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CLASS STRUGGLE

I am sitting in a classroom at Harvard Law School, and the professor is giving a fascinating lecture about the Federal Rules of Evidence and computer files. Nevertheless, I'm having a hard time keeping focused: my eyes keep wandering over to the fast-paced game of solitaire the student next to me is playing on her $3,000 laptop with its bright 15-inch screen. Other days, I've seen students watching feature-length DVDs—with subtitles turned on so they don't have to wear headphones.

Talk about misplaced priorities. Computers may have profoundly influenced the way universities operate, but the technology's presence has introduced new distractions and snafus. Many schools promote their wireless Internet connections to lure prospective students. Students take fuller sets of notes on their laptops than they ever could with pen and paper, but they continue to send e-mail to their friends even after the classes start. Professors seamlessly weave Internet content into their PowerPoint presentations, but their lectures fall flat when something goes wrong with the Internet connection.

Now that I'm in graduate school, I'm discovering that it's hard to make the claim that, on balance, all this fancy hardware is helping students learn better. Technology glitches frequently eat into class time: it's not uncommon for a lecture to start late because the professor can't get his laptop to work with the projector. One lecture I attended was delayed because the Internet connection was down, and the professor had neglected to save a copy of the course materials on his disk drive. Another class was interrupted when a pop-up ad appeared on the professor's screen, hawking "genuine college diplomas" for $99.95. (Who says irony is dead?) And it isn't just the science and engineering classes that are going high tech. Last fall, I took two classes at MIT's computer science department and two other courses at Harvard University. For the computer courses, both professors lectured with chalk in front of a blackboard; it was at *Harvard* that the professors used PCs.

I'm not arguing that schools and universities have erred in their adoption of information technology. But institutions of higher learning need to do a better job evaluating the ways students and faculty use the technology.

Consider MIT's Project Athena, a massive $70 million effort to integrate computers into undergraduate education. Athena got its start 20 years ago this spring, just months before I entered MIT as a wide-eyed freshman. Back then MIT was a computationally poor environment: most students were still using typewriters. One of Athena's big selling points was that through the use of simulation, numerical analysis, and collaboration tools, it would transform learning. Within eight years, MIT had set up more than a dozen computer "clusters," so students never had to walk more than a few minutes to reach a high-power workstation. A campuswide network linked the Athena clusters, allowing students to sit at any machine and access their files and electronic messages. All this seems ordinary today. In the mid-1980s it was radically new.

We early users of Athena felt as if we belonged to a privileged elite. But that status was short lived because Athena affected the entire culture of MIT. It didn't take long before every course, living group, and student activity had some sort of online component. This pattern has been repeated at other universities and throughout our society.

Technology's advance has not been kind to the Athena model. With so many students carrying laptops, the clusters of workstations that still dot the MIT campus are an answer to a problem that no longer exists. What's needed instead are facilities where teams of three to five students can get together to work on projects. I've tried holding such confabs in an Athena cluster, and it's brutal: just getting three adjacent terminals can be a challenge, and it's almost impossible to have a discussion without annoying everybody else in the vicinity. In an encouraging development, MIT's Hayden Library just opened a 24-hour study center with two small conference rooms that have chalkboards and wireless access (and glass walls for security). This 21st century study hall is probably a prototype of others to follow.

Computers have influenced the way universities operate, but the technology's presence has introduced new distractions and snafus. The lesson: buying computers is just the start of a larger commitment.

Perhaps the most important point is that educators and students must not let their knowledge of the technology stagnate. You can't learn sophisticated software by osmosis—or even by repeated use. Even the kids who appear to acquire computer skills with effortless ease need formal instruction to master sophisticated applications. Graphics, presentations, and data management are the lifeblood of the information economy: universities, and even grade schools, need to teach their students how to use the advanced features of these applications. Groups of students working on the same document, for example, should know how to use revision control features. And faculty who have started down the path of computer-assisted pedagogy must be able to anticipate the inevitable glitches and mishaps. Professors should know, for example, to replicate Web sites on their laptops so they can survive a faulty Net connection in the lecture hall. The real lesson here is that buying computers and deploying networks are just the start of a much larger commitment.

Meanwhile, I'm wishing "Ms. Solitaire" good luck on that law school final exam: she's going to need it.