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THE ERA OF TRANSITION TO TECHNOLOGY IS QUICKLY ENDING AS EDUCATORS FULLY ADOPT NEW TECHNOLOGIES AS



A student team works in a group study room in Wharton's new Huntsman Hall.



One by one, business schools are replacing their pre-1990s classrooms, equipped with nothing more than chalkboards and mobile television carts, with post-millennium classrooms outfitted with built-in audio-visual equipment, computer stations, and “smart” podiums that control everything from lights to laptops, document cameras to DVD players. For these classrooms, however, “high-tech” isn’t just about technology; it’s about form, function, and fitting quietly into the educational process. The versatility of the seating, the position of the podium, and even the location of doorways come part and parcel with what makes a classroom, and the class within it, work.

“Technology isn’t there to be an obstacle,” says Mark Misisic, director of technology and facilities manager for Northern Illinois University’s College of Business in DeKalb, Illinois. “It should fit seamlessly into what students and professors are already comfortable with.”

New technology often excites donors, who have been making more funds available to schools to build state-of-the-art facilities. As a result, business schools are completing the transition from tradition to technology, perhaps more quickly than many expected. With so much money on the line, however, many schools want to avoid buying “technology for technology’s sake.” Instead, they are seeking new technologies that quietly enhance the classroom—without taking it over.

This new approach to technology in the classroom has sparked the design of smarter, better, faster learning environments that succeed on many levels. The latest generation of classrooms not only can empower students and provide more opportunities for learning, but also can turn even the most tech-resistant professors into converted technophiles.

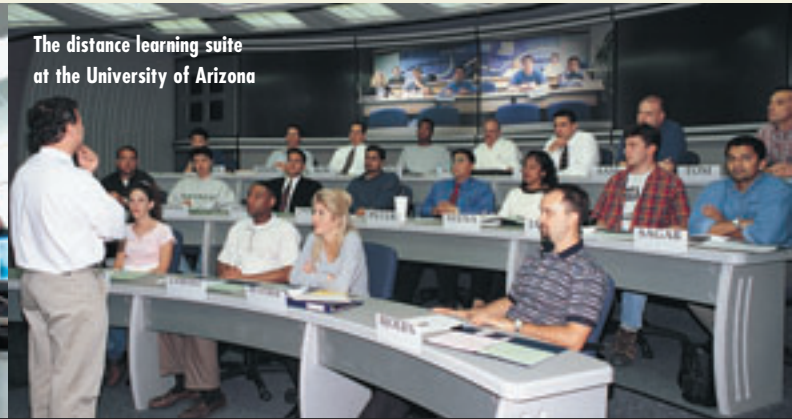
By Tricia Bisoux

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FOR THE WORLD’S BUSINESS SCHOOLS,
SILENT BUT POWERFUL PARTNERS IN THEIR CLASSROOMS.



A tech-connected study room at Case Western Reserve University



The distance learning suite at the University of Arizona

Design Meets Technology

Architects have discovered that it doesn't matter how advanced a room's technology is if a room's design doesn't encourage its use. Last year, for example, Case Western Reserve University's Weatherhead School of Management in Cleveland, Ohio, completed construction of its more-than-distinctive, \$36-million, tech-ready Peter B. Lewis Building. When school administrators chose the renowned Frank Gehry as its architect, however, they had not realized the lengths to which Gehry and his staff would go to make sure the building's classrooms were both technologically advanced and user-friendly. From the placement of the podium to the swivel in the chairs, technology went hand in hand with the building's design.

"One of the architects asked me to tell him about the first 15 minutes of a typical class. I told him I'd have my students read a case or background material before class. Then during class, I'd have them break into small groups," explains Fred Collopy, professor and chair of the school's department of information systems. "How does that actually happen?" he asked. I told him that some students stand up around their desks, some go into the hallway, some change seats and move up so their group is all on one level. Because of the tiers of the seats, it can be difficult for groups to form if they're not on the same level.

"And that was it. There was no further discussion," recalls Collopy. "But in the finished building, there's a classroom where the depth of the desks is not uniform from row to row. Some desks are about one and a half times as wide as others. Furthermore, there are two rows of desks on any level. I finally realized that students in one row can turn their desks

around and create a conference table with the row behind them. It was a very clever solution to my little problem."

In fact, it seems the term "high-tech" is quickly becoming too narrow to describe what's happening in classroom design. Schools are finding it more difficult to divorce technology from a room's total functionality. Talk of chairs, walls, and floors becomes mixed in with discussion of wiring, computer stations, and switches. This holistic approach is one reason that today's new classrooms are such a success, agrees Gerard McCartney, CIO of the Wharton School at the University of Pennsylvania in Philadelphia.

"We didn't want technology to be the big novelty of these classrooms, but we wanted lots of novel functionality in the rooms," he says. "For instance, the chairs in all of our classrooms rotate through 360 degrees to facilitate discussion and interaction." This may not seem like the kind of detail that strikes most people when they think of technology, he admits, but it's as important to the design of a "high-tech" classroom as any software or hardware.

The Luxury of Space

Besides budget, a primary constraint to integrating new technologies has simply been a lack of space. Without the funding for new buildings, business schools that bought new technology often struggled to make it fit comfortably into an older building with traditional architecture.

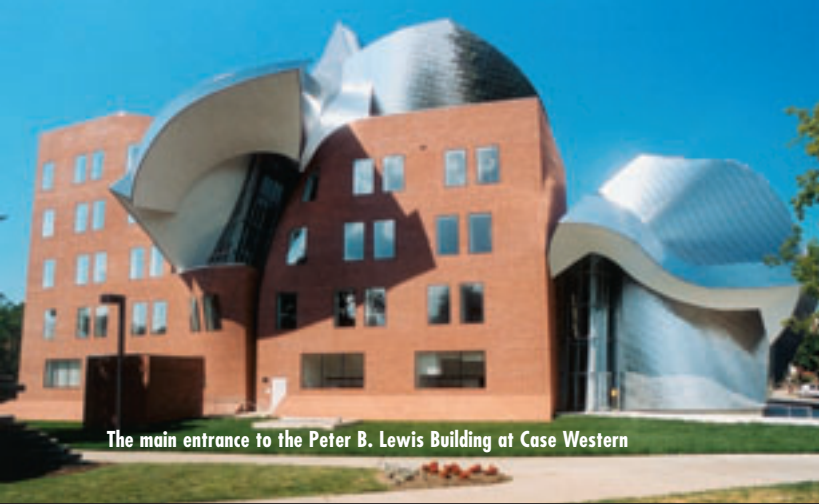
Vinod Kumar, dean of the Sprott School of Business at Carleton College in Ottawa, Ontario, knows this difficulty far too well. When school administrators realized they needed to update the school's information systems, they were afraid that they would have to make concessions because of a lack of available space. The project received a boon, however, when donors came forward to fund construction of a new building. The Sprott Technology Centre, completed last October, boasts data feeds from various stock exchanges, SAP enterprise-wide software, an e-business lab, and a trading lab.

"When we started the project, we thought we would only be able to have the e-business lab," says Kumar. "But as we started talking about the project, Reuters became very excited about our plans and donated ten years of free data feeds. Then, we got significant donations from the Bank of Nova Scotia and the Sprott Investment Company. With each new donation, the plan was enhanced."

At one time, Misisic and David Graf, dean of NIU's business



Students in NIU's professional sales program monitor a role-playing exercise in a remote mock office.



The main entrance to the Peter B. Lewis Building at Case Western



Professor Jack Machewka working with a student team in NIU's Business Information Technology Transfer Center

school, were also in this situation. They knew their business school needed to update its technologies. Without the proper funding for a building, however, they thought they would be forced to “make do” with their old facility. The more they talked about their need, however, the more word of their plans spread. Soon after, the school received a number of timely donations, including a \$20 million gift from an alumnus. Last fall, the business school opened Barsema Hall, which is equipped with the latest in smart classrooms, software, labs, and study rooms.

“Every time an innovation comes along, you often end up sticking it in a closet or other inadequate space,” says Graf. “When you’re able to design a building from scratch, you can design it around the new technologies and ideas people have.”

Because the potential for donations is always there, it’s important to reach for the stars, even if it looks as if you’ll only get the moon, says Misic. This mindset made designing Barsema Hall that much easier when they found a donor who could support *all* their projects, including an interactive sales training suite, an emerging technologies lab, and a business information technology transfer center where students use a variety of technologies to work on projects for actual companies.

“There were some technologies, like the interactive sales training suite, that we did not think we could afford. We had talked about it when we were in our old building. I had even worked with our tech people to map it out, but it never saw the light of day,” Misic notes. “When we were working on Barsema Hall, we got funding at the eleventh hour. Because of our previous planning, we were able to put it into place in only a couple of months. If we had had to start from scratch, the planning alone would have taken much longer.”

Above All, Consistency

At the beginning of the technology boom in the early 1990s, students and faculty at many schools had similar experiences: In the same day, they might have one course scheduled in a brand new classroom with the latest computer equipment and comfortable swivel chairs and the next in a dark classroom with a dusty chalkboard and high-backed rows of desks. If a professor had planned a class that required group discussion and a slide show, her plans could be quickly derailed by a classroom that wasn’t designed for either.

“We had an inconsistency problem in our old building,”

says Graf of NIU. “My faculty would say, ‘I want to integrate the new technology into my courses, but one of my rooms is dumb and the other is smart. Which room do I prepare for?’”

The newest classrooms are making that inconsistency a thing of the past. In Huntsman Hall, the new facility at the Wharton School, each room has identical, updated technology and function, points out McCartney. Huntsman Hall is built on the philosophy that all classrooms should be equipped with the same equipment, including a document camera, audio-visual equipment, computer equipment, wireless network, and podium that controls them all. Professors may not use everything in the room, McCartney says, but the room has everything a professor or student might need.

“Sometimes technology is perceived as something to showcase. One room will be equipped with the latest technology, and faculty fight to get into the room or wind up not using it all,” McCartney comments. “We wanted to change the learning experience at Wharton. We assumed at the outset that we had to build a common interface, so that if professors learned how to do something in one room, they could do it in every room.”

Bringing a level of technological consistency to each of its classrooms was also a goal for Weatherhead, says Collopy. He also has noticed a significant difference in his own teaching experiences since the school moved into the new Lewis Building. “Even if you’re moved to a different classroom, the technology will always be there,” he says. “The ubiquitous presence of the document camera alone is having an incredible effect. We don’t have to prepare and bring slides to class. We can just sketch something on paper or bring a page from a journal and put it up for discussion. Or if a student is scribbling a flow diagram on her desk, she can immediately show it to the entire class.”

Such consistent technological support means that professors no longer have to worry about seeing a carefully constructed class plan crumble just because a room is unavailable, he adds. As a result, Collopy predicts that professors will be more ambitious in their class plans and students better served in the classroom.

Distance Learning Gets Closer

Now that distance learning has become almost routine within many business school curricula, special rooms are being devoted to the cause. Small, jerky video coming through on com-



Oval classroom with whiteboards in the Lewis Building at Case Western



The University of Arizona's distance learning suite in "discussion" mode

puter monitors has been replaced by life-size projections of remote students onto screens at the host site, creating more realistic, real-time interactions between professor and students, no matter what their location.

For instance, the University of Arizona's Eller College of Business and Public Administration in Tucson has retrofitted two small seminar rooms into one distance learning and communications room for the college. Eller worked with TeleSuite of Englewood, Ohio, a manufacturer of "virtual collaboration environments" for business and education, to design and implement the classroom, which incorporates floor-to-ceiling screens on the front and back walls of the room. The distance learning suite allows Eller to offer its distance learning program to students in California's Silicon Valley. TeleSuite has created similar rooms for Duke University's Fuqua School of Business in Chapel Hill, North Carolina, as well as a number of corporate customers.

In one mode, the classroom projects the Silicon Valley students onto a screen behind the onsite students, which gives the professor the impression that they are sitting behind the students in the room. At the touch of a button, the professor can switch the room to "discussion mode." Then, the remote students appear on the front screen, allowing face-to-face discussions between remote and onsite students. Faculty and administrators at Eller also use the room to bring in remote speakers, hold geographically dispersed conferences, or even to "break bread" with donors.

Mark Zupan, dean of Eller College, admits he was skeptical of the room's capabilities at first. He believed face-to-face learning is so crucial to a business education that no distance learning facility could even come close to duplicating the real thing. His first encounter with this technology, however, was a "life-changing experience," as he describes it.

"No matter how good the visuals are, it won't replace a situation where all students are in the same room," says Zupan, "but this comes as close as anything I've ever seen." The school's Silicon Valley students are so involved with the courses, says Zupan, they've asked to be issued student IDs for the Arizona campus, so that they can travel to the school, shop in its bookstores, visit its library, and even march in its graduation.

Zupan predicts that as such rooms become more prevalent among corporations, more business schools will incorporate them in their own facilities. "If a corporation has this technology, we can deliver MBA programs to Cigna or AOL," he says. "The break-even point is only six or seven students."

As important as distance learning has become, many educators agree with Zupan that it's simply not the same as face-to-face. As a result, distance learning is one technology that's not making it into classrooms across the board. Like Eller, Weatherhead has only one room equipped for distance learning—for now.

"There was a point when our faculty were saying that every room should be outfitted for distance learning support," says Collopy of Weatherhead. "For us, that was a point when the relative focus of pedagogy had to come into play. We had to ask, 'Is distance learning going to be our business?' We decided to hedge our bets in that direction. That is, we weren't going to pour a lot of money into it, but we made sure that if we wanted to in the future, we could."

Breaking Old Habits

Perhaps the most compelling characteristic of new business classrooms is their capacity to accommodate an array of teaching styles, all in one building. While all rooms have similar technology, individual rooms may have different arrangements, from an oval theater-in-the-round to arena-style to small groups of desks. In such a building, a teacher can expect to find a consistency in technology, as well as a room to suit his or her unique style of teaching.

In the past, professors were forced to adapt their teaching



NIU students looking up information at an electronic information kiosk



Wharton student giving a presentation at a classroom's "smart" podium



styles to their classrooms; but the newest classrooms work with, not against, a professor's individual techniques. "We're catering to more than 200 faculty members who have disparate teaching styles," says McCartney. "Some like to lecture, some like to walk around, so the rooms accommodate that. For instance, the podiums can be located in one of three locations—right, left, or in the center. A podium can also be taken out of the room completely, and the professor can control the room via floor switches."

Classrooms in Weatherhead's Lewis Building range from theater-style to boardroom-style. The architects didn't stop there, says Collopy. When faculty were asked if they would mind if they weren't "the center of things," or if a student taught a class, almost everyone answered, "no."

So now, the school enjoys an oval room where there's no "right place" for the professor to be, Collopy explains. Instead, the room includes whiteboards that cover 360 degrees of the wall space. Students can reach the whiteboards easily, often from their seats, to jot down their ideas for the class; professors may have to take a few steps to reach them. This classroom's environment promotes active student learning and encourages professors to be more moderators than directors, says Collopy. "When we first surveyed the faculty about the new classrooms, we asked them which ones would be their preferred rooms. This one got the fewest votes," he adds. "Now it's one of the most popular classrooms in the building."

To Collopy, this classroom signifies just how professors, who often become creatures of habit, may need a nudge to step in a new direction. "Most often, what you think you want is what you already have," he comments. "At first blush, our faculty looked at this room and said, 'I don't think I can get used to that.' Now that they've used it, they say, 'I need that room.'"

A Change in Dynamic

Getting the learner involved in the process is perhaps technology's biggest gift to education, stresses Mohsen Anvari, dean of the Weatherhead School. "Just think about it. If you're looking at a general marketing case, the tools are there for a student to say, for example, 'Let me show you the company's Web site,'" he says. "You create a different dynamic of learning."

This higher level of participation has been a wakeup call for many professors, agrees Collopy, who relates a recent

encounter he had with one of his colleagues. "He told me, 'It was bloody frustrating teaching my class today. I've been teaching this case for ten years, and today I had a student talking about the current state of the case and the company. He was picking up numbers on the Web!'"

"I just smiled and told him, 'That's the way students are today,'" says Collopy. "When technology removes your limits, the students expect you to have no limits. They don't expect you to use technology every day, but they will comment on professors who never bring in a relevant Web site."

In fact, many educators agree that the greatest benefit of technology isn't technological at all. In addition to encouraging more active learning, new technology also appears to have a positive psychological effect on a business school community. Students and faculty at Weatherhead, for example, seem to have donned a new outlook since the Lewis Building opened its doors.

"An alumnus who has recruited at the school for the past eight years told me that he saw a significant change in the students in this building over students in the old building," says Collopy. "He said, 'It's amazing to me, the students carried themselves differently, they're more inquiring, they're more challenging, they demand more of us when we have an interview, even over last year's students.' He attributed that change to the building itself."

Like Weatherhead, NIU has seen a change within its community. For his part, Graf knew a new technologically advanced facility would have an impact on his school. What Graf hadn't realized was just how all-encompassing the impact of Barsema Hall would be.

"We expected we'd be better able to attract and retain excellent students and faculty," says Graf. "But there has been a more subtle effect: Our students, faculty, alumni, and donors seem to feel a larger sense of pride when they're here. They're so much more enthusiastic about the school. That level of enthusiasm was an element that we didn't have before."

The management education community has gone beyond the point where most students and faculty simply hope to use technology. Instead, the use of technology is quickly becoming an educational given, an important, yet increasingly invisible part of a business school's learning environment. Yes, today's classrooms may be smarter than they've ever been—but so, it seems, are the students and faculty using them. 