

Technology

■ E-Learning Tools Deter Cheaters

Cheating scandals and studies that show levels of cheating among business students have put business schools on the ethical defensive. It doesn't have to be that way, say Anthony Catanach and Noah Barsky, associate professors of accounting at Villanova School of Business in Pennsylvania. If business schools want to stop cheating, they have the perfect tools at their disposal: course management systems and e-testing.

Catanach and Barsky have found that today's course management systems offer a number of technologically based tools for test administration that work to deter cheating and improve learning. One of the best features, they say, is the creation of randomized tests for each individual student, which students complete on computers.

Using the Blackboard system, Barsky and Catanach have created a large database of questions for their accounting tests. Each question is categorized by type, including multiple choice, true-and-false, and calculation; thought process required, including memorization and critical thinking; level of difficulty; and learning objective.

"If I want to test my students on a certain type of question, I can simply design a test that pulls questions at random from the appropriate question pools," Catanach says. "Each student takes a test that includes different questions and content, but that covers the same material." Course management systems also allow professors to scramble the order of choices on multiple-choice questions or change the numbers in a calculation question for each test

taker. Even if students are sitting side by side as they take the test, CMS technology offers professors "a huge element of control," says Catanach.

Catanach and Barsky also set up tests so that students cannot view more than one question at a time, nor can they go back to questions



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they've already completed. As a result, students working at different speeds will be at different points of the test at any given time, thwarting attempts to read the answer to a particular question off another student's computer screen.

Some may argue that such a format puts students at a disadvantage because they can't go back and check their work. Catanach and Barsky address this criticism by allowing students to take any test twice before locking in a final grade. This policy gives students the chance to know the types of questions on the test and work on any weaknesses before a second try. "The second test isn't the same quiz, but it includes the same type of material," Catanach says. "That alleviates a lot of problems."

Catanach and Barsky cite other advantages to using CMS tools:

E-testing systems tabulate grades and provide student progress reports instantaneously. Other features of course management systems, such as video and podcasts on course content, not only save professors time in the long run, but also enhance their students' learning experience overall.

The professors recently conducted a study to show how the advantages of e-learning tools significantly outweigh the initial time faculty must invest to learn the systems and upload content.

"When we surveyed accounting students in classes that used e-learning tools liberally, 87 percent noted that e-learning improved their overall learning experience," says Catanach.

Although e-learning and course management systems must be used consistently and in conjunction with a robust university technology program, say the professors, such tools not only streamline test administration and grading, but also reduce—or even eliminate—opportunities for students to cheat.

■ New Networking Portal Keeps Students Connected

Bentley College in Waltham, Massachusetts, is tapping the growing popularity of online social and professional networks to add a new tool to its career services offerings. The college recently launched FalconNet, one of the first student-to-student, student-to-alumni, and alumni-to-alumni career networking portals.

FalconNet was created through a collaborative effort between Bentley's management information systems and marketing teams, as well as Harris Connect, an alumni and membership services company based in Norfolk, Virginia. In addition to



providing information on jobs and internships, the online networking community allows students to set up their own home pages. There, they can describe accomplishments, experiences, and career objectives, in the same style as pages on popular social networking sites such as MySpace and Facebook.

Users can search for classmates or alumni by employer, field, or interests. Such connectivity is incredibly valuable to students in their job searches, says Caitlin Blasco, Bentley's director of undergraduate career services. "If a student has an interview for an internship at Deloitte & Touche, he can contact other Bentley students who have interned

there to find out what the interview process is like and what kind of responsibilities they had," she says.

Like other online social networking sites, FalconNet enables students to expand their social and professional networks. But it also helps the school continue to

interact with its alumni. The connection FalconNet will provide between Bentley and its alumni will be "vital to our institution," says Blasco.

■ **GSU Adopts AESOP to Train IT Professionals**

A collaborative project between Georgia State University in Atlanta and Pennsylvania State University in University Park is designed to help fill the growing demand for IT professionals. The three-year project will be funded by a \$705,000 grant from the National Science Foundation, which will be split between Georgia State University's Robinson College of Business and Pennsylvania State

University's College of Information Science and Technology (IST). The project's objective is to help GSU adopt Penn State's Augmenting Education of Systems-of-Systems Professionals (AESOP) model for undergraduate education.

Leading the project team at GSU are Vijay Vaishnavi of Robinson's CIS department; Richard Welke of Robinson's Center for Process Innovation; and Faye Borthick, director of GSU's Center for Teaching and Learning. Leading the project at Penn State is Sandeep Puroo, an associate professor at IST.

AESOP was developed to meet a growing demand for IT professionals who possess not only technology knowledge, but also the skills to solve complex problems and succeed on interdisciplinary teams. The "systems-of-systems" concept that drives AESOP refers to the use of technology to develop integrated systems of small, independent applications, rather than large, monolithic, multifunctional applications. The advantage of a system based on small independent applications is that the failure of one application does not mean the failure of all. The disadvantage, however, is that systems-of-systems technologies interact across organizations in incredibly complex ways.

The AESOP curriculum is designed to help undergraduate students build and support these intricate, inter-organizational technologies. It follows a format of problem solving, exploration, and experiential learning, in which students are given real-world challenges and are expected to find appropriate solutions. Their professors act as mentors and coaches throughout the process.

One of the project's objectives is to determine how well the AESOP

Project Aims to Preserve Virtual Worlds

Four schools have been awarded a \$590,000 grant by the U.S. Library of Congress for the Preserving Virtual Worlds project, which will explore methods of digital preservation of video games and virtual worlds. The Rochester Institute of Technology in New York, the University of Illinois at Urbana-Champaign, Stanford University in California, and the University of Maryland in College Park have partnered with Linden Lab, the creator of the online virtual community Second Life.

The project will develop standards for preserving digital games and interactive fiction such as Second Life. Eventually, the project will investigate preservation issues through a series of archiving case studies involving early video games and electronic literature.

The work is significant because "the worlds we are playing with today will be gone in a flash, with no recordable way of recreating them for future generations," says Andrew Phelps of RIT.

The Virtual Worlds project is administered by the Library of Congress under the National Digital Information Infrastructure and Preservation Program (NDIPP). It is one of eight that are part of the Library of Congress's Preserving Creative America Initiative. Other projects will target digital photographs, cartoons, motion pictures, and sound recordings. For more information, visit www.digitalpreservation.gov.

NEWSBYTES

■ ADS & SOCIAL NETWORKS

YouTube, MySpace, and other social networks may be popular with users, but not so much with advertisers. The prominent Web sites are still having trouble attracting advertising dollars, according to a recent report by IDC, a research company based in Framingham, Massachusetts. The problem, according to the report, lies with the sites' reliance on content generated by such a wide range of users. To protect their brands, most companies choose to advertise on sites that contain more controlled content and that target narrower demographics of users.



■ MORE SUPPORT FOR IT

The more companies adopt the latest technology, the more stressed their IT support staff will feel, according to a study from the University of Western Ontario's Richard Ivey School of Business in Canada. Researchers conducted in-depth interviews with 14 IT workers and found that their workloads and responsibilities generated stress, frustration, and the risk of burnout. In the study, researchers recommend that companies not only provide strong support systems for their IT staff, but also hire IT personnel who exhibit positive outlooks and strong coping skills.

approach can be replicated at other schools; IST researchers also want to extend the AESOP strategy to educate undergraduates about the pros and cons of open-source platforms.

■ Purdue Tests Emergency Messaging

The administrators at many colleges and universities are looking for efficient and effective ways to communicate with their campus communities in case of emergency. To that end, Purdue University in West Lafayette, Indiana, conducted a large-scale, real-world test of text messaging in September. The test's objective was to determine how well the technology works to issue emergency alerts.

Text messaging presents so many variables that can delay the delivery of messaging—including cell tower proximity, signal strength, and system traffic volume, says Scott Ksander, Purdue's executive director of information technology networks and security. A test like this one, he says, helps administrators to know its potential and its limits.

"When we need to send an emergency message, time is the most critical factor," says Ksander. He adds that administrators need to know how to ensure that messages are delivered quickly enough to notify their entire campus communities in case of emergency.

"Too many vendors focus on the function of their product, not the actual performance," says Ksander. "Some vendors will claim that they can send a million messages. But how do we know those messages were received? That was the answer we were really after."

Thousands of people volunteered to accept and respond to text mes-

sages and e-mails for the one-day experiment. Researchers tracked not only how long it took for messages to be delivered to a mass audience, but also how long it took for volunteers to send confirmation that those messages had been received.

For the experiment, the school used a vendor-supplied text messaging service and the school's own e-mail system. It sent more than 9,900 text messages in seven minutes and 56,000 e-mail messages in six minutes. In the text-message experiment, more than 5,700 people followed instructions and responded to the message to confirm its receipt—the school received just under 3,000 of those replies in the first ten minutes. In the e-mail experiment, the school received 19,535 positive replies, nearly 10,000 of those in the first hour.

The experiment yielded "yards of data," which the school will use to improve performance in a future test. The data will also help the school choose a permanent technology solution for the university's mass communication system. "We now have some performance specifications to include in our requests-for-proposal as we select a permanent vendor," says Ksander.

So far, Ksander says there were 364 confirmed delivery failures, which he and his staff are investigating. In addition, they have learned that many volunteers received the message but did not respond, simply because they were too busy. "In our next test, we will impress upon the volunteers how much we need them to reply, even if it's only 'I'm OK,'" says Ksander. "In case of a real emergency, that simple reply can relieve a lot of worry for a parent, family member, or friend."

“CLICKERS ARE A POWERFUL, YET SIMPLE, WAY TO GAUGE CONCEPTUAL UNDERSTANDING AND TO STIMULATE DISCUSSIONS.”

—Janet de Vry, University of Delaware, Newark

TOOLS OF THE TRADE

Students ‘Click’ to Learn

Clickers, or classroom response systems, provide University of Delaware faculty instant feedback about student learning.

When Helen Bowers wants to know if undergraduate students in her introduction to finance course understand a complex concept, she doesn’t have to wait until the final exam. Bowers, an associate professor of finance at the University of Delaware’s Lerner College of Business and Economics in Newark, simply asks her students a question about the concept. They use radio frequency clickers to submit their responses instantly.

“If I ask a question about how cash flow drives stock prices, for example, and 90 percent of my students answer correctly, I feel very comfortable moving on,” says Bowers. “But if only 46 percent get it correct, I know I need to go over it again.”

Faculty across the University of Delaware campus began using Interwrite PRS RF radio frequency clickers in 2006. The clickers provided a way for faculty to “encourage active learning,” says Janet de Vry, the university’s manager of instructional services in its IT department. “Clickers are a powerful, yet simple, way to gauge conceptual understanding and to stimulate discussions.”

Bowers notes that students are often very reticent to admit they don’t understand a concept. Or they may think they understand it when they really don’t know the finer details. “If I were to just ask questions, I’d likely be greeted with silence,” she says. “With the clickers, students find it much easier to ask questions or make a comment. The clicker questions help them self-identify their problem spots.”

For her last course, Bowers asked 33 clicker questions over the semester, which counted for 2 percent of students’ grades. The clickers not only allowed Bowers to know how well students understood the material, but also encouraged attendance, increased class participation, and transformed students’ learning experience from passive to active. Students developed a “good-natured competitiveness,” she says. They really wanted to get the questions right, she says. And when they didn’t, they weren’t shy about asking why.


Dave Wilson, a professor of political science at the University of Delaware, is exploring the technology’s application to another academic function: research. In many surveys, especially those that ask questions on sensitive topics, people may not give candid or truthful responses due to embarrassment or even shame, he says. Last fall, Wilson used the Interwrite clickers in his class to see if students

would offer more candid responses to questions about racial attitudes.

“With the clickers, I had fewer nonresponses,” says Wilson. “Students were not ashamed to say they had issues with different religious or racial groups, or that they didn’t want members of certain groups teaching their classes or running for office in their communities.” He notes that the clickers also offer

researchers another added benefit—immediate data collection. “Even with paper-and-pencil surveys, you have to enter the data,” he says. “The clicker software allows you to analyze the data immediately.”

Wilson adds that the clickers require that instructors spend more time thinking of relevant questions to ask of students. To reap their educational benefits, instructors also must make sure to use survey results to spark in-depth discussions. In addition, there is a learning curve; users must get used to the clicker’s operation. Even so, Wilson plans to use the clickers again both to engage students in the classroom and to improve his public opinion research. “At a recent conference, I gave a presentation of the research I conducted using the clickers,” says Wilson. “After I finished, no one asked about my research—they only wanted to know more about the clickers!”

For more information about Interwrite clickers, visit www.interwrite.com. Other vendors also offer radio frequency and infrared clickers, including Turning Technologies’ Turning Point (www.turningtechnologies.com), eInstruction’s CPS (www.einstruction.com), and Wiley Higher Education’s WileyClicks! (he-cda.wiley.com/WileyCDA/Section/id-103701.html). 



The Interwrite PRS RF clicker uses radio frequency technology to encourage classroom participation.