Teaching with technology

BY PROFESSOR JAMES J. O’DONNELL

Until a couple of years ago, the most powerful technological innovation to affect teaching at Penn in my time here was the introduction of the “Dispennser,” that wooden chalk-and-eraser rack that most of our classrooms now have. We no longer begin a term by hiding bits of chalk strategically in classrooms to have something to fall back on in an emergency. Like most great inventions, it was an empowering tool that expanded the reach and freedom of those who used it. Of course that chalk was a technological innovation in its own way, and for that matter the stick with which ancient teachers drew in the sand to illustrate geometry was technology. But above all, language itself is a gadget, an innovation designed to make it easier to manipulate things and move people in concerted action. There’s nothing new about teaching with technology.

The end of an era

What is new is the end of a long age of relatively stable technological relations. Just as the internal-combustion engine ended the frightening isolation of the farmer in the dead of winter, compelled to cope with everything from starvation to appendicitis with his own resources as the fall drew to a close, so too do we now live in an age when the isolation of the classroom is breaking up and disappearing. Our institutions have long emphasized the autonomy, the authority, and the self-reliance of the teacher in the classroom. That isolation could be hedged in various ways: One senior colleague in my department was famous for disappearing into the classroom behind huge stacks of books taken along for fortification, but when the door closed, we were alone with our students and they with us. The privacy, indeed the intimacy, of that relationship can be an extraordinarily powerful bond in creating the communication that forms the foundation of good teaching.

But it can also be a crippling intimacy. An abusive or negligent teacher, or merely one too reliant on old, yellowed notes, could make that intimacy a barren and pointless thing and cheat the students of their due. There were good days and bad days, but there was never a golden age. (continued on page 10)
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The world at large

Now the world outside forces itself in upon us. Grade school classrooms have special satellite television hooked up for them, with at least some of the students taking the opportunity to reprogram the dish to get livelier fare than the educationists planned—this is the equivalent of my hiding, at age 16, in the back row of class to read Atlas Shrugged undetected. Our university classrooms have already been invaded by the world, a welcome invasion, for decades. The paperback book was the thin end of the wedge, bringing a far wider range of reading material. Various “multimedia” (as it’s now fashionable to call them) tools have been here since the days when we thought they were merely “audiovisual.”

What has changed now, and what marks the decisive turning, is the degree of interconnection between people that networked information brings. For the most part, there’s no question of replacing the tried and true with the novel, but rather an explosion of opportunities for making links of one kind or another. The Internet and its killer applications of the moment, Mosaic and Netscape, are at one end of a spectrum, but these are high-profile tools that make us think about whether we want them and what their use will be. At one university’s (not Penn’s) parking bureau at the beginning of term crush this January, one staff member of conservative mien emerged shaking her head and saying, to the loud and general approval of bystanders of all ages and conditions, “There’s got to be a way to do this better by computer.” She was absolutely right, but more to the point, we all knew she was right: We are different people today, judging the effectiveness of our enterprises with a canny eye to what technology can do.

The new communication

My point is simple. Tools as powerful as networked computers are going to transform human communication. This transformation will bring with it both loss and gain. Every revolution in communication has both added to the power and range of what is communicated, and taken away some of the intimacy. Writing began the long, slow disestablishment of the face-to-face community of people who all knew each other, and every communication technique introduced since then has furthered that process. At the same time elective communities of discourse have emerged far beyond what the lonely peasant of the Roman empire, or the lonely farmer in Nebraska a hundred years ago, could dream.

I regard this future phlegmatically. My calm and my concomitant venturesomeness are owed to my professional standing as a classicist and medievalist. My dissertation two decades ago was about a sixth century A.D. statesman and monk who helped create the new intellectual order of Latin Christendom through ingenious application of the technology of the codex book. We’ve been here before, and we’ll be here again. It is as exciting to live through the changes we face as it would have been to live through the introduction of print 500 years ago. I publish online book review journals (Bryn Mawr Classical Review and Bryn Mawr Medieval Review), use networked tools in all my teaching, and bring the world (from Hong Kong to Istanbul) into Penn classrooms by adding carefully managed e-mail lists to Penn courses. This past fall, thanks to the gutsy collaboration of the College of General Studies, I even taught advanced Latin to four tuition-paying students who’ve never been near Penn and may not even be quite sure Joe Paterno doesn’t coach here—one in Georgia, one in Texas, one in Idaho, and one in Japan. (It’s still more effective to teach face-to-face, but if there’s a market consisting of one Latin student per town in North America going untaught right now, classicists have every reason to think about how we can reach that audience; and if we can reach it—say if we can teach the thousands of school Latin teachers who soldier on in relative isolation, giving them curricular inspiration and refreshing their linguistic skills—we can make a real difference to the larger educational process of which we are a part.)

But excitement isn’t always easy to take, and the end product of our adventures may be disruptive to our sense of who and what we are; there’s no question about that. I have written a paper that draws on 15th and 16th century sources to show how people reacted to print when it was new. I expected to find Luddites in those days, and to show how wrong they had been, and thus implicitly confute the Luddites of our own time. Instead it became clear that those who feared the new technology were right to fear it. Their cautions and their warnings turned out to be powerfully accurate, but also (and this was the surprising lesson) powerfully irrelevant. A potent new form of communication is so transformative that it creates a new economy of knowledge that is larger, faster, and much wealthier than what has come before, and so simply swamps objections and objectors. A skilled calligrapher, in the face of print technology, may choose to remain a calligrapher, but mustn’t expect to maintain a former privileged social status. It is in many ways a brutal lesson, but taken the right way, it is also a liberating lesson.

Putting technology to use

My experience these last years has been that the new technologies of networked information are indeed liberating, to real teachers and real students. It’s not as though we couldn’t use some help. There are plenty of frustrations for teachers, plenty of obstacles yet to surmount, plenty of barriers separating us from the students we want to reach. The best way to view information technology is to let it address the problems we already know we have. Office hours too cumbersome to facilitate the non-class
communication with students you want? E-mail, listservs, and newsgroups can suddenly bring down barriers. Want a TA in a beginning language course to be available for students when they need help most? Let that TA go home safely through early evening streets, then log in to a "MOO" online conferencing program and hold "office hours" from 10 P.M. to midnight (or the night before an exam) and let the students come online to "converse" with the TA in the target language, with all the errors typed on screen to point to and correct. Want to bring together special resources including text, sound, and images for students to explore? Let a World-Wide Web page organize the information for you. (And incidentally save paper: I never give my students "handouts" any more. Things I've been photocopying annually for 20 years I've now had scanned and proofread once, and no student can ever misplace a copy again; they're permanently available online.) Want better graphics and display in the classroom? The Provost's classroom committee has been aggressively remodeling central pool classrooms like Stiteler B-6 and B-21 and Williams 103-105 to have the latest and best technology, and School computing support can often bring surprisingly effective portable equipment to even the most architecturally unprepossessing classrooms. Then the sounds, texts, and images of the WWW can dance interactively for you and your students right then and there.

Penn's English department has recently shown that these innovations can be managed on a fairly large scale: a standing faculty of 40, all but one on line; 400-some majors, 94% on line; an array of electronic advising services; course materials available in the widely consulted English Gopher, along with current announcements, a departmental calendar of events, profiles of all faculty, an electronic directory of English major alumni, and numerous online literary research tools (gopher.english.upenn.edu); increasingly, similar resources in WWW (http://www.english.upenn.edu); a growing electronic text archive; and now automated electronic mailing lists for every course. (continued on next page)
There’s no promised land in this direction, but there probably isn’t one in any direction from here. What there is now is a box of shiny new tools. They aren’t perfect, and sometimes you bang your thumb, but they can do some pretty surprising things. Higher education is challenged as it has not been in a generation to prove its value and cost-effectiveness. It’s a blessedly lucky time for this new toolbox to show up, and I would feel like an idiot if I didn’t do everything in my power to use it to its best advantage.

Where to begin?

To give some ideas and examples, I have created a set of World-Wide Web pages that both describe and demonstrate current applications of networked technology for pedagogy—no vaporware, no pie-in-the-sky, just concrete real-world suggestions for which the technology is already in place at Penn. The new central administration has shown an enlightened, instinctive sense of urgency in supporting these developments, and we can expect from both School and University levels over the next few years a real commitment of resources—not special “computer” resources but the most valuable resources of money and people committed to the central business of the University. We, like all our peer institutions, will need to teach ourselves quickly the prudential economics of how to get the most out of what we have. The new tool box will help.

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“New Tools for Teaching” address

Professor O’Donnell’s “New Tools for Teaching” may be accessed on the World-Wide Web using a program such as “Lynx,” “Mosaic,” or “Netscape.” In any one of those programs, you will need to enter the following URL to get to the beginning of his demonstration:

http://ccat.sas.upenn.edu/teachdemo

Once there, click on highlighted items and follow your curiosity hypertextually through the materials offered. Numerous opportunities are built into the demonstration to submit your own comments, corrections, suggestions, or questions.

Hardware maintenance vendors

The Purchasing Department and the task forces for microcomputer and UNIX maintenance recommend the following companies for computer maintenance services for fiscal 1994 and 1995.

For microcomputer maintenance:

- Computer Fixer Janice Cuthbert 215/629-5700
- INTEC Mike Miller 800/225-1187
- System & Service Pros Gregory Fecca 215/878-3778

For UNIX maintenance:

- DEC DEC, SUN
- SUN SUN, DEC
- SGI SGI, DEC
- IBM DEC, SUN
- HP DEC, HP
- NEXT DEC

UNIX maintenance vendor contacts:

- DEC James Ingraham 609/273-2067
- Hewlett Packard Leslie O’Brien 215/666-9000
- Silicon Graphics Jerry Allen 215/638-3707
- SUN/Bell Atlantic Atul Wadhwa 609/231-5731
- Steve Waldman 609/235-7619

For further information or assistance, please call Abe Ahmed, 898-2482, or Gail Lindsey, 898-2313.

The Library’s new home page

On March 1st www.library.upenn.edu began running the NCSA Web server software, and the Library was in the business of supporting its own home pages. As with most new Web services, it deserves to be labelled “under construction” and will probably evolve in detail and in scope in the near future (and thereafter). But the Library wanted to get started, and in particular, wanted your feedback on what they have done to date. So give it a try (URL: http://www.library.upenn.edu), tell your friends, and let the Library know what you think. Formal e-mail feedback is welcome by whatever means, but “pennlin@pobox” has been set aside specifically for this purpose. There are also Web-based mechanisms embedded into the various pages to solicit comments.