SPRING 2011

COMMUNITY COLLEGE
TECHNOLOGY UPDATE

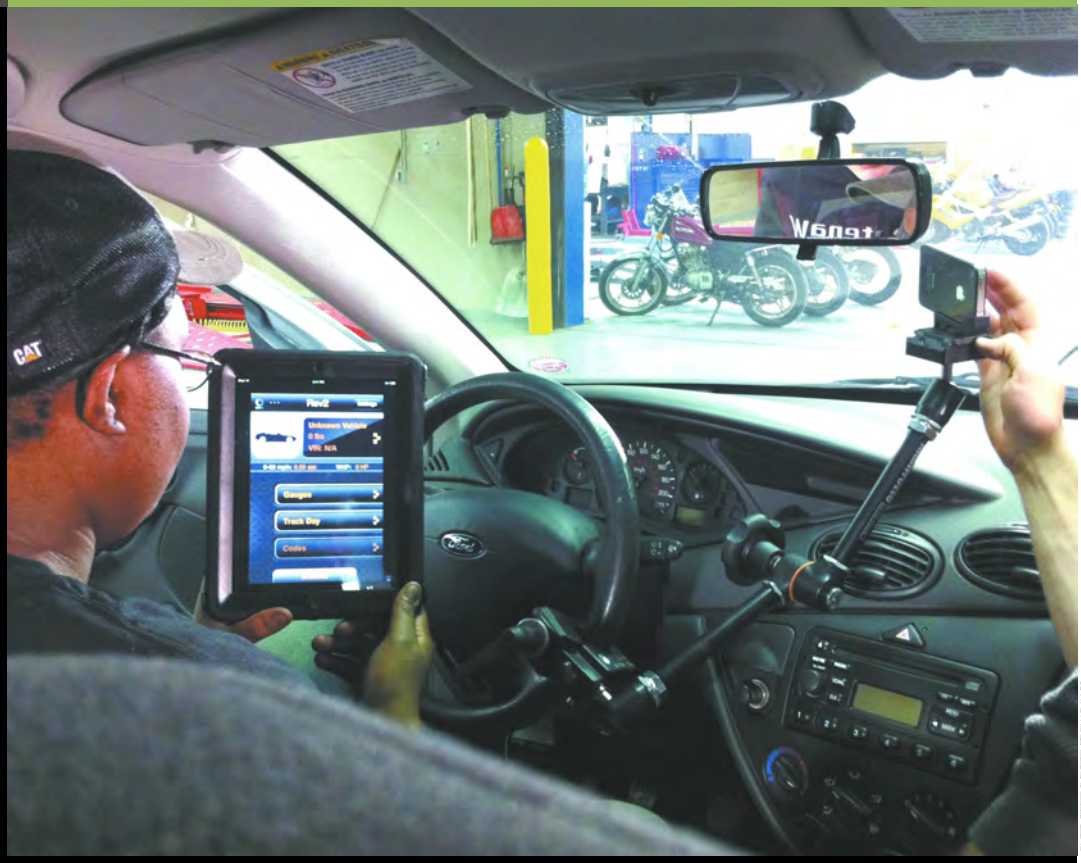


PHOTO CREDIT: CHRISTOPHER BULLOCK/WCC

RETOOLING LEARNING

NEW TECHNOLOGIES PAY OFF FOR COMMUNITY COLLEGES

A SPECIAL SUPPLEMENT BY
Community College Week

BERGEN COMMUNITY COLLEGE

MATCHES NEW THEATRE TECHNOLOGY TO STUDENT NEEDS

BY JAMES BUMGARDNER

ASSISTANT PROFESSOR, STUDENT THEATRE PRODUCER, BERGEN COMMUNITY COLLEGE

PHOTO COURTESY BERGEN COMMUNITY COLLEGE

A student in the theatre technican program at Bergen Community College adjusts stage lighting.

It's not likely that a graduate who studied scenery or lighting will get a job on or off-Broadway without knowing Vectorworks. It's also not likely that a technical theatre student at Bergen Community College, Paramus, N.J., will graduate without the opportunity to be exposed to it before attending a four-year school where it will be required.

We are 10 miles from one of the most competitive theatre markets in the world – Manhattan. And this means we give students what they need to thrive in their four-year college and in the real world, or we won't survive in the academic world.

The real world, besides on- and off-Broadway, includes our area's popular summer stock, community and regional theatres, all of which can pick from the most talented theatre graduates – graduates who know technology and how to use it.

In order to develop the sought-after graduate, technology is incorporated into the curriculum which means it is an integral part of student theatre productions, ranging from minimal-set plays such as "Our Town" to major musicals like "Peter Pan."

Innovative design software like Vectorworks and other programs, allow the college's technical staff and students to design scenery and lighting with greater efficiency. These two areas – lighting and set design – can be created collaboratively – eliminating the tradition of lighting and set designers working independently. This technology-enabled learning collaboration makes more sense.

BUSINESS PARTNERSHIPS

In addition to immersing theatre students in their work through periodicals such as *Stage Directions* magazine and *Dramatics,* Bergen creates relationships with local and national sound, lighting and stagecraft businesses in order to provide a career path to entry-level jobs for graduates, and to stay current with the newest theatre technology.

Bergen Technical Coordinator, Thomas O'Neill, ensures that the college creates relationships with area businesses bring the latest technology to our theatre program. In addition to product, the businesses provide technology seminars for technical staff and theatre students.

"Having a relationship with these businesses is symbiotic. They teach us, and we rent their latest equipment on a show-by-show basis. This means we can incorporate innovative technology in our academics and provide students with a direct application of that technology in a practical setting in the current theatre production," O'Neill said.

"This saves money without diminishing the learning experience because students learn new technology without creating a major dent in the theatre program's budget," he added.

MIXING MOTION AND MULTIMEDIA

New presentation software and video equipment improvements have allowed the college to enhance its productions by incorporating multimedia into theatrical design. Projecting still images and incorporating moving images into the set design keeps the college as technologically current as any Broadway show, professional dance company, or mainstream concert

For example, the creative design method that uses moving images in the 2010 Broadway production of Noel Coward's "Brief Encounters" is incorporated into Bergen's curriculum – most recently incorporated in our student production of the musical "Cabaret."

Multimedia does not have to be used in every production, but it's a great investment for any technical theatre program. It is a way to enhance a set and lighting design and at the same time present a new and exciting element to our theatre students as well as our audiences.

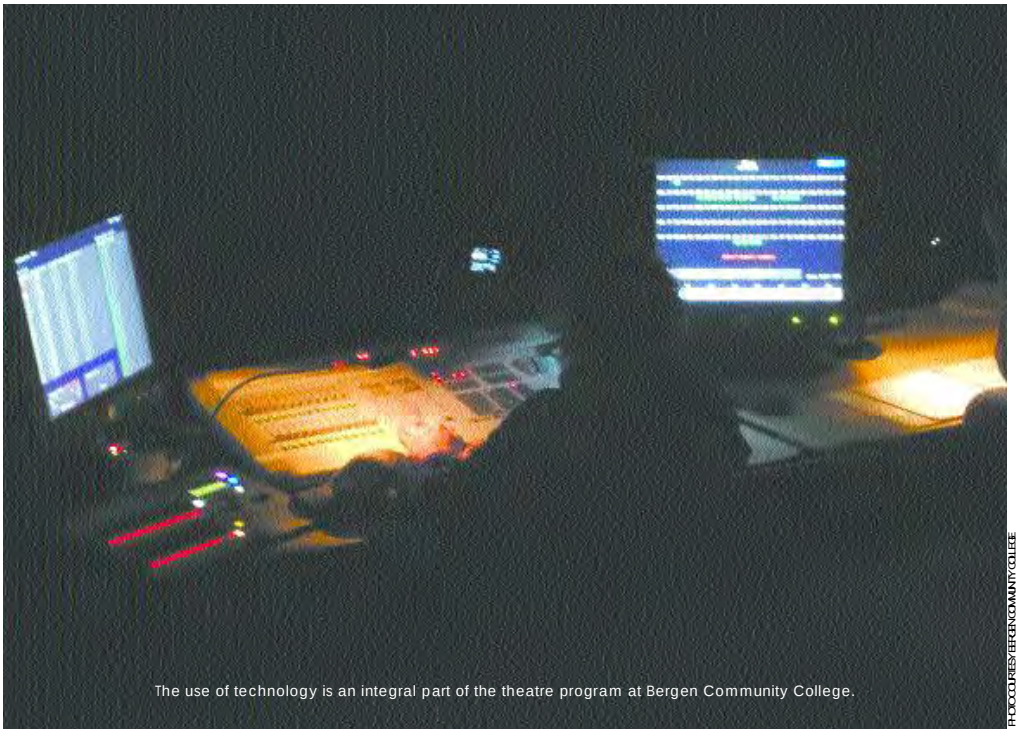
Bergen realizes it has to have a technical theatre program that inspires new theatre designers and technicians. The days of turning old coffee cans into lighting equipment are far behind us.

Bergen realizes it has to have a technical theatre program that inspires new theatre designers and technicians. The days of turning old coffee cans into lighting equipment are over.

NEW, HOWEVER, DOESN'T ALWAYS REPLACE OLD

Although most of us don't have to use coffee cans anymore, before we throw out lighting components such as the Mini-ellipsoidal Zoom, which is 30 years old and is replaced with a Source Four, we need to realize that education

See Theatre pg. 4, col. 1



The use of technology is an integral part of the theatre program at Bergen Community College.

PHOTO COURTESY BERGEN COMMUNITY COLLEGE

Theatre, *from page 3, col. 4*

is about recognizing technology transition, and this means students need to know both. If they go to a theatre with either one, they need to be ready to work.

Applying this concept to the unseen lighting components, O'Neill noted that, "compared with even a few years ago, modern dimmers are modular and computerized. DMX cables carry the digital signal. Cue changes are either automatic or controlled with a single switch."

"We don't need previous generation lighting boards that required a light board operator to set up the next scene and cross-fade into it," he continued. "However, a graduate may encounter any of these antiquated lighting system components in a small off-off -Broadway or community theatre."

Moving forward while looking backward is essential so students can engage productively across timelines to meet the needs of employers and the expectations of audiences.

HEARING'S LOSS IS TECHNOLOGY'S GAIN

Whether you blame it on ear buds, 600 watts pumping through the sub-woofer in the back of the SUV, or age, technology allows audiences with reduced hearing capacity to enjoy live theatre in a way not possible even a few years ago.

Although O'Neill explains sound basics are pretty much the same as they were 50 years ago, microphone and speaker quality is not. Technology, most of it relatively inexpensive, has moved quickly to fill the hearing gap that will only get wider as a large percentage of the audience population grows older.

The cleanness of a digital signal, radio-frequency headsets that can not only provide high quality sound to the hard-of-hearing, but also carry simultaneous translations, and digital mixing consoles with line arrays, means a person can hear the singer over the band, or the whisper in the wind.

The theatre-going experience is enhanced, often unconsciously, through this improved sound technology. How do we know? The seniors aren't invoking their stage whisper to ask, "What did she say?" to the person next to them.

SOCIAL MEDIA MEANS FRONT-OF-HOUSE TECHNOLOGY IS FREE

Our audiences have increased steadily over the past five years, and although there is no way to map increased attendance to social media, we know it is indispensable. A sell-out performance is only possible with word-of-mouth communication – especially on a college campus.

But word-of-mouth today is also word-of-mouse.

Fan pages, uploaded rehearsal and opening-night photos and videos, likes and dislikes, hot or not, comments, reviews, tweets, and old-fashion e-mails give us the freedom to advertise free. If we don't use social media extensively and creatively, we are not serving our community.

When there is even one empty seat in the theatre, it means someone who wanted to see our show didn't know about it. That's our fault. We could blame it on the lack of an advertising budget in the past, but today, we can only blame it on our inability or unwillingness to embrace the technology that gives us social media.

At Bergen, we collaborate with graphic design students to create posters and the public relations department to help with conventional as well as social media. The poster, although indispensible, is powerless if it's only taped to a wall and not converted to a PDF for emailing or linked to social media sites.

And while we all want a glowing review from the *New York Times*, often a simple electronic "thumbs-up" from the right campus influencers is a more powerful attendance inducement among our target audience.

OTHERS SEE WHAT WE CAN'T

We don't really know where technology will take us. People who look at the world very differently transform oblique ideas into reality that can serve us.

Every time we think "everything's up to date in Kansas City," as Will Parker sang in "Oklahoma!" we learn "it ain't necessarily so," as Sportin' Life sang in "Porgy and Bess"

The culture of a college like Bergen invites creativity, innovation and discovery. Our job is to be the stewards who welcome technology, even when, like Twitter, it originally seemed like the wrong answer to an unasked question. We need to nurture the students who will use and modify technology in ways we won't always understand. We need to be active teachers and passive observers as the combination of technology, their work, and our guidance, provide the bridge to a better, more productive life. ▲

Contributing to this article were Thomas O'Neill, BCC technical coordinator and Louis Tharp.

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E-mail contributions to editor@ccweek.com. Be sure to include "Point of View" as the subject line.

VIRTUALIZATION NARROWS DISTANCES, IMPROVES EFFICIENCY AT SAN JACINTO COLLEGE

Virtual reality. Decades ago, the concept usually brought to mind futuristic gadgets, space suits, and beaming from one place to the next. However, if you're reading this, chances are you're already a part of this new revolution.

BY ANDREA VASQUEZ

Communications Coordinator
San Jacinto College

Virtualization is part of the newest IT wave hitting corporations, small businesses, and now some colleges. Virtualization allows numerous virtual computers to be installed on a single physical computer or server, allowing the sharing of resources and improved utilization of physical machines. Virtualized computers can be accessed over a network or Internet connection with a Web browser and used just like a traditional computer.

San Jacinto College is already ahead of the game by infusing virtualization into students' every-day academic lives. Whenever a student enrolls in the college, they automatically receive an identification number, which they can then use to login to a physical computer in a classroom or lab. San Jacinto College has now made it possible for all students to access their own personal virtual desktop from any location or computer, both on and off the campus through the college's website.

"Students can now access college software from classes they're taking, and any files or projects they're working on, just by logging on to the virtual desktop through the San Jac website," said computer information technology instructor, Jim Meeks. As one of the lead faculty for the department, Meeks teaches courses on network administration, beginning and advanced computer hardware, and Web page design.

Now with the virtualization of all three campuses, the possibilities for teaching and learning become even more advanced.

The virtualization technology enables San Jacinto College students to pick up where they left off from their previous class, rather than lose their work because of another class before or after them. "In our program, we deal with different kinds of software that do different types of functions for network administration," Meeks said.

"Virtualization enables a student to load the software onto their computer and practice having administrative rights without damaging or endangering the rest of the San Jacinto College network. Once they log out, all their information is saved right where they left it in their virtual machine."

Students can login from home from the San Jacinto College website to work on assignments and class projects. Meeks added that, "Most students don't have the networking software on their home computer, so this gives them the tools they need as if they were right back in the classroom or lab. It's amazing."

San Jacinto College uses VMware® software for its virtualization platform, one of the most widely used professional virtualization software programs.

Part of what makes virtualization a big plus for organizations is efficiency and cost effectiveness. "Virtualization allows better usage of physical servers by moving from dedicated to shared purpose," said Interim Chief Information Officer Rob Stanicic.

"IT administrators install software once in a virtual environment and allow shared access – instead of installing software on every physical computer. This results in better utilization of equipment and faster response times to resolve issues."

UNIX operating systems student Jordan Bell enjoys the convenience of logging in remotely to work on assignments. "I can be at home and do work if I need to, and I don't have to be in the lab," he said. "Students can load the software on their virtual machine and access it from any other computer through the Internet no matter where they are. This definitely cuts down cost for the college and it saves electricity."

Growing up, Bell's mother was an IT administrator in a rapidly growing industry. He says that she was traveling constantly, and he recalls the process for her to fix the problem. "She didn't have any other choice but to get on a plane," he said. "Now, you can login from your house or your office and work on whatever you need to. You can even train other people around the world online if needed. It's really where the industry is headed and a lot are already there." ▲

WASHTENAW COMMUNITY COLLEGE REVS UP IPAD

Success in Automotive Department Spurs Campus-Wide Interest

BY JANET HAWKINS

Associate Director of Public Affairs Washtenaw Community College

Washtenaw Community College automotive students have a fancy new gadget in their toolbox this winter, the Apple iPad. Part laptop, part smart phone, the iPad quickly is becoming the standard in computing technology today.

Using an iPad has proven an effective, speedier alternative to laptops or clunky diagnostic equipment.

PHOTO CREDIT: CHRISTOPHER BILLICK, WCC

WCC Automotive Services Dept. students are learning to use the lightweight device, instead of a laptop or clunky diagnostic equipment, which take extra time to boot and cumbersome to operate.

"Its user friendliness is awesome," said Ross Gordon, dean of vocational technology, who likes the ease at which students can take it inside and under an automobile when working on it. "We did a little experiment," Ross continued. "One group used traditional scanning tools to pull off the [operating] codes from a car in the lab. Another group used the iPad (with special apps we downloaded). The first group had to wait until their equipment booted up. The students with the iPad did their assignment twice as fast."

After putting the iPad through its paces, the students and faculty were sold. "It syncs well with other wireless devices and is the most practical when checking the cause of a 'check engine' light in class," said Gordon. "It's super quick. We don't have just one course that can do something with it, all of our classes can."

STAYING ALIGNED WITH INDUSTRY

According to Gordon, the impetus to use the iPad in class came from the SEMA (Specialty Equipment Market Association) show in Las Vegas, where each year Washtenaw showcases its automotive handiwork. SEMA is recognized as the premier aftermarket event for the automotive industry. When WCC instructors and students observed industry professionals with an iPad in hand, they quickly realized its potential.

Due to the interest and success automotive students have shown, other WCC disciplines are taking a closer look at the technology. That is why the college recently invited Apple to campus to demonstrate it.

"Representatives focused on many of the apps available to us and their capabilities. They also talked about Apple's iOS Development Center where we can get help developing our own apps," said Granville Lee, dean of Health and Applied Technology. "I'd say there were almost 100 faculty in attendance."

Instructors in radiography, industrial technology, nursing and natural sciences are in the early stages of identifying ways to integrate the iPad into their classes. And while enthusiasm for using this new tool is growing, Jim Skufis, WCC's radiography instructor, expressed concerns.

> After putting it through its paces, the students and faculty were sold.

"The texts or material that we use are not yet in an iBook format, so reading or using them on the iPad is challenging," explained Skufis. "We could convert our content ourselves, but I'm not savvy enough at it yet, and we have so many other drags on our available time. Currently, there is only one app that relates to medical imaging education for radiographers. We could try to create the apps ourselves, but we'll still come up against the same restraints I've cited. And we can't forget cost. This isn't your mom's MP3 player."

POCKET TECHNOLOGY WITH PREMIUM PAYOFF

To showcase some of the iPad's in-class applications, WCC filmed a short video using another popular handheld device, the iPhone 4. You can view it, along with photographs taken during the making of the video, at http://vimeo.com/19451245.

Though a Steadicam system was used with the device during one sequence, the standard iPhone technology is all that was needed to produce a high-quality video.

"We wanted to show what you could do with something already in your pocket, the technology is that good," said Christopher Billick, WCC's manager of web services, who produced the video with colleague Mike Wilkinson. "It's great if colleges have the budget to invest in video equipment. But if they don't, the iPhone is a good alternative." ▲

COMMUNITY COLLEGES LEARNING NEW LESSONS IN DATA PROTECTION AND **DISATER RECOVERY**

BY MONTE CHRISTMAN
ASSOCIATE

Director and System Administrator
Information Technology Dept.
Central Carolina Community College

When it comes to disaster recovery planning, it's time for many community colleges to go back to school. As community colleges around the country expand to serve more students in more disciplines on more campuses, their data needs are growing exponentially as well. Many of these budget-constrained schools are grasping for strategies and technology solutions that will manage growth, improve user experience and ensure a path to recovery in the event of disaster.

Central Carolina Community College (CCCC) revamped its data center to cost-effectively achieve each of those goals.

Constant data availability is the expectation today. CCCC has 20,000 student users every year, and we need to ensure their data is protected and accessible regardless of circumstance, whether something goes down in our main data center or we experience a true disaster that moves us all off campus.

IT departments at colleges large and small have expressed similar sentiments in recent years. There are two main paths driving this intense interest in data protection.

First, colleges are looking at widely reported disasters that have significantly affected campus operations: Sept. 11. Hurricane Katrina. School shootings.

Second, faculty and student work has become increasingly digitized, and IT departments find themselves tasked with more than the administrative issues that occupied them in the past. If the entire educational process — from online lectures to electronically submitted assignments — is dependent on the data center, the backup and recovery technologies must be up to par.

CCCC, a two-year college serving three North Carolina counties on three campuses in Lee, Harnett and Chatham counties, recognized a need in its operations several years ago. The school had a tape-based backup system that required an enormous window of time for securing files housed on database and e-mail servers. The IT staff, a small group carrying a large workload across all three campuses, sought a low-maintenance solution that

See Recovery pg. 9, col. 1

ENHANCING COURSES WITH VIDEO LECTURE TECHNOLOGY

The first class of a quarter is often filled with an introduction, background information, course details and an overview of the syllabus. By the time all of this information has been discussed we have lost one day of class, and since college courses are already so short, it's important to take advantage of every single class.

BY JEAN KENT

Information Technology Faculty at North Seattle Community College

In April 2007 I came to the decision that the first day of class needed to go differently in order to make better use of our time and provide students with an understanding of how the course will work. I turned to lecture capturing and visual learning technology, which allows me to record lectures and/or instructions and share them with my students ahead of time. This allows them to go over this necessary information out of class, saving valuable lecture minutes for more important discussions and hands-on activities.

Before the first class of each quarter, my students have already watched a 30-minute online orientation video encompassing a class welcome, introduction, expectations, tools and resources and housekeeping issues. This video is split into logical sections, and sets their expectations as to how the class will work and what will be required of them during the quarter. By providing students will all of this information up-front, in a format they can re-watch at anytime, I believe it improves their chances of success.

One unique challenge for my students is learning how to navigate a new learning environment that's built online rather than in their notebook. While this may take an adjustment at first, students generally internalize online information more quickly, especially since it's available for them 24/7. In this online landscape students find video tutorials that I have produced with Camtasia Studio to help guide them through the course. These videos also include all the new material they are responsible for learning. For example, my recorded lecture on Google Picasa walks students through all the background and information they need to know about the program. Instead of typing this out or going through it in class, students can walk through this at their own speed while simultaneously using Picasa. They also have the option of pausing and re-watching the lecture to ensure they obtain its full content.

In today's world, students are more technology savvy and obsessed than ever before. Making lectures available on their laptops, iPhones and other devices will further drive their interest in learning because it is "speaking their language." Therefore, I introduce the most important concepts to my students through a video lecture to emphasize the material they need to know before they begin working on an assignment. Then I can use our weekly online class meetings for answering specific questions which provides students with a more intimate and rewarding learning experience.

Another great benefit of online learning is the ability to provide students with visual feedback. I use Camtasia Studio to provide comments to students on their homework assignments and tests. This allows me to spend more time explaining my feedback to students and give them very specific comments and suggestions. When grading Web coding projects I record a short video that provides student with a detailed explanation of any errors they have made along with suggestions for moving forward. Providing students a video that specifically critiques their work is invaluable in their learning and future success because it brings to life the entire process. These videos also come in handy when multiple students are having the same problem. I can send them each a video explaining how to solve the problem, like using an ampersand incorrectly. These videos also provide me great content for future classes.

When creating videos for my classes I begin with a very rough storyboard that outlines my ideas. From there I develop a script to go along with the material. After recording a lecture there is very little editing that needs to be done, and even if there is some editing required, it is very quick and easy. Considering the increased effectiveness of online lectures from a student learning standpoint, this recording time is well worth the investment. The assignment feedback videos are also very easy to record and take very little time to complete.

The best thing about video lectures is the feedback that I receive from my students. I gather comments on my videos through an anonymous class survey and have been very pleased to find that students really enjoy and value the video lectures. Students react positively to the video lectures and request that the course continue to operate this way. Based on this response and the outcome these videos have had on class time, overall learning and assignment feedback, lecture and video capture has become an instrumental tool for my course. ▲

Recovery, from page 8, col. 3

would incorporate disk-based protection and deliver hourly snapshot and replication capabilities to meet the stringent expectations of the college community for always-available data access.

The college worked with FalconStor Software to protect and backup two terabytes of data on its main Datatel Colleague system and e-mail servers. The college expects its data to double in the near future with the addition of supplementary servers. Today, the school relies on a continuous data protector (CDP) appliance for snapshots with replication for failover and failback. The solution enables CCCC to leave its system up and running while simultaneously mounting snapshots, all in a low-maintenance environment. CDP provides the back-up and protection for more than 20,000 student users per years, as well as 10 servers running Solaris, Linux and Windows.

Now that we have a strong data protection system in place, we see constant data availability as being as necessary as a ubiquitous technology such as e-mail and, pleasantly, just as easy to use.

Many colleges have assigned their IT departments what might feel like a challenging project: upgrade the data center in a manner that meets user expectations, prepares for any possible disaster and meets budget limitations. CCCC upgraded its data center five years ago and shares several lessons with colleagues seeking out the best tools and technologies to get the job done. Some of the lessons we learned:

> Like dusty chalkboards, overhead projectors and the slide rule, tape-based data backup should no longer be the primary part of the educational landscape.

Lesson #1: Data back-up should not require 24 hours or more. The lengthy back-up window required by tape is unnecessary and unsustainable.

Lesson #2: When a college gains the capability for hourly snapshots and a replication process that doesn't interrupt normal operations, the IT director sleeps better at night.

Lesson #3: Enhancing the data center should make life easier for users and staff. Low-maintenance solutions with consistently available, external technology support are essential.

Lesson #4: A community college, like almost any enterprise dedicated to protecting its assets, needs comprehensive backup. But public schools also need to be good financial stewards. The correct deployment for these institutions should integrate seamlessly with existing technology and provide a foundation for future growth unrestricted by vendor lock-in.

THE FUTURE OF DATA PROTECTION ON CAMPUS

Community colleges are evolving. As campuses swell to accommodate unprecedented enrollment, data center technologies must adapt, as well. Instructors, administrators and students demand that the work they do is protected and accessible from on campus or off. Today, with more solutions geared to meet the particular requirements of educational institutions, meeting that demand is both possible and fundamental.

Like dusty chalkboards, overhead projectors and the slide rule, tape-based data backup should no longer be the primary part of the educational landscape. The modern community college is digital, and it deserves a comparably updated and efficient approach to data protection. ▲

MontE Christman is the associate director and system administrator in the IT Dept. for Central Carolina Community College. He has been in the computer industry for 12 years. His responsibilities include IT projects ranging from hands-on implementations to project management.

TECH-NOID

Across the world, 160 billion emails are sent every day, 97 percent of which is spam, according to www.didyouknow.org. Spammers get one response for every 12 million emails they send, yet still manage to make a small profit.

NEW TECHNOLOGY DRIVING EFFICIENCY, SAVING TIME AT MARINELLO SCHOOLS

One of the more significant challenges facing post-secondary colleges and institutions involves creating operational efficiencies through back-office management systems. At Marinello Schools of Beauty (46 campuses throughout Arizona, California, Nevada, Oregon, and Utah), we recently went looking for an affordable new system to manage all of our schools' administrative and student finance-related functions. We had been using a variety of management systems and processes that weren't integrated, were costly and lacked the flexibility we needed to drive growth and improve procedures at our schools.

BY MICHAEL FLECKER

Chief Financial Officer
Marinello Schools of Beauty

Based on the way we operate, we needed a system that not only manages but also directs the complete lifecycle of our students – from the prospective student inquiry to registration, enrollment, financial aid packaging/disbursement, on through student performance and progress, and in helping the student find a job and maintain a relationship with our school after graduation. In order to have the system help "direct" these efforts, our goal was to implement a deeply integrated system that provides alerts, reports, guides, and checks and balances. We also wanted to significantly reduce administrative paperwork and provide real-time access to school data and student information for our school operators.

The only solution that met our needs in all of these areas has been developed by an exciting new company called Vocado, which has designed a system specific to the post-secondary education market focusing on schools offering one- and two-year programs. We have already implemented Vocado at several of our schools, and the results are impressive. Vocado is eliminating the need to use any other software systems or applications to monitor our school's performance.

Because Vocado is a hosted and managed cloud-based solution, deployment has been efficient and inexpensive. Vocado leverages the latest Internet Web 2.0 technologies, which provides us with vital flexibility, scalability and low maintenance. Additionally, these characteristics allow the system to adapt easily to changing requirements at our schools, as well as ever-changing government regulations. Some of the functional areas where we've found the system has provided significant improvements in the way we operate includes the management of prospective student inquiries, admissions and student services, financial aid management, student payment management, graduation processing, career services, default management and regulatory reporting.

In addition to its core functionality, Vocado allows us to easily outsource certain back office processes allowing us to leverage lower cost third-party providers and aggregators. Vocado features what are known as "integration hooks," which allow us to rapidly integrate the systems of some of our various third-party providers. Some of the key process areas we expect to integrate with these providers include financial aid, default Management, student account collections, marketing and eventually, student supplies.

Thanks to these great improvements, our employees at the school level are beginning to see some significant time-savings. Financial aid officers, admissions advisors, registrars and other student services personnel have been reporting decreased time spent doing certain activities due to our implementation of Vocado. At the corporate level, we're also experiencing similar time-savings by employees in our call center, accounting department and other operational departments.

The reaction to our implementation of Vocado by our staff has also been quite remarkable. Yesenia Gutierrez, our director of student services, has been using the system for several months and recently told me, "I am amazed at how easy Vocado is to use and understand. Vocado enables us to be ten times more accurate because everything is in one system — no more manual reports!" As a supervisor, the system saves her a lot of time. As an example, instead of her having to check reports on each of our campuses individually, Vocado will allow her run reports on all 46 schools at once.

Lety Cota, one of our regional financial aid managers, quickly realized that Vocado will significantly help in the financial aid office. She told me, "Vocado has a lot fewer steps than our current system and is much faster. It is remarkable how little time it takes to learn how to use the system." Our financial aid officers will spend much less time on packaging and awarding students and much more time with students after the enrollment process is completed to ensure they are confident about how they will pay for their education and, if they borrowed money, that they truly understand their loan payment responsibilities.

Janet Meyers, a student services coordinator, believes Vocado also benefits registrars significantly. "Vocado helps registrars cut down on the amount of time they spend on administrative tasks and paperwork so that they can focus more of their attention on supporting students in any number of ways. The system itself literally guides them on what they need to do administratively on a daily basis."

From what we have experienced so far with Vocado, I'm convinced that the developers of this solution understand what it takes to run a good school. Our competitiveness as a company is strongly tied to the tight management of our processes through automation, and this new solution is giving us a "leg up" and allows us to increase efficiencies in our operations, which any CFO would love. ▲

UPDATING TECHNOLOGY MEANS MAKING THE RIGHT LONG-TERM INVESTMENT

BY ART RANKIN
DIRECTOR

Projectors and Higher Education Sector
Panasonic Solutions Co.

Providing students with the latest technology might be an easy way to increase attendance or stimulate student interest. However, rather than luring students to come to a specific college by providing them with the latest and greatest smartphones and mobile computers, many schools are using IT budgets to enhance the technology within classrooms and lecture halls. This, in turn, can ultimately improve the learning experience for students and make teaching less stressful for educators.

Technology is an ever-present part of our world. From status updates on Facebook to sending text messages, a majority of the things we do today are technology-based. From an educator's perspective, the challenge is figuring out how to successfully implement the necessary and needed technology within the classrooms and lecture halls in a cost-effective manner. According to the 2010 Horizon Report, "Across the board, (higher-ed) institutions are looking for ways to control costs while still providing a high quality of service. Schools are challenged by the need to support a steady — or growing — number of students with fewer resources and staff than before."

Funding is scarce in education. In fact, a statistic from The Center of Digital Education says that 41 states have implemented cuts to higher education, which means instead of getting funding to upgrade classrooms, educators are left to fend for themselves, including using inferior technology solutions, if any at all. With limited budgets, as well as increases in tuition and classroom numbers coupled with a decrease in staffing, colleges cannot afford to hand out the "coolest" technology as a ploy to incoming students. Therefore, it is more important than ever to find reliable technology solutions that provide the most out of limited resources and yield a high return on investment (RIO) and low total cost of ownership (TCO).

Institutions are not only looking for solutions that are cost effective, but they also want products that are reliable, durable and provide warranties to protect their investments. Fortunately, technology companies are recognizing this need and creating internal positions focused on building technology solutions to improve the learning experience.

As director of Higher Education Sector for Panasonic Solutions Co., my job is to go out into the field, identify colleges' technology challenges, their pain points, discuss long-term goals and provide reliable solutions that best fit their environment and specific needs.

Many colleges have decided to maximize technology investment by deploying solutions that offer the optimal combination of performance, low TCO and high ROI, including Montgomery County Community College (MCCC).

Located in Pennsylvania and ranked as the number one technology-savvy community college in the nation by the Center for Digital Education and *Convergence* magazine, MCCC continuously makes impressive changes to keep up with constant technology changes making this college standout above the rest.

MCCC started using Panasonic plasma displays for its display system and video conference rooms seven years ago. Since the initial deployment, they have installed approximately 60 plasma displays to date. Four years ago, they began replacing existing classroom LCD projectors with Panasonic projectors.

Currently, there are 265 Panasonic projectors in the classrooms and lecture halls around the campus.

In all, about 98 percent of the community college's displays and projectors are Panasonic.

Since using Panasonic products, MCCC has experienced a significant reduction in projector failures and lamp replacements, yielding a low TCO and high ROI for the institution.

This, in turn, minimized classroom downtime and a volume of maintenance needs, allowing professors and students to focus on learning.

Educators are constantly searching for technological solutions. If demands are met efficiently through strong, collaborative partnerships, like the one we have with MCCC, not only will colleges satisfy the needs of faculty and students, but also IT managers can have a little less to worry about. ▲

MAKE CHANGE HAPPEN

Gateway Community and Technical College Focuses on Managing Institutional Knowledge

On the national stage, community colleges are finding themselves front and center in a spotlight of increased accountability. The transition from the focus on the open access philosophy to a focus on completion will require substantive modifications to the way community colleges operate. The deep-seated challenge for these institutions will be identifying where to begin. The community colleges that will have the greatest impact on improving student completion, will be those institutions that take a hard look at their institutional research, planning and effectiveness functions and begin to transition those roles into a centralized system of knowledge management that drives the strategic development of the institution.

BY PATRICIA A. GOODMAN

Vice President Knowledge Management and Strategic Initiatives Gateway Community and Technical College

STRATEGIC PLANNING RELATIONSHIPS

Gateway Community and Technical College, in Florence, Ky., began an important transition through the development of the college's 2010-16 strategic plan: Make Change Happen. This transition forced the institution to thoroughly evaluate its existing research, planning, and effectiveness functions. While the college already had a centralized office for research, planning and effectiveness, the strategic planning process served as a springboard opportunity to engage the college community in a deeper level of collaboration and refine the overall planning and evaluation process. In the midst of rapid enrollment increases, the college began to create a new direction that more closely resembled a strategic business plan for growth than a traditional educational strategic plan.

The strategic plan resulted in three broad strategic focus areas: pathways, engagement, and organizational Capacity. These focus areas represent the student's educational pathway from access to completion, the engagement of students through the pathway, and the development of the organizational capacity needed to ensure success in moving students through the pathway. Within these three focus areas are 10 strategic goals and 16 key performance indicators. The structure and organization of this plan provide a simple context for the college community to understand and support; however, the college realized that it needed a process that would place the strategic plans in the hands of each individual employee as a living, breathing process to drive their work.

Gateway purchased a third-party software platform that allowed for full customization to meet the culture and needs of the college. This web-based platform has allowed the college to build an electronic knowledge management system that maintains strategic planning relationships at four levels: the Kentucky Community and Technical College System (KCTCS) level (on which the college plan is developed); the college-level; the department/program-level; and the individual employee-level.

Through this system, every employee of the college can see the impact of their work on their department/program, the college, and KCTCS. Individualized employee dashboards provide employees with a tool that allows them to interact with their individual plan, reporting on accomplishments and making adjustments as needed. The employee-level dashboard provides a direct connection to annual performance evaluations for all full-time employees. From an administrative side, this system allows the staff in the Knowledge Management Office to run detailed, filtered reports on the college's progress and accomplishments toward the strategic plan across all four levels. The key connection to the planning system was the development of comprehensive frameworks for data collection and analysis.

FRAMEWORK DEVELOPMENT

Through the development of the strategic plan, the college quickly realized that the traditional approach of data collection and reporting would no longer sustain the development of the college, and more specifically would not position the college well to meet the challenge for increased completion rates. Data elements related to enrollment, completion, retention, etc. are certainly important; however, if they are viewed as individual data outside the bigger context of momentum points along the student pathway, they will not prove useful in transforming the performance of the institution.

Each key performance indicator associated with the strategic plan has a set of associated performance measures, which provides the ability to drill down into more detailed data. These indicators provide a high-level structure for a comprehensive, consistent framework of data that pulls elements from a wide variety of sources and pushes data into a variety of contexts to support the college fact book, annual impact reports for the strategic plan, curricular program review, and a variety of other quality assurance initiatives. The development and use of this framework occurs within the same electronic system used for strategic planning. Through a streamlined process that relies on technology to conduct analysis and make the right information available to the right individuals at the right time, significant time and resources are conserved and greater emphasis can be placed on increased collaboration and dialogue to further develop an institutional culture steeped in inquiry.

The traditional roles of the research, planning and effectiveness offices are in dire need of an overhaul. Community college leaders need to start viewing these offices as one of their greatest assets. Leaders must make a critical decision in the future of their institutions: let a comprehensive knowledge management process, led by a centralized office through decentralized involvement of the college community, drive the strategic direction of the college or let every area of the college create their own strategic direction. ▲

The author is a graduate of the Ph.D. in education program with a specialization in community college leadership, Walden University.

INNOVATION IN EDUCATION: VIDEO ARRIVES ON THE SCENE

Textbooks are the learning tool of choice for millions of students and teachers across the country – and have been since the early days of instruction. Yet, these days the college bookstore shelves don't clear out quite as quickly at the start of the school year. It's not because students are choosing to ignore their studies; rather, they're turning to digital books to lighten their load.

BY MICHAEL RUBIN

Vice President of Marketing VBrick Systems Inc.

Just as learning tools have shifted with the availability of new technologies, so has the classroom environment. No longer are students confined to listening to lessons within the four walls of the lecture hall and at set times. Now they can view their class sessions online either live or at their leisure on-demand through streaming video. This lets students who are out of town or have a conflict with class to still "sit-in" on the lecture, and even access it later when preparing for exams or drafting a paper. And, in the same manner, instructors may use video to view and evaluate students practicing their craft or demonstrating their newly acquired knowledge.

The flexibility and interactivity enabled by streaming video has changed the educational experience as we know it. While these advances are appreciated by all, their impact is most acutely felt by those involved in the community college ecosystem where students constantly juggle their lives and full-time jobs with a full class schedule. Although some community colleges have even gone as far as offering mid-night classes to accommodate those with irregular schedules, instructors can now bring the lesson of the day directly to those students whether they are sitting at desks in a classroom at midnight, in a remote campus location viewing a lecture live, or at home in front of their computers viewing video on demand. They're able to present the material in an engaging and interactive manner.

Beyond lecture capture capabilities, advances in streaming video technologies have put the power of video in the hands of the student and led to impressive results.

ONE COMMUNITY COLLEGE'S SUCCESS STORY

Glendale Community College in Glendale, Ariz., has 400 nursing students, and only 22 full-time instructors and two lab coordinators. Most of the curriculum is taught en masse, but nursing students must also prepare to screen, query and treat patients by themselves. The nursing facility has created observation rooms where students make decisions and perform these procedures alone using lifelike mannequins. However, the college needed to find a way for students to share these procedures with the faculty so that they could provide critiques and instruction with-

See Video page 15, col. 1

SAVING GREEN, GOING GREEN:

NASSAU COMMUNITY COLLEGE TAKES ITS COLLEGE CATALOG ONLINE

BY JENNIFER DRUCKER

Crative Designer/Assistant to the Director Nassau Community College

Nassau Community College is the largest single-campus community college in the state of New York with nearly 24,000 students and is part of the State University of New York system. Like many community colleges in recent years, we are always looking for ways to reduce operational costs and become a little greener. We found a perfect opportunity in our printed college catalog.

In addition to the massive paper requirements for printing, traditional methods for putting together the college catalog were very costly at around $500,000 over a projected 5-year period. The process was also very inefficient and labor intensive and resulted in outdated content by the time the catalog was printed. It had become an ineffective method for serving our students.

By taking the college catalog online and out of print, NCC was not only able to significantly reduce the cost of producing the catalog, we were able to produce a better product that is more cost-effectively managed. Updates now are made twice a year, instead of every 2 years, far better serving the needs of students. We have also eliminated the printing of more than 100,000 catalogs per run, allowing the college to become environmentally greener. Many other benefits were realized along the way.

THE PATH TO AN ONLINE COLLEGE CATALOG

We knew the printed catalog was not the best communication and marketing tool. We spent more than $160,000 every 2 years to design and print the 300-page catalog. So, cost was certainly one reason an online version was appealing. Putting the catalog online would save a lot of paper and ink, allowing us to positively contribute to the environment, which was another incentive. The printed version also took 6 to 8 months to produce. During production, many changes to courses would occur. So, the catalog was always very outdated coming off the printing press. Moving it online would allow us to keep it more current. It was clear from the get-go that we would benefit greatly with an online college catalog.

With the support of a new technology-driven president, we designated an implementation team comprised of stakeholders at the College. This included the Marketing and Communications department, Academic Student Services, Academic Affairs, and the IT department.

Our initial strategy meetings, return on investment (ROI) documents, and planning took around 6 months to finalize. In addition, the actual implementation, from start to finish, took approximately 6 months. The catalog went live November 1, 2010.

THE END RESULT

We broke down our online catalog into three primary sections: an overview section, policies and procedures section, and a programs section. Within the overview section of the catalog on the NCC website, users can find out about the College, clubs, academic calendars, and so forth. The policies and procedures section describes all the important College policies on topics such as admissions, registration, and special programs. And, of course, the programs section holds all the details on our programs and courses.

The catalog was created using two primary technologies. All of our course data is housed in SunGard's BannerTM and we used OmniUpdate's OU CampusTM web content management system (CMS), which we also use to manage our website, to retrieve the XML data that was exported from Banner. The XML data then was transformed via XSL into multiple channels, including PDF and web pages. OmniUpdate created a search solution for the catalog and set up custom templates that allowed our staff to easily create and edit the supporting content for the catalog.

The data is where we ran into the biggest implementation obstacle. In the past, when we created a print version, all corrections were made directly in the print version, but not within the database. At the start of this project, when we printed a PDF of the sample course data, we saw many inconsistencies that needed to be fixed in the database. For example, for the "Music" courses, we had three different abbreviations. For this project to be successful, these inconsistencies needed to be reconciled. A by-product of this project was to make the data consistent with the online version and set up data entry standards. With the data well-prepared, we could cleanly export it to create the online catalog.

Now, OU Campus automatically generates both the searchable web-based and printable PDF versions of the college catalog. We print a small run of the course section of the catalog as a desk reference for faculty and staff to supplement the online version.

The current online catalog is much more user-friendly, allowing our students, faculty, and staff to quickly find what they need. The programs area of the site allows users to browse an alphabetical list of our departments. A link on a department will take the user to specific programs offered by that department. Once a user clicks on a program, a suggested course sequence and links to specific courses are also displayed. In addition to browsing through our programs, users can search for them by department or keyword.

REAL ADVANTAGES

With a true online college catalog, we now have accurate information that is easy to access and that better serves our students. With a one-time programming cost of $24,000, our College will save approximately half a million dollars over the next five years compared to keeping a print catalog. Rather than every two years, we can now update the catalog each semester to include the latest course offerings and updated policies, and our staff can update content as needed. So, it's no longer outdated right off the printing press. It's been a success in terms of cost savings, environmental conservation, and usage. ▲

PHOTOS COURTESY OF NCC

AT KEY WEST CC, TECHNOLOGY STRENGTHENS ENROLLMENT REPORTING AND STRATEGY

A beautiful island/marine setting, complemented by a strong focus on learning, has led many students to consider Florida Keys Community College as an idyllic education environment. However, when faced with an enrollment decline and changing demographics within its target population, the college realized it needed to evaluate and redefine its enrollment strategy. By engaging SunGard Higher Education for strategic advisory services and implementing Banner Relationship Management and Banner Recruiting & Admissions Performance, our college was able to build a sound strategy for enrollment management. The resulting actions have helped us experience direct cost savings, eliminate redundancies and effectively track progress toward strategic goals and objectives.

BY BRYAN GILCHRIST

Director of Information Technology
Florida Keys Community College

Traditionally, most of our students came from within our own county; however, those high schools are experiencing a decline in enrollment so we need to start drawing more prospects from outside our county and outside the state. We need to take action to preserve our institution, and not only manage enrollment, but doggedly address its continuing decline.

College President Larry Tyree, has been instrumental in setting recruitment as a top strategic priority for the college "Our recruiting efforts need to become more strategic in response to changing demographics and increased competition," he explains. "Banner Recruiting & Admissions Performance helps us measure which marketing efforts are the most effective, and make adjustments that are based on timely data."

Banner Relationship Management and Banner Recruiting & Admissions Performance are part of the Banner Enrollment Management Suite from SunGard Higher Education for technology-assisted recruiting and admissions, retention and alumni relations solutions. Banner Enrollment Management addresses the interrelated phases of planning, executing and measuring an institution's enrollment management efforts. The suite captures and connects relevant information in one place, leveraging the data and capabilities within our Banner student system.

Our objectives for implementing the solutions were two-fold. One, we wanted to centralize and systematically streamline enrollment management, and two, we want to use analytical metrics based on real data to make strategic decisions.

Before implementing the SunGard solutions, we had invested in creating new high-quality marketing materials, and we wanted to use them in the most effective and efficient way possible. Also, the college had taken steps to make credits more transferable and had created more tracks within our associate of arts and the associate of science degree programs to attract more students. We needed to get information about these important improvements and our new marketing materials into the hands of the right prospects.

"In the past, we've had leads coming in from everywhere, but no way to track them," recalls Liz Love, recruiter at the College. "We also couldn't measure the success of our recruiting efforts."

Initially, the college hired a consultant as a stopgap measure to address the decline in enrollment. Directives were issued to all corners of the college to make every effort to reach out to prospective students. Concerted marketing efforts began, telephone calls were made, letters and e-mails were sent; even our president made phone calls to prospects. However, these endeavors were tracked haphazardly, resulting in lost data, duplication of efforts and the occasional angry prospect who felt a bit harassed.

> "In the past, we've had leads coming in from everywhere, but no way to track them. We also couldn't measure the success of our recruiting efforts. Now we have all the data we need in one central location. We can see where people are in the funnel and we can identify stronger prospects."
>
> — Liz Love, recruiter
> Key West CommunityCollege

"We had a lot of duplication of effort," recalls Mike Cruz, assistant director of IT at the college. "Prospects might receive information and phone calls from several people which would annoy them. And the duplication of effort was wasting our time and money."

In addition to ineffective recruiting efforts, the college could not trace applicant populations back to respective campaigns. Also, the college had no way to analyze the progression of a student from prospect to matriculate. Then we made the decision to implement the Banner Relationship Management solution.

In preparation for implementing the solutions, the college engaged with SunGard Higher Education for strategic consulting in the area of enrollment management. The consultant helped our staff understand the underlying concepts behind the enrollment solutions and the role of the applications in strategic planning. The process was extremely beneficial to us. For the first time, we have a focus and a direction for our recruiting efforts.

We went live with Banner Relationship Management in November 2008, a month ahead of schedule. The early go live enabled, our staff to target current students and applicants for an upcoming spring term and alert those populations about upcoming registration.

"Without the software in place, we would not have been able to alert our constituents about the upcoming term until two weeks before it started and they would have already made their decisions by then," says Cruz. "We also used the product to create a mini campaign to target students with registration holds so that they could be proactive and address their issues prior to registration. Within 15 minutes of sending out the communication, 10 percent of those students responded and corrected the outstanding issues."

The solution leverages data already residing in our Banner administrative system. It provides our recruiters and admission counselors with a user-friendly way to interface with Banner to improve their enrollment strategies. In addition to improving the ways that FKCC communicates with its constituents, the solution also automates communications and provides processes for the college to create and track those interactions.

Our staff is eager to use the software for more campaigns and to use its applications more fully.

"Now we have all the data we need in one central location," explains Love. "We can see where people are in the funnel and we can identify stronger prospects. Before, we treated all prospects the same way and spent a lot of time and money pursuing soft leads that did not pay off. Now we can put our energies on the stronger ones."

In the future, the college will be able to measure our success in more detail using

Banner Recruiting & Admissions Performance. The solution includes scorecards, dashboards and measurement features that support longitudinal planning, trend analysis and ad hoc querying that can help the college align its recruiting strategies to its enrollment goals.

The Performance solution will help us gauge enrollment as it ties into our strategic plan. The reporting functions will give executives self-service access to data that we never had before. They will be able to calculate the yields of marketing efforts, and track where our recruits come from. And our IT staff will be freed up from managing the reports and data.

Without the Banner Enrollment Management Suite, we would have continued to manage enrollment in a disorganized, inefficient fashion. The consulting guidance and the solutions forced us to re-evaluate and change our business processes so that we can focus on strategic objectives pertinent to participating in a competitive market, and they also helped streamline those processes so we can better serve our constituents. ▲

BILL & MELINDA GATES FOUNDATION MAKES $4M INVESTMENT IN INIGRAL

The Bill & Melinda Gates Foundation has made a $2 million program-related investment (PRI) in the education technology company Inigral Inc. — the first direct equity investment by the foundation in a for-profit company as part of its charitable mission.

The new investment provides capital for Inigral to further develop and market its education-focused social media technology product, the Schools App, built on the Facebook Platform.

"We're excited that the Bill & Melinda Gates Foundation shares our vision for the promise of social media to enhance educational outcomes," said Michael Staton, Inigral co-founder and CEO. "A college student's decision to drop out creates a lot of challenges, for that individual's future and our society at large. Our Schools App can increase a student's sense of belonging and integration within an institution, lowering the chances of attrition."

The Schools App leverages the Facebook Platform to accelerate interconnectedness and build community among college students during the admissions and orientation process, as well as their first-year experience. Through the combination of a familiar user interface, easy access from Facebook, social game constructs and a trusted environment, the Schools App quickly creates affinity groups that drive feelings of friendship and belonging. Academic research shows that increased social and academic integration, involvement and engagement in college can boost student learning and persistence, thereby increasing the likelihood of completion.

"The foundation's investment in Inigral reflects our interest in supporting innovative education technology and approaches with the potential to improve student success – especially among students who are the first in their family to attend college," said Greg Ratliff, senior program officer for Education, Postsecondary Success at the Gates Foundation. "Leveraging social media to facilitate a student's integration into academic and campus life is a promising approach toward improving college completion rates in the United States."

The Gates Foundation's equity investment is part of an ongoing exploration of innovative avenues of charitable giving to improve education. The foundation also will provide grants to academic researchers and higher education groups to study the impact of social media on postsecondary student engagement and retention. Similarly, last October, the foundation launched the Next Generation Learning Challenges, which has already made up to $30 million available through challenge grants to innovators and institutions to expand the use of promising technology and applications that enhance college and career readiness.

Inigral also is backed by Founder's Fund, managed by Peter Thiel and Sean Parker, and Retro Venture Partners, headed by Larry Mohr and Sal Gutierrez. Both venture capital firms have experience investing in technology and social networking platforms.

Inigral has been building on the Facebook Platform since 2007 and is the only company working in higher education selected by Facebook to participate in the Preferred Developer Consultant Program.

"Facebook was founded in a college dorm and gave classmates a way to connect with each other," said Ethan Beard, Facebook's director of platform partnerships. "Inigral's Schools App continues this legacy by working to positively impact the lives of students and increase the likelihood of graduation. The involvement of the Gates Foundation highlights the opportunity for startups like Inigral to build on Facebook to make an impact on education and create new opportunities for students."

Eleven schools already use the Schools App, including Arizona State University, Columbia College Chicago, Maricopa Community Colleges, Stetson University and The University of Texas at Tyler. New clients include Pace University, Hofstra University, the New Jersey Institute of Technology, Savannah College of Art and Design and the Academy of Art University. Students use the application to obtain and share information about the academic and social environment at their school, as well as to find other students with similar interests, experiences or course loads and to organize face-to-face meetings.

"The Schools App finds students where they live – online and on Facebook," said Michael Crow, president of Arizona State University, which uses the Schools App. "The application goes beyond just adding friends and posting status updates, it encourages meaningful interaction – engaging both commuter and residential students with our community, sometimes before they even set foot on campus. Social media technology can help facilitate the transition to college life and encourage more students to earn a degree."

College graduation rates have remained stagnant for many years, yet there is a growing U.S. need for postsecondary degrees. By 2018, when today's fifth-graders graduate from high school, an estimated 63 percent of U.S. jobs will require an education beyond high school. Currently, only 22 percent of students go on to earn a degree after high school.

Inigral will offer grants and discounts to community colleges and public, state and land-grant universities that serve diverse student populations, including high numbers of students eligible for Pell Grants. This program will be exclusively provided to institutions with ambitions in social media and software. Interested parties can find more details on the Inigral website. ▲

COURTESY PHOTO

The Bill & Melinda Gates Foundation is committed to using technology to improve educational outcomes.

Video, *from page 12, col. 4*

out being physically present.

In order to meet this need, the college turned to an inexpensive, scalable video distribution platform that was both easy to install and easy to use. It required eight encoders, one for each observation room, that store captured video in a Windows Media format, an on-demand server and supporting video distribution components. With these elements in place, the system captures students in action, stores the video and enables faculty to access it later.

One sign of an effective technology is how invisible it is to the people whose lives it simplifies. Nursing students at Glendale now log in, key in the simulation they intend to practice, and the system automatically begins streaming audio and video to the video distribution server. In turn, faculty can access the footage with the click of a mouse from any location that provides Internet access without disrupting the network. They can also selectively search for videos of students executing a specific task, like starting an IV or demonstrating CPR.

Before, students were recorded with a camcorder and faculty would have to search through the tapes to see their simulations. Often, instructors would carry 20 to 30 videotapes back and forth from their home to their office. The new video system not only creates a realistic setting within which the student may practice, but it streamlines the process making it more cost and time efficient for everyone.

The technology can grow and be implemented by other departments at the college as well. Since the infrastructure is already in the place, the system can easily be scaled to new and larger environments. And while they use it for their nursing program, it can be applied to a variety of other fields from speech and communications to biology.

Streaming video will continue to be embraced by more and more community colleges as word of the technology's abilities and benefits spread: it enables teachers to provide each of their many students with valuable, constructive feedback, while providing students with the resources to truly see their strengths and weaknesses. And just as the use of video has risen through the ranks as a result of YouTube's popularity, the trend is bound to continue in the education world. ▲

WIRELESS ADVANCES COULD MEAN NO MORE CELL TOWERS

NEW YORK (AP) — As cell phones have spread, so have large cell towers — those unsightly stalks of steel topped by transmitters and other electronics that sprouted over the last decade.

BY PETER SVENSSON
AP Technology Writer

Now the wireless industry is planning a future without them, or at least without many more of them. Instead, it's looking at much smaller antennas, some tiny enough to hold in a hand. These could be placed on lampposts, utility poles and buildings — virtually anywhere with electrical and network connections.

If the technology overcomes some hurdles, it could upend the wireless industry and offer seamless service, with fewer dead spots and faster data speeds.

Some big names in the wireless world are set to demonstrate "small cell" technologies at the Mobile World Congress, the world's largest cell phone trade show, which was held in Barcelona, Spain.

"We see more and more towers that become bigger and bigger, with more and bigger antennas that come to obstruct our view and clutter our landscape and are simply ugly," said Wim Sweldens, president of the wireless division of Alcatel-Lucent, the French-U.S. maker of telecommunications equipment.

"What we have realized is that we, as one of the major mobile equipment vendors, are partially if not mostly to blame for this."

Alcatel-Lucent was at the show demonstrating its "lightRadio cube," a cellular antenna about the size and shape of a Rubik's cube, vastly smaller than the ironing-board-sized antennas that now decorate cell towers. The cube was developed at the famous Bell Labs in New Jersey, birthplace of many other inventions when it was AT&T's research center.

In Alcatel-Lucent's vision, these little cubes could soon begin replacing conventional cell towers. Single cubes or clusters of them could be placed indoors or out and be easily hidden from view. All they need is electrical power and an optical fiber connecting them to the phone company's network.

The cube, Sweldens said, can make the notion of a conventional cell tower "go away." Alcatel-Lucent will start trials of the cube with carriers in September. The company hopes to make it commercially available next year.

For cell phone companies, the benefits of dividing their networks into smaller "cells," each one served by something like the cube antenna, go far beyond esthetics. Smaller cells mean vastly higher capacity for calls and data traffic.

Instead of having all phones within a mile or two connect to the same cell tower, the traffic could be divided between several smaller cells, so there's less competition for the cell tower's attention.

"If it is what they claim, lightRadio could be a highly disruptive force within the wireless industry," said Dan Hays, who focuses on telecommunications at consulting firm PRTM.

Rasmus Hellberg, director of technical marketing at wireless technology developer Qualcomm Inc., said smaller cells can boost a network's capacity tenfold, far more than can be achieved by other upgrades to wireless technology that are also in the works.

That's sure to draw the interest of phone companies. They've already been deploying older generations of small-cell technology in areas where a lot of people gather, like airports, train stations and sports stadiums, but these are expensive and complicated to install.

In New York City, AT&T Inc. has started creating a network of outdoor Wi-Fi hotspots, starting in Times Square and now spreading through the midtown tourist and shopping districts. Its network has been hammered by an onslaught of data-hungry iPhone users, and this is one way of moving that traffic off the cellular network.

Smaller cells could do the same job, but for all phones, not just Wi-Fi enabled ones like the iPhone. They could also carry calls as well as data.

San Diego-based Qualcomm will be at the Barcelona show with a live demonstration of how "heterogeneous networks" — ones that mix big and small cells, can work. A key issue is minimizing radio interference between the two types of cells. Another hurdle is connecting the smaller cells to the bigger network through optical fiber or other high-capacity connections.

"That's an impediment that we're seeing many operators struggling with right now as data volumes have increased," Hays said.

LM Ericsson AB, the Swedish company that's the largest maker of wireless network equipment in the world, also introduced a more compact antenna at the show, one it calls "the first stepping stone towards a heterogeneous network."

Small cellular base stations have already penetrated hundreds of thousands of U.S. homes. Phone companies like AT&T, Verizon Wireless and Sprint Nextel Corp. have for several years been selling "femtocells," which are about the size of a Wi-Fi router and connect to the phone company's network through a home broadband connection.

The cells project radio signals that cover a room or two, providing five bars of coverage where there might otherwise be none.

A key part of the "small cell" idea is to take femtocells outside the home, into larger buildings and even outdoors.

Picochip, a British company that's the dominant maker of chips for femtocells, was in Barcelona to talk about its chips for "public-access"" femtocells, designed to serve up to 64 phone calls at a time, with a range of more than a mile. They could be used not just to ease wireless congestion in urban areas, but to fill in dead spots on the map.

For instance, a single femtocell could provide wireless service to a remote village, as long as there's some way to connect it to the wider network, perhaps via satellite.

Analyst Francis Sideco of research firm iSuppli pointed out a surprising consumer benefit of smaller cells: better battery life in phones.

When a lot of phones talk to the same tower, they all have to "shout" to make themselves heard, using more energy. With a smaller cell, phones can lower their "voices," much like group of people moving from a noisy ballroom to a smaller, quieter room.

"Ultimately, what you end up with is a cleaner signal, with less power," Sideco said. ▲

ALWAYS ON:

MORE PEOPLE RUN BUSINESSES FROM LAPTOPS IN COFFEE SHOPS

BY EARL KELLY
The Capital of Annapolis

ANNAPOLIS, Md. (AP) — Once upon a time, in romantic Paris cafes, people could be seen scribbling in notebooks.

They would be jotting down sparkling prose, and sketching out brilliant ideas. Their inspired efforts became Ernest Hemingway's "The Sun Also Rises" and F. Scott Fitzgerald's "The Beautiful and the Damned."

At least, that's the image English majors are taught to carry around for the rest of their unfulfilled lives, as reality keeps getting in the way of writing that great novel.

Now, a couple of generations after Hemingway and Fitzgerald, notebooks again are everywhere, but this time they are of the electronic variety.

What on earth are people doing with all those laptops in Annapolis coffee shops?

"I own a small staffing company and I work out of my home, and I have a small baby,' said J.D. Macey, who on a recent afternoon was working at a window table in Hard Bean Coffee & Book Sellers in downtown Annapolis.

Macey said there are too many distractions at home, which is around the corner on Conduit Street — dishes that need washing, a television that begs for attention, and a bed that is too inviting for a parent who isn't getting much sleep.

"If I want to get anything done, I have to get out of the house," Macey said.

Sitting at the next table was Abdi Russi, a banker who was in town for a General Assembly reception. He, too, had a laptop up and running, and was using the store's Wi-Fi connection.

"I can sit here and get onto e-mail," Russi said. "Otherwise, it would be unproductive time."

About five doors away, at City Dock Coffee, Doug Masiuk, an information technology consultant, was running his business from a table in the back.

"Don't need an office used to have one," Masiuk said.

Masiuk said he works out of City Dock Coffee almost every day.

Open Internet access, such as that found in coffee shops, can present security issues, Masiuk said, but the solution is simple.

If confidential information such as financial records and account numbers is that sensitive, he said, "leave it at home, have another computer."

A few feet away, Giovanna Kostrubala, from Dulles, Va., had her notebook out. She works for IBM, and was in town for a meeting. At that moment, she was in a teleconference.

"I have to travel a lot in my car, and coffee shops let me drop in and work," she said. "I love coffee shops, and I don't even like coffee."

For the coffee shop owners, laptop users can be a blessing and a bane, as these customers buy beverages and pastries, but take up tables.

Grover Gedney, owner of City Dock Coffee, said he's glad to have what he calls "the laptoppers," so long as they remember he's trying to run a business.

Gedney said he needs table space "Saturday and Sunday mornings when families come in for breakfast. From 8 (a.m.) to 12 (noon) on weekends, we'd appreciate it if you could come in after that."

One laptopper who enjoys Gedney's shop, Brianne Leith, was busy, writing for the website "The Annapolis Sound." She said she hopes to accumulate enough clips to land a paying gig.

Leith ranks City Dock Coffee superior to the competition, and quipped, "Friends don't let friends drink Starbucks."

But some folks do, indeed, like the coffee chain, and at Starbucks on West Street the next day, Tom Bertram was drinking a cup of coffee and looking deep into his laptop screen.

He is working on an associate degree in information technology, through University of Phoenix.

"Hopefully the economy will be a whole hell of a lot better than it is right now, and maybe I'll open up my own computer business," Bertram said.

Bertram isn't alone in looking for a brighter future inside a computer screen.

At 49 West that same afternoon, three men sat at adjoining tables, all with their laptops running: one was searching job sites, another was studying for his master electrician's exam, and a third was running his website.

Across the room, a woman sat studying her laptop. Jessica Maliszewski has just moved back from England, and is looking for work in arts administration. She hopes to land a job with a museum or nonprofit organization in New York City.

"My laptop? I live off of it," said Maliszewski. "I did the same thing in London I feel like coffee shops are my office." ▲

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