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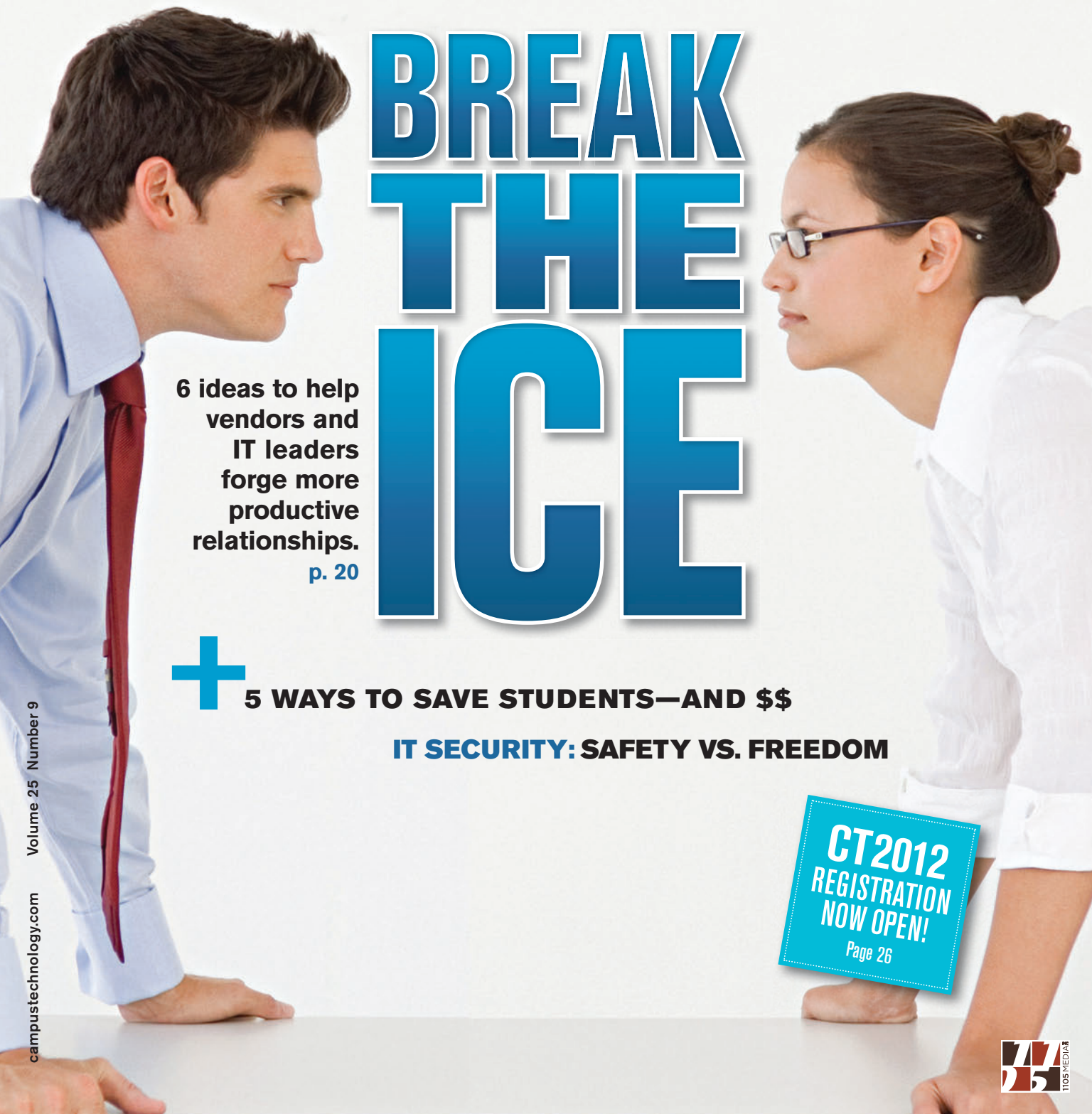
May 2012



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An Issue of Credibility

In the new world of campus technology, credibility has never been more important.

Tim Chester, CIO of the **University of Georgia**, has written a compelling article this month (see page 8) on the changing role of IT on campus—and the new style of leadership required. In it, he talks about the need for IT leaders to be able to "credibly convene important conversations about the effective use of technology on campus."

At the moment, he asserts, too many CIOs are not even in a position to bring campus colleagues to the table. Indeed, IT is often seen as the *last* group to be involved in any new initiative because of its reputation as a roadblock. In Chester's view, that must change. Instead of a hidebound dictator, IT must become a flexible facilitator, working to achieve the goals of others within the institution.

As Chester points out, though, an IT leader can't simply wake up one day and decide that he is going to be a facilitator. He can play that role only if people see him and his organization as credible. For that to happen, he has to build a track record of doing exactly what he says he will do.

While Chester's article focuses on IT's relationship with campus constituents, his message has broader value. In our cover story, "Breaking the Ice," David Raths examines the often thorny relationship between vendors and campus IT, and offers ideas for putting these partnerships on firmer footing. These are terrific proposals but, after reading Chester's piece, I would add one more: Lack of credibility is as harmful to the vendor-IT relationship as it is to the IT-university one. And it cuts both ways.

For whatever reasons—overpromising, under-delivering, or fixating on the bottom line—vendors are often seen as having goals that are not aligned with those of institutions. In most cases, this simply isn't true, but perception often trumps reality.

On the other side, IT shops lose credibility with vendors when they make unreasonable demands, or when they deal only narrowly with vendors, dismissing other ways they might benefit the institution.

The resulting suspicion is not conducive to the kind of long-term partnerships that lead to innovative solutions. Indeed, when vendors and IT wrangle over contracts like arms negotiators, they lose sight of the real bottom line: fixing campus problems.

For IT and vendors to succeed in the new world, this must change. I'm not making some fuzzy appeal to altruism here. I recognize that businesses are out to make money. But in this era of social media—when information is shared widely and instantaneously—the time for pricing secrecy or anything else that might undermine a business's credibility is long past.

Likewise, IT leaders will be judged on their ability not only to convene conversations, but to deliver solutions in which vendors often play strategic roles. In light of that, working partnerships are far preferable to business arrangements that cling to the letter of a contract. It all starts with credibility. The partnerships will follow. **CT**

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CAMPUS TECHNOLOGY

campustechnology.com vol. 25 no. 9

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CAMPUS MANAGEMENT

Don't Dictate, Facilitate

In response to rapid technology shifts, IT's role on campus is changing. How CIOs adapt will determine whether their organizations remain viable and valuable, or see their relevance slowly diminish.

AS I.T. PROFESSIONALS, we are just starting to come to terms with what the internet has truly wrought. For the better part of 10 years, we viewed the internet age as a shift from a bricks-and-mortar world to an online, digital world. CIOs and their IT organizations expected to be at the forefront of the resulting transformation of higher education. We were wrong.

Instead, we find ourselves in an environment that is fast evolving from one based on one-to-many relationships to one based on many-to-many relationships, powered by social networking sites, consumer and cloud technologies, and mobile devices. In this brave new world, we CIOs have a lot less authority and control than we expected. Indeed, some question whether our organizations should continue to exist in their present form—and they're right. If we are to be of value to our institutions, we must change the way we organize our services, the way we exercise leadership, and the way we engage those outside IT.

Thanks to social networking tools such as Facebook, Twitter, and Wikipedia—facilitated by the widespread availability of wireless connectivity and the mass adoption of mobile devices—individuals today are constantly connected to one another and can share ideas from anywhere, anytime. This is disrupting traditional structures of power and authority with breathtaking speed and efficiency. Consider the fall of Hosni Mubarak in Egypt, the failure of SOPA/PIPA in Congress, and the faculty rebellion against the publishing giant Elsevier. Each of these episodes is an example of how individuals, who tend to have little power in one-to-many relationships, can band together to level the playing field against entrenched powers.

Traditional IT organizations are not exempt from this trend toward decentralization. The many-to-many world has made it far easier for students, faculty, and staff to obtain basic IT services without ever going near the IT organization. This raises a host of new questions: Why should our institutions continue to provide e-mail accounts to students when they can bring their own? Is there even a need for computer labs when students bring their own devices? Why do we need learning management systems in an era of Facebook, Google Docs, and

Shaw Nielsen

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Dropbox? And here's a question that is coming: Why should we build expensive data centers when Amazon, Google, and Microsoft can provide cloud computing services that eliminate high, upfront costs and replace them with lower, variable costs that scale?

Even as the world shifts under our feet, however, tremendous opportunities are opening up for CIOs, IT leaders, and their organizations—if we are willing to think differently, and if we are willing to move to a leadership model that is more in sync with the new many-to-many reality.

Most of our IT organizations began as traditional computing centers, with services available on demand for a price. With the advent of the internet, network- and information-security concerns came to the fore, prompting us to centralize parts of the IT environment as a way to preserve order and protect critical resources. Two severe recessions in the past decade led us to centralize services in a bid to increase efficiency and reduce costs. While fully compatible with the needs of a one-to-many world, our continued emphasis on centralization led Walt Mossberg, technology columnist for *The Wall Street Journal*, to proclaim in 2007 that the central IT organization in higher education was the "most regressive and poisonous force in technology today."


CHESTER

If you find yourself missing out on important conversations about the effective use of IT, it's probably because you are seen more as a barrier to innovation than a supporter.

Supporting Innovators

In a many-to-many world, efficiency and innovation no longer correlate to centralized authority and control. Today, we need to think less about being the sole drivers of innovation on campus and focus instead on creating an environment that facilitates the innovation of others. Where we can support students and faculty in the rapid adoption of consumer technologies and cloud-based services, we should do so—even when these services conflict with our own offerings.

A paring of services in our IT portfolios is in order, and correlates strongly with our need to reduce complexity and cost. The only areas that should be immune are our central administrative systems and network infrastructure, where the need for enhanced connectivity and collaboration, better analytics, and the protection of sensitive information predominate.

As we transition from service providers to service enablers, we also need to rethink the notion of leadership. It was only about 15 years ago that computing service directors became CIOs and vice presidents, as campus leaders recognized the need for strategic leadership in IT. In today's many-to-many world, leadership becomes less about making decisions and controlling access to scarce resources and much more about credibly convening important conversations about the effective use of technology on campus. This is an often-overlooked change. Every institution has thought leaders who engage others about the transformative potential of technology, but these thought leaders are not exclusively CIOs.

In fact, IT's traditional notions of authority and control often lead others to exclude the organization from these conversations until the last possible minute, for fear that it will make innovation more difficult. If you find yourself missing out on important conversations about the effective use of IT, it's probably because you are seen more as a barrier to innovation than a supporter.

This brings me to my final point: The most important word in the phrase "credibly convening important conversations" is *credibly*. In the one-to-many world, credibility was based on reporting lines and formal policy. In a many-to-many world, credibility is created and maintained, not in sweeping fashion, but through constant interactions, each and every time the IT organization engages end users or delivers services. How our campus constituents perceive the strength, quality, and reliability of our services—and our commitment to do what we say we will do—has never been more important.

All of us know administrators on campus with well-deserved reputations for running organizations that deliver inferior services who never shy away from telling us how to run our own organizations. Don't be that person. In a many-to-many world, if you find yourself faced with resistance to key initiatives, realize that it is probably tied to your credibility—or lack thereof—on campus. If, as CIOs, we are truly to transform ourselves into on-campus facilitators, we can succeed only if we, too, bring something to the table: solid reputations for quality and for doing exactly what we say we will do. **CT**

Timothy Chester *is chief information officer at the* ***University of Georgia****.*

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What Are They Thinking?

Leadership Insights on Issues in Educational Technology

Program Summary:
The proliferation of mobile devices and the push toward collaborative learning in today's universities has presented new security challenges for district IT departments. How do universities ensure the security of their infrastructure while fulfilling the needs of new learning initiatives? *Campus Technology* spoke with two universities and security vendor SonicWALL to get their insight.

MEET THE CONTRIBUTORS

Matt Morton, security project consultant, University of Nebraska at Omaha

Kyle Bowen, director of informatics for information technology, Purdue

Joy Hatch, vice chancellor, Information Technology Services, Virginia Community College System

Dr. Richard Sebastian, director of teaching and learning technologies, Virginia Community College System

What does collaboration mean for today's digital learner and why is it important?

JOY HATCH AND DR. RICHARD SEBASTIAN: Collaboration is vitally important for today's digital learners, a term that now applies to all learners. Learning is slowly making a fundamental shift away from the content delivery model—still found in college lecture halls—to one that engages learners more deeply with content by asking them to solve messy problems, work on teams, and develop their own firsthand understanding of course material. This shift has been caused by rapid innovations in technology—especially the Internet and more recently social media networks—with these same technologies are also providing the solutions.

Now, learners can not only read an important text, but also discuss it with the author via Skype. They can group-author a paper using Google Docs anywhere they can access an Internet connection. And, after writing the paper, they can share it publicly by posting it to a blog or wiki, annotated with images and videos they created with the sophisticated digital media tools they carry around in their pockets. A learner's understanding can now be easily demonstrated through the creation and sharing of digital artifacts as well by the number of correct answers on a multiple choice test.

TECHNOLOGY INSIGHT FROM SONICWALL: With the ever increasing volume of traffic driven by user collaboration—including large media file attachments and links to streaming content—throughput is now a major consideration in evaluating security equipment. The closer to line speed a security measure performs, the better. Some organizations seek to address the issue with increased bandwidth and an increased number of switches accessing the network, each with their attendant security measures with load-balancing solutions often in front of it all.

This can get expensive and complex. And any piece of equipment through which traffic passes can become a chokepoint. Underpowered processors or store-and-forward architectures in the appliances can introduce latency into the flow. When threats are detected, remediation can further slow traffic. Fewer, faster systems can assure better performance and lower costs.

What is the role of anytime, anywhere learning in higher education?

KYLE BOWEN: The pervasiveness of mobile devices offers new capabilities for changing when and where the moment of learning takes place. For many students, mobile devices and social networks are their native environment—where they live their digital lives.

The benefits of mobile devices such as smartphones and tablets go well beyond access to digital content in the classroom, laboratory, or field. Mobile devices enable connections between students both inside and outside of the classroom. Within the classroom, they can create a backchannel of discussion between students—adding additional layers of interaction to place where learning was already happening. This same technology can also enable students to reach out beyond the classroom and the class to find new ideas that can further extend the classroom discussion. This virtual discussion medium also makes it possible to ask stupid questions, comment on taboo topics, or help introverted students find their voice in a large group dynamic.

Mobile technology also enables students and instructors alike to easily create new digital media in the way of video, audio, or images that can be used for learning and assessment. Rich media is found in nearly every part of our everyday lives. Instructors are weaving media creation into their course assignments—for some students the first time they create a digital video for someone other than themselves may be for an assignment in their science, personal finance, or american sign language (ASL) class.

For more information and to download the full report, please visit SonicWALL's Resource Center at *campustechnology.com/SonicWall.*

TECHNOLOGY INSIGHT FROM SONICWALL: Secure Remote Access (SRA) has moved from being a small, precious component of the network for a core constituency to becoming the vast outer ring of the network serving many—if not all—users. Of course, users can fall into several different groups, each of which has its own needs and permissions. The smarter the remote access solution, the better the user experience and the easier it is to manage.

Trusted users can be expected to gain access via devices with client controls in place. Casual users cannot, especially

with the proliferation of various endpoints like tablets and smartphones. Intelligent SRA can recognize the different levels of control required, prioritize traffic accordingly (including latency-sensitive streams like VoIP and video), and integrate with intelligent security appliances to enforce centrally managed policies.

What are the top three challenges facing colleges and universities that are trying to implement an effective, safe and secure 21st century learning environment?

MATT MORTON: Information Security. Besides the obvious issues surrounding privacy and data security the integrity of the IHE's academic data including collaboration platforms must also be secured. That means looking at the learning management systems (LMS), conferencing solutions, and other data sources that support the learning process and ensuring that those are safe from attack or abuse.

Bandwidth to support "on-demand" environments.

Data analytics to measure what is working and what isn't, as well as providing a view into how the content is being used (or not used). Feedback on whether or not students are actually getting the material, or if they are actually putting forth effort will help ensure that this "anytime, anywhere" model is successful.

TECHNOLOGY INSIGHT FROM SONICWALL: The technical expression of how users are interacting with the network is on the application layer. The applications users are running are either permitted, or not. Inside the permitted group, some applications deserve higher priority than others. Next-Generation Firewalls supplying Application Intelligence, Control, and Visualization (AICV) enable granular scanning and filtering for the most targeted and intelligent security possible. This improves the quality of threat detection—especially the new web-borne application layer threats—and minimizes the disruption when threats are detected. It also gives IT administrators application-level controls for policy enforcement and traffic prioritization.

These capabilities can, in effect, free bandwidth and allocate it where it is most needed. They can automatically implement policy and prioritize flows by application type and user. And they can provide the analytics necessary to fine tune the network moving forward.

What are the biggest mistakes you've seen institutions make in securing their networks for digital learning?

KYLE BOWEN: The greatest mistake is believing that the technology can protect everyone from everyone. Being "secure" is something that requires constant vigilance because the work of those seeking to do harm can outpace the work of those who seek to protect us. Despite this, it is critical that a digital learning environment be open and easy to use. Restricting how the network can be used or the devices it can be used with is counter to the idea of providing this type of access at all. Collaborative learning environments require anywhere access to a wide range of tools that can be adopted at a moment's notice. Some of these web or mobile apps introduce new security or privacy concerns—this is why it is important to create an awareness of safe online behaviors.

TECHNOLOGY INSIGHT FROM SONICWALL: Aided by Application Intelligence and Control built into Next-Generation Firewalls, the right application controls are granular enough to enforce permissions by application, by user group (say, students vs. faculty), and even by individual users. The permissions can be modulated from full on, to throttled, to blocked…even by time of day or point of origin. What's more, this Application Intelligence—knowing who is using what applications—is an invaluable tool for addressing regulatory compliance and budget planning.

This enables an optimization between real, important security issues and the best user experience possible. It also relieves users and administrators from struggling with human behaviors and focuses network management where it is most practical: how the network and applications behave.

What advice do you have for campuses wanting to create a secure infrastructure that will ensure safe and effective 21st century learning?

JOY HATCH / DR. RICHARD SEBASTIAN: Learning about the digital classroom environment is step one to providing a secure infrastructure for a college. With this background, the technology and security teams will be able to work collaboratively with faculty and staff to define sensitive data and understand where that data resides—both digitally and in paper form. This working group will also be able to create reasonable security controls that will enable the college to operate efficiently and effectively.

With this structure in place the final step would be awareness, and ensuring that all constituents are aware of the issues, the risks, the controls, and how their actions will make the learning environment a more secure place.

TECHNOLOGY INSIGHT FROM SONICWALL: Security consolidation is the emerging approach to address multiple threat types and the attendant costs of defending against them. Intelligent security appliances have become platforms for multiple security applications running simultaneously like intrusion detection and prevention, anti-virus, anti-malware, content filtering, and more. Single pass security—provided it is robust enough—addresses several challenges: It minimizes or eliminates the latency that multiple devices can introduce into network flows; it eliminates the costs of multiple devices; and it simplifies network management. It also simplifies the forensics necessary for understanding network utilization, which is essential for informed provisioning of the network moving forward.

keith norbury

Grading Online Evaluations

Schools see valuable opportunities in moving course evaluations online, but only if they can increase student participation.

IN THE ABSENCE of internal processes for evaluating instructors' teaching abilities, most colleges and universities put the responsibility on students. But is this fair to faculty? After all, a whiff of conflict of interest hangs over the whole proceeding. Students might grade a professor poorly as payback for a bad grade, for example. Conversely, students might give great reviews to instructors who dole out A's like Halloween candy. Or they might not even bother to respond. Now, with more and more institutions moving their course evaluations online, the question is whether technology will compound these concerns or resolve them.

Early research suggests that faculty may actually benefit from the move online. Jessica Wode, an academic research analyst with the Office of Evaluation and Assessment at **Columbia College Chicago** (IL), conducted a review of the academic literature on online course-evaluation assessments last spring. Her conclusion: Worries that students with grudges are the most likely to fill out online forms are unfounded. "You actually find the opposite," explains Wode. "Either there is no effect or the students who did poorly in the class probably aren't even going to bother evaluating the course."

Indeed, there are indications that online evaluation systems may actually suppress participation among poor performers. In her unpublished dissertation at **James Madison University** (VA) in 2009, researcher Cassandra Jones found that class performance played a role in determining which students filled out an online evaluation: Students who received higher grades in a class were more likely to fill out a survey. As a result, noted Jones in her paper, "course-evaluation ratings could be artificially inflated because students with lower grades are not participating in the online course-evaluation process."

It would not be difficult to find a host of faculty members who would disagree strongly with these findings. And there is some question about the reliability of statistical analysis of online evaluations, given the low participation rates for many online systems.

Indeed, anemic participation levels may be the single biggest issue facing online evaluations. At schools that simply ask their students to fill out online class evaluations, a

typical response rate is around 50 percent, according to "Response Rates in Online Teaching Evaluation Systems," a 2009 report by James Kulik of the Office of Evaluations and Examinations at the **University of Michigan**. In contrast, the typical response rate for paper-based evaluations is around 66 percent, and often much higher.

It's not difficult to figure out why online response rates are lower: Most faculty have students fill out paper surveys in class, whereas online evaluations are usually completed on the students' time, making it easy for students to forget.

The fact that students need to make a concerted effort to fill out the online forms makes some faculty—especially those whose salaries or employment are tied to the results—very nervous. Regardless of what the latest research suggests, many instructors remain convinced that online evaluations tend to be filled out by outliers—those who want to butter them up or demean them. The majority of students who fall in the middle, they feel, are not well represented.

Academic forums online are filled with posts expressing such sentiments. "Our school went all online—no choice—maybe three years ago, and response rates dropped to almost nothing," wrote one faculty member in December. "People's entire careers are now resting on making sure they don't anger students enough to get them to actually log in and say what they think."

It is this very concern that convinced **Texas Tech** to keep paper-based evaluations for the majority of its courses: In Texas, the state government has mandated that student evaluations be used in determining merit pay for faculty. "As long as there is that significant policy issue—and salary issue—we have made a decision not to change the methodology for student and course evaluation," explains Valerie Paton, vice provost of planning and assessment. Instead, online course evaluations are used only for online or hybrid courses.

Raising Participation Rates

Increasingly, schools are experimenting with a variety of strategies to resolve the problem of poor participation. When **Harvard Divinity School** (MA) experienced response rates as low as 20 percent after implementing the CoursEval system in 2010, for example, staff tried various techniques—teasing, cajoling, even trivia questions—but they couldn't lift the rate higher than 60 percent. Then HDS resorted to out-and-out bribery: "The students who completed their course evaluations by a specific deadline were granted early access to view their grades," says registrar Maggie Welsh. Participation shot up to 90 percent.

Variations on this same strategy appear to be reaping benefits at institutions nationwide. Some schools give participating students access to their grades one or two days early; others make it as much as a week.

If schools can raise participation to levels on par with paper-based evaluations, the benefits of an online system start to become apparent. For starters, the quality of the feedback seems to be higher. According to Welsh, the comments are much more detailed. She and Wode both attribute this, in part, to the anonymity of online evaluations. Prior to using CoursEval, HDS kept the raw forms in a folder that the instructor could view. Any student who suspected that the instructor might recognize his handwriting may have been less likely to tell the unvarnished truth. It's also likely that students take more time to fill out the forms online than when they're rushing to complete a paper survey at the end of a class.

The other great potential of online evaluations lies in business intelligence: An online system's capacity for tabulating the results has proven a boon to administrators, not only in evaluating instructors but in helping to reshape course content. "Even folks who are not technologically inclined are able to see snapshots and very easily understand them," Welsh says. "It's providing real qualitative and quantitative data to senior administration in a way that we were just never able to do with paper."

It is in this area of data mining and analysis that online evaluation systems may offer the best opportunity to correct for survey bias. Take, for example, the issue of tough instructors getting poor evaluations from students looking for an easy A. Shane Sanders, an assistant professor of economics at **Western Illinois University**, believes that instructor scores can be corrected by introducing other relevant data points. Citing the work of economist Chad Turner of **Texas A&M**, Sanders believes a more valuable indicator would be "an instructor's student-evaluation quality score adjusted for the same instructor's student-evaluation difficulty score."

Corrected for bias, student evaluations can be powerful—and reliable—indicators of the efficiency of a course and its instructor. "You're getting not just one data point of one peer reviewer coming in for one class," explains Wode. "You're getting maybe 30 data points from students who've been there for 15 weeks."

While administrators and faculty have obvious uses for the evaluation forms, more and more schools are giving students access to the results, too. HDS is working on a way to allow students to view the tabulated results, as well as comments relating to the general value of a course. "The consensus we've reached is that the primary purpose of these course evaluations being viewable would be to assist people in choosing classes," says Welsh. **CT**

Keith Norbury *is a freelance writer based in Victoria, British Columbia.*

Richard Mia

Open to Attack?

By Sue Marquette Poremba

An emphasis on the open sharing of ideas makes higher ed more vulnerable to network attacks than corporations. How can schools mitigate the risks while still preserving their academic freedom?

WHO HASN'T received mail from a company notifying them that their personal information may have been compromised? No organization—not Amazon, not the CIA—is immune to cyberattacks, and higher education is no exception. In 2011, 48 institutions reported data breaches, according to TeamShatter, the research arm of Application Security.

Indeed, colleges and universities may be even more susceptible to security breaches than their corporate brethren, and the security threats they face are likely to get worse. With the proliferation of mobile devices, the number of attacks is expected to soar in 2012 and beyond.

"Attacks have changed," says Paul Judge, chief research officer and VP at Barracuda Networks, a security firm that works with both schools and businesses. "We are no longer a society where only high-value companies are targeted. Now, any type of organization is prone to attack, including universities. We need to change the mindset within colleges, and we need to take the same approach to protect students. Schools should want to step up their efforts to control their networks."

Higher education institutions are vulnerable for a variety of reasons. For starters, campuses provide hackers with access to high-speed networks and lots of computers, making them an attractive target.

Second, colleges and universities are perceived—correctly, in most cases—to be easier prey than corporations, because they tend to have a very different mindset when it comes to protecting data. It's not that they don't care about security; instead, the level of risk tolerance is higher on college campuses than it is among corporations, for one simple reason: Freedom of ideas and information is central to the mission of higher education.

PAUL JUDGE, chief research officer and VP at Barracuda Networks

Perils of Freedom

"In higher education, you have this environment of free sharing of ideas and information," says Alex Jalso, director of the Office of Information Security at **West Virginia University**. "You have to have a balance between free-flowing information and securing the information that's considered sensitive from a legal point of view. In a business environment, on the other hand, you are working to increase shareholder value, so you always make sure your operations are as efficient and secure as possible."

It's a point echoed by Dan Han, information security officer with **Virginia Commonwealth University**. "Should higher ed have the same level of security as big business or government agencies?" asks Han. "Probably not. That's not to say that higher ed shouldn't focus on information security, because at universities—especially large research universities—there is a lot of sensitive and proprietary information, as well as personal information of faculty and students. But my take is that the risk posture and the risk tolerance between education and corporations need to be different."

Judge says that another key difference lies in who controls the equipment. Businesses usually own the devices and resources attached to the network, allowing them to dictate what software can be installed and what websites accessed. "Campus IT departments have less control than a corporate IT department," notes Judge. "In corporate IT, you can take a more stringent approach. You don't have that same kind of control in education. And there has to be open access to the internet for the students."

To allow for an open environment in academia, campus IT departments often operate security at minimal levels. According to Judge, there is less use of firewalls, antivirus protection, and web filtering at universities than in business. "A conservative approach is needed to avoid any appearance of censorship," he explains. "But that makes it difficult to control the balance between security and freedom of access."

Judge is quick to point out that there is no perfect security solution. It all depends on which side institutions decide to err: having looser security and not catching everything, or having tight security where they can end up with a lot of false positives. "Corporate environments will err on the side of safety and security, and they don't care if they are blocking the newsletter from your favorite shopping site or preventing you from getting your sports updates," Judge says. "University environments tend to err on the side of an open environment."

"We are no longer a society where only high-value companies are targeted. Now, any type of organization is prone to attack, including universities." *—Paul Judge, Barracuda Networks*

The third factor making schools susceptible to attack is the students themselves, who come to campus with brand-new laptops, smartphones, and tablets. "For many students, college is the first time they've owned their own computer," says Judge. "Students don't always do smart things. They don't keep up with the software updates on their computers. They leave the computer turned on and logged into the network all day while they are at class."

Such inattention gives hackers easy access to computers that haven't been upgraded to close vulnerabilities. Once they control the student computers, the hackers use these machines to break

into the university network, which is the really valuable target.

So is higher education doomed to suffer a barrage of damaging hacking attacks that its corporate brethren can fend off? Not necessarily. It's important to remember that many of the university departments that handle sensitive information—payroll, personnel records, and financial details, for example—play no role in the debate about academic freedom and discourse. As a result, they can—and should—benefit from many of the same security measures employed by corporations.

It's not even a choice, really. Colleges and universities have to comply with federal and state laws governing data privacy. "Following the Family Education Rights and Privacy Act (FERPA) is our primary concern," says Jalso. Because WVU houses a medical school, Health Insurance Portability and Accountability Act (HIPAA) regulations must also be followed, while financial transactions are subject to banking regulations.

Strength in Silos

The best strategy for campus security, in Judge's opinion, is to develop separate approaches for each unique segment that needs to be protected. Institute more control on the business side of the university, for example, by employing a security strategy similar to that of a corporation. At the same time, provide a more open approach to security for students and faculty. "After all, the student network is already different from the faculty network, which is different from the business networks," notes Judge, who concedes that his proposed approach would also increase staff workload and maintenance costs.

It's a strategy that applies equally to certain research areas. "Research-based information also needs to be secured so intellectual data isn't lost or at risk," says Jalso. "What you're doing, really, is putting security into two different operations."

The threat to research institutions should not be taken lightly. A 2011 report to Congress, titled "Foreign Spies Stealing US Economic Secrets in Cyberspace," noted that universities have been among the targets of Chinese cyberattacks aimed at stealing research.

"The internal operational side of the university has some of the biggest risks of any organization in the world, even more so when you break it down into the research areas," says Judge. "Consider engineering schools, where many departments are doing research for the government or biomedical technology. These environments have the same concerns as federal agencies."

"The need for security is the same, but you have to go about it in a different way when you focus on a college environment," counters Darren Shimkus, senior vice president of marketing with Credant Technologies, which specializes in data protection. To make his point, Shimkus compares a privately owned biotech company involved in sensitive research

with a university whose faculty are doing similar research. In the private biotech firm, he says, security measures will come from the top and be strictly controlled. In universities, researchers have more latitude to do their research without strict security controls.

The reason for the differences in approach? In universities, there is often no unified voice at the top that dictates policy. "Universities are generally decentralized when it comes to management," says VCU's Han. "A lot of the IT departments on campus are also decentralized." His office, for example, acts more as a consultant to the other departments across campus.

Matrix, Not a Silo

In Han's opinion, the best way to provide a more secure environment in higher education is to eliminate the disconnect between campus departments and security staff. "There are certain functions that can be centralized," he says. As an example, he cites server use, noting that if data are stored on central servers, as opposed to department servers, security measures can be made much tighter.

RESOURCES

For links to the schools, vendors, and research mentioned in this article, please visit *campustechnology.com/0512_security.*

Unlike Judge, who advocates separate security solutions for different areas of an institution, Han thinks that a one-size-fits-all approach can bring schools closer to a corporate-style security solution. "Administration controls should be applicable to all," he says. In his view, a matrix can be designed that will provide institutional control from a single office, but with controls that can be tweaked to fit the needs of individual departments. After all, a faculty member who must comply with HIPAA regulations will have different security needs than a freshman.

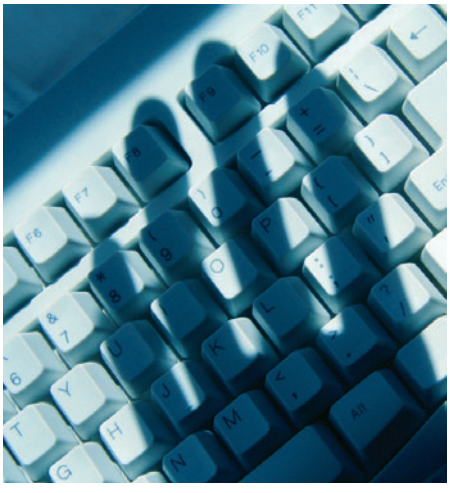
Even if the business component of an institution can be walled off, administrators are still left with the far more unpredictable world of students. Judge believes schools have a responsibility to keep these young adults safe online, ensuring that they don't fall prey to financial fraud or have their personal information breached.

For his part, Jalso says higher education has to do a better job of educating students—and faculty—about information security. "I discovered that if we can demonstrate the impact of a vulnerability to a class or to the operation, the better the understanding for the need to adopt security practices," he says. "Some folks don't believe that universities can be targets of an attack."

Few administrators are willing to bet their network on educational measures alone, however. At WVU, Jalso and his colleagues use IBM's Rational AppScan tool as a quality-assurance tool to ensure that any app going into production across the enterprise won't put the university into a liability situation. The university also uses the tool for triage when an application has been compromised. Students are encouraged to run AppScan during a regular maintenance cycle.

"We're trying to make security a part of all operations and to approach it proactively, rather than reactively," says

CALCULATING THE COST OF ATTACK



AS IN THE corporate world, the likelihood of a hacking attack against a college or university is generally proportional to its prominence. High-visibility targets, such as Fortune 500 companies, elite schools, and universities in major athletics conferences, are attractive targets. In January, for example, **Arizona State University** reported a breach of 300,000 records, according to TeamShatter, the research arm of Application Security. And, in 2011, **Yale University** (CT) was the victim of an attack in which 43,000 records were compromised.

But smaller schools shouldn't feel lulled into a fall sense of security. Hackers may see such schools as more vulnerable; in some instances, too, an attack may be carried out by a disgruntled student or employee. Already in 2012, the **City College of San Francisco** (CA), the **University of North Carolina at Charlotte**, and **Central Connecticut State University** have reported breaches.

Whether a school is large or small, cleaning up after a breach is a very expensive proposition. Deciding what level of security to impose on sensitive campus information boils down to cost analysis. "It all comes down to whether or not you can afford the risk of something happening," says Patrick Vandenberg, program director with IBM Security.

In March 2011, the Ponemon Institute released a study, "US Cost of a Data Breach," that estimates universities spend about $112 per record to mitigate the damage caused by a breach. If accurate, the cost of cleanup for **Virginia Commonwealth University**, which reported a breach of 176,467 records on Nov. 11, could reach nearly $20 million.

While there was a dramatic drop in the number of records affected in 2011 compared with the previous year, don't expect this trend to continue. The rapid growth in the use of mobile devices is opening up a whole new path of attack for hackers.

"In 2012 we have already seen some sizable breaches reported," says Alex Rothacker, director of security research at TeamShatter. "While exact data on the number of records compromised are not official, we estimate that this year's total has already exceeded that of 2011."

Jalso. "When it is approached proactively, you have some control over an event. When you react to an incident, the event controls you."

Some colleges are taking an even more hands-on approach to students and network security. **Fitchburg State University** (MA), for example, has developed a security policy that institutes tight control over student devices. Before they connect to the university network, all students are required to register their devices using an Ethernet media access controller, so the security department can monitor them.

On average, Fitchburg State has 10,000 devices a day attached to its network. About 2,000 are actively controlled by the security department (i.e., office computers). The other 8,000 are laptops and other devices brought to campus by students or adjunct faculty. "All of the devices that use our system are accounted for," says Tony Chila, the school's network manager.

And the university is aggressive in monitoring that all these devices meet security protocols. "We have no idea what students are going to bring to our campus, so we scan their systems," says Rodney Gaudet, network security administrator. "We make sure all the upgrades are up to date. We make sure they have an antivirus system on their computers. We make sure their systems aren't infected, and we block peer-to-peer access." Any faculty bringing their own devices for use on the network must also follow this procedure.

The reason for the tight security on these devices is simple. "Security breaches are big news," says Chila. "We want to make sure the students and the network are protected." CT

"Security breaches are big news. We want to make sure the students and the network are protected."

—Tony Chila, Fitchburg State University

Sue Marquette Poremba *is a central Pennsylvania-based writer who specializes in security and technology.*

BREAKING

6 ideas to help vendors and IT leaders forge a more productive relationship.

REGINA KUNKLE CALLS IT "getting the Heisman." But it's no award. The sales VP for NetApp is talking about the chilly on-campus reception she and other vendors sometimes get that reminds her of the stiff-arm pose of football's Heisman Trophy. While Kunkle believes in building long-term relationships to make universities more competitive, she says some CIOs simply aren't interested. "They say, 'That's not my area,' or, 'You can't do anything for me,'" she explains.

On the flip side of the coin, many administrators feel such coolness is warranted. Indeed, anyone who has attended a higher education IT conference can detect a palpable hostility among some college officials toward vendors. At the 2011 Educause conference in Philadelphia, for example, there was a lot of negative talk about vendors engaging in "open-washing." Derived from the term "greenwashing," which is applied to spurious claims for sustainability, open-washing refers to dubious vendor claims about openness.

THE ICE

By David Raths

So what has brought vendors and schools to this icy pass? For one thing, IT leaders have decried for years confusing or inflexible licensing arrangements and nondisclosure agreements regarding pricing. Joshua Kim, director of learning and technology in the Master of Health Care Delivery Science program at Dartmouth College (NH), explains that vendors often offer a private pricing sheet and special deals because the marginal value of software is so low—but universities can't share that information. "We are starting to see that we would all be better off if we started demanding public pricing," he says. "These individual deals have gotten in the way more than they've helped."

Distrust can also develop if vendors fail to abide by their contract terms, or if customers sense that companies aren't keeping pace with technological changes, says Patricia Summers, vice president of marketing for CollegeNet's online admissions and course-evaluation services. "It is very easy for a vendor to get stagnant," she adds. "You have to stay active in the industry to maintain credibility."

Of course, marketing hype and ROI claims also make CIOs skeptical, but is some of the blame for the distrust properly placed on the other side of the relationship? Klara Jelinkova, CIO of the **University of Chicago** (IL), thinks that, while universities collaborate well with each other, they don't work so well with vendors.

"When universities collaborate with each other, it is from a position of shared trust, but traditionally the information technology vendor is a different relationship," she says, probably because money changes hands. "We spend so much time thinking about the contract terms and what might go wrong, when in actuality you very rarely take anyone to court," she continues. "It is up to us in IT and the providers to get to that point of shared trust."

So how can higher education IT leaders and the vendor community spend less time haggling over price and contract terms and find more meaningful ways to leverage each other's strengths? Here are six ideas to get those relationships back on track.

1 Competition Is Good

While it may seem counterintuitive, Jorge Mata, CIO of the **Los Angeles Community College District** (CA), has learned that vendor relationships actually improve when he injects more competition into the equation.

"We have worked to design RFPs to keep the competition alive longer," he says, explaining that it's a mistake for institutions to spend hundreds of hours preparing for a bid from just one vendor. "When a software vendor knows you've done that, it has all the leverage on its side," he notes. "You have essentially closed the competition."

In district RFPs, Mata makes it clear to vendors and his own board that the district can—and will—move on to vendor No. 2 and vendor No. 3 if the first negotiation doesn't pan out. "It tends to lead to better deals," he explains. Otherwise, the vendor might start to take the institution for granted, and the relationship will suffer.

It's a point emphasized by tech veteran Peter Kretzman on his "CTO/CIO Perspectives" blog. "Power in negotiation comes from not being wedded to a particular solution," he writes. "Once you've successfully established that viable short list, the power is all in your hands. Any facet of the deal should be open to scrutiny and discussion: cost, terms, rights to upgrade, service-level agreements, warranty, etc."

Not every vendor is happy with these competitions, Mata admits, but that is not his main concern. "My job is to put the organization in the best position possible. I don't want to offend anyone or have vendors think this is a negative place to do business, but if I am tough on them it is because it is going to happen anyway. We get a lot of media scrutiny about spending in the public sector here in Los Angeles. We have to protect the integrity of the process."

2 See the Bigger Picture

Too often, both vendors and IT departments suffer from tunnel vision, a condition that can lead to breakdowns in communication, unnecessary work, and, ultimately, antagonism. On the IT side, such narrow thinking is often reflected in demands for special product features unique to that institution; on the vendor side, an unhealthy fixation on sales quotas can impinge on more productive, long-term relationships.

Tim Flood, an independent technology consultant and former IT executive at **Stanford University** (CA), believes that IT leaders can benefit from taking a broader perspective. "If the university can think about representing higher education overall and voice a more general need, rather than thinking in terms of one-off modifications, it can be good for both sides," he says. For their part, vendors should see an opportunity to create value for an institution and then extend that value to other colleges and universities.

As an example, Flood cites the relationship between Stanford and CollegeNet, a provider of on-demand web-based technology for higher ed. At a user conference five years ago, a Stanford IT executive suggested developing online student evaluations of courses and faculty. "That was a totally new idea to us at the time," recalls CollegeNet's Summers.

The company worked with Stanford for 18 months on a prototype called What Do You Think? "We always had to work out whether an aspect was specific to Stanford or more general for higher education," Summers says, but the process was valuable for both sides.

THE UNIVERSITY OF ILLINOIS AT CHICAGO is leading a crowdsourcing initiative to improve collaboration with vendors.

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"Stanford got to have input and start using it right away. We now have 15 customers for it and others in the pipeline." Since then, the two organizations have worked together on another project: a module to automate the evaluation process for graduate school applications.

Flood argues that universities and vendors need to get into each other's skins. "If the university is successful, the vendor will be, too," he says. "Universities have to think beyond the university walls to the higher ed vertical as a whole."

3 Appoint a Relationship Manager

To improve their relationships with vendors, some IT organizations are redrawing their organizational chart. Stanford, for example, recently advertised for a manager of vendor management for IT services. The role includes assessing potential vendors, negotiating contracts, and managing ongoing vendor relationships.

"We will see a lot more of that in the future," says Gordon Wishon, CIO at **Arizona State University**. "Developing strategic relationships with vendors requires a different set of skills in terms of contract negotiations and contract management."

Flood is a big advocate for a "system facilitator" within IT to handle vendor relations, especially as software-as-a-service (SaaS) models become more prevalent. An effective facilitator, in his view, would be able to convince vendors to make needed changes, and would have a keen understanding of the marketplace. It would be the facilitator's job, for example, to invite vendors to come to campus to demo their products, and to share what solutions other institutions have put in place.

"Once you stop thinking that your job is about *doing* and realize that your job is to *facilitate*, it changes how you see your role," explains Flood. "When you facilitate what others do, you are mainly talking about coordinating vendors. It is a different skill set."

RESOURCES

For links to the vendors, programs, and organizations in this article, please visit *campustechnology.com/0512_vendor.*

4 Move Beyond the Deal

If IT leaders can get past the fact that vendors are for-profit businesses, they will also realize that many companies share their own goals for higher education—and are often willing to help.

"There are a dozen really large vendors working in the higher ed space, and they have lots of resources," says NetApp's Kunkle, whose company is worth $6 billion. "It is something universities should be leveraging. There are six or seven things we can do to help CIOs raise their profile." At the very least, she adds, vendors can establish strong internship and recruitment programs on campus.

As an example of vendor involvement, Kunkle cites the NetApp Academic Alliances Program, which provides colleges and universities with a portfolio of free teaching tools and resources to help them integrate storage systems and concepts into the classroom. Kunkle also has praise for **California State University, Chico**, which partnered with SAP America to create a University Alliance Program that provides faculty members throughout the world with access to SAP tools. (NetApp donates storage infrastructure to the project.) Chico State's College of Business now serves as a center of excellence and hosting site for more than 100 institutions in the program, and students handle the technical support.

"I see two types of CIOs," says Kunkle. "Savvy ones, such as Kamran Khan at **Rice University** (TX), talk to vendors a lot and think about making long-term investments involving the whole campus. The other type says, 'It doesn't matter to me what you might offer other areas of the university besides IT.' That is a real crime."

Chicago's Jelinkova agrees that, in some situations, it makes sense to extend the vendor relationship to the whole campus. "We have only a handful of companies that I would call partners," she cautions, noting that it takes time to form personal relationships and get an understanding of where collaboration is worthwhile. "An important point is that this is not just about IT," she adds. "These relationships involve the whole university ecosystem."

Arizona State's strategic plan for IT actually includes a section devoted to developing more strategic partnerships. The university has a long history of engaging vendors to provision IT services, Wishon says, not just to attain economies of scale and take advantage of vendor expertise, but also to involve ASU's best IT people in projects of real value to the institution.

"We were among the first to fully outsource e-mail to Google five years ago," he explains. "We entered into that for more reasons than to offload the provisioning of a commodity. We worked with Google on new services and new models. We had their employees on site working with our employees on what eventually became a large part of Google Apps for Education."

Wishon is the first to admit that there have been swings and misses, typical of any entrepreneurial effort. Occasionally, the level of service doesn't meet expectations or partners are not invest-

"Universities have to think beyond the university walls to the higher ed vertical as a whole." *—Tim Flood, consultant*

ed at the strategic level. "Sometimes we have to fall back to a customer-supplier relationship," Wishon notes. "The lesson we learned is that we have to have an exit strategy."

5 Strength in Numbers

For a small institution, such as **Maryland Institute College of Art** in Baltimore, it's difficult to exert any influence over a software giant like Oracle. But the school has found that it can have a powerful voice when it bands together with other institutions. Ted Simpson, MICA's director of administrative systems, participates in the independent Higher Education Users Group (HEUG), whose more than 900 members work together to tackle everything from licensing policy to interoperability issues.

Started as a user group for PeopleSoft, HEUG expanded its scope to encompass other applications after Oracle purchased the company. Despite user concerns about the merger, Oracle embraced HEUG, according to Simpson.

One area where HEUG has managed to have an impact is in training. Soon after the PeopleSoft acquisition, HEUG members felt that the Oracle training regimen was wanting. "There were two students for each computer, obviously to save money, which is not ideal," recalls Simpson. HEUG members put together a white paper with a list of suggested improvements. Oracle responded by hiring a dedicated relationship manager, and 18 months later almost every recommendation had been implemented, according to Simpson. Today, Oracle markets its relationship with HEUG as a success story.

Simpson and Steve Hahn, HEUG's executive vice president for external relations, recently attended a conference of Oracle user groups that included a series of committees dealing with issues such as contracts, code-sharing among customers, and nondisclosure agreements. One question that came up: Is code developed under Oracle licenses the work product of Oracle or of universities?

"We would like to get clarity on issues like that," says Hahn, who doubles as assistant dean for admissions and academic services at the **University of Wisconsin-Madison**. "In general, there is a desire on the part of users for greater flexibility, so they can make changes around licensing without renegotiating the entire package."

For Oracle, the benefits of HEUG extend beyond relationship-building. HEUG sometimes brings problems and opportunities to Oracle that require the involvement of many different parts of the company. "Any organization that size is going to have challenges with internal communication," notes Simpson. "Often, we are the ones introducing people in different parts of the company to each other. We end up being the connective tissue, and we don't mind playing that role."

6 Use Crowdsourcing

While HEUG brings together institutions to work with a single vendor, a fledgling initiative is looking at ways to bring multiple vendors together with schools to exchange ideas and discuss issues. The goal is to change the dynamics of vendor meetings to make them more client-directed and more collaborative. It all started last year when Ed Garay, assistant director for academic computing and director of the instructional technology lab at the **University of Illinois at Chicago**, led an experimental virtual meeting around enhancement requests for Blackboard Mobile Learn. Open to all comers, the meeting was designed around client requests and requirements.

That first meeting was followed by another on lecture-capture software. "At the lecture-capture event, we had participating vendors that I had never even heard of," recalls Garay. "Many were eager to hear clients talk about integration with learning management systems. Many of the issues with lecture capture are the same, no matter which system you are using."

According to Garay, the meetings have been very positive; even when someone said something negative about a vendor, the vendor did not get defensive. "These are great as kickoff meetings," notes Garay, "but what we really need now is to take this asynchronous." Convening 100 people for an online meeting has turned out to be something of a challenge. Asynchronous conversations are happening now on an ad-hoc basis, but Garay would like to establish something more formalized.

Dartmouth's Kim sees crowdsourced virtual meetings as a step in the right direction for vendors and customers to share information in an open forum. "Companies are sometimes reluctant to share their road maps because they perceive it as a competitive advantage," he says. "But I think they would gain from being more open about long-term plans."

Both Garay and Kim say there is real value to companies in sitting at the table with partners and potential partners. At the very least, company officials can explain why they are not doing something that customers want. "They may feel painted into a financial corner," Kim says about vendors. "I think they should share that. We need them to make money and be successful, and I think they should talk about the bottom line with us." CT

"There are six or seven things we can do to help CIOs raise their public profile." *—Regina Kunkle, NetApp*

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

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James Steinberg

Retention and advising tools help students stay in school and graduate. But they can also be a boon to a school's bottom line.

By Barbara Ravage

5 WAYS TO SAVE STUDENTS AND MONEY

FOR STUDENTS, the financial ramifications of not graduating are eye-opening: Over the course of their lifetimes, students without a degree will earn an average of $800,000 less than their cap-and-gown brethren, according to the nonprofit College Board. The number is even more depressing in light of another statistic: In 2009, only 55 percent of college students were expected to earn their degrees within six years, according to the National Center for Higher Education Management Systems.

While helping students succeed is central to the mission of higher education, the high dropout rate hits colleges and universities the same way it hurts the dropouts themselves—right in the wallet (see "Protecting Your Investment" on page 31). Here, *CT* looks at five ways technology can improve retention and advising programs, and help schools save money at the same time.

1 Increase Productivity

Many schools, particularly community colleges, have seen tremendous surges in student enrollment. Without technology, scaling up an advising program to handle the influx is an expensive proposition. According to Michael George, registrar at the **University of Alabama,** technology serves as a "force multiplier."

In less than a decade, enrollment at his university has ballooned from 18,000 students to more than 32,000. "It's the president's vision that we eventually grow to 38,000, but at the same time he doesn't want to see large growth in infrastructure," explains George. "We're trying to do more with the people we have, and do it better and smarter."

RESOURCES

For links to the products, vendors, and organizations mentioned in this article, please visit ***campustechnology.com/0512_retention.***

2 Improve Planning

Many faculty and administrators think of advising tools in narrow terms: as a way to help students navigate the school's academic requirements. Less well known is how much money these tools can save in resource planning and allocation. **Mt. Hood Community College** (OR), for example, uses AgileGrad to forecast demand for services.

"I consider this part of our overall business intelligence toolbox," says CIO Jay Crowthers. As students use AgileGrad to plan their route toward a degree, the school can see in advance how many class sections, classrooms, instructors, lab facilities, and other resources will be needed. "Degree planning is the most straightforward way to project demand," adds Crowthers. Before implementing AgileGrad, "we didn't have predictive tools until students registered for classes—and that's too late for planning."

Although AgileGrad was bought by Hobsons in 2011, it was developed in-house at Mt. Hood for a community college environment. **Louisiana Tech University** is the first four-year school to have had a voice in its development, explains Pamela Ford, dean of enrollment management. It was first implemented in the College of Engineering and Sciences: 317 freshmen have created degree plans since 2011.

The program gives faculty an early look at how many students plan to take each course. If 120 students are planning to sign up for a class that has only 30 seats, for example, the system can help planners determine how to handle the overflow. "If we add sections to fill the demand," explains Ford, "the system will tell us, for example, that the best time to offer that class is Monday and Wednesday from 2 p.m. to 4 p.m., because 59 students don't have a course

Instead of spending time juggling schedules and checking prerequisites, advisers can focus on providing substantive support for students.

Since the beginning of the 2009-2010 academic year, the university has relied on DegreeWorks, from SunGard Higher Education, as a multipurpose advising and degree-audit tool. "It provides for the needs of the students, the staff, and the faculty, as well as folks in the Office of the University Registrar," says George. "For the first time in a number of years, everybody's on the same page."

DegreeWorks dramatically streamlines erstwhile time- and labor-intensive processes such as accreditation and reporting. The College of Communication and Information Sciences tweaked its DegreeWorks program to match student records with guidelines for accreditation by the Association for Education in Journalism and Mass Communication. "DegreeWorks calculates everything for me, for the adviser, and for the student, helping them finish in four years," says Mary Ann Bradley, the college's registrar.

Still in the works is a plan to adapt the software for academic compliance reporting to the NCAA for Alabama's renowned Crimson Tide athletic program. "You're looking at as many as 800 athletes each semester," says Denny Savage, associate university registrar for academic services. "It takes our certification staff two to three weeks, pretty much working around the clock, to compile the summary report." He anticipates being able to pull together the report in a matter of hours once the system is up and running in fall 2012.

Reporting on athletic compliance to the NCAA is complex, but it pales in comparison to the convoluted realm of transfer credits. In Texas, where a common core curriculum is transferable among state institutions of higher education, all schools must report when students have completed it. The degree-audit system at the **University of North Texas** makes compliance relatively straightforward—not something about which all schools in the state can boast.

"We already had the system when the state implemented this rule," says Mike McKay, assistant dean for undergraduate curriculum in the College of Arts and Sciences. "Schools that didn't had to track these things manually. I'm sure that gave them great impetus to find money for a degree-audit system."

UNT uses u.achieve from CollegeSource, and has offered it to students as an online interactive feature since October 2009. According to David Meek, manager of degree-audit systems, more than 1 million degree audits were run in the first 26 months after the tool was released to students, advisers, and registrar staff. Of those audits, approximately 248,000 were generated by students.

conflict at that time." The system can then send a message to students that a section has been added.

3 Support for Staff Advisers

While advising and retention software can lead to efficiencies in planning and productivity, its real value lies—academically and financially—in keeping kids in school. However, any school that intends to replace advising staff in favor of a tech solution may end up being penny-wise and pound-foolish.

"Back in 1994, when we were looking at a degree-audit system," recalls McKay, "several vendors told us that, if we were to invest in their system, students wouldn't need advisers, so we could cut that budget."

In reality, schools are likely to save more money—by keeping more kids in school—by using tech solutions to complement the efforts of their existing advisers. Instead of spending time juggling schedules and checking prerequisites, advisers can focus on providing substantive support for students.

"We have mandatory face-to-face advising sessions for all students every enrollment period," says Ford. "Those conversations in the past have been largely about scheduling. AgileGrad allows us to change that conversation." Students are required to have a degree-plan printout before meeting with their advisers, so a lot of the scheduling detail is taken care of and "there can be more meaningful conversations around career goals."

Advising is staff-intensive, encompassing phone calls, e-mails, walk-in questions for the front desk, and one-on-one meetings with advisers. At UNT, McKay estimates, there are more than 100,000 advising contacts with students every year, an average of 10 per undergraduate. As a result, he says, students are more aware of where they stand in terms of requirements, and where they may fall short.

"It actually encourages them to take advantage of the services at a greater rate, but that's a good thing in terms of building relationships with students. The more time we are able to spend with students to answer their questions and direct them to resources, the more positive feelings they'll have about the university and the more likely they are to stay in school."

Making advising tools available online makes sense for another reason—it's where the students are. If schools expect to engage students, they need to follow them online. "Students expect that today," notes Crowthers, just as they expect to be able to do their banking online rather than standing in line during business hours. "Schools are just now starting to meet those expectations."

4 Provide Early Warning

Troubled students rarely run a flag up a pole when they need help. In the past, colleges and universities have focused on at-risk students only when they've gone seriously off the rails. By then, it's often too late. Early intervention is key to understanding the issues facing students and resolving them.

Dale Nesbary, president of **Muskegon**

PROTECTING YOUR INVESTMENT

THE PUBLIC IS justifiably focused on the student burden of obtaining a college education. Less publicized are the costs eaten by institutions when students drop out. Improving the dropout rate by only a few percentage points can add up to a lot of money. Here's how:

1. Alumni Giving. If students don't graduate—and have a fulfilling experience while at school—they're unlikely to give money later in life. As federal and state education budgets get trimmed, universities are looking to alumni to help close the fiscal gap. In 2011, giving accounted for 6.5 percent of college expenditures, of which 3.8 percent could be spent on current operations, according to the Council for Aid to Education. If that doesn't sound impressive, consider this: The average research institution netted more than $90 million in voluntary giving in 2011, much of which came from alumni. According to a 2011 survey of 1,275 schools conducted by *US News & World Report*, 13.5 percent of alumni give money to their alma mater over a two-year period.

2. University Rankings. Regardless of how misleading they may be, the *US News* college rankings carry a lot of weight among prospective students. And administrators know it—just ask **Claremont McKenna College** (CA), which submitted fraudulent SAT scores to the magazine in a bid to raise its ranking. Graduation and retention rates play a big role in determining those rankings, accounting for 20 to 25 percent of a school's final score. Even a small improvement in these numbers can translate into higher rankings—and significantly more applications. And when you consider that alumni giving (see above) accounts for 5 percent of the final score, it makes the case for improving retention and graduation rates even more compelling.

3. Need-Blind Admissions. With the rise of need-blind admissions—particularly at elite colleges with large endowments—universities can lose a significant amount of money if a student receiving assistance drops out. At **MIT** (MA), for example, 85 percent of students receive some kind of scholarship, reducing the annual cost of tuition and board from $55,270 to an average of $23,270. If students drop out (for reasons other than to start Dropbox), the school loses its investment. What's more, the student dropping out took a prized slot at the school from another deserving student.

4. Government Funding. In many states, funding is tied to retention and graduation rates. "We have goals that are directly related to funding, and the goals are not stay-in-place goals," says Pamela Ford, dean of enrollment management at **Louisiana Tech University**. "They are negotiated between the institutions and the state, with all institutions having the goal of improvement."

5. Resources. Advising tools can give institutions a valuable heads-up about how many students will be taking particular courses or programs, giving them time to plan accordingly. However, much of this work can be undone if a significant number of students drop out during the year. It leaves schools paying for heating, cooling, faculty, buildings, and equipment that were scaled for a much larger student body than ultimately utilizes those resources.

Community College (MI), asserts that "the best recruitment a college can do is to retain the students they have." To help ensure that Muskegon holds onto its students, the school has implemented Course Signals, an early intervention system from SunGard Higher Education that alerts students as early as the first week or two of the semester if they are academically at risk.

Course Signals uses traffic light icons to tell students how they are faring in each course. In addition, the tool picks up at-risk indicators from the student-information system. "You can select indicators to build a risk expression, part of the algorithm based on a predictive model created by John Campbell at **Purdue University**, where Course Signals was developed," explains Mike Alstrom, Muskegon's CIO.

A Muskegon pilot of the system, involving 11 sections and a total of 277 students, saw both qualitative and quantitative improvement. Besides higher grades—increases in the number of A's and B's, and corresponding reductions in grades C and lower—instructors found heightened motivation in students who received warnings. In a post-pilot survey, students reported a greater likelihood of meeting with their instructors, using the tutoring center or library resources, studying more, and teaming up with a study buddy.

In terms of dollars and cents, says Nesbary, every student who drops out represents a loss of $2,500 in annual tuition revenue for Muskegon, a community college on the low end of the tuition ladder. Obviously, the higher the price tag, the greater the loss. Although the cost of a retention-management solution (RMS) varies depending on how it's implemented, Nesbary says it would take a mere handful of "saves" each year for Course Signals to pay for itself at Muskegon.

Course Signals puts the onus on the student to heed—and address—any academic warnings they receive. FinishLine, an RMS from Jenzabar, works behind the scenes by flagging at-risk students for intervention. Configurable by each school, the system weighs a host of factors including attendance, high school class rank, standardized test scores, grades from previous semesters, chosen major, financial circumstances—even whether a student is resident or a commuter.

FinishLine has worked well for **Flagler College** (FL), which added the system to its Jenzabar ERP and LMS suites three years ago, and supplemented it with an add-on analytics feature the following year.

Flagler has seen an increase in retention of 2 to 3 percent. "You could put a dollar amount on that if you wanted to, but the thing we're most excited about is that we're more interactive with our students," says CIO Joseph Provenza. "The Office of Advising and Retention sees a lot more people because it knows about a lot more people. That's huge."

"The more time we're able to spend with students…the more positive feelings they'll have about the university and the more likely they are to stay." *—Mike McKay, UNT*

5 Improve Recruitment

Provenza thinks that current usage of RMS is just tapping the surface of its potential. "Everybody talks about retention on the back end: We've recruited them, we've accepted them, we have them, now how do we retain them? If you're really smart with the analytics, you gather up the data over the course of time and work right back around to the front end."

Provenza believes that RMS data can be mined to help schools identify the kind of students who would be a good fit for an institution in the first place. He foresees a system that "not only alerts us to a student who might leave, but tells us what makes up a student who's likely to stay. If we recruit students who are better suited for our institution and take better care of them when they're here, that closes the circle. Everybody benefits." Such an approach could have two financial benefits: reducing recruitment costs by facilitating more targeted efforts; and reducing the dropout rate, with all its concomitant benefits. CT

RE-RECRUITING DROPOUTS

STUDENTS DROP OUT of college for a host of reasons that have nothing to do with their academic performance. Financial problems are the main cause, but other reasons include family or personal issues. In Louisiana, the Board of Regents believes that such students should have a second chance to complete what they started. A new initiative, known as Project CALLBack, does exactly that, giving schools such as **Louisiana Tech** the opportunity to re-recruit students who did not complete their degrees.

Pamela Ford, dean of enrollment management, has identified 1,500 students with good GPAs who left the university over the past decade without graduating. Working with AgileGrad developers, she hopes to develop a plan that would allow these former students to complete a general studies degree. "We selected general studies [GS] because it would apply to all disciplines and is now available online," explains Ford.

What sort of return does Ford expect from the outreach effort? "Five students would make it worthwhile, if we could get them back and they could graduate," she says. "When they left the university, we didn't have this GS online opportunity available, so for me it's a win-win."

Barbara Ravage *is a freelance writer and editor who lives on Cape Cod, MA.*

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C-Level View

Taking Back Innovation

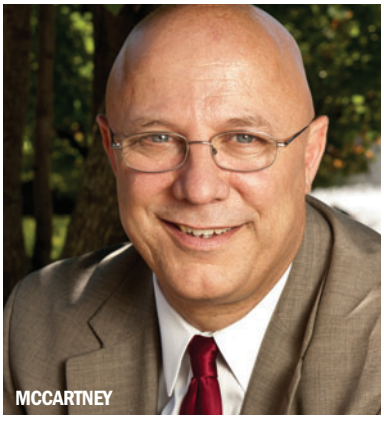
Universities must foster both discovery and commercialization. **By Mary Grush**

As CIO and VP for IT at **Purdue University** (IN), Gerry McCartney has shown strong support for innovation on campus by helping researchers commercialize and market their work. In a brief Q&A, McCartney discussed his strategy with *CT*.

CAMPUS TECHNOLOGY: Why should universities commercialize as well as develop innovative research?

GERRY MCCARTNEY: There was a time when all of the top technologies came out of universities. E-mail, the internet, and web browsers all came out of the academy. Universities were the innovators. We need to reclaim that, and a holistic approach that helps bring innovative ideas through development and all the way to the marketplace is going to sustain us as centers of innovation.

Bringing products to market has not been a core competency of the academy. Could it become so? I guess it could. More important, we must become a lot more active in preparing our innovations and knowledge advances for the market, so that inventors can see their creations enter the market more easily.


MCCARTNEY

CT: How should universities approach this?

GM: First, universities should examine their strategic goals and, if they're land grant institutions like Purdue, also consider their relevance to the local, state, and national economies. They should then focus their innovations on achieving those goals. By becoming truly innovative institutions, they will not only help themselves achieve their goals, but are also likely to develop solutions that have commercial possibilities.

CT: What are the implications for researchers? Would IP or patent issues change?

GM: I think we'll see some experimentation in this area, so how we reward or provide incentives for researchers might well change. I know this is something at Purdue that we're taking a hard look at. And it's not just for researchers—staff have come up with many innovations, and some of the most energizing discussions I've had recently have been with entrepreneurial undergraduate students.

But sadly, at this time, the last place many students would consider taking an idea is to the university. They are concerned that the university will claim the idea as its own, that it will take years to develop the idea, or that the school doesn't know anything about bringing products to market or creating businesses. I want to stand that notion on its head, and create an environment at Purdue that students seek out because they've heard of the assistance others have received. That's when we'll know we've created a true environment of innovation.

CT: Could partnerships with industry leaders help in all of this?

GM: The more we can get industry leaders—whether we are talking about corporations or individuals—concerned about higher education and involved in our efforts to improve, the stronger our universities will become. The academy thinks of the world quite differently than most industry leaders, but that tension is good and creative. These differences need a chance to interact, and that's what I'm trying to encourage.

CT: Can you tie all this in with the teaching and learning mission of the institution?

GM: The best innovations are those that help universities foster inquiry and discovery, and make successful students. These innovations benefit us directly and almost immediately, compared with the longer process of product development and commercialization. But the two goals sync well, and, as far as opportunity, there is a nearly wide-open field in front of us. **CT**

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