

Technology



How Effective Are Tech Tools for Learning?

The majority of business schools are using software and online learning tools to enhance their traditional delivery methods. Now, many educators are wondering how effective they are in facilitating student learning and how satisfied students are with a tech-driven approach. According to a recent survey of Wharton MBA students, most students wouldn't trade in technology for traditional teaching methods.

The Wharton School at the University of Pennsylvania in Philadelphia surveyed 290 '04 and '05 MBA students. When asked whether computer- and Web-based tools enhanced their learning, only 14 percent found that they didn't. Sixty-five percent reported that their learning experience was enhanced, while 21 percent reported that it was significantly enhanced.

Students also noted that the tech-based learning tools effectively captured their attention and kept them engaged in the material. Eighty-three percent surveyed said that computer- and Web-based tools were effective or very effective in enhancing their levels of attention and engagement in class, while 64 percent said that such tools were effective or very effective in enhancing their retention of the material afterward.

The most telling findings of the survey dealt with how students compared their experiences in tech-enhanced courses with those in more traditional courses. Sixty-two percent of students surveyed reported that their attention and engagement were better in tech-based courses than in traditional lecture- or case-based courses, while 46 percent said they

retained the materials better.

"In education, there's a lot of buzz about experiential learning right now, and I think simulations fit very well into that role," says Deirdre Woods, chief information officer and associate dean at the Wharton School. "Students seem to retain the material better and be more engaged." Woods notes that students can also repeat the experience with a simulation, through playback, to revisit choices they may have made in certain situations.

While technology may help increase student attention, however, the traditional case study still fares well when it comes to the depth of learning provided. Forty-two percent of students surveyed said that case-based courses were as effective as tech-based courses when it comes to how well they learned the material. And while 46 percent noted that they retained their knowledge of the material more effectively in a tech-based course, 39 percent noted that they found case-based courses equally effective in this area. Only 15 percent said that case-based courses were less effective in helping them retain the material than a tech-enhanced course.

XLab Targets Social Sciences

The University of California at Berkeley's Haas School of Business recently opened XLab, a new research facility designed to conduct controlled laboratory experiments that will test social science theories. Partially funded by a seed grant from the National Science Foundation, XLab is housed in two large rooms at the Haas School and can accommodate up to 40 participants as experimental subjects. It uses 50 battery-powered wireless laptop

computers, which will allow lab tests to be completely portable.

The new lab is now being used by researchers from a number of disciplines, including economics, political science, anthropology, and sociology. Their findings could be applied to a number of real-world business problems, says John Morgan, an economist and associate professor at Haas who is also serving as XLab's director.

For example, Morgan recently conducted an experiment to find out what produces greater revenue for sellers when a company is put up for sale—asking for payment in stock shares or cash. In the experiment, students took on the roles of corporate executives bidding against one another to purchase a firm. The students used laptops outfitted with custom-designed software that provided real-time information on bids to all participants and helped them calculate the consequences of various decisions. Students whose strategies proved successful would each earn \$50, providing incentive to play competitively.

The test supported the theory that shares bring more revenue for the seller in a bidding contest. "This idea comes from the economics liter-

ature, but hasn't really made its way out of the ivory tower," says Morgan. "With XLab, we assess whether the theory works in practice and whether it will have a big strategic payoff in the marketplace."

■ \$4 Million Software Gift for Iowa State

OPNET Technologies, a Bethesda, Maryland, software firm, recently donated more than \$4 million in software, licenses, and upgrades to Iowa State University's College of Business in Ames. Students will use the software, which includes licenses to OPNET's IT Guru and Modeler products, to design and study communication networks, diagnose application performance problems, and plan for network growth and high availability. In addition, graduate students and faculty will use the software to conduct advanced telecommunications research, such as modeling wireless security systems and study-

ing the impact of paperless environment installations.

Iowa State University is among a number of institutions that have received academic grants from OPNET. Other software recipients include the Massachusetts Institute of Technology in Cambridge; Stanford University in Oakland, California; the University of California at Berkeley; the University of Illinois at Urbana-Champaign; and the Georgia Institute of Technology in Atlanta.

The software gift from OPNET provides ISU's telecommunications laboratory with critical software to keep its business students up-to-date with corporate technology, says Labh Hira, dean of ISU's College of Business. "It sends a clear message that Iowa State is focused on providing a technology- and information-based business program." Hira adds that this type of external support is vital in outfitting Iowa State's new Gerdin Business Building with the latest technologies.

Two MIS associate professors, Tony Townsend and Brian Mennecke, have been working with OPNET Technologies for several months regarding the software acquisition. "Students will have the same computer tools used by IT professionals in Fortune 100 companies such as AT&T, MCI, Verizon, Accenture, Oracle, and NCR," says Townsend.

OPNET's gift to the College of Business was made through the Iowa State University Foundation. This gift includes licenses, future licenses, and future maintenance.

■ Sports Car or SUV? Ask the Software

With more products than ever available to consumers, the process of deciding which product to buy has become more complex. Researchers at the University at Buffalo School of Management, part of the State University of New York system, have developed a new software program called WEBAIM to help make that process a little easier.

Developed by Stanley Zionts, a professor of management science and systems, and Jingguo Wang, a doctoral student, WEBAIM asks users to specify their levels of aspirations and then uses their responses to compare products. WEBAIM then determines whether one product is at least as good as, or better than, another. If it is, it deems that product the "superior" choice, and the one the user should consider purchasing.

"What makes WEBAIM unique is that users determine which factors are included in the analysis," Zionts says. "They can evaluate products and services using their personal preferences, which may not correspond to



ISU's telecommunications lab, where OPNET's software gift will be used to study communication networks.

more general comparisons or the preferences of others.”

Although this software program may seem to be a more complex version of the pencil-and-paper “pros and cons” list that consumers have used for years, Zionts notes that consumers often miss important factors when making their purchasing decisions. For instance, consumers often use such guides as *Consumer Reports* magazine and online reviews, which can often lead them to a product ill-suited for their personal needs. To test this theory, the researchers used data from *Consumer Reports*, evaluating all the products considered in the March 2004 issue. The products ranged from carpet stain cleaners and disposable diapers to digital SLR cameras and computers. They expected to find that most of the products the magazine recommended would also be found “superior” by WEBAIM.

However, when subjective criteria were taken into account, WEBAIM found that almost 40 percent of the products were inferior to any particular individual’s needs. This finding indicates that consumer guides and consumers themselves may not be taking into account personal criteria such as the interaction between brand appeal and cost tolerance in their buying decisions, Zionts says.

“The value of the program really comes into play as consumers refine their preferences and one or more criteria change in importance,” Zionts says. “For example, a person using WEBAIM to purchase an SUV

might find that gas mileage is more important to him than he originally thought.” Zionts sees the program being used not only for big-ticket purchases, but also for any decision, such as renting an apartment—or even choosing a spouse. Eventually, the program might be used by manufacturers to gauge consumer perception of their products’ design and price.

The Big Apple Goes Wireless

This summer, New York City administrators took bids from companies to construct what promises to be the largest municipal wireless network ever established. The network, which will cover Manhattan, would provide broadband access not only to users of mobile devices such as PDAs and laptops, but also to emergency services personnel in the fire, police, and medical departments. The network also would be used to control traffic signals and locate vehicles.

The network eventually would have the capacity to serve tens of thousands of users at once, whether they are stationary or moving in vehicles at speeds up to 70 miles per hour.

According to *Computerworld* magazine, analysts note that traditional wi-fi technology would be too cost-prohibitive for such an ambitious project. Instead, they say that most practicable technology for the project would be a “mesh network.”

In a traditional wireless network, each individual user connects wirelessly

to an access point that is wired to the overall network; the access point must also have line-of-sight access to an antenna. This setup can be costly on a large scale. In a mesh network, many access points are connected wirelessly to one another, so that information can be relayed from one point to the next until it reaches its destination. A mesh network uses many low-cost wireless access points and requires only a limited number of wired points and antennae to operate. It also works especially well in areas where large mountains or skyscrapers might block traditionally relayed wireless signals.

To work in Manhattan, the network will require at least 600 access points—probably more. It is estimated that the project will cost between \$500 million and \$1 billion.

U.S. Falters in E-Readiness

A 2004 ranking of countries’ “e-readiness” indicated that the U.S. may be losing ground. The survey was conducted by The Economist Intelligence Unit Ltd. with the help of IBM’s Institute for Business Value. In terms of e-readiness, the U.S. slipped to sixth place. The U.S. had placed second in 2003 and first in 2000, 2001, and 2002. In the top five this year were Denmark, the U.K., Sweden, Norway, and Finland.

One reason for the drop, the study said, is that broadband is still a comparative rarity among U.S. households, reaching only 7 percent of the population. By comparison, South Korea ranked number one in broadband penetration at 27 percent. Another reason is that while the U.S. is still strong in terms of e-readiness, other countries are simply progressing more rapidly.

DATABIT

Gartner Research predicts that worldwide PC sales will jump 13.6 percent this year to 186.4 million units, spurred by the replacement of an estimated 100 million PCs. The average lifespan of a corporate computer, Gartner finds, has lengthened to four years from three. About 30 percent of computers now in use are more than three years old.



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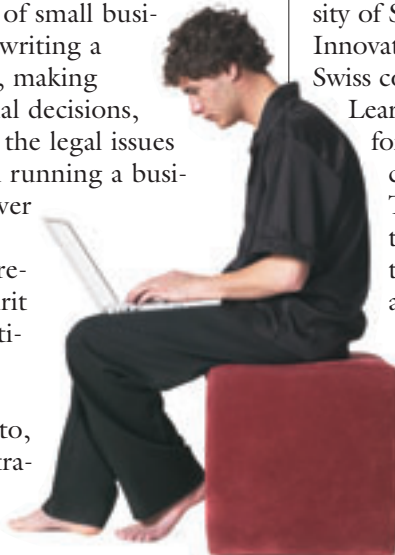
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NEWSBYTES

■ TARGETING TEEN BIZ

In a move to attract more teenagers to entrepreneurship, the U.S. Small Business Administration now offers a new Web site that targets teens who want to start or grow their own businesses. The site, at www.sba.gov/teens, offers information on the basics of small business, such as writing a business plan, making sound financial decisions, and knowing the legal issues involved with running a business. "It's never too early to spark the entrepreneurial spirit and instill optimism in our youth," says Hector Barreto, SBA administrator. "Access to key small



business information is essential to the future of our young people and to their full participation in our nation's economy."

■ NEW E-LEARNING INITIATIVE

The European Foundation for Management Development, the University of St. Gallen's Swiss Centre for Innovation in Learning, and the Swiss company Spirus Applied

Learning Solutions have joined forces to launch a new Certification of e-Learning (CEL). The certification is designed to ensure the quality and content of e-learning programs at business schools. To be eligible for CEL, a program must involve management education, be well-established (offered to at least two cohorts of students), offer the equivalent of 100 hours of education,

and provide at least 20 percent of its content in an online format. The CEL awarding body of e-learning experts is being finalized, and the program is currently undergoing pilot testing at two European business schools.

■ EXPERTS ONLINE

Southern Methodist University's Cox School of Business in Dallas, Texas, recently launched its new institutional research Web site at www.smubizexperts.com. Students, business professionals, and members of the media can access the latest research by Cox faculty in accounting, entrepreneurship, ethics, finance, management and organizations, marketing, strategy, and technology. The site also translates technical information into practical terms for nonacademics, and facilitates direct contact with Cox faculty members. 