While many schools have e-waste recycling for larger items like computers, smaller items, such as cell phones and printer cartridges, are often tossed in the trash (where they can leach toxic chemicals and pollute groundwater). Such was the case at Champlain when Erickson first arrived. Having come from another institution where small-electronics recycling was already the norm, she felt comfortable making the case to higher-ups.

Their response? "Yes, that makes sense. Let's do that," chuckles Erickson. So she went to Good Point Recycling, a fair trade organization in Middlebury, VT, that already handles the school's computer recycling. They sold her five collection tubes for $65 each, which she placed in strategic locations around campus. Student-designed signage hung by the collection points totaled around $60.

Students can deposit CDs, DVDs, printer cartridges, any handheld electronic device, batteries, chargers, and cables into the collection tubes. Once a semester, Good Point collects the e-waste and sends the college a bill to the tune of about 15 cents per pound. Total time investment: about six weeks. "This was such a no-brainer, and a minimal investment," says Erickson.

3) Green Your Tech Refresh

A comprehensive e-waste recycling program is laudable, but recycling still requires energy and resources. That's why it's worth researching your technology options before you buy to find more sustainable solutions. Take **Carl Sandburg College** (IL), which had been refreshing its classroom desktop computers every three years. In March 2011, however, the college highlighted long-term sustainability as a priority during a strategic-planning process. As a result, IT set a goal of reducing its carbon footprint by 5 percent per year. The energy-guzzling desktops had to go.

While the prospect of replacing every desktop computer on campus may not seem like a quick green initiative, IT started with just one classroom, replacing the CPUs with NComputing thin clients. "You have to start small and deploy technologies that are inexpensive, easy to deploy, and make an immediate and consistent environmental impact," says Samuel Sudhakar, vice president of administrative services and CIO.

The impact was indeed immediate: The new devices consume one-tenth the energy and can support 100 users on a single OS. They're also inexpensive, each costing about $300 less than a desktop. What's more, they only have to be replaced every seven to eight years.

4) Ditch Paper Contracts

With such an obvious win-win, why didn't Sudhakar transition to thin clients sooner? "The technology just wasn't mature enough yet," he explains. It's been a similar story with electronic contracts, which have suffered from issues of reliability and user-friendliness. Enter Adobe EchoSign, a web-based solution for generating and archiving digital contracts that lets recipients sign from any internet-enabled device. As sustainability solutions go, this may be the quickest to deploy: Since there's no significant software to download, users can start sending e-contracts as soon as they sign up for the service.

It may offer the most time savings on the back end, too. **California Community Colleges Technology Center** and **California Virtual Campus** began using EchoSign in 2010 for internal invoicing, and recently employed it for a project that required signatures for a memorandum of understanding (MOU) from 60-plus colleges statewide. The results were astounding: While a paper-based MOU would typically take three weeks to make the rounds, EchoSign cut that down to less than one day, on average. The fuel and transport savings are equally significant, especially when you consider CVC and CCC Technology Center mailed more than 11,000 documents requiring signatures across California last year.

5) Move Syllabi Online

Of course, you can't talk about e-contracts without mentioning all the paper saved. But for schools looking to really trim paper waste, an oft-overlooked culprit is the syllabus. According to the Syllabus Institute, a faculty resource for all things syllabus-related, a school with 4,000 students uses about *8 million* sheets of paper each year to support its academic activities. For a large school such as **Webster University** (MO), which has more than 100 campuses and an enrollment of 20,000-plus, the number was significantly higher.

The solution? Move Webster's syllabi online, via Intellidemia Concourse. Conservation was not the key driver behind this shift, however. Instead, it was spurred by a desire to streamline the syllabus-management process and maintain accreditation standards for the university's Walker School of Business, says Brad Wolaver, faculty development coordinator for the school. And Webster was so pleased with the results from the business school that it expanded the syllabus project university-wide.

Starting small, in this case, proved to have a big impact. "You may not want to jump right into climate-change mitigation," says Wolaver. "Starting small by getting your syllabi online, installing LED lighting, or going trayless in dining facilities will reduce costs, save energy, and build institutional capacity for change." **CT**

RESOURCES

For links to the schools, products, and organizations mentioned in this article, please visit *campustechnology.com/0112_green*.

Jennifer Grayson *is a Los Angeles-based writer focusing on environmental issues. Don't miss her blog at* thered whiteandgreen.com.

jennifer demski

Strategies for Blog-Powered Instruction

Three blog-savvy educators share their best practices for harnessing the unique strengths of blogs to supplement coursework and elevate student learning.

BLOGS ARE ONE OF THE OLDEST components of the web 2.0 toolkit, but their strengths as an instructional tool are still being discovered. It's all too easy to fall into the trap of seeing blogs as a substitute for online discussion boards or a new delivery system for traditional academic writing. As with any educational technology, blogs work best when instructors harness their unique features to supplement learning in the classroom.

"Blogs highlight individual contributions more than wikis," remarks Stuart Glogoff, senior consultant in the Office of Instruction and Assessment at the **University of Arizona**. "They're more flexible than threaded discussion forums, and they provide more room for expressing ideas than Twitter. Blogs provide an individual space where students can write publicly, where students can comment on each other's work, and where the professor's participation can subtly call attention to the best student work as a way of raising the bar for the rest of the class."

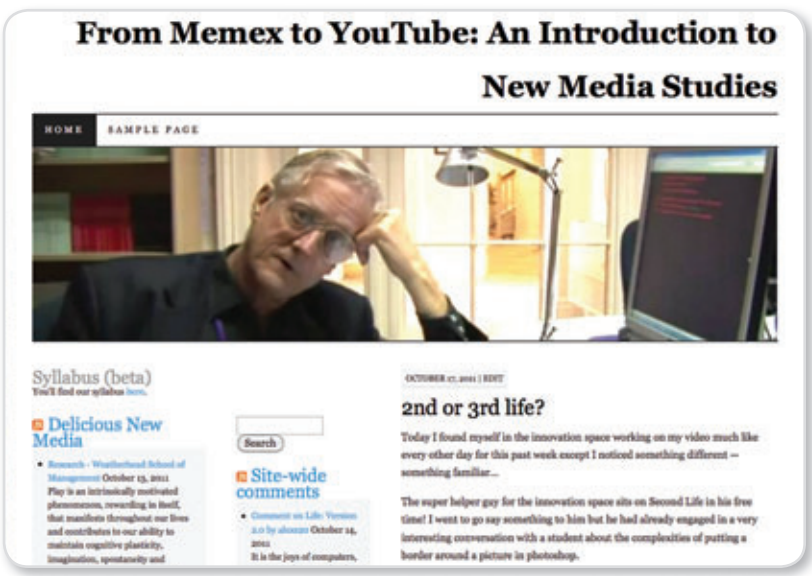
Glogoff has helped implement a variety of blogging initiatives at UA. In an upper-level Spanish course, for example, students wrote Spanish-language responses to the professor's posts on a shared blog. And in a recent Honors College "reading groups" initiative, students posted insights to their individual blogs on a variety of topics, such as ideas for economic development gleaned after meetings with local community leaders. "The blogs create an opportunity for shared understanding and an open exchange of ideas," explains Glogoff.

Blogging the Learning Process

Just as blogs can help foster conversation among students and faculty, instructors are discovering that they can also serve a more personal role, as a tool of reflection and self-appraisal. "The blog's biggest strength is in the development and authentication of the student voice in learning," notes Ruth Reynard, associate professor of education and the director of the Center for Instructional Technology at **Trevecca Nazarene University** (TN).

Reynard uses blogs as a way to get students to reflect on their coursework—essentially by keeping an online journal in which they track their learning. As opposed to a traditional journal that is read only by the instructor, student blogs are digital, immediate, and published—raising the stakes and increasing the students' investment in their reflective writing.

"Also, visually, you have a track of how the students' thinking has developed throughout the course," explains Reynard. "Students can see where they've changed their minds, or where they became stronger thinkers. By showcasing that development, the blog empowers students to develop an authentic voice and to see themselves as growing experts in that field of study."



A "MOTHER BLOG" can aggregate blog posts, comments, updates, and social-networking feeds.

When used as a tool for reflection, blogs allow students to write at length about their own experiences as learners, and to read and comment on the insights posted on their classmates' blogs. This type of public, shared self-reflection is difficult to achieve in other forms of collaborative online writing, such as discussion boards. "If the students were to post this type of self-reflective piece in an online discussion board, it would throw the discussion off track," says Reynard. "In a blog, though, it's your environment, your voice, and you can take your time to say what you need to say."

Reynard has also found that blogs are a great tool for helping her graduate students learn to write academically. She requires her grad students to embed hyperlinks to online sources that influence their thinking in reflective blog posts.

"Referencing the authors and sources is a learned skill," explains Reynard. "Because blogs are naturally a hyperlink environment, students can link directly to articles in library databases. Then, when it comes time to write a reflective paper, they can just cut and paste from their blog, because they've essentially been writing small pieces of that reflective paper throughout the course."

Free-Range Writing

Gardner Campbell, director of professional development and innovative initiatives in the Division of Learning Technologies at **Virginia Tech**, is also a strong proponent of blogs as tools for academic reflection. But he warns against falling into the trap of having blog posts become just another kind of assignment that students must fit into their schoolwork.

Campbell prefers "free-range" blogging. In his courses, blogging is a requirement, not an assignment. It is graded as a participation component of the course. Students are given no prompts about what they should write, nor must they fulfill a specific word count.

"Blogs are a place where a student can find his own voice as a learner in an unusually powerful way," explains Campbell. "They offer a chance to get something that comes from the whole person. They offer a window into the students' cognition. Blogs give you a chance to see the work of understanding in its molten state, before everything is turned to stone."

Campbell has found that free-range blogging—and the blogging platform itself—is also a great antidote to the tendency of students to write only what they think their professor wants them to write, rather than pushing themselves to discover what they truly understand about a topic. "Blogging seems to short-circuit that tendency and get students past that jam," notes Campbell. "Because blogging is so malleable, it's a wonderful platform for creativity."

At Virginia Tech, Campbell's students build their blogs on the WordPress platform, and he encourages them to spend time customizing the look of their blog, creating their own roll of blogs they follow, and incorporating audio and video elements into their posts.

Campbell, Reynard, and Glogoff all agree that blogging works best when it's blended into the curriculum, so posts are seen both as an extension of the discussions in the classroom and as an inspiration for future classroom conversations. "A student recently wrote a blog post that beautifully synthesized a number of classroom discussions and activities on various topics from the past month," recalls Campbell. "He'd obviously been mulling these ideas over in class, and had spoken up and participated. But it wasn't until he was able to get away and push at it on his own, and then share his ideas in the social context of the blog, that this powerful synthesis came out.

"When something like that happens, it draws from class. It pulls the coursework together in a way that's authentic to the individual learner, and then it is shared on the blog where classmates can comment on it. Then it comes back into the classroom discussion the next time we meet face-to-face. Learning becomes a virtuous cycle where the blog feeds the classroom and the classroom feeds the blog." **CT**

Jennifer Demski is a freelance writer based in Brooklyn, NY.

5 TIPS FOR BLOGGING

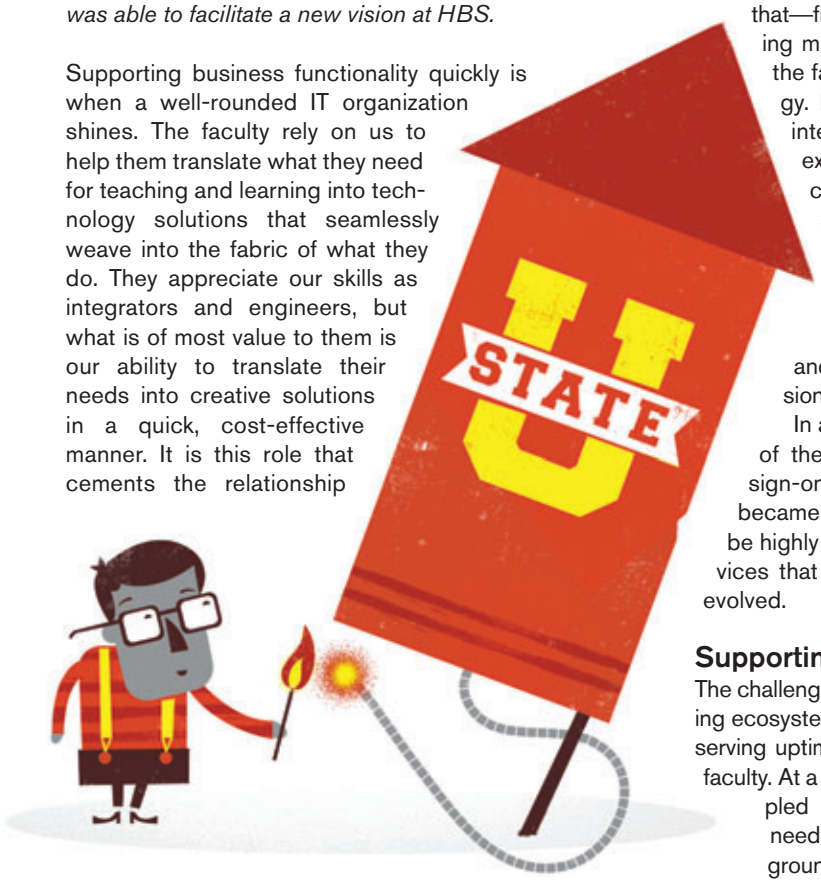
1) **Have a clear pedagogical purpose** for incorporating blogs into the instruction, and clearly state it on the class syllabus. "Students need to see a purpose for the blog, and they need guidelines for entries and comments," explains Stuart Glogoff, senior consultant in the Office of Instruction and Assessment at the **University of Arizona**. "In the cases where faculty have incorporated blogs without establishing their purpose, student participation has been uniformly low."
2) **Blog contributions and comments should be a graded element** of the course. "Your grade is your currency for your course," explains Ruth Reynard, associate professor of education and the director of the Center for Instructional Technology at **Trevecca Nazarene University** (TN). "If you don't assign a score to blogging, students aren't going to take it seriously or treat it as a priority because they're too busy doing the work that they're earning scores for."
3) **Don't assume that students are familiar** with the practical aspects of blogging. Exercises on uploading images and videos, embedding text links, and writing constructive comments on peer blogs should be required before content-specific blog entries are due.
4) **Model best practices** by contributing to your own blog and commenting on students' blogs. "There's no shortcut to this," advises Reynard. "If you don't comment, then students feel as if they're talking to the air. Commenting gives you the opportunity to connect directly with each student, and makes students feel as though they're getting direct tutoring, which is actually the best way to teach."
5) **Simplify navigation between student blogs** by having students subscribe to each other's blogs via RSS feeds, dividing students into small groups to comment on each other's work, or building a mother blog—a front page for the course that aggregates recent blog posts, comments, updates from course-related websites, and social-networking feeds. "I like the mother blog because it's a great lesson in how to make the web work for you," explains Gardner Campbell, director of professional development and innovative initiatives in the Division of Learning Technologies at **Virginia Tech**. "Understanding how to create a site where chosen content is aggregated onto a single page is a best practice, not just for the classroom but for living on the web in general."

Mission Support

The real value of IT in higher ed lies in its ability to support the institution's core mission—quickly and cost-effectively.

AT AN EXECUTIVE SESSION *of more than 50 CIOs at Campus Technology 2011, one message came across loud and clear: For IT departments to survive—even thrive—in the new normal, they have to reinvent themselves. IT shops need to shed commodity services—functions that could just as easily be handled by outside vendors—and assume a more strategic, integrated role on campus. In the first installment of a four-part series on reinventing IT, Stephen Laster, chief information officer of* ***Harvard Business School*** *(MA), offers a case study on how his IT department was able to facilitate a new vision at HBS.*

Supporting business functionality quickly is when a well-rounded IT organization shines. The faculty rely on us to help them translate what they need for teaching and learning into technology solutions that seamlessly weave into the fabric of what they do. They appreciate our skills as integrators and engineers, but what is of most value to them is our ability to translate their needs into creative solutions in a quick, cost-effective manner. It is this role that cements the relationship between faculty leaders and technologists.



Shaw Nielsen

A recent project at HBS epitomized the kind of supportive role that IT departments must play if we are to stay relevant and valued on campus. In late 2010, HBS set a new vision: Transform the first year of the MBA curriculum. The focus was on moving learning from the classroom into the real world and then back into the classroom. The goal was to blend the best of case-based learning with in-the-field experiences that would enhance student learning.

As the curriculum design evolved, it became apparent that—from a technical perspective—a standard learning management system (LMS) would not meet all the faculty requirements of this innovative pedagogy. HBS was looking for an LMS, *plus* a set of interactive collaboration tools to facilitate the extension of the learning experience outside the classroom. These tools were meant to increase student-to-student and faculty-to-student engagement—and were core to the mission of transforming the MBA program. These features included shared video spaces, areas for personal reflection, peer-feedback modules, and collaboration portals to share ideas, discussions, and documents.

In addition, it was critical that all the components of the new system be implemented under single sign-on to create a seamless user experience. It also became clear that the learning environment needed to be highly flexible so it could support new tools and services that might be required as the curriculum design evolved.

Supporting Pedagogical Innovation

The challenge in designing this model, which we call a learning ecosystem, was creating flexibility and choice while preserving uptime and reliability—all core to the needs of the faculty. At a technical level, this meant creating loosely coupled systems to easily support change. We also needed to offer technology that faded into the background so that learning became the focus. ▸

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As IT consultants, it is essential for us to build solutions that address the needs and desires of our community. To do that, we first have to understand what those requirements are. At HBS, we build cross-department working groups to establish needs, and meet regularly to review progress, discuss issues, and test solutions. With all major IT projects, our community partners are closely involved from start to finish. This has proved to be an essential part of the rollout process at HBS. Involving faculty and community partners throughout the process ensures expectations are mutually set and there are no surprises.

Working closely with our partners in the MBA program, we were able to build a centralized learning ecosystem in just six months. Based on feedback from faculty and administrators, we knew our approach had to support rapid development, change, and stability. At the same time, we could not compromise several key tenets. Our learning platform, like all solutions at HBS, had to possess the following characteristics:

- **Reliability and fault tolerance:** Planned downtime is no longer an option. Everyone has become accustomed to anytime availability of the tools they use for work. This becomes even more important given the role of learning technologies on campus. Nothing can interrupt the teaching and learning process.
- **Support for a wide range of services/solutions:** Our faculty and students use many different tools to teach and learn. The infrastructure has to support all of these, including many high-bandwidth applications that are essential to field-based learning. It is also important that we are prepared to develop and support new tools that might be needed by faculty and students.
- **Future-proof flexibility:** If the last 10 years have taught us anything, it is that technology innovation is unpredictable. If you do not create flexibility today, you will pay for being brittle tomorrow. Gone are the days of supporting one technology stack or one monolithic solution. It is also no longer realistic to run everything out of your own data center or outsource it all to someone else. For the foreseeable future, we will live in a blended world, where we must determine what mix of internal and external resources will create the most effective infrastructure.

With these tenets in mind, we built a learning ecosystem that would support the changing MBA curriculum and provide a valuable footprint for future projects. Architecturally, we knew that we had to decouple the infrastructure from the learning functionality and that we had to work in a small-system model. To that end, we pushed security, login, data integration, and other shared services into the infrastructure layer. This allowed us to focus on the functionality that students and faculty would experience, and leverage the benefit of shared services as we built, bought, or open sourced discrete features of our ecosystem.

At the core of our architecture is the delivery of single sign-on and consistent enterprise roles. We spent time gaining agreement from our partners on different user roles and what they meant from a business-process perspective. With roles in place, we implemented solutions that give users access to all elements of the learning ecosystem with a single set of login credentials. The user role travels from system to system, and the business rules associated with the user are respected by every feature and solution in the learning ecosystem.

In addition to defining roles and login, we implemented an enterprise data highway (enterprise bus) and defined HBS-specific (system independent) business objects. Using a publisher/subscriber model, we publish business objects from a system of record to consuming systems. For example, each time a faculty member creates a new student team, our solutions for student collaboration and feedback are made aware of it via their subscription to the data highway. This way, each system is aware of the highway but does not have to be aware of the actual publisher. By taking this loosely coupled approach, we positioned ourselves to easily change or swap elements of the ecosystem in response to changes in the pedagogy.

With all major IT projects, our community partners are closely involved from start to finish.

With a flexible, stable infrastructure in place, we were free to focus on what mattered most: the functionality that users need for teaching, learning, and collaboration. The key to providing great functionality is knowing when to buy or open source a solution—and when to build. Rapid development and adaptation are truly a blended approach. To respond quickly and cost-effectively, you should be able to tailor open source solutions instead of resorting to scratch development. This also requires working closely with vendors so that they integrate their solutions into your ecosystem effectively. Lastly, leveraging standards during this process will help you minimize future work.

We chose a commercial LMS and wrapped a set of custom and open source tools around it to support an innovative curriculum. With this loosely coupled architecture and blended infrastructure, we have crafted an adaptable environment for our community. It provides the right level of stability to ensure our campus always has access to the applications and tools it needs, while providing the agility to change and add solutions at a lower overall cost. The result is a learning environment that is true to the needs of our redesigned MBA program and possesses the characteristics we want to employ across all HBS technology services. It is seamless from the perspective of our users, closely aligned with their business needs, and flexible from a technologist's perspective. **CT**

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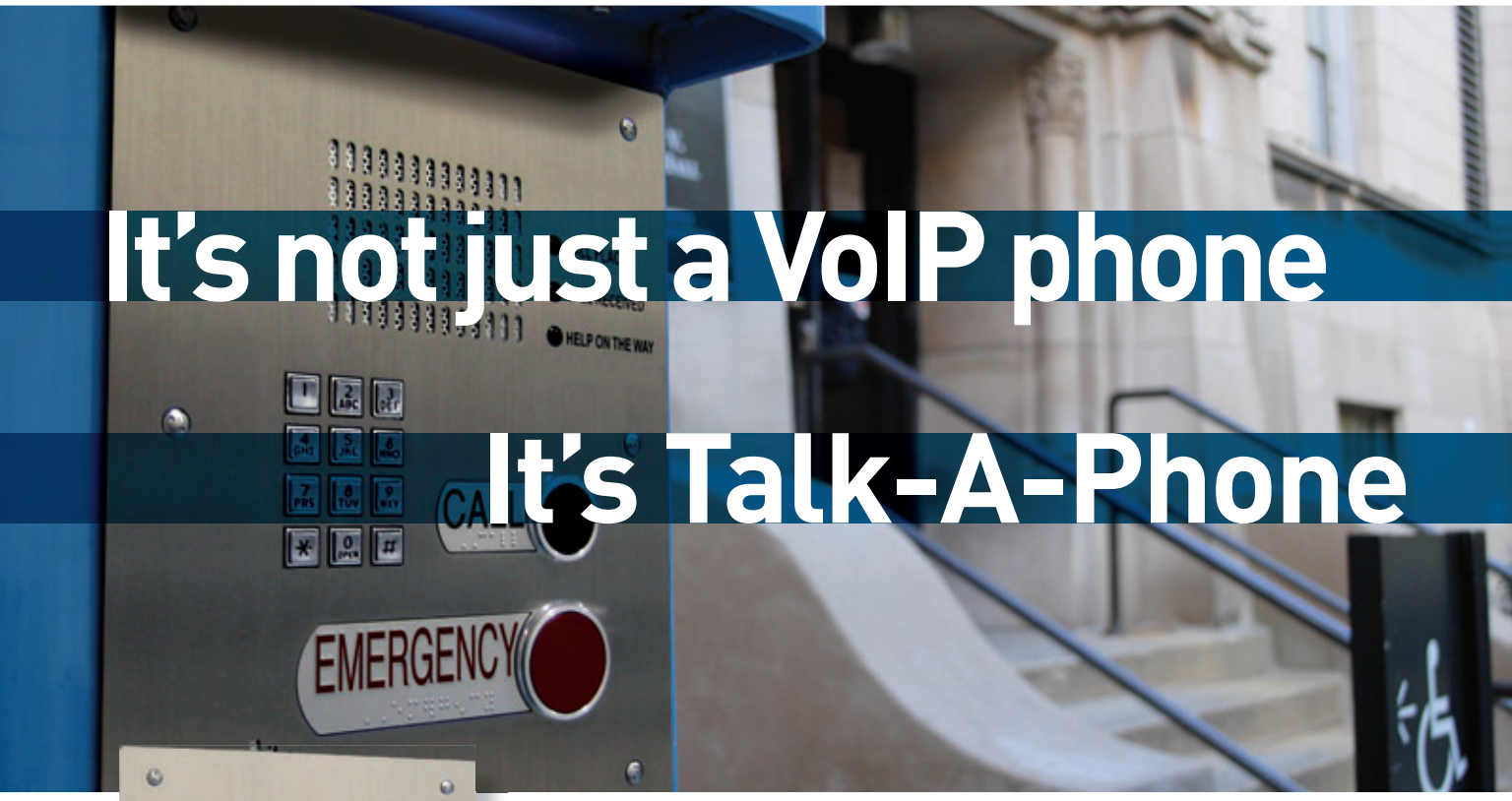

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COMMENTARY

KEEPING GANG INFLUENCE OFF THE GRIDIRON

By Ralph C. Jensen

THERE ARE A LOT OF THINGS ABOUT SCHOOL AND SECURITY THAT CATCH MY EYE. HOWEVER, WHEN YOU ADD GANG ACTIVITY TO THE MIX, SCHOOL BECOMES CORRUPT QUICKLY.

If you are a fan of football at the high school or college level, you might remember four years ago all the talk that surrounded Brandon "Bull" Johnson. Right out of high school, Johnson became a starter on the gridiron for the University of Washington. Things looked pretty good for him.

Things changed quickly in the neighborhood. Today, Johnson, now 22, is in a Southern California jail, facing murder charges in connection with the shooting of an 18-year-old suspected gang member. The prosecutor in the case says Johnson is associated with the infamous "Bloods" gang.

CBS News' Armen Keteyian and *Sports Illustrated* investigated the problem, seeking to determine if there is a gang-influence problem on athletics. There is.

According to the investigation, Scott Decker, a professor of criminology at Arizona State University, Tempe, said "The kinds of crimes that gang members are most likely to be involved in are the kind of crimes that ought to concern athletic directors, police chiefs, university presidents and coaches."

What drew my attention to this topic was a news flash on the way to work the other day. The CBS radio station in Dallas quoted Mike Leach, former head football coach at Texas Tech University and now the top guy at the University of Washington. During his 20-year coaching career, one of his players was shot by a gang member, and he got rid of another player who posted gang slogans on his own Facebook page.

No one really keeps track of gang-related incidents, but some believe gang-related incidents have taken place at Rutgers, Oregon, Oregon State, Nebraska, Nevada and Southern Mississippi. Charges range from assault to murder.

The CBS/SI study surveyed 130 top athletic programs and found that while the vast majority of student athletes are not involved with gangs or gang activity, nearly 20 percent of the 87 police chiefs who responded to study questions "had direct knowledge of a student-athlete who retained gang membership while at their university."

Gang activity is a security problem not limited to university campuses, though until today it seemed rather unimaginable to me that it would be associated with college sports. Athletics, I thought, was a means for many youth to escape the bile that is gang activity.

It seems incumbent upon all of us to take a responsible look at today's youth and help separate them from making the wrong decision and to remain free from the grip of gangs. Education, athletics, good music and more help keep youth on the right path.

Brandon Johnson, it appears, has wandered off the path of great promise.

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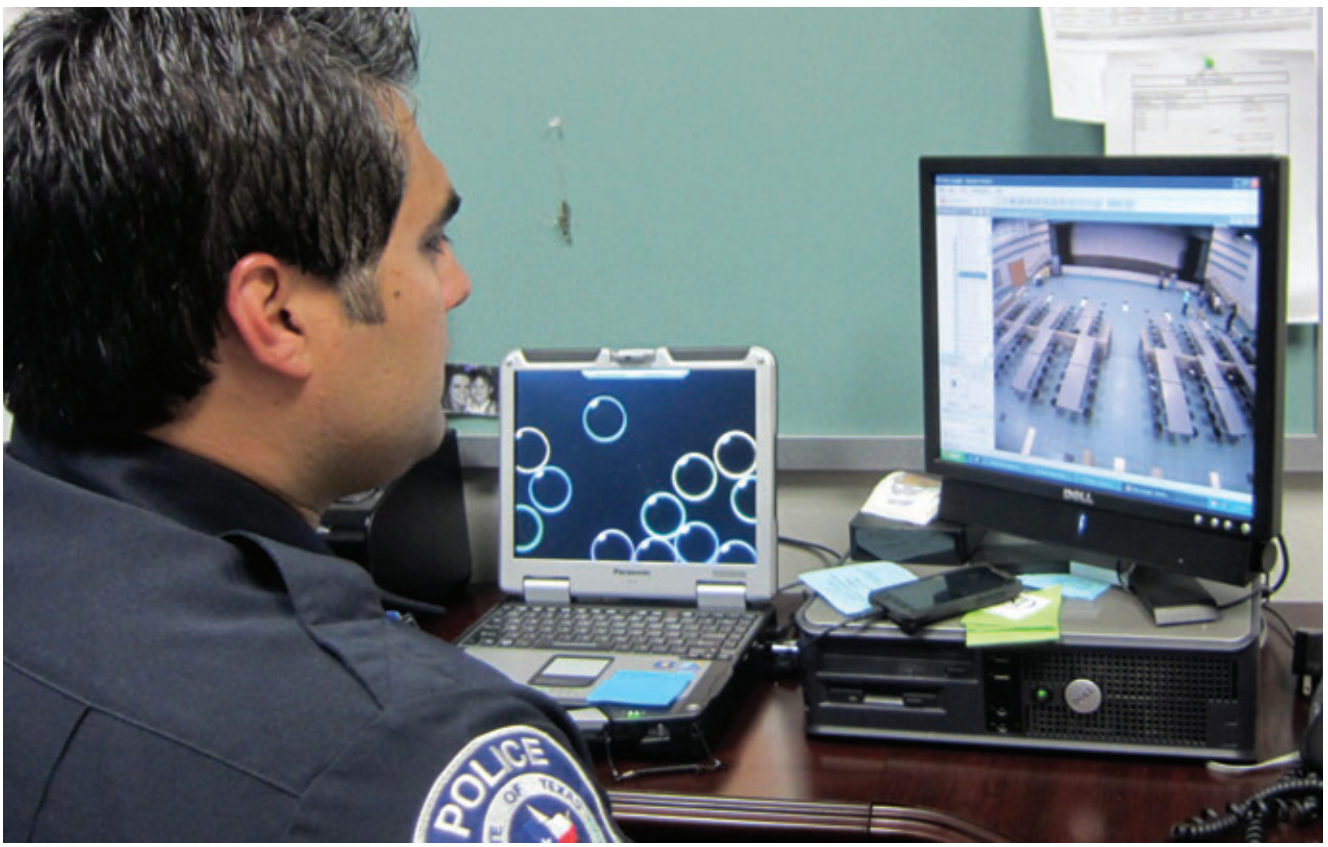
FEATURE

29 CAMPUSES AND COUNTING

Growing Texas school district adds comprehensive video surveillance system

By Nicole Segura



PFLUGERVILLE (PRONOUNCED "FLEW-GRR-VILLE") INDEPENDENT SCHOOL DISTRICT RESTS IN A POPULAR SUBURB JUST NORTHEAST OF AUSTIN, TEXAS. ENCOMPASSING NEARLY 100 SQUARE MILES, PISD ENROLLS MORE THAN 21,000 STUDENTS ON 29 CAMPUSES.

Within the next 10 years PISD expects to double its enrollment to reach more than 40,000 students. Recognizing the need to develop a comprehensive video surveillance system to effectively monitor and provide safety for the thousands of students that walk the hallways and enter and exit buildings every school day, PISD sought a district-wide video management system to replace the DVRs and proprietary camera software systems it was using at a few campuses.

FINDING A FIX

"We had a campus-by-campus DVR-based system, and not at every campus, just at a few," said Jo Moss, PISD safety and emergency management coordinator. "If a camera went down—which was often—we went out to the BuyBoard state-approved vendor list and just bought another one. We found what we had in place to be a temporary fix for what was a more general issue."

Moss said it was a system that offered little support and that seemed to result in continued money invested in equipment, rather than a solution. She and Todd Gratehouse, technology project manager, then sought to further develop the existing plan and to implement a comprehensive resolution that would provide district-wide coverage—a solution that was in line with the district's safety initiatives.

SUPPORTING THE ENTERPRISE

After an exhaustive bid process, PISD selected Video Insight's Enterprise software to manage the district-wide camera solution. System integrator Titus Systems, of Round Rock, Texas, provided the physical installation of the cabling and cameras. The implementation includes 600 Axis and 300 Arecont 8 MP cameras running on 11 Dell R510 servers, each with 22 TB of RAID5 storage hosted in the PISD datacenter.

Cameras have been placed in all major hallways, entrances and exits, bus loops, loading docks, cafeterias and gymnasiums. The district chose the extremely reliable Axis cameras for many of its indoor and outdoor locations. The Arecont cameras are a mix of 180-degree and 360-degree 8 MP panoramic cameras. The Arecont cameras provide four separate camera streams but use only one Video Insight license (which saves the district money). Moss said the Arecont 8 MP 360s also make the camera presence less noticeable by students.

"With the Arecont 360, I have four excellent views of the cafeteria, for example, but as far as the students are concerned, they just see one camera," Moss said. "Also, our school board didn't want to give the impression that PISD had entered a 'Big Brother' phase, so the more you can do with fewer cameras satisfies everyone."

With PISD's fiber infrastructure, all 2,200 cameras are streamed from the various campuses to the datacenter where the Video Insight Enterprise Software distributes the processing across the Dell R510s, running more than 150 cameras per server, which makes for an efficient use of infrastructure, Gratehouse said. In addition, a twelfth R510 is configured for automated failover in the case of a server failure.

"Our purpose in developing this plan was to provide the safest environment for our students and employees while also maximizing our resources, and we have achieved that," he said.

Gratehouse added that employees have found the Video Insight software much more "user friendly" than what they had before.

"Our campus administrators and police officers monitor the cameras, and at times we have had to make video clips for use in investigations," he said. "They have had no problems in retrieving video and in using the software. It has been so easy for them to just get into the software and do what they need to do because the user interface is so simple to use."

Moss said PISD is building for growth with two new elementary schools, a middle school and a high school coming on board in the next five years. The district plans to have cameras using Video Insight for these campuses, as well.

The district is pleased overall with the implementation, particularly since the comprehensive coverage Video Insight provides supports the district-wide safety plan.

"We know that we have the doors, cafeterias, gyms and hallways of all schools covered," Moss aid. "That consistency is key to the implementation of our district-wide safety program. All campuses have the ability to monitor and provide a safe environment for our students and employees."

Nicole Segura *is the communications manager at Video Insight Inc. She can be reached at* nsegura@video-insight.com.

FEATURE

SAFE WITH SOUND

Directional sounders reduce evacuation times by clearly defining immediate escape routes

By Christa Poss

FRANK SAVINO, PRESIDENT AND CEO OF UNITED FIRE PROTECTION (UFP), KNEW HIS LONG-TIME CUSTOMER THE SEEING EYE WAS AN OBVIOUS CANDIDATE FOR EXITPOINT DIRECTIONAL SOUND TECHNOLOGY FROM SYSTEM SENSOR.

Installed at building exits or along egress routes, directional sounders produce broadband noise using locatable sound to guide building occupants (to safety or outside of the building). Because it's an auditory system, directional sounders are ideal for helping visually impaired people, as well as sighted people whose vision is obscured by smoke, as during a fire.

PROVIDING ACCESSIBILITY

The Seeing Eye's school and training grounds sit on 60 acres just outside of New York City. A residence hall with private rooms, a lounge and fitness center houses students who train with their new dogs onsite for almost a month. With facilities to train 120 dogs and a state-of-the-art veterinary medical center containing additional kennels, the campus has a considerable population at all times. Many onsite visitors are unfamiliar with the layout, which is another reason the school chose directional sounders to reduce egress times.

Bud Liptak, director of facilities at The Seeing Eye, says the school was looking to upgrade its life safety system. After learning about ExitPoint and directional sound technology, he was convinced of its effectiveness.

"Rich Fischer from NOTIFIER gave us a presentation, and everyone at the school was on board right from the start," Liptak says. "We are very excited to be pioneers in our field once again with this important life safety upgrade at our facility.

"The system has been installed throughout the entire administration building and has received favorable reviews from students, teachers, the administration and local fire officials. Our students say the directional sound system is extremely intuitive.

"Usually, when a class first enters the building, we hold an orientation with a quick fire drill to help students get their bearings in the building. We hold these practice drills about once a month when a new class of students arrives," Liptak said.

To meet the budgetary needs of the non-profit institution, the new equipment was donated to the school. UFP designed and installed the system at no charge. Both the design and installation phases went smoothly, and UFP was able to integrate the product into the existing system, completing the installation in one week during the school's summer break.

EFFECTIVENESS OF DIRECTIONAL SOUND

The National Fire Protection Association (NFPA) has published the Emergency Evacuation Planning Guide for People with Disabilities for developing plans to protect disabled individuals during emergencies. This free guide can be downloaded as a Microsoft Word or Adobe Acrobat PDF document at *www.nfpa.org*.

The guide brings various planning components for the disabled community into one comprehensive evacuation planning strategy. It is written for those in building management who are involved in life safety decisions. Sections explore the egress requirements of individuals with one or more mobility, visual, hearing, speech or cognitive impairment.

Chapter 3, "Building an Evacuation Plan for a Person with a Visual Impairment," highlights the capability of a device that uses directional sound to lead people to a safe exit.

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Directional sound is an audible signal that leads people to safety in a way that conventional alarms cannot, by communicating the location of exits using broadband noise. The varying tones and intensities coming from directional sound devices offer easy-to-discern cues for finding the way out. As soon as people hear the devices, they intuitively follow them to get out quickly.

A directional sounder is an advanced egress device that can accelerate evacuation times by as much as 75 percent. The device acts as an audible exit sign, directing people to the nearest safe exit using broadband sound. Some models can also use a recorded voice message to provide verbal instructions in 15 field-selectable language choices. The technology of exit-marking audible notification is referenced in NFPA 72, National Fire Alarm Code, 2007 Edition.

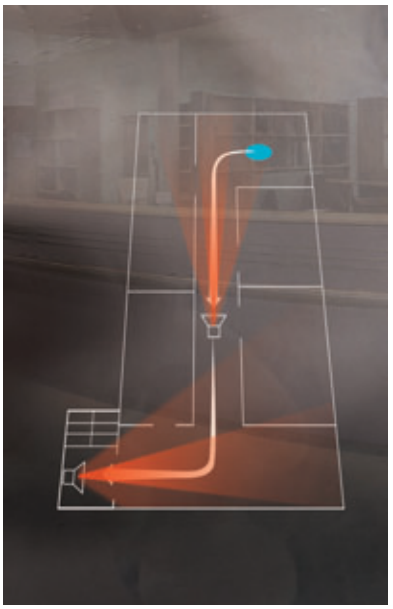
A "Personal Emergency Evacuation Planning Checklist" in the guide prompts emergency planners to consider a full range of appropriate devices and notification actions. References and links are provided for applicable life safety codes and studies.

This NFPA guide is based on input from the disability community. It will be updated annually, or when new ideas, concepts and technologies become available. The NFPA is a nonprofit organization that serves the fire, electrical and life-safety field with code and standard writing, research, training and education.

INCORPORATING DIRECTIONAL SOUND

Today's fire alarm control panels are highly sophisticated. When activated, they are capable of performing hundreds of preprogrammed action sequences within a fraction of a second. Although dependent on electrical capacity of the existing panel, directional sounders can be added into existing fire alarm systems with relative ease.

"Part of the beauty of the directional sound system is that it can be easily retrofitted to existing notification circuits," Savino said. "This makes for fast installation. Also, the system draws an extremely low amount of power due to the absence of strobes and other visual components. In most cases, it can be connected directly to existing notification circuits without any additional wiring. However, consideration for power and load needs should always be evaluated."



Because the installation on The Seeing Eye's main campus went so well and everyone is satisfied with the system, Liptak says the school plans to use ExitPoint at other locations. "We have a downtown lounge in Morristown where students can relax while classmates are in training," Liptak says. "We're upgrading the lounge in the coming months and are encouraging the landlord to install the system."

Christa Poss *is the manager of product marketing at System Sensor.*

DIRECTION SOUND FAQ

Q: What are the "rules" of directional sounder placement?

A: In short, the sounder can be flush or surface-mounted on the wall or ceiling. Beyond that, however, the concepts used to position directional sounders differ from standard notification appliances. Generally, fire alarm notification appliances, such as bells, horns and speakers, require placement at numerous locations in order to achieve the sound levels that can be heard and understood throughout all building areas.

In a Type 1 basic installation of directional sound technology, the concern is not for establishing an audible signal in all occupied building spaces. Rather, the focus is on providing sound cues to help occupants locate the point of entry to an exit with ease.

Q: What if a building occupant is deaf?

A: Many sources of deafness, such as work-related hearing loss, are frequency-specific, which means that these people cannot hear sounds in a specific, narrow band frequency range. The majority of people registered as "deaf disabled" in the United States are defined as such because they cannot hear sounds in the narrow frequency band containing speech. The ability to localize a sound is dependent on the sound containing broadband frequency content. Thus, individuals who are simply unable to hear sound in the typical speech band of 0.5-3 kHz would be able to hear and localize the broadband content coming from the directional sound speakers.

Q: Is there any risk of leading building occupants toward an exit that isn't safe?

A: Emergency exit signs mark the pre-designated exits within a building. They make no attempt to indicate whether a route is safe or not. The evacuee has to make his or her own decision on which route to take. When used as a simple audible exit system, directional sounders are used as an aid to highlight where evacuation routes and exits are located, just like emergency exit signs.

When there are multiple exits equipped with directional sound speakers, building occupants usually follow the sounder that is closest to them because it is the loudest. Research indicates, however, that evacuees will choose a route they believe will offer the best chance for survival if they determine that one or more routes are less viable due to smoke, heat or sounds of distress.

Q: How are directional sounders listed by the code bodies?

A: Directional sounders are listed to UL 464, Audible Signal Appliances. Under this standard, a directional sounder is listed as a supplemental notification appliance. Directional sound technology is also under consideration for NFPA 72.

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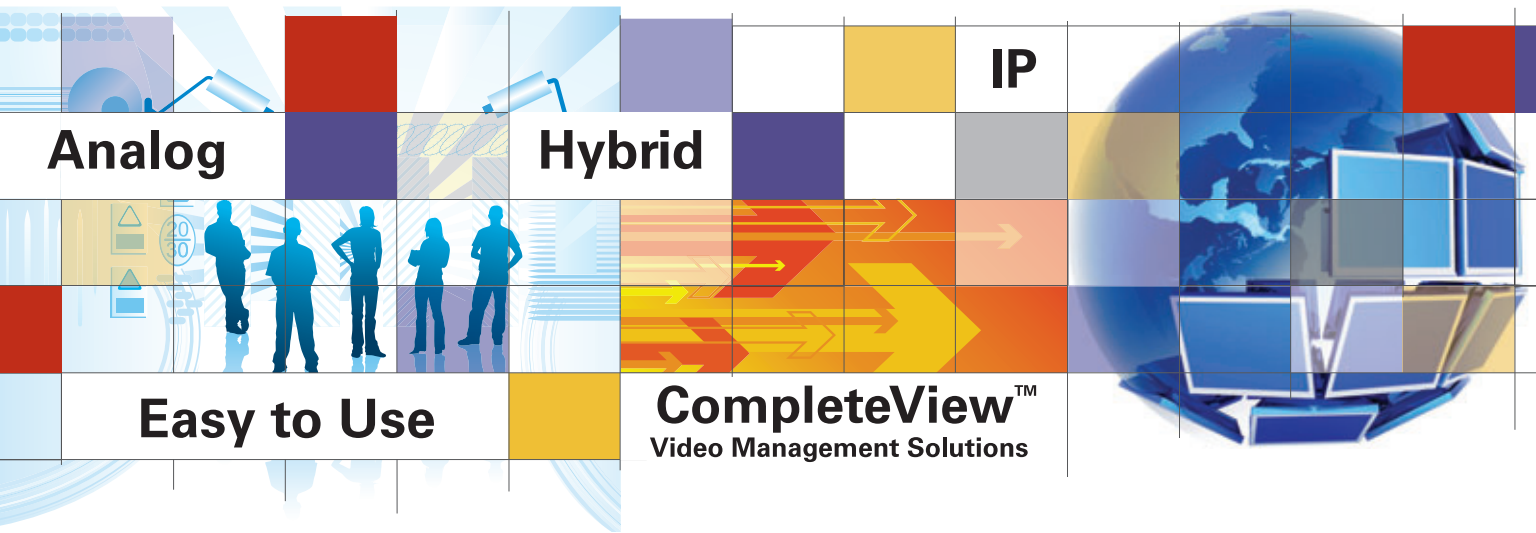

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FEATURE

BROADCASTING SECURITY

University aims to grow capabilities and response with new system

By Sam Shanes

THE SAFETY AND SECURITY OF STUDENTS, FACULTY AND GUESTS IS PARAMOUNT FOR ANY EDUCATIONAL INSTITUTION. IT IS ALWAYS A CHALLENGE TO IMPLEMENT A SYSTEM THAT CAN NOT ONLY PROTECT THESE PEOPLE, BUT ALSO PROVIDE THE MEANS OF RESPONDING TO ANY SITUATION. FINDING A SYSTEM THAT COULD EASILY TACKLE THESE ISSUES AS WELL AS PROVIDE INDIVIDUAL AND MASS NOTIFICATION RESPONSE WAS CRITICAL FOR SHAWN WOODS, DIRECTOR OF SECURITY AT THE UNIVERSITY OF THE SCIENCES, IN PHILADELPHIA.

"We wanted to look at a system that was new, up-to-date and added additional features that allowed for better two-way communication," Woods said. "We were able to address multiple issues in regards to our emergency notification and two-way communication. The addition of the wide-area emergency broadcast system contact platform allowed us to implement a mass notification system into our emergency process."

The University of the Sciences recently went through a dramatic overhaul of its security, response and notification system. At the core of this upgrade was an NFPA 72-2010, Chapter 24 (ECS) compliant WEBS Contact platform. The platform allows the university to broadcast live and pre-recorded audio messages to any exterior and interior paging units and emergency phones strategically placed on campus. At the same time, personal notifications via SMS, e-mail or RSS can be routed to the appropriate segments of the population.

Provided by Talk-A-Phone, the WEBS contact platform offers a new way to combine independent notification mediums into a comprehensive crisis management solution. In addition to personal notifications and audio broadcasts to paging units, WEBS can be integrated with high-power speaker arrays and third-party paging systems. These combined features are designed to make the job of security staff easier during a crisis.

"The university is located on the west side of Philadelphia and covers approximately five square blocks," Woods said. "The size of our campus makes mass notification difficult. We needed a way of contacting and providing instructions to our students and staff in case of an emergency. This platform allowed us to do just that. It allows us to select the location and means by which we contact our students and faculty."

During an emergency, confusion and slow response time could be detrimental to an institution's response plan. Being able to provide detailed instructions and information to a specific location or group, at the push of a button, can save security valuable time. Unlike other mass notification systems, WEBS Contact allows operators to segment a population of any size geographically and demographically, meeting NFPA 72-2010, Chapter 24 (ECS) requirements.

"All managers have access to our mass notification platform," Woods said. "They have the ability to remotely go into the system and send out any message they like. These include prerecorded messages covering events such as an active shooter, fire, weather and lockdowns. Our managers also can broadcast unscripted messages to cover any situation we may have."

WEBS Contact allows security staff to create location-specific pre-scripted emergency notification profiles. In the event of a localized emergency, such as a chemical spill, security is able to execute a single notification profile created for this specific event in a specific location.

As part of the upgrade, the university also has deployed WEBS emergency towers. These highly visible emergency communications towers feature an all-LED blue light at the top and are capable of broadcasting audio messages at a peak 123 dBA at one meter. The sound pressure level can be individually adjusted in each direction to accommodate installation in the vicinity of residential areas.

"Our supervisors especially like the ability to use individual units in the system to broadcast localized messages over the unit's loudspeaker," Woods said. "For example, if we have an incident at one of our resident halls, one of our supervisors can use a special designated key on a tower and broadcast instructions using an internal microphone in the unit. This is especially helpful for crowd control. These features are everything we could have imagined in a system."

***Sam Shanes** is the chairman of Talk-a-Phone.*

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FEATURE

POWERING YOUR CAMPUS

Disaster planning before it is needed makes good sense

By Bill Allen

BY THE TIME DISASTER STRIKES, IT IS TOO LATE TO TAKE MANY OF THE IMPORTANT STEPS TO PROTECT A CAMPUS. UNFORTUNATELY, MANY EDUCATIONAL INSTITUTIONS OVERLOOK DISASTER PREPAREDNESS PLANNING OR SIMPLY ASSUME A CALAMITY WON'T HAPPEN ON THEIR CAMPUS. THAT'S A RISKY ASSUMPTION, GIVEN WHAT'S AT STAKE.

According to business continuity authorities and disaster recovery surveys and statistics, the single largest reason for network and other systems failure is a power outage. Obviously, planning for power outages is critical in any disaster prevention or recovery plan. All network, security and communications components, whether local or at a remote site, must be connected to a readily available and dependable power source. Power protection and the management of backup power is an absolutely essential component in contingency planning for a campus.

Power failures can strike at any time and for many reasons: the travails that Mother Nature dishes out, unexpected construction accidents, a utility pole taken out by a careless driver, equipment failure or even sabotage by a disgruntled employee or outside group. No matter the cause, campus personnel must be ready when disaster strikes. In general, the cost of downtime and recovery from a disaster can be many times more than the cost of putting a plan in place, and purchasing the necessary solutions to prevent disaster can easily pay for themselves even in a brief power outage.

DEVELOPING A CONTINGENCY PLAN

A contingency plan must contain detailed roles, responsibilities, teams and procedures associated with maintaining network, security and communications systems, both during and after a disruption. It also should document technical capabilities to support contingency operations. The contingency plan also should be tailored to an organization's ongoing and future requirements.

Contingency plans that account for short-term activities during a

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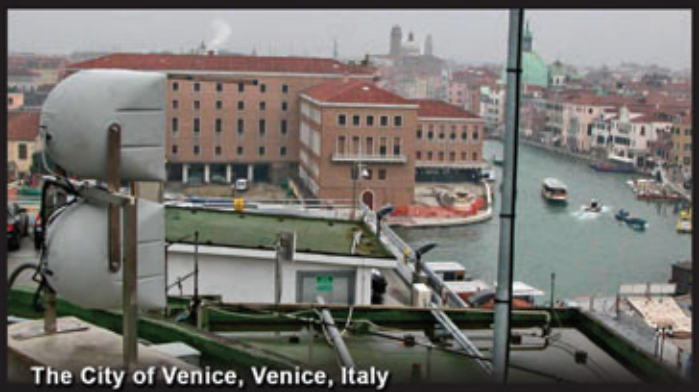
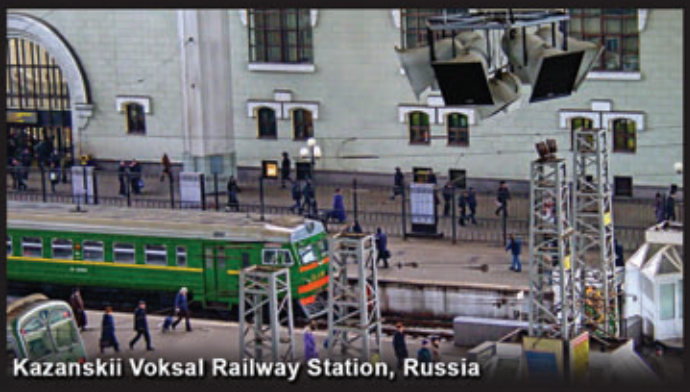

The City of Venice, Venice, Italy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brief power outage are typically covered by a standard uninterruptible power supply (UPS), which bridges the gap until power is restored. A strong contingency plan will ensure power availability through an extended power outage. In this scenario, using a UPS in combination with an external battery pack should be considered. The decision to use either of these two choices is dependent on how critical the system is to maintaining business continuity.

IDENTIFYING PRIORITIES

Developing a plan to prevent business disruption begins with prioritizing campus functions that absolutely must be maintained during a power outage. The systems and data that support these functions must then be thoroughly inventoried.

This process determines which systems and applications take priority when it comes to what will be protected with a UPS and how much time is required to maintain the application, or the length of time to safely bring down a system. This will also allow for better planning in terms of budgeting the cost of backing up these systems with a UPS.

PROTECTING DATA CENTERS

It's an understatement to say that a company's networking system is critical. Fully integrated and interdependent networks rely on continuity across the entire system to operate properly. For most educational institutions, the network is a complicated, totally mission-critical element of the enterprise, whether it's a local or wide area.

Servers provide the fuel to drive applications, while bridges, routers, wireless hubs and other peripheral devices provide the connectivity to service the users on the network. When these devices do not have power, the network is not fully functional, and in most cases, not functional at all.

These days the network serves as more than just a host-to-client file service; it is the backbone on which telecommunications systems may operate, along with security and fire alarm systems, in addition to accounting, attendance systems and Internet and e-mail traffic. Without a reliable source of power, critical functions come to a screeching halt if they are not properly backed up by an alternative power source. And let us not forget the importance of having desktop PCs and laptops available during both brief and extended power outages.

BACKING UP SECURITY SYSTEMS

While some administrators think first of IT continuity during a power outage, a security system is equally important to maintain and protect normal campus operations, especially during a crisis. The two main reasons for installing and using a security system are to protect an institution's assets and, more importantly, to protect students and staff.

When power fails and an entire security system becomes inoperable due to no power backup solutions, it leaves a campus, its students and its employees vulnerable in many critical ways.

When an access control system goes down, entering or exiting facilities may not be possible. When security cameras and DVRs go down, the ability to monitor facilities during a crisis is gone. When a fire alarm system is not properly backed up with a UPS, that's serious business. Emergency communications systems also cannot run without adequate backup power. Liability issues quickly come into play when security systems do not operate.

Having enough backup power to support these critical functions through an extended power outage is essential. Simply put, when a security system goes down, there is no security. Managers of security systems should realize the need for not only using power protection, but also adopting strategies that provide lengthy backup time in the case of an extended emergency.

CONNECTING TELECOMMUNICATIONS

A company's data and telecommunications connection is a lifeline to the outside world, most especially during an emergency and power outage. Not being able to communicate to customers, connect with mission-critical applications, or reach out to branch locations, employees or even emergency services, is a major risk and a potential liability.

A UPS enables continued communications through a power outage, and extended runtime battery packs provide more power that is necessary during extended power failure incidents.

POWERING THE CONTINGENCY PLAN

Once a company has detailed its contingency plans and identified power-critical vulnerabilities, it can then assess its requirements for power protection. This may include understanding the level and amount of power needed at a facility or across an enterprise, the duration of the required power supply, and even how many assets and locations need to be covered.

Power protection in the form of a UPS has been around for several decades now, yet surveys find that up to 60 percent of small businesses do not have adequate power protection.

UPSs do protect against all types of power problems, from sudden spikes or surges to brownouts and electrical noise. Not to minimize the importance of protecting from these potential equipment-damaging problems, the battery backup function provided by a backup system is perhaps the most crucial. Certainly, all power glitches can cause serious damage, but things change dramatically when power fails.

There are three types of UPSs: standby, line-interactive and online. With a standby UPS—sometimes called "off-line"—as voltage sags or the power fails, a battery-powered inverter immediately turns on to continue to supply power. Even while power is coming directly from the A/C outlet, the UPS provides protection from voltage spikes and surges.

A line-interactive UPS offers protection from spikes, surges and brownouts by regulating the incoming voltage. By using voltage regulation, correcting the voltage is accomplished without accessing the batteries. This provides continuous power conditioning, promotes longer battery life and eliminates electronic noise that can cause minor application errors and loss of data.

Online UPSs provide the highest level of power protection by using a double-conversion technique. UPS takes the incoming A/C power and recreates it by converting the voltage to direct current. During this conversion process, the online UPS conditions the power to eliminate noise, sags or surges and, finally, converts the power back to A/C before it exits and powers the attached equipment. Since the power runs continuously through the inverter, there is no transfer or switching time to battery mode in the event of a blackout.

When it comes to protecting vital equipment such as servers, telecommunications systems and security systems, a UPS ensures that these hardware devices are available and fully functional to support crucial applications. Ensuring the safe and reliable flow of power is really about protecting a company's assets, its products and services, its revenue stream, its employees and facilities, and ultimately its reputation and bottom line.

Bill Allen *is the director of marketing at Minuteman Power Technologies.*

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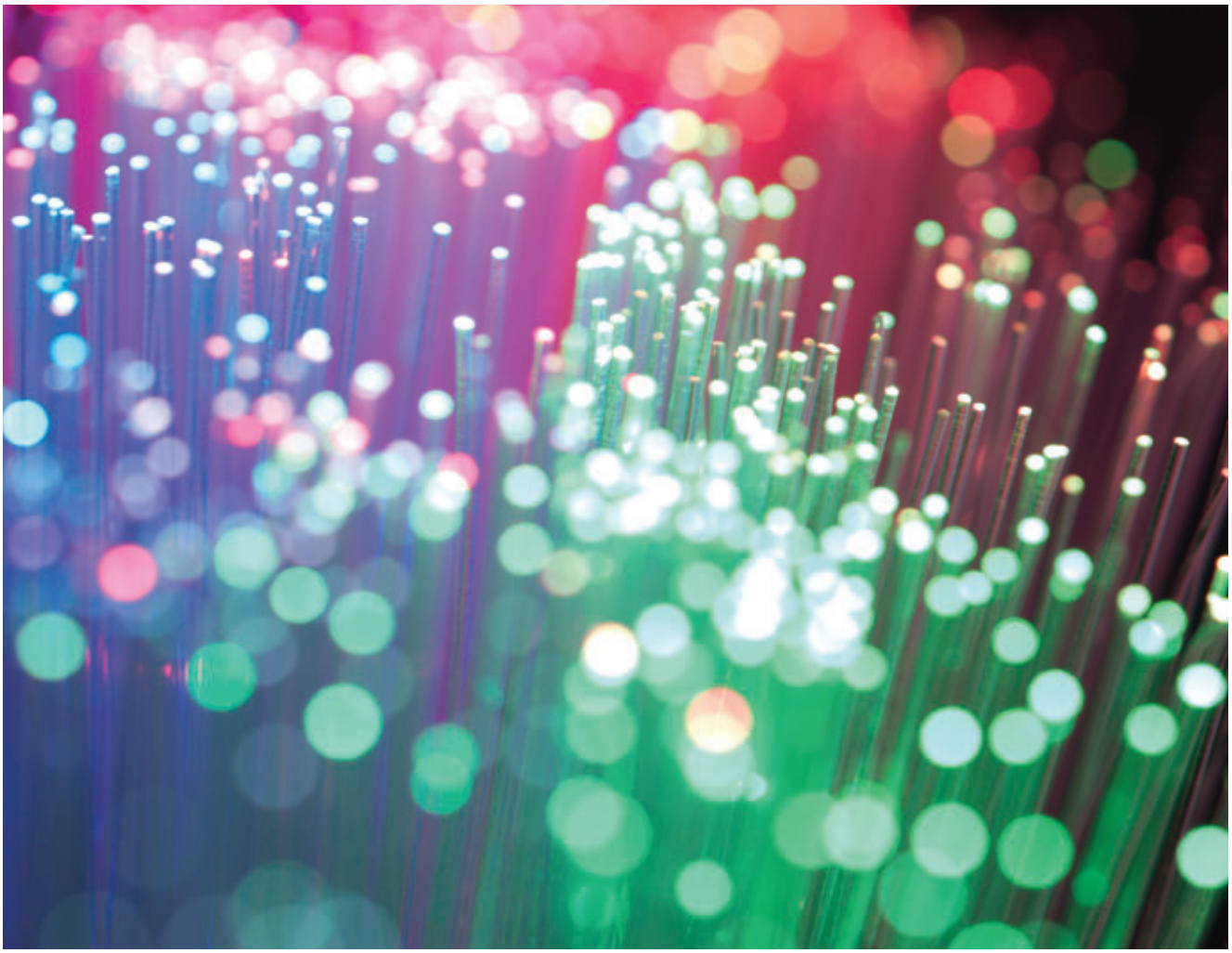
FEATURE

FIBER HEALTHY

Miami-Dade County schools depend upon superior surveillance

By Mark S. Wilson



MIAMI-DADE COUNTY PUBLIC SCHOOLS IS THE FOURTH-LARGEST SCHOOL DISTRICT IN THE UNITED STATES, COMPOSED OF 392 SCHOOLS, 345,000 STUDENTS AND MORE THAN 40,000 EMPLOYEES. LOCATED AT THE SOUTHERN END OF THE FLORIDA PENINSULA, THE SCHOOL DISTRICT STRETCHES ACROSS MORE THAN 2,000 SQUARE MILES OF DIVERSE AND VIBRANT COMMUNITIES RANGING FROM RURAL AND SUBURBAN TO URBAN CITIES AND MUNICIPALITIES.

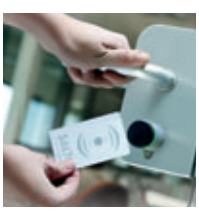
Watching over this large organization is a surveillance system that is constantly morphing and expanding. The system has used a variety of transmission schemes and camera technologies under the scrutiny of Dwayne Mingo, the district's project manager on the Facilities Operations Capital Task Force.

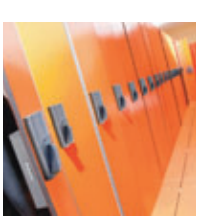
"Today, fiber optics is tying everything together," Mingo said. "Throughout the district, we are using more than 2,000 fiber-optic transmitters and receivers. However, it hasn't always been that way."

As with many legacy installations, it was copper coaxial cable handling images from the cameras to their IDF (intermediate distribution frame) and from the IDFs to the MDF (main distribution frame). However, as the school district knew, coax has its limitations, including restricted transmission distance, signal degradation over long cable runs and interference, to name a few.

With Southern Florida being the lightning capital of the United States, the latter was a significant concern. Fiber-optic cabling, with its interference immunity, increased inherent security, robust cabling distances and huge bandwidth capability, would serve the schools better, the district realized.

Controlled access
on campus





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Working with Infinova, the team decided to explore using the organization's dark fiber. Dark fiber, what some call unlit fiber, refers to unused optical fibers available in buildings and throughout local, regional and national networks. There is an estimated 80 million dark fibers installed in North America, thanks to the dot-com bubble of past years, new construction practices and technological advances in getting more traffic through the installed base.

Often on the IT side, installers have almost always included extra fiber strands when installing structured cabling backbones between telecommunications closets and separate buildings, for example.

Mingo and his team decided to use those existing available fiber links, cutting the initial investment and reducing what installers call long cable pulls. Instead of continuing to use expensive 25-pin copper wire, all the cameras were connected to their IDFs using that fiber-optic cabling.

PLANNING FOR IP

Two different contractors had been hired to do the installation. One was to create infrastructure, while another would do the actual install of the video system. When the video installers showed up, they found out that the electrical contractors had installed smaller wall boxes at the schools than needed for the surveillance system's fiber-optic transmitters.

"There were thousands of these boxes, and it would cost several hundred thousand dollars to replace them," Mingo said. "And the transmitter and receiver modules only came in one standard size. We had two choices. We could replace the wall boxes with the correct size for standard fiber-optic transmitters or go to litigation."

It turned out that there was a third option. If the transmitter module could be customized to reduce it in size, the receiver module could remain the same and both would fit in the smaller wall boxes. The customization provided by Infinova saved the project and the budget.

At the time, all cameras were analog. For instance, even the PTZs, Infinova's V1748, were analog. This specific model was selected because it provided a 26x optical zoom and wide dynamic range. The day/night camera's variable speed capabilities range from a smooth, fast pan motion of 240 degrees per second to a low speed of 0.5 degrees per second. The system is capable of 360 degrees rotation and has an "auto flip" feature that allows the camera to rotate 180 degrees and reposition itself for uninterrupted viewing of any subject that passes directly beneath the PTZ dome. This particular model also saved the school district up to $500 per PTZ.

In addition, Mingo had obtained an advanced replacement policy, garnered local support and all work was being done by trained certified contractors.

Both fixed and PTZ cameras were deployed throughout the schools with PTZs typically used on perimeters and high-occupancy locales. For instance, PTZs are outside, watching over parking lots and fields, and inside, covering areas such as auditoriums, breezeways and cafeterias. Cameras provide remote access to the schools' police department and downtown administration.

They are controlled by the local operations staff and the principals at the schools but can be overridden by the school police.

However, as the team started discussing a migration to IP cameras, installers started pulling Cat-5 cabling to the IDF junctions

and to the edge device of the cameras using video baluns at all new camera locations.

Once the decision was made to go IP, all the installer would need to do is to replace the fiber-optic cards for encoders and switch the edge analog camera for an edge IP camera. Fiber optics would continue to connect the IDFs to the MDF. The team decided to use its video management system (VMS) to interconnect the main IDF controllers to the MDF using DVRs as encoders.

Then, once the first batch of IP cameras was installed, the state of Florida informed the district that a law required that they store 30 days of recorded data at all times, from all cameras. Since IP cameras cause a logarithmic increase in storage space, they also create a similar increase in storage costs.

The schools had no choice. Out came the IP cameras to be re-replaced by the analog cameras. Cat-5 cabling was ousted for fiber-optic cabling between the IDFs and MDFs.

RESULTS ARE POSITIVE

Nonetheless, everything worked out in the end.

"Our users are very satisfied," Mingo said. "They especially like having color video, and we have been able to apprehend people undertaking malicious acts. Knowing such people are being seen, prosecuted and convicted makes our staff and parents feel safer. It also sends a message to other would-be lawbreakers."

According to Mingo, all senior and junior high schools are now installed, and the team is well on its way implementing video at the elementary schools.

"We find analog to be very cost-effective for our school district," Mingo said. "Analog cameras are less expensive, yet provide us with the clarity of images we need. The added cost of storing IP camera images for 30 days is just too expensive for us.

"With such a big system and the problems that can occur with such a big operation, we need to rely on trustworthy vendors. We are lucky that our vendors have stepped to the plate for us with both engineering help and field installation."

Mark S. Wilson *is vice president of marketing for Infinova. He can be reached at* markw@infinova.com.

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Ever wonder what becomes of our award winners after their moment in the *CT* spotlight? We followed up with three Innovators from past years to find out how their projects have fared. **By Dian Schaffhauser**

CT INNOVATORS REUNION: WHERE ARE THEY NOW?

EACH YEAR, *Campus Technology* gazes across higher ed horizons to identify the most innovative IT programs at colleges and universities around the globe. The projects we profile are inspiring examples of technology making a difference on campus—at least at that moment. The question is, have they stood the test of time? We delved into the annals of the CT Innovators roster to find out.


CT INNOVATORS
CLASS OF

CLASS OF 2009

Funding Student Innovation at U Missouri

Student innovation is as alive today on the campus of the **University of Missouri** as it was three years ago, when the institution's Information Technology Committee (ITC) won an Innovators award for its Interdisciplinary Innovation Fund (IIF). This annual competition provides seed money for student-centered, interdisciplinary projects. Successful applications build on collaboration among campuses, colleges, schools, departments, and student organizations for initiatives that foster both innovation and entrepreneurship. As part of an early IIF-funded project, for instance, student teams competed to develop iPhone apps.

The maximum amount for each award is $25,000, and the ITC has $200,000 to spend each year—an amount tapped from the students' annual technology fee.

Dollars and Sense

In a change from 2009, the financial aspects of applications receive more scrutiny today, according to Joi Moore, associate professor in the School of Information Science and Learning Technologies and a three-year member of the ITC. Consider it a sign of the times.

"We're being very prudent when we look at the budgets of the projects, making sure that every dime spent is going to be meaningful."

—Joi Moore, University of Missouri

"We're being very prudent when we look at the budgets of the projects, making sure that every dime spent is going to be meaningful," she says. "During these times we have to be very careful about allocating that money."

As part of the latest funding cycle, 20 proposals were considered over two days in October. According to Moore, these included a few unsuitable applications that were probably submitted as traditional funding sources dried up. "We had a variety of people looking for ways to have their projects fit even though they might not fit," she notes. "We were looking for proposals that were innovative and had heavy student involvement. That was the key."

In fact, because the committee funded only those projects that closely met expectations, it still had money left over from the grant pool.

Fostering Innovation

Proposals from the past year have trended toward the creation of mobile apps and social information systems. The latest winners, announced in October, range from game-oriented apps to apps for medical records and stress management.

SUSTAIN!, for example, is a mobile game for teaching sustainability. The objective is to keep a team's avatar healthy over a 10-week period while maintaining as small a carbon footprint as possible. Game:Time will bring business, journalism, and engineering students together to develop an advertising-driven Mizzou Athletics app to increase fan interaction. MedZou EMR will enable students who work at a community healthcare clinic to provide enhanced continuity of care to their patients.

Moore believes the purpose of the fund is still as sound as when it was first proposed. "It makes our students the producers of new technology instead of sitting back and learning about

ABILENE CHRISTIAN UNIVERSITY'S iPhone research group (left to right): George Saltsman, Jim Trietsch, Bill Rankin, Kyle Dickson, James Langford

things," she explains. "They're the driving force. That creates such a passion and a spirit of creativity on campus. Students want to be involved in that. You see a lot more energy when they take ownership of a project. That's a different level of engagement and a new way of learning that some people haven't thought about. It's problem-based and practitioner-oriented, with real-world aspects."

And that iPhone app competition? It's still held every year, but in 2011 the focus shifted from Apple to Google. The winning team created an Android app called Media Mogul, which one student participant described as "a trend-tracking news game, which pushes the limits of how we can analyze and disseminate information."

CLASS OF 2008
Mobile Learning at ACU

Abilene Christian University (TX) could rightfully be renamed Mobile U. Since becoming the first higher ed institution to hand out iPhones and iPod Touches to freshmen and develop mobile-centric curricula four years ago, the Texas institution has broadened its reach, expanded the ACU Connected program to all 4,700 students, and infused even more of its educational programs with Apple mobile devices.

"Increasingly, this is just the way we do things," explains Bill Rankin, director of mobile learning and an English professor.

According to George Saltsman, director of educational technology, the budget for mobile learning at ACU is about a million dollars a year, or about 1 percent of the entire operating budget for the university. That boils down to roughly $200 per student per year. Half of that investment goes to the devices themselves; the other half pays for the infrastructure that surrounds them. Students receive a new device every two years.

go Read *CT*'s original coverage of all the Innovators' award-winning projects at ***campustechnology.com/innovators.***

Making an Impact

The impact of the mobile program has been far felt, not necessarily in increasing enrollment (in fact, the latest academic year has seen a drop in the number of freshmen enrolling) but in other ways. According to Saltsman, the quality of the students who are applying has improved. "The average ACT/SAT score has increased every year since we began and it's increasing at a pretty good rate. So the quality of applicant is better than we've ever had before," he notes. "Now, is it just the mobile learning program? There's no way that you can calculate that. There are a thousand other things going on to try to advance the university. But this is a big one."

The *US News & World Report* college rankings for ACU have also improved every year since the mobile program was introduced. The institution has achieved the No. 1 position in "up-and-coming schools" for three years running (in one of those years it was tied for that spot), and moved up three positions to No. 17 in "regional university west rankings."

Eighty-four percent of ACU faculty report that they regularly use their mobile device for class activities; half say they use it in every class period.

But it's in the classroom where the biggest impact has been felt. "What we're seeing now is that every student carries an access point, and therefore I'm able to leverage the benefits of the entire student community to discover information—so that we can spend our time processing that information in class," says Rankin. "Even while we're talking, even while we're having discussions, there's a class blog that's running in the background. People are posting ideas or examples up to that blog."

In other words, he observes, there's a "sea change" going on in the relationship between students and information and between students and their instructors. "Before this initiative, my primary task as a teacher was to discover, collate, categorize, and then present information to my students," he says, "Now, it's a much richer class than what I used to teach when I brought all the information."

SHARING BEST PRACTICES

To share its experiences and hear about programs at other institutions, **Abilene Christian University** (TX) hosts a mobile learning summit every two years. The latest one, in February 2011, was attended by 550 people. In addition, every semester the campus holds an open house; the fall 2011 event drew about 105 people. To aggregate the results of surveys among faculty and staff, share profiles of mobile initiatives, and report on all the mobile-related ideas simmering across campus, ACU publishes a hefty annual report that is available free on its website (*acu.edu/technology/mobilelearning*).

CLASS NOTES

2009

Virginia Community College System's College-Planning Wizard

The Virginia Education Wizard, an innovative resource that helps students, families, and school advisers make college choices, achieved 100,000 site visits during the website's first six months of existence. Two years later, usage has jumped to a million visitors and 314,000 individual accounts.

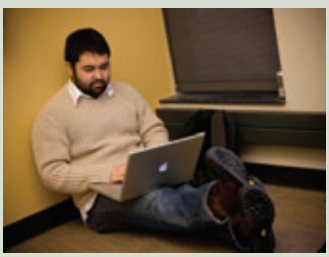
Originally developed for the state's community colleges, the wizard now serves students who may also want to attend state universities, as well as job-hunting adults trying to move into new careers. Another change: Avatars Chris and Maria, who helped guide visitors through the process of using the wizard, have been replaced by avatar Ginny, who has her own Twitter account (@GinnyWiz).

According to VCCS Chancellor Glenn DuBois, who led the wizard's creation as an "Expedia-like" experience for students looking for college and career-planning information, "Use of this tool has been transformative for opening up post-secondary opportunity."

2008

Ball State University's Student Digital Corps

This Indiana university's use of trained and certified students to increase expertise on campus in digital media software is still going strong. Recent additions include training for PHP, JavaScript, and HTML; development of an iPhone game and a campus map app; and the use of apprentices in a new tech center at the main library to give participants experience in working with university clients.



Last summer, Ball State introduced Digital Corps Adventure, a weeklong summer camp for junior high school students, who were taught game design and digital communications by the Corps' college students. "What started as an experiment has found a permanent home in the IT department," says Jonathan Blake Huer, director of emerging technologies. "With their expertise as creative technology professionals, Digital Corps students routinely support projects all over campus."

2007

San Jose State University's Incubator Classroom

When this California university created a unique classroom that would give instructors and students an opportunity to learn and teach in a new kind of space, the intent was to evolve the room and its technology as needs changed. According to Christopher Laxton, director of academic technology, the "Incubator" continues to be an experimental classroom, and the most technology-enabled room on campus. Many of the features introduced there have since surfaced in other classrooms—in particular, flexible furniture and interactive whiteboards.

"Clicker technology is used, but not widely adopted by faculty," adds Laxton. "There are some instances of laptop 1-to-1 situations, and those have been surpassed this fall by a move to iPads, which several colleges are adopting to a significant degree. And lecture capture is something we are exploring more actively this year."

Continued Momentum

The momentum of the mobile initiative keeps growing. Eighty-four percent of faculty report that they regularly use their mobile device for class activities; half say they use it in every class period. The Apple iPad has been added as a device option—particularly popular among faculty. And over the last two years, the university has spent a lot of time exploring the use of digital books. "That's going to be massive," declares Saltsman.

Plus, the work being done by various faculty members may help redefine the classroom. When Stephen Baldridge, an assistant professor of social work, needed to be at a conference, for instance, he decided to teach his class remotely that day. But rather than have students gather in the classroom, he told them to use their phones to do interviews with fellow students about what they think ACU represents. That experiment led to further uses.

As Rankin points out, Baldridge had an epiphany: "What I've got now is a multimedia studio in my pocket. And I can use that to create cutting-edge, brand-new educational media that help me and others understand and invest in concepts."

In a subsequent assignment, students interviewed homeless people who live not half a mile from campus under an overpass. "What do you think is going to have a greater impact on how a student perceives homelessness?" asks Saltsman. "Reading about that in a textbook and talking about it in a classroom or interviewing somebody who is homeless?"

Rankin concurs. "This is not just some academic issue to them anymore," he says.

Real-World Learning

The best environment for learning, Saltsman says, is the world where things are happening rather than in a room where events are approximated and synthesized. Real-life learning "begins to emerge on a campus where you have everybody with these devices and permission to experiment and explore, and a number of faculty who are beginning to use those devices in novel ways," he explains.

"We're going to see the classroom space

become less and less about the place where people discover information, and more and more a space for collaboration for stuff [the students have] discovered or made elsewhere," concludes Rankin. "The elsewhere—the real-world experiences—becomes the primary classroom. That's going to have tremendous implications on how we design spaces, how much space we decide we need, and what we do with things like scheduling courses."

CLASS OF 2006

Statewide E-Portfolios in Minnesota

In 2006, when the **Minnesota State Colleges and Universities** (MnSCU) system won an Innovators award for its electronic portfolio work, eFolio Minnesota was flying high. Working with Avenet Web Solutions, a company with an online portfolio-management product called eFolio, MnSCU billed its initiative as "the only statewide e-portfolio infrastructure available in North America." It was on track to support the e-portfolio needs of every resident of Minnesota, and project leaders planned to expand the system to address institutional accreditation needs. They were even preparing to release the system for purchase and use by schools outside the state, under the brand of eFolio World.

The Best-Laid Plans…

The reality has proven to be slightly different. For example, not every resident in the state *knows* that he needs an e-portfolio. Development of an institutional version of the product has stalled; once a product is attuned for institutional accreditation, it's a pricey proposition to modify it for another school's use. As for expanding outside the state of Minnesota, MnSCU has run into procedural roadblocks: Public universities aren't necessarily set up to handle direct sales to other schools, no matter where they're located.

In fact, says Paul Wasko, longtime director of eFolio Minnesota, the achievements of the project's early years are not as feasible today. "There are three aspects to consider when you look at a project. One, do you have the necessary leadership in place to do that work? Two, do you have the time? Three, do you have the resources? [In 2006] it was the right set of circumstances—for leadership, resources, and time—to pull it off. I don't know if I could pull it off today."

What's changed between then and now? There has been a shift in leadership at MnSCU, starting at the top. In fact, Wasko notes, he's the only staff member left from 2002, when the strategy for an e-learning tool was originally put in place.

Also, he says, "We were riding a wave of interest and energy. There was a whole bunch of new stuff on the content side for e-learning." Now that e-portfolio functionality has become more common, it's cropping up in learning management systems, and instructors are just as likely to specify student use of Twitter or Facebook for sharing learning reflections in courses.

Then there's the resources issue. Early on, it certainly didn't hurt that the university system made funding available to build out the e-portfolio system. And, in 2006, in order to make the product available to individual users (versus institutional customers), MnSCU and Avenet teamed up to provide the development resources needed. In contrast, resources now are "very tight," Wasko says.

Positive Evolution

Still, the program continues to grow. Whereas 50,000 users were reported in 2006, that count has grown to 55,000 in Minnesota and 31,000 outside the state. And a total of 200,000 people have registered for the e-portfolio since the start of the project.

eFolio Minnesota has evolved in other ways, too. In August, the two primary entities involved in the project—MnSCU and Avenet—shuffled responsibilities. Previously, MnSCU had responsibility for marketing and sales within the education marketplace; Avenet handled the same for the workforce and public agency sectors. Under the new agreement, Avenet has taken on sole business and operational responsibility for the product in all markets, much to Wasco's relief. MnSCU will focus on product development, training, and consulting in the ed space.

"Trying to conduct operations within a public sector organization is a challenge," Wasko says. "I'd have people call up—usually at the end of the fiscal year—and say, 'Paul, you know that stuff we looked at last spring? I was able to get some last-minute money. Can you do a contract and an invoice, and can we get it all done by June

continued on page 35

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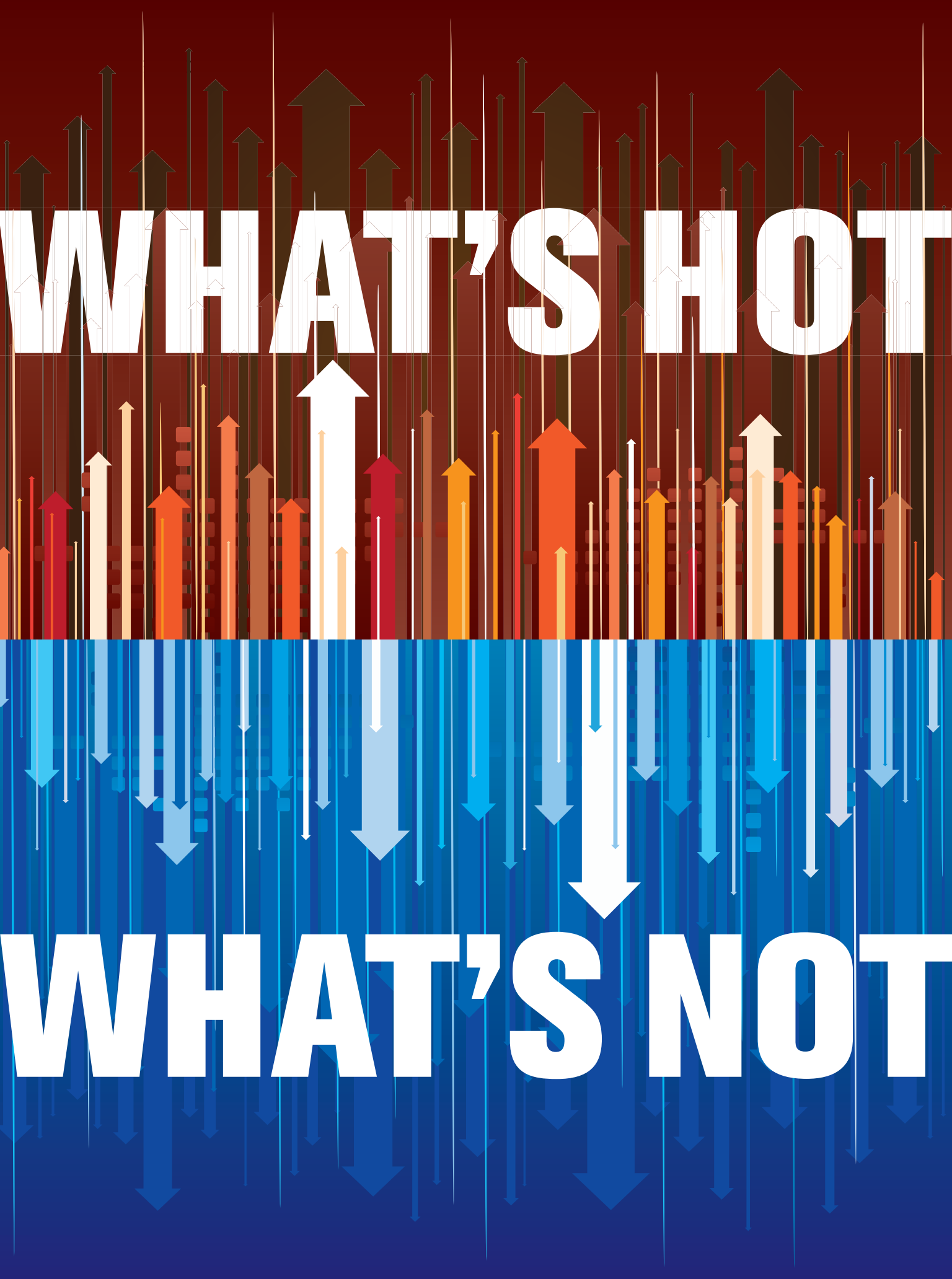
WHAT'S HOT
WHAT'S NOT

As the new year kicks off, four higher education analysts look deep into their crystal balls to predict the IT winners and losers for 2012.

By David Raths

2012

LIKE THE ROMAN GOD

Janus, whose twin faces look both forward and back, *CT* is using the new year as an opportunity to reflect on some of the biggest IT trends and issues of 2011 and predict their fate in 2012. In the turbulent world of higher ed IT, this is no easy task—yesterday's news can easily become tomorrow's snooze. To help us out, we asked four ed-tech experts to give us their opinions on the trend lines and significance of more than a dozen technologies and concepts. ▶

OUR FUTURISTS

MICHAEL HORN, cofounder and executive director for education of Innosight Institute, a not-for-profit think tank devoted to applying the theories of disruptive innovation to problems in the social sector. He is the coauthor of *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns* (McGraw-Hill, 2008).

CHRISTOPHER RICE, associate director for teaching and technology in the Center for the Enhancement of Learning and Teaching at the **University of Kentucky**. His current work focuses on the use of blogging, wikis, virtual worlds, and other social media technologies in higher education programs and classrooms.

Photo by Sebastiaan ter Burg

JOHN MORAVEC, a faculty member in the Department of Organizational Leadership, Policy, and Development and the Innovation Studies/Master of Liberal Studies graduate programs at the **University of Minnesota**. He is the principal of Education Futures and a cofounder of the Horizon Forum, a roundtable on the future of education at all levels.

KENNETH C. GREEN is the founding director of the Campus Computing Project, the largest continuing study of the role of computing, e-learning, and information technology in American higher education.

BlackBerry

KENNETH GREEN: So old-school. Market research firm Student Monitor reports that half of undergraduates now own smartphones, a number that will continue to climb. It's a good bet that BlackBerry's share of the student market is in decline.

JOHN MORAVEC: Can we declare BlackBerry dead and buried yet? While iOS and Android have made tremendous advances, the BlackBerry has remained fundamentally unchanged over the past few years, and the PlayBook was a flop. In the fast-paced mobile market, failure to push the boundaries with innovative releases is tantamount to brand suicide. Adding further injury, RIM [BlackBerry maker Research In Motion] suffered from a major service outage around the same time Apple introduced many enterprise features in iOS 5. My prediction: As Microsoft attempts to reinvent its mobile Windows offering, it will make an effort to purchase RIM to acquire its patent portfolio.

CHRISTOPHER RICE: BlackBerry is a dying platform for many reasons. It's a device built around e-mail and text message communication. Unfortunately for BlackBerry, platforms like iOS, Android, and Windows Phone have evolved a richer ecosystem for connecting and communicating through their apps. BlackBerry, caught flat-footed by this transition, has simply been unable to evolve fast enough.

The Cloud

MICHAEL HORN: The growth of services being delivered from—and data being stored in—the cloud is pervasive in society. Higher education is no exception from this trend.

RICE: Developing a serious cloud and virtualization strategy is critical to every higher education institution. Unfortunately, most people still have some serious misunderstandings or lack of imagination concerning cloud. Successful IT departments will figure out a way to leverage the cloud to allow them to free up resources to make the transition to a "softer" model of IT partnership and support on campus.

MORAVEC: Cloud services are hot, but the question remains whether we are repeating a cycle of centralization and decentralization of IT services, like when we moved from mainframe and thin clients to more powerful personal computing applications. Will we see the cloud fragment as well?

GREEN: The cloud is still on the horizon, at least in higher education. Low clouds (e-mail) have arrived; high clouds (ERP, storage, and high-performance computing) remain distant. Trust is the coin of the realm here, and many campus IT leaders are not ready to seed the cloud with mission-critical campus data and IT functions.

E-Portfolios

RICE: E-portfolios are a tired idea, but are absolutely ripe for reinvention in the age of personal cyberinfrastructure for students. The challenge is in how to create a distributed e-portfolio that is truly owned by the students.

MORAVEC: Social media replaced these long ago with blogs, wikis, Facebook, etc.

HORN: Although educators remain excited about e-portfolios, especially as the importance of competency-based learning builds, it doesn't appear that they are rapidly growing in any concerted way, despite the fact that some entrepreneurs are creating companies that facilitate the creation of e-portfolios.

Sage on the Stage

RICE: I think the 50-minute lecture is destined for the dustbin of history. Let's face it, most instructors simply aren't good enough lecturers to carry a full 50 minutes. And trying to do so—especially armed with cognitive load-busting, bullet point-packed slide decks—is causing educational harm. The growing use of lecture-capture software and the emergence of high-quality lectures such as TED Talks are a wake-up call to end the bad lecture.

Rather than the Sage on the Stage or Guide on the Side, you're going to see a growing embrace of the Sage on the Side model. The need for an instructor with high-quality, in-depth domain knowledge (The Sage) will never go away. But, in an age of ubiquitous information, he just doesn't get a stage anymore. However, an age of ubiquitous information also means a lot of that information is going to be crap. An education Sherpa is needed to help students develop information literacy so they can sort the good from the bad.

MORAVEC: We have arguably devolved into a society that just wants to be entertained, not think. Students have expectations for entertainment, and professors must be prepared to deliver on the "wow." Moreover, academic culture fosters narcissism, and technological advancements in social media enable every common sage to perform on a global stage. The explosion of interest in TED and TED-like events, which portray academics as entertainers, fuels this trend.

HORN: While the Sage on the Stage still dominates at most traditional campuses—and likely will continue to—the notion of the Sage on the Stage will decline somewhat as online learning continues to grow in higher education.

Learning Management Systems

MORAVEC: Blackboard has been a disappointment in the learning management system (LMS) market, delivering products that fail to impress and bullying companies that try to leapfrog beyond them. Moodle has since matured, carries out its roles well, and continues to enjoy a large development community. Can we move on yet?

RICE: Blackboard has long enjoyed a position at the top of the LMS field, but its market share is eroding fairly rapidly, especially in higher education. I think it simply failed to disrupt itself sufficiently, and now LMSs like OpenClass and Instructure Canvas have come out with some pretty fantastic user interface advances and social media integration. Blackboard looks old and creaky by comparison. The LMS really isn't going anywhere, but it will continue to evolve. Blackboard will continue to lose market share rapidly, Moodle and Sakai will remain neutral or decline, and Canvas and OpenClass will grow rapidly.

GREEN: The LMS market remains a mature market with immature products, which is a recipe for volatility. Some 700 Blackboard clients, primarily but not exclusively colleges and universities, confront "up or out" decisions as Blackboard retires the WebCT and Angel Learning LMS apps in the next two years. Also important, we are seeing the first defections from the Bb Learn 9x franchise as the **University of North Carolina at Chapel Hill**, **Duke University** (NC), and some other institutions defect from Bb Learn to Sakai and other platforms.

HORN: LMS entrants such as Moodle and Instructure offer higher education institutions a much more affordable proposition. A critical question is whether the emergence of adaptive platforms will completely blow apart the LMS as we've known it. Stay tuned. For now, however, the use of LMSs continues to grow as online learning grows.

Open Source and OER

HORN: Serious questions remain about creating sustainable open education resource models, but overall it will grow because of market and pricing pressures, the commoditization of content, and the DIY U movement.

MORAVEC: I have high hopes for open source software and OER, but they are difficult to implement in academic environments. IT departments often need strong vendor support, and companies that develop proprietary products can fulfill that need. In regard to open educational resources, academic culture just isn't there yet in embracing the open sharing of knowledge. That said, open resources provide a critical addition to the options available, and their presence will continue to grow. I'm just not expecting anything noteworthy in 2012.

RICE: Where to begin with the rapidly growing problem of "open-washing" in the higher education tech space? You couldn't wander down vendor alley at Educause this [past] year without getting pelted by swag proclaiming a given company's "openness."

You couldn't wander down vendor alley at Educause without getting pelted by swag proclaiming a given company's "openness."

For all its wonders, Pearson's OpenClass is *not* open in the same way we use the word to describe open source or FOSS [Free and Open Source Software] work. However, it is open in the sense that it is a platform on which anyone can build an application and get it into the system. This is the beauty of having a range of systems with various levels or modalities of openness.

You want really, really open in the traditional sense? Fire up a server and install Sakai or Moodle! Want to be a little less open but deliver a great user experience out of the box? Download and install Canvas! Don't really care about the openness of the code? Well, we've got OpenClass for you! Just want to give people a little peek under the kimono of your course? Then go Blackboard! And so on.

"Open" has to be understood not as an absolute term but as a continuum along which various content and services can be arrayed. Take Creative Commons licenses, for example: You can pick from a continuum of sharing options, from fairly restrictive to wide open. Ultimately, it's the ability to choose among a variety of use value models that's critical. Companies need to tone down the "open" rhetoric and get on with building a good ecosystem of services and content.

iPads

MORAVEC: I really want to give Apple a thumbs-up on this, but we still have no idea what iPads are supposed to be used for. Unfortunately, in higher education, we tend to think of how the iPad can be used to do things that we're already doing—and have been doing since the 18th century. The looming question is whether we will use them as textbook replacements or develop innovative uses for mobile technologies that will transform our campuses into truly advanced platforms for discovering and sharing knowledge.

RICE: To be honest, we just don't know yet the benefits of using iPads for education. Universities implementing iPad programs should attach rigorous assessment programs, share that data openly, and make adjustments rapidly. And while the iPad has a dominating position in the tablet space now and for the next few years, it would be unwise to focus solely on that platform.

HORN: Tablets in general are rapidly gaining market share as they disrupt notebook computers, and the iPad continues to lead the way despite the launch of some disruptive entrants in this space.

Textbooks

MORAVEC: The textbook industry knows that its era of dominance will come to an end, and it is fighting tooth and nail to survive. The industry continues to feel the squeeze from OER and a growing list of on-demand and vanity publishing houses, yet it's able to keep up and produce competitive products. It is in a constant game of catch-up, however, and is at risk of extinction if anybody creates a competitive product that leapfrogs its activities.

RICE: The real question is whether we're ever going to get past fetishizing the textbook in the age of digital resources. The textbook was only a technology from the age of print that allowed us to aggregate basic information on a subject. Why reproduce a book when we can create something entirely new that serves to aggregate or provide a path to best-of-class introductory materials on a subject?

The real move to watch for over the next few years is not the wholesale transformation of the textbook as a digital artifact, but rather the change in delivery mode from the university bookstore or Amazon to delivery via—and integration with—the LMS. OpenClass, of course, is meant to serve as a

ONLINE ORACLES

Although space constraints permit us to publish only brief extracts here, *CT*'s prognosticators debated the outcome of six other issues facing IT in higher education. To read their comments in their entirety, visit *campustechnology.com/0112_hotornotextra*.

↑ **Alternative Academic Publishing**
"There is a dawning realization among academics that the current academic publishing model is simply unsustainable." —*Rice*

→ **Augmented Reality & Virtual Worlds**
"There are some great examples of AR in training environments in the military, but wider adoption appears not to be significant yet." —*Horn*

↓ **IT Budgets**
"IT budgets remained troubled, with little relief on the horizon." —*Green*

↑ **'Gamification'**
"This is an absolutely critical trend as a generation of gamers enters our colleges and universities." —*Rice*

→ **Social Media**
"Social media in higher education has gotten boring and stagnant thanks to its colonization by public relations departments." —*Rice*

↑ **Plagiarism**
"We will need to rethink plagiarism and academic ethics as we reconsider our relationships with technologies that augment how we think." —*Moravec*

delivery system for Pearson products, and Blackboard has announced quite an extensive network of textbook partnerships. This sort of relationship is only strengthened when auxiliary products such as MyLab, Knewton, and other adaptive learning mechanisms are deployed.

HORN: Online courses and open, adaptive, and digital content are rendering the traditional print textbooks relics of the past.

GREEN: Textbooks, like tenure, will be with us for a while.

Virtual Faculty & Staff Outsourcing

MORAVEC: Whether faculty and staff like it or not, they are already competing one-on-one with others around the world. As university leaders continue to push for online course offerings and in-person course cost savings, it is very attractive to bring in outside or foreign instructors who can provide quality interaction for a fraction of the cost. If this trend continues, the idea of having a campus with faculty offices may be reserved only for the elite institutions that can afford to keep their talent in-house.

To be honest, we just don't know yet the benefits of using iPads for education.

RICE: I think this actually qualifies as more of a weak signal than a trend at this point, but make no mistake: It will emerge as an important consideration in the near future. The increasing use of video lectures (from TED, **MIT**, and more) and open courseware, as well as the growth in online offerings from many institutions, will generate discussion about the need to have all instruction physically located on campus.

At this point, moving to more virtual faculty is more of a cultural and political problem than a technological one. Many faculty members will resist this trend out of fear of losing their jobs to the next wave of virtualization, and this very real concern must be addressed. CT

***David Raths** is a freelance writer based in Philadelphia.*

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30?' I'd say, 'No, we can't do that.' Then they'd say, 'How about if you just take a credit card?'"

A public institution typically isn't set up to sell something, he observes. "You can't keep telling people, 'Love to do business with you. Here's the standard state contract.' If they're a public entity, more than likely they have to tweak the contract, and six weeks later you may have a contract. That doesn't lend itself to getting off the ground quickly." Because Avenet is private, he adds, it "will take that credit card."

The two entities are still working on the details of the profit-sharing arrangement. In the meantime, Avenet is working through the list of customers to transfer their contracts from MnSCU to the company. "It's in our best interest to see Avenet succeed in this," Wasko adds.

In addition, a recent infusion of development work from the **University of Minnesota** has taken the burden off MnSCU to be the primary developer of the educational version of the product. "The U's ability to bring new resources into this project has been invaluable," Wasko states. "Not only is the partnership resource-based, but working with them on the instructional side has been great, too." Now the two school systems share co-ownership along with Avenet.

Supporting Users

What about that ambition of having every resident in the state of Minnesota—and eventually in other states—use the e-portfolio to capture the output of lifelong learning? eFolio has certainly become the vehicle for documenting and organizing credit-bearing efforts when a Minnesotan returns to school, says Wasko. "But if you went to the person off the street, and said, 'Hey, I've got this wonderful tool you should put your stuff in to keep track of it,' most would say, 'I haven't updated my résumé in 20 years. Why should I do this?'"

Over the years, Wasko has also found that students aren't as tech savvy as their use of technology would suggest. "There were assumptions early on that we were going to deal with this incredibly rich technology population, and that every bell and whistle we threw up would be a snap. It hasn't been that way."

Another lesson learned: Supporting the faculty is as valuable today as it was in 2006. "You can build this incredible infrastructure that does every whiz-bang thing you can imagine. But ultimately there's a need to have someone do that translation from 'Here are the toolsets' to 'Here is how you use the toolsets in an instructional context.'"

Wasko adds that when faculty members maintain a portfolio personally, students see the task less as an assignment and more as a transformative process. "The discussion is more about, 'How do I make decisions about what to display? How do I display it?'" he notes. "It's really an interesting process." CT

***Dian Schaffhauser** is a senior contributing editor of* Campus Technology.

BACK TO THE FUTURE

Step Into the Future The design team behind the CUNY Graduate School of Journalism combined modern architectural elements, like this centerpiece stairway, and cutting-edge technology infrastructure to transform a New York City landmark. The building, constructed in 1921 for the *New York Herald Tribune,* is now a 21st century incubator for tomorrow's tech-savvy journalists.

Determined to embrace the new media demands of an increasingly high-tech profession, the CUNY Graduate School of Journalism converted a landmark of New York's glorious newspaper past into a 21st century facility. **By Jennifer Demski**

A PALL OF CIGARETTE SMOKE. Hard-bitten men pounding away at manual typewriters. The incessant ringing of telephones. It's an enduring image of the newsroom right out of a Spencer Tracy movie. It's also a distant memory. Journalism today—like almost every other profession—has been revolutionized by technology. And just as the workplace has changed, so too must the teaching spaces in which the next generation of professionals will be trained.

When renovating their campuses to meet these 21st century needs, many administrators will be tempted simply to bulldoze old buildings. Sometimes that's the wisest course. But sometimes the past has a role to play. In professions like journalism, it's important not to lose sight of the storied tradition that connects today's students to the core tenets of print and broadcast journalism.

Certainly, that was one of the guiding principles when the **City University of New York Graduate School of Journalism** set out to revamp the former home of the *New York Herald Tribune* in midtown Manhattan. Its goal was to create a 21st century learning facility within the confines of a 90-year-old building—and bring the profession's past, present, and future together for the benefit of the school's journalists in training.

Like many next-gen learners, today's journalism students do the majority of their coursework outside the classroom. Portable recording devices allow them to easily capture video and audio in the field, and powerful laptops with professional-quality software allow them to edit their reports anywhere. In redesigning the CUNY journalism infrastructure, the focus was squarely on creating collaborative space and wireless connectivity. The result is a campus that's notably "transparent."

Multimedia displays throughout the campus can stream content from the day's news or a live feed of an event taking place in the meeting room.

Photos by Tom Sobolik

GRAND CENTRAL

The sprawling newsroom fills most of the campus's main floor. This multipurpose space was designed to be a central hub where students network, socialize, eat lunch, interview sources, and can collaborate on every aspect of their work. "Not only does this space emulate a real newsroom, with the noise and the hustle and bustle, but, because there are no barriers between the tables, sound travels, so there's an organic sharing of ideas among the students and faculty," explains Dan Reshef, director of IT.

BROADCAST FACILITIES

Just off the newsroom are state-of-the-art broadcast facilities, including a television studio, radio studio, and editing bays. These facilities are managed through a partnership with CUNY-TV, the largest public university television station in the US. CUNY-TV professionals such as George Casturani (photo on left, above), director of broadcast & A/V systems and services, are on hand to assist students with the technical aspects of their reports.

FLEXIBLE INSTRUCTIONAL SPACE

The newsroom was also designed as a room for instruction. The content featured on the multimedia displays throughout the newsroom can be controlled by a Crestron touchscreen control panel, and computers with wireless keyboards and mice stored in the rack allow instructors to stream instructional content on the displays. The newsroom also serves as a forum for more informal learning that occurs outside scheduled classroom hours. Multiple news sources are streamed concurrently on the room's displays, allowing students to witness and analyze how different media organizations cover breaking news stories.

JUST THE BASICS

Each classroom is outfitted with an identical, no-frills equipment podium and projector. Rather than spend money on stationary classroom technology such as interactive whiteboards, the school invested in software licenses for a bundle of professional multimedia tools, including Final Cut Pro, Pro Tools LE, and Adobe Photoshop Elements, which are installed on students' laptops for the duration of their studies. The school recommends that each incoming student purchase a MacBook Pro. Reshef and his tech team handle the installation and upkeep of software on student machines.

TOTALLY WIRED

Each table in the newsroom features a voice over IP telephone, which students can use to conduct interviews, and wired DSL hubs for transferring large video files from students' laptops to the campus servers, which have more than 130 TB of storage available for students.

BOOK NOOK—AND MORE

The research center's small size—just large enough to house a collection of approximately 2,000 print volumes and a small cluster of iMac computers—reflects the power and ubiquity of online research tools and digital media. The center's staff manages subscriptions to more than 100 online research databases and curates a collection of more than 40,000 e-books, which students can access from their laptops anytime, anywhere. Students can also use CUNY's online library catalog to reserve materials at any library within the CUNY system.

ORIENTATION

First-year students attend an orientation event in the meeting room. This is the first and probably last time they will sit together as a group for a lecture by an instructor. Armed with their laptops and digital recording devices, these students will spend the majority of their class time gathering information in the field, collaborating on reports, and critiquing each other's work. A fixed remote-control camera in the back of the room streams events and lectures held in the meeting room to the multimedia displays found throughout the newsroom and reception area.

CREATING SPACE

The space constraints of the 90-year-old midtown building meant developing a floor plan that took advantage of every nook and alcove. To create lounge and study areas, the design team took advantage of often-ignored open spaces by placing modular furniture and VoIP telephones near elevator bays and under the main staircase.

ON CALL

With so much of the school's instructional capabilities reliant on portable and wireless technology, Reshef (left) has a very hands-on role in the development and upkeep of the school's infrastructure. He updates his Twitter feed with his whereabouts, so students and faculty can find him anytime. **CT**

Jennifer Demski *is a freelance writer based in Brooklyn, NY.*

Editor's note: *Learn about the future of education design and construction at School & College Building Expo 2012, Jan. 24-26 in Orlando, FL (*scbexpo.com*).*

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>> Sales Contact Information

Wendy LaDuke
President and Group Publisher
P 949-265-1596
C 714-743-4011
wladuke@1105media.com

Mark D. Buchholz
West Coast Sales Director
P 949-265-1540
C 714-504-4015
mbuchholz@1105media.com

M.F. Harmon
Eastern Region Sales Manager
P 207-883-2477
C 207-650-6981
mfharmon@1105media.com

Tom Creevy
Central Region Sales Manager
P 847-358-7272
C 847-971-5621
tcreevy@1105media.com

Jean Dellarobba
Sales Account Executive
P 949-265-1568
C 949-357-7564
jdellarobba@1105media.com

Patrick Gallagher
Event Sales Director
C 617-512-6656
pgallagher@1105media.com

Stephanie Chiavaras
National Accounts Manager, Events
P 508-532-1424
C 617-784-3577
schiavaras@1105media.com

Deborah Carroll
Event Sales Representative
C 203-814-7408
dcarroll@1105media.com

Corporate Headquarters:
1105 Media
9201 Oakdale Avenue, Ste. 101
Chatsworth, CA 91311
1105media.com

Media Kits: Direct your media kit requests to Michele Werner, 949-265-1558 (phone), 949-265-1528 (fax), mwerner@1105media.com.

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C-Level View

Curiosity as a Learning Outcome

Can we update our learning-assessment systems? By W. Gardner Campbell

When we speak of learning outcomes, we typically mean either skill mastery or successful recall of information. Indeed, we often make successful recall—what our students tend to call regurgitation—an easy-to-measure proxy for mastery. Inputs match outputs, and the student passes the class. Problem solved—or is it?

While techniques such as portfolio-based assessment and problem-based learning have attempted to go well beyond measuring mere recall, our education systems continue to use industrial-era strategies to increase access and cut costs. These so-called efficiencies drive a race to the bottom in which login behaviors and click counts in various areas of "learning management systems" track compliance and regurgitation within teacher-centered paradigms of direct instruction.

The French have a poignant term for the kind of learner such schooling tends to produce: the *bon élève*, which the great mathematician Benoît Mandelbrot once defined as "a student with good grades, no depth, and no vision."

Our world is too complex, our problems too intricate, our opportunities too vast to settle for such narrow aspirations. It is no longer enough merely to create dutiful students who amass credit hours, credentials, and cynicism about learning while governments topple, economies melt down, and many people lack the basic necessities.

What if we took another tack, specifying that students should not only remember information but also demonstrate *increased curiosity*? Consider, for example, "Curiosity and Exploration Inventory-II," a test devised by a team of psychologists at four US universities (see the *Journal of Research in Personality* 43 [2009] 987-998) to measure a person's level of curiosity. Researchers asked students to rate the extent to which each of these statements describes them:

1) I actively seek as much information as I can in new situations.
2) I am the type of person who really enjoys the uncertainty of everyday life.
3) I am at my best when doing something that is complex or challenging.
4) Everywhere I go, I am out looking for new things or experiences.
5) I view challenging situations as an opportunity to grow and learn.
6) I like to do things that are a little frightening.
7) I am always looking for experiences that challenge how I think about myself and the world.
8) I prefer jobs that are excitingly unpredictable.
9) I frequently seek out opportunities to challenge myself and grow as a person.
10) I am the kind of person who embraces unfamiliar people, events, and places.

What's striking here is how closely these statements describe the very qualities higher education seeks to strengthen over the course of a degree program. Equally striking is the extent to which these statements describe the capacities that digital citizens of the 21st century will need to adapt to rapid, unpredictable change.

I can only conclude that effective education for the 21st century must trade compliance for curiosity. The assignments we craft, the curricula we plan, the degrees we grant must share a core commitment to help our students go beyond the limits they imagine for themselves, and we must do this by specifying increased curiosity as a learning outcome.

We can start with our increasingly digital environment. **MIT**'s Seymour Papert laments that "before the computer could change school, school changed the computer." It's not too late to reverse that trend. Instead of using computers to automate drill-and-kill problem sets, we should look to the history of computing for horizons of possibility. The internet was invented to empower collaboration and augment human intellect. The web has made these possibilities available to a staggeringly diverse global citizenry. Let's shutter our "learning management systems" and build "understanding augmentation networks" instead, moving away from educational assembly lines toward intellectual ecosystems of interest and curiosity. **CT**

Our *C-Level View* e-newsletter provides executive Q&As, viewpoints, news, and more. Subscribe at ***campustechnology.com/newsletters.***

W. Gardner Campbell *is director of professional development and innovative initiatives at* ***Virginia Tech****. He will give the opening keynote at the School and College Building Expo (*scbexpo.com*), Jan. 24-26 in Orlando, FL.*

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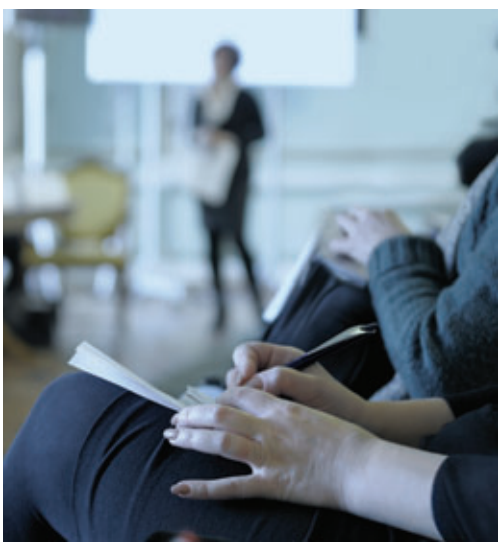

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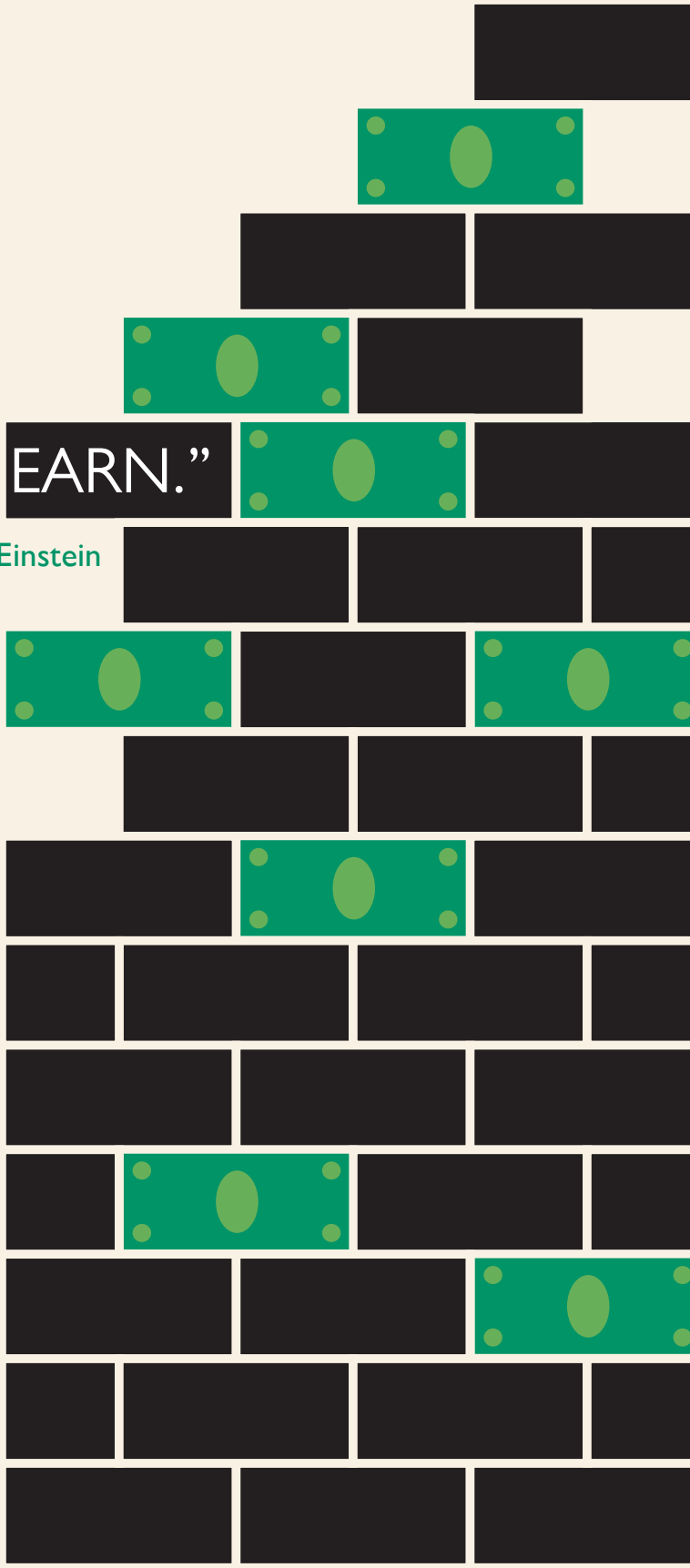
-Albert Einstein



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