

Why the E-Learning Boom Went Bust

By ROBERT ZEMSKY and WILLIAM F. MASSY

Five years ago e-learning was everybody's buzz, offering the promise of a trillion-dollar market wrapped around the prospect of learning anytime, anywhere. All that is gone, replaced by a pervading sense of disappointment. In fact, e-learning is increasingly the butt of bad jokes, as in, "Can you imagine telling your children to go to their rooms and study college for four years?" The cynics have had a field day, claiming that e-learning has been just one more fad, little more than a reprise of the dot-coms' bursting bubble, exhibiting more hype than substance.

To dismiss e-learning as laughable, however, is to miss the point. Examining why e-learning hasn't lived up to its promise is a critical first step toward understanding how technologies are likely to influence our educational processes now and in the future. While all innovations overpromise, why were the claims about e-learning so extravagantly off the mark? What made e-learning such an attractive investment to both those who contributed sweat equity and those who contributed venture capital? Did e-learning simply flame out upon takeoff? Or should we take a more optimistic, yet more patient and long-term, view?

E-learning's early promise was most often reflected in three basic beliefs, each of which turned out to be wrong:

If we build it, they will come. As with most innovations, the entrepreneurs who developed e-learning simply assumed that the results of the first applications would attract other experimenters, and eventually engage professors and students throughout academe. Most early experiments involved the creation of programming modules, or "learning objects," that enabled instructors to embed a rich variety of materials into their courses.

Examples range from simple compressed video presentations to complex interactive simulations. Some offerings, like VirtualU, a full-scale simulation that allows the learner to manage an entire university, are large; others are much smaller, allowing the learner, for example, to practice giving a physical examination by listening for irregular heart beats.

The best place to track learning objects is the Web site of Merlot, an acronym that stands for Multimedia Educational Resource for Learning and Online Teaching, where individual experimenters post their projects. What one learns from reviewing the information on Merlot is that no "dominant design" in course objects -- the kind of standard format that is almost universally characteristic of successful innovations -- has yet emerged.

In the realm of campus technology, the best-known dominant designs are those that shaped spreadsheet software, beginning with VisiCalc, proceeding through Lotus-1-2-3,

and ending with Microsoft's Excel. Yet dominant designs have emerged in just two of e-learning's many dimensions: PowerPoint for course-enhancement materials and Blackboard, WebCT, and other course-management software for the distribution of class materials.

For the most part, professors still have no sense that if "I know how to use one learning object I basically know how to use all or most learning objects in my field." Instead of rhyme and reason, the faculty member encounters what Carol Twigg, the executive director of the Center for Academic Transformation, calls a "hope-for-the-best strategy" of transfer and dissemination: a large supply of largely untested learning materials that are often too specialized or dependent on the specific demands of a particular curriculum. In short, most professors find the wide range of e-learning tools too confusing for them to use on a broad basis.

The kids will take to e-learning like ducks to water. Three years ago, most professors or staff members would have been nearly unanimous in their assessment of whether students would be able to engage in computer-based learning -- as part of a course either on the Internet or in a classroom using an electronic course-management system or learning objects. Indeed, they would be incredulous that you made such an inquiry. When we posed that question to professors and administrators in the fall of 2001, we were regularly told: "Not a problem. After all, the kids love games and technology and are dismissive of professors who seem to have trouble navigating Blackboard and who think that PowerPoint is state of the art."

But what we've found since then is that the same people aren't so sure. As part of a three-year research project, sponsored by the University of Pennsylvania, we established electronic observation posts that tracked and analyzed the changing attitudes of the people responsible for e-learning at six colleges with reputations for investing in e-learning: Foothill College, Hamilton College in New York, Michigan State University, Northwest Missouri State University, the University of Pennsylvania, and the University of Texas at Austin.

Half of those we monitored were technical staff members responsible for supporting the introduction of e-learning on their campuses. The other half were faculty members, usually among their institutions' early adopters of e-learning. Over the course of a single year, nearly one in four of those interviewed changed their minds as to how satisfied students would be if e-learning were substituted for classroom instruction.

Last spring we revisited three of the campuses -- Austin, Foothill, and Hamilton -- and asked again why so many people had changed their minds. Their answers reflected a growing recognition that the initial assumptions about e-learning must be modified by actual experience -- as well as a sense that no one had ever asked the students whether or not they actually *liked* e-learning.

On the Austin campus, we gained a valuable insight into why the students' attraction to computer games and their quick adoption of most computer-based technologies did not

translate into an interest in e-learning. One of the senior managers of the University Co-op, the campus bookstore, told us to observe "the kind of software the kids are buying." We did, checking with the bookstores on each campus we visited and then turning to *The Chronicle's* feature on the "Best-Selling Software at College Bookstores."

The results: Beyond Microsoft's basic suite of office products and the leading antivirus software, the best sellers' most common quality is that they allow their purchasers to prepare and distribute complex presentations. Adobe Photoshop, for example, is used for editing, enhancing, and optimizing photos, and Macromedia Dreamweaver MX allows the user to construct sophisticated Web sites. Or, as the manager of the Texas Co-op told us, the most popular software among students is principally about showing off.

The implication, borne out in subsequent interviews, is that students' fascination with computers and software has three major components. They want to be connected, principally to one another. They want to be entertained by games, music, and movies. And they want to present themselves and their work. As most faculty members in America have learned, students have become almost obsessively adroit at "souping up" their papers, which they submit electronically and which they festoon with illustrations, charts, and animation. One frustrated professor who had just spent a half-hour downloading a student's term paper was heard to remark, "All I wanted was a simple 20-page paper. What I got looks suspiciously like the outline for a TV show."

Most early promoters of e-learning simply missed the students' devotion to complex presentations of self. The students they saw in their mind's eye were gamers who would love simulations, who would view the computer as a tool for problem solving, who would immediately embrace e-learning. And in fact some students do just that. For the most part, however, they are concentrated in engineering schools.

E-learning will force a change in how we teach. Few processes have proved more resistant to fundamental change than the basic function of higher education. Most faculty members today teach as they were taught -- they stand in the front of a classroom providing lectures intended to supply the basic knowledge students need. Yet people in higher education who envision a changed, more-responsive learning environment have argued that the classroom works best when it is participatory. Students become effective problem solvers only when they have mastered the art of critical thinking and have acquired the discipline necessary to be self-paced learners. Constant assessment and feedback are critical, so that both student and instructor can determine, before it is too late, whether the student is mastering the necessary material.

E-learning seemed more than ready to satisfy each of those goals. In fully integrated e-learning courses, faculty members are not presenters -- unless they have filmed themselves performing an experiment or conducting a simulation and made those images available on their students' computers. Rather, they are guides, designers, mentors, and conveners. Feedback is immediate and continuous. Students know if they have the right answer or are at least proceeding in the right direction as soon as they submit responses to assigned problems.

What the designers of successful e-learning courses also learn is that there can be no hidden assumptions: The introduction of new topics, the pace, and other ways of teaching are based on the feedback from students, not on one's intuition or past experience.

That's the promise. What's the reality? For the most part, faculty members use the electronics to simplify tasks, not to fundamentally change how they teach their subjects. They readily translate lecture notes into PowerPoint presentations. They use course-management tools like Blackboard and WebCT to distribute class materials, grades, and assignments. But the materials are simply scanned, and the assignments neither look nor feel different. Even when the textbook comes with an interactive CD-ROM, or when the publisher makes the same material available on a proprietary Web site, most faculty members do not assign it. Only modest breakthroughs have occurred -- in the use of e-mail to communicate rapidly and directly with students and in the adoption of computerized testing materials.

Indeed, many people believe that the rapid introduction of course-management tools has actually reduced e-learning's impact on the way most faculty members teach. Blackboard and WebCT make it almost too easy for professors to transfer their standard teaching materials to the Web. While Blackboard's promotional materials talk about enabling faculty members to use a host of new applications, the specific promises that the software makes to potential users are less dramatic: the ability for them "to manage their own Internet-based file space on a central system and to collect, share, discover, and manage important materials from articles and research papers to presentations and multimedia files." All that professors need to use the product are the rudimentary electronic-library skills that most have already mastered. Blackboard and WebCT allow the faculty users, when asked, "Are you involved in e-learning?" to respond, "Yes, my courses are already online!"

The rapid introduction of PowerPoint as e-learning's principal course-enhancement tool tells much the same story. PowerPoint is essentially "electronic clip art" -- it allows the instructor to import graphics from other media, including old lecture notes. Yet illustrated lectures do not constitute electronically mediated learning.

Even the most adventurous and committed faculty members often approach e-learning in ways that lessen its general impact on the curriculum. The colleges that participated in our study enticed professors to experiment with e-learning by providing extra technical support and extra compensation -- most often in the form of a summer salary -- and by giving them the opportunity to develop their e-learning course on any subject of interest to them. With that level of institutional investment, most of the courses were well designed, technically sophisticated, and -- given the faculty members' freedom to teach what they wanted -- idiosyncratic. But once the course had been offered for two or three years, professors often moved on to other topics and different experiments, having satisfied their interests and curiosity. Then the courses died -- simply because no one wanted to teach someone else's e-learning syllabus.

In fact, the colleges discovered that they constantly had to give professors extra incentives to sustain their interest in e-learning. When the incentive programs became too expensive, the institutions dropped them and witnessed a general decline of e-learning adoptions and experiments. All but forgotten, by then, was the idea that e-learning might lead to a general reformation of both teaching and learning styles.

In retrospect, the rush to e-learning produced too many new ventures pushing too many untested products -- products that, in their initial form, turned out not to deliver as much value as promised. And although e-learning's inevitable bust had many aftereffects, perhaps the most dangerous has been that the experience has jaundiced academe's view of the fundamental value of electronically mediated instruction. The hard fact is that e-learning took off before people really knew how to use it and before anything like a dominant design was even on the horizon. Missing was a proven knowledge base of sufficient breadth to persuade faculty members that adaptation was necessary. As a result, e-learning entrepreneurs assumed a much higher level of risk than they bargained for -- and not surprisingly, most ended up paying the price.

For e-learning to come closer to fulfilling its potential, those who promote and support it should talk less and deliver more. E-learning's early adopters must understand that their success depends as much on the context in which they operate as on the power of the technologies they promote. Ultimately, the future of e-learning is linked to the pace of educational change and reform; that means that the full potential of electronically mediated instruction will not be realized unless and until large numbers of faculty members come to believe that they should substantially improve the educational quality of their instruction, especially for undergraduates.

At the same time, e-learning requires a dominant design, particularly for the learning objects that are its building blocks -- making them not only easier to create but also more interchangeable and easily linked with one another. It helps to think of a railroad marshaling yard in which the cars are the learning objects being assembled behind locomotives that are the user-interface drivers of an efficient e-learning system. The marshaling yard works only if all the cars have the same gauge and matching couplers. For a dominant design to emerge will probably require one or more of the principal vendors of course-management systems to make a substantial investment in standardization.

In addition, e-learning designers should more carefully determine what students expect from e-learning, based on how they've used other technologies. How can we motivate students to learn using new electronic products? What do students really want?

Higher education also needs to develop a catalog of lessons we have learned. Equally important is the need for a more realistic mapping of the obstacles that must be overcome in terms of the technology and the market conditions necessary for growth. Our hope is that our report, "Thwarted Innovation: What Happened to E-Learning and Why" (available at <http://www.thelearningalliance.info>), is a first step in that direction, but other efforts must follow.

Finally, for progress to become self-sustaining, a substantial number of ventures must generate enough revenue to sustain innovation without continuous infusions of capital. Nothing will succeed like success.

Over the next decade, advancement in e-learning is likely to be slow, probably best described as plodding. The technology's skeptics, emboldened by the fact that, to date, its failures have been much more prominent than its limited successes, will challenge each new product and innovation. Yet despite the difficulties of the recent years, we count ourselves among the optimists who believe electronically mediated instruction can eventually become a standard mode of instruction. E-learning is still alive and kicking. On most campuses, money is being spent, smart classrooms are being built, and faculty members are experimenting with new ways of bringing electronically mediated learning into the classroom. Ultimately, the lure of learning anytime anywhere will prove irresistible.

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