The convergence of .com and .edu creates a number of tensions, but also presents a vast opportunity. As online learning takes off, universities and cultural institutions are working with technology-oriented startups to expand access to world-class educational resources. These developments raise age-old and fundamental questions about how people and organizations learn. The market is very, very early in its development, and is subject to the usual industry hype and hyperbole. Yet when we look back a decade or two from now, education may turn out to be one of the Internet’s foremost killer apps.

People are the most vital resource in the new economy. In a fast-changing world, that resource must be renewed effectively, which implies major changes in the way learning is delivered. Education isn’t just a social phenomenon; it’s a technology story and a business imperative. Traditional schools and universities can’t keep up with the expanding global demand for knowledge. Fortunately, the Internet provides a platform to explore new methods of learning that don’t depend on the synchronicity of time and geography that traditional educational institutions require.

The Net and higher education have a long and fruitful history together. The first ARPAnet node was deployed at UCLA, and many of the leading Internet companies, from Yahoo! to Netscape to Inktomi and Akamai, grew out of university-based projects. (The Web didn’t, but when Tim Berners-Lee established the World Wide Web Consortium, he did so at MIT.) Educational institutions turn out the trained engineers, marketers and deal-makers that form the basis of the Internet economy. Universities have also been some of
the earliest adopters of broadband networks, creating testbeds for both cutting-edge technologies and social phenomena such as groupware, email lists and the Napster music-sharing service.

Nonetheless, the Net has yet to change much of the process of education itself. Educational institutions, like large bricks-and-mortar enterprises, have established patterns of behavior that take time to evolve in response to new technology. Also, education has generally been removed from the Darwinian economic forces that drive efficiencies (and technology adoption) in the business world.

That’s starting to change, especially in the more vocational realm of higher education.\(^1\) As Brook Manville, former McKinsey consultant and now chief learning officer of learning-management system vendor Saba (see page 10) puts it, “In the new economy, businesses will be more like schools, and schools will be more like businesses.” The companies we describe in this issue are at the cutting edge of figuring out what that convergence will mean in practice.

The Education Landscape

Oh, the places you’ll go!

There are three main educational venues: K-12 schools; higher-education institutions such as colleges and graduate/professional schools; and training programs in corporations and other organizations (including university-based executive and adult education). Details of educational systems vary from country to country, but most have the same basic categories. In each educational environment, there are at least four primary markets for technology providers: the courses themselves, administrative services (including course aggregation, development and facilitation), infrastruc-

\(^1\)There are also efforts to apply market forces to education more directly, such as proposals to give parents government-funded vouchers they could use at either public or private schools. Venture capitalist Tim Draper, with the support of many other technology executives, is leading the fight for a voucher initiative on the ballot in California in November.
ture (such as scheduling and tracking) and commerce (books, supplies and other ancillary materials that accompany the learning process).

Some technology and media companies, including Apple and Pearson, have long targeted the education market. (See Marjorie Scardino’s comments in RELEASE 1.0, MARCH 2000, and at this year’s PC Forum.) There’s room for many others, especially as the Net transforms the market. Much revenue still comes from hardware, software delivered on CD-ROMs, or custom online training for companies that can cost hundreds of thousands of dollars per course to develop. Distance learning still relies largely on pre-Internet technologies.

In the last two years, however, a new Internet-based e-learning space has begun to develop. “The word is out that the knowledge marketplace is a big juicy opportunity . . . perhaps the last rock to be turned over on the Internet,” says Ann Kirschner, ceo of online knowledge site Fathom (SEE PAGE 12). The new e-learning providers leverage the key benefits of the Internet: standards-based platforms, network effects, interactivity and global distribution. Companies are coming at this market from two directions. First, providers of Web-based corporate training courses such as Ninth House Network, SmartForce and DigitalThink are adding infrastructure and implementation services in an effort to offer comprehensive solutions.

Meanwhile, a new crop of companies hopes to use the Net to expand learning outward from prestigious universities to a broader audience, including working professionals, students at smaller schools, students in developing countries and others interested in lifelong learning. This latter group, which we focus on, is beginning to address crucial questions about what courses and educational institutions can and should look like to deliver the most effective learning experience to the largest number of people.

**Scaling schooling**

If for no other reason, e-learning will become increasingly important because physical institutions can’t scale to meet demand. Harvard may do an unequaled job of educating 6,000+ undergraduates each year, but it can’t scale its residential experience to 60,000, let alone 600,000 or 6 million. And beyond size, there are other limitations. Someone who wants a Harvard education may be unable to afford it. Or they may not be in a position to spend four years (or even the time it takes to audit a single course) in Cambridge, MA. Or they may have the time, but not during the specific days and hours the course is being offered.
The challenge for e-learning providers is to marry these innovative efforts with the best aspects of prestigious universities, and to do so in a way that surpasses, rather than merely strives to recreate, the on-campus experience.

Previously this may have been acceptable, equity issues aside, because only a limited percentage of people needed a college or graduate education to function in their adult lives. During the past 20 years, the pay gap between those with higher education and those without has doubled. The US Bureau of Labor Statistics predicts that over the next decade forty percent of new jobs will require at least an associate degree. There are already 700,000 open information-technology jobs in the US. Those Java developers, supply-chain managers and business analysts must come from somewhere.

There’s also a well of unmet demand in the rest of the world. Universities capable of training students to compete for the high-wage jobs in the technology-driven global economy are much scarcer in the rest of the world, particularly in rapidly developing countries such as China, India and Brazil, where rates of college attendance fall between three and six percent.

Universities, the supply side of the higher-education equation, are facing parallel pressure from their students, faculty, alumni and corporate supporters. Like Fortune 500 companies, they have tremendous experience and peerless resources, but they are feeling encroachment from fast-moving startups. These include for-profit adult-education and distance-learning providers such as the University of Phoenix, which have made technology a core delivery mechanism for their offerings. The challenge for e-learning providers is to marry these innovative efforts with the best aspects of prestigious universities, and to do so in a way that surpasses, rather than merely strives to recreate, the on-campus experience.

The knowledge economy

The knowledge it takes for employees to do their jobs is evolving more quickly than ever, at the same time as employees are switching jobs more rapidly. A person who works in six fast-changing jobs over the course of a career simply needs a different educational infrastructure than someone who stays in one. And that latter scenario is increasingly rare. Says Andy Rosenfield, ceo of online university Unext (see Page 15): “The metaphor of filling your head up with knowledge by the time you’re 25, then driving through life on that tank, is just silly today.”
From a Distance

Conceptually, online learning is a subset of distance education, just as retail e-commerce and catalogs are both forms of remote shopping. Distance education goes back thousands of years to the invention of the book, which is, after all, a tool for conveying knowledge without requiring personal contact.

Distance education was a significant element of higher education in America in the 19th century, simply because there were so few quality universities to serve a burgeoning and geographically dispersed population. A quarter of the students at the University of Chicago in its first 30 years were distance learners who received materials by mail. What reduced the importance of distance education was the proliferation of land-grant universities, which made an on-campus education suddenly more viable for students in places like Nebraska and California.

In this century, every new mass communications and technology platform has been put to work as a tool for distance learning, in particular broadcast and cable television, as well as the PC. It was only a matter of time before the Net became a major vehicle for education.

Businesses also face a war for talent as exceptional people become the basis of competitive advantage (see Release 1.0, October 1999). Studies have shown that the ability to learn is a key criterion for employee satisfaction, often more of a deciding factor in retention rates than compensation. Successful companies must give their employees opportunities to develop new skills, without taking too much time away from their normal job responsibilities.

Consequently, as such divergent observers as management legend Peter Drucker and Cisco CEO John Chambers have recognized, lifelong learning is moving from buzzword to necessity. It’s not just a question of mastering basic skills. As Saba CEO Bobby Yazdani notes, “Learning is being used as another tool to accelerate the speed of the business.” Every time Cisco introduces a new router or Pfizer introduces a new drug, those companies need to train salesforces and many other employees rapidly about how to market the new product. A supervisor who has to deal with a potential sexual harassment situation may want a quick dose of both legal knowledge and managerial skills training. A CEO of an Internet startup who in a prior job never had to raise venture capital may want to beef up his or her knowledge of corporate finance.

Forward-thinking companies have been setting up corporate universities for years (there are now more than 1,600 of them), but the cost structures and time requirements of those programs limit their application. Moreover, in the era of the extended enterprise, training can’t be confined to individual companies. As Ford builds out online car purchasing in partnership with its dealer network, it will need to educate thousands of dealers and other non-Ford employees. Learning must be delivered in a way that tracks the shift from rigid hierarchies to flexible teams and distributed business webs incorporating partners, suppliers and customers.
Learn Baby, Learn!

It’s much too early to gauge the effectiveness of Net-based courses and to compare them to their physical analogues, but it’s possible to examine some of the elements needed to make e-learning successful. Just as the earliest movies were filmed versions of stage plays, initial computer- and Internet-based educational offerings generally translated physical-world courses intact into the online medium. Videotapes or streaming video substituted for lectures, PowerPoint slides took the place of blackboard writing and readings were digitized and displayed on-screen.

Innovative e-learning providers are now going back to first principles. They are asking how people learn, and how the Net can most effectively be used as an educational environment. They are investing heavily in technology... but not necessarily in the ways one would expect. Faster computers and Internet connections are useful, but the jazziest full-screen high-resolution video and 3D animation doesn’t necessarily provide the best learning experience.

Instead, e-learning providers are focusing on how they can reach the largest audience, in the US and abroad, and how technology for the first time makes it possible to put well-developed learning theories to work on a wide scale. They are also using software development technologies and methodologies, such as iterative prototyping, standards-based authoring tools and quality assurance through live user testing, to create and improve courses more rapidly.

Making learning engaging

The biggest challenge for e-learning providers is to get and keep students’ attention. High dropout rates have long been a problem in distance-learning programs. People often don’t have the self-discipline to stay with a class without the context and community of a school environment. In a university setting, direct commands of faculty and the looming threat of exams compel most students to do the necessary work.

Without those factors, keeping with the program is more difficult. People have many demands on their time, and going through a course, even one required by their employer, often takes a back seat to other tasks. Requiring employees to go to live or virtual lectures makes it easier to get their full attention, but it vitiates the benefits of just-in-time, targeted, at-your-own-pace learning that the Net can provide.
For e-learning to be effective, therefore, the students have to be engaged. That means the educational content must motivate them to learn and to come back for more. Ninth House Network, which provides Internet-based training to more than 50 Fortune 500 companies, uses Hollywood writers, directors and actors to produce interactive online sitcoms around topics such as e-business transformation. Employees pick a character and role-play along with the story, which uses streaming video but runs in a browser and requires only a 256 kbps connection. “What’s critical is that the learning is engaging. Today we are fighting for employees’ time,” says CEO Jeff Snipes.

Tying learning directly to business objectives and challenges also helps. Employees are motivated to learn things that genuinely help them do their jobs better, especially when they are compensated or otherwise rewarded based on performance. A good example is Horse’s Mouth, an e-learning provider for the brokerage industry. The company was started in 1996 by William F. Nicklin, a stockbroker for over 30 years, and his son William T. Nicklin, who previously worked for Gartner Group; it recently signed PaineWebber as a major customer.

The Nicklins recognize that stockbrokers and financial advisors make money by bringing in customers and generating trades. Instead of offering courses that take brokers away from their jobs for long periods, Horse’s Mouth provides frequently-updated resources, advice, tutorials and other materials that users can quickly digest as part of their normal daily routine. The site constantly reinforces that the training will help users bring in more business.

**Problem-solving**

Online universities such as Unext (see page 15) are trying to bring the same relevance to more generic offerings such as accounting courses. In a traditional university course, explains Unext Learning Systems president Don Norman, students are first given large amounts of material to read, and then asked to solve problems using that information. “What we do is give you the exciting application first,” Norman says. “Now you know why you’re doing this.” By working through a real problem, such as writing a memo assessing a company’s competitors based on balance-sheet information, students have something more relevant than passing a test to inspire them. (Norman alleges that, “to my great surprise,” he himself actually enjoyed Unext’s accounting course.)
This problem-oriented or inquiry-based approach has other benefits. Students don’t just learn more readily when they learn by doing; they learn better. The idea that students should be encouraged to work through real-world problems has a distinguished history, from the Socratic dialogues of ancient Greece through pragmatist philosopher John Dewey’s concept of progressive education and the work of education theorists such as Jean Piaget and Seymour Papert. These ideas have been brought together in the field of cognitive science under the banner of constructivism. Yet most university and graduate-school education still focuses on memorizing concepts rather than applying them.

The problem-solving approach is particularly well-suited to e-learning. Through techniques such as interactive storytelling, multimedia and simulations, Net-based courses can illustrate problems effectively. An interactive course can deliver many different tasks to different students based on their predilections or business needs, so that the problems feel more relevant. And online courses can go at the speed of an individual learner, who may need more or less time to work through a scenario.

**Collaboration**

Even in universities, lectures are only a fraction of the educational experience. “The power of being in a good school does not come from the classroom; it comes from the community,” argues Unext ceo Andy Rosenfield. The interaction between students, in study groups and informal discussions, is a big part of the effectiveness of universities as learning vehicles. Even though exams are artificial, they serve as catalysts for such groups, which are where the real learning often occurs.
E-learning providers must recreate that community without physical proximity (and in many cases without temporal proximity as well, since one benefit of online learning is that students need not all take a class at the same time.) Allowing students to ask questions about the material is only part of the answer, because student-to-student interaction is as important as student-to-instructor dialogue. “You’re not just facilitating class discussion, you’re facilitating a community of learners,” says Quisic ceo Alec Hudnut (see page 17).

The usual Internet community tools such as chat, email and threaded discussion groups can be brought to bear here (see release 1.0 June and July, 1993). Most e-learning providers also hire live monitors to answer students’ questions and guide their discussions. (Nearly half of Unext’s staff, for example, are such part-time instructors). Pensare (see page 16) emphasizes its library of re-usable collaborative learning tools, such as its negotiation planner and its estimator that can be used to calculate the lifetime value of a customer.

**Personalization and customer relationship management**

Many online-education techniques are analogous to those in e-business. The objective in both situations is to satisfy the demands of both users and providers of the service. As in e-commerce, the inherent benefits of the physical experience sometimes trump the efficiencies of the Net. In other cases, though, the constraints of the traditional facilities-based methods turn out to be largely accidental.

Classroom learning has traditionally been a one-size-fits-all process. In the paradigmatic college course, the professor stands in the front of the room and gives one lecture to everyone. There may be discussion or interaction, but the syllabus is based on a body of knowledge rather than the needs of specific students. The fact that the lecture experience is difficult to reproduce online actually turns out to be a benefit, because it allows Internet-based learning to follow a different path.

Using techniques derived from customer-relationship management software (see release 1.0, September 1998), e-learning platforms can track individual students and serve them unique content tied to their needs and interest, just as Amazon.com does for its customers. Educational software has long offered personalization features, but the new generation of tools offers more robust tracking and database back-ends. With a complete history of student performance, for example, online learning systems will be able to recommend exercises that have proven effective for others, or to reconfigure entire courses to match a student’s preferred learning style.
Online courses are more than just content. They require infrastructure to handle assessment, authoring, scheduling, tracking, personalization, workflow, reporting and other functions. Such elements make it possible for e-learning to transcend classroom-based alternatives. Particularly in a corporate-training environment, it’s important to be able to assess competencies, map available content to individual needs and measure the success of programs across pools of employees. This could be called the next generation of knowledge management (though that term comes with heavy baggage), with a focus on organizing knowledge so that it can be delivered on a just-in-time basis to those who need it.

Some e-learning providers are building these elements themselves, but learning-management system vendors such as Saba and Docent are betting they can deliver better products by focusing on this aspect of the market. Saba, a public company with over 350 employees, counts GE, Cisco, Ford, i2 and Anheuser-Busch among its customers. Docent, which raised $17 million last year from Invesco, Advanced Technology Ventures and Norwest Venture Partners, has over 100 customers including Lucent, HP, Pitney-Bowes, Merrill Lynch, Schering-Plough and Ariba. Both are pushing out from the back end to offer complete solutions including resold content to companies that want turnkey offerings.

“We treat the students as customers, so we use a customer-relationship management system,” explains Unext’s Don Norman. “Those are foreign concepts to academics,” says the former UCLA psychology professor, though he is quick to add that the things academics do think about – rigor and generalizability of the learning experience – also must be part of the bargain.

Re-usable learning objects

With a tracking and management infrastructure in place, it’s possible to break down the learning experience into smaller, re-usable components. In the case of new product introductions, for example, many elements that go into training programs remain constant each time, while some change. If a student demonstrates mastery of most of them, but has difficulty with others, the software should automatically identify that and provide more information and problems in that one area.

Chunking learning into re-usable objects also facilitates just-in-time, business-relevant education. Instead of having to sit through a course or read through a manual, employees can get bite-sized doses of learning to respond to situations that come up in the normal course of business. Ninth House, for example, offers keyword-searchable access to hundreds of two-to-five minute video clips that address frequently asked business issues. “That takes learning out of an event into, ‘I’ve got a problem walking in my door and I’ve got to look it up right now,’” explains Ninth House ceo Jeff Snipes. It doesn’t hurt that, for companies, the economics of the object-oriented approach are much better, because every element of a course need not be custom-developed each time.
Established universities are now joining the e-learning party through partnerships with startups. Companies such as Unext, Pensare, Quisac, Global Education Network and Fathom are working with some of the biggest names in the educational world, such as Columbia, Stanford, the University of Chicago and UCLA to create online courses and even full degree-granting programs. Other institutions such as Harvard are testing the waters but making noises about going it alone. The logic of these .com/.edu partnerships is straightforward. The e-learning providers get access to top faculty and powerful brands. The universities get entrée into the online world, significant expansion of their audiences and potentially substantial financial benefits through cash payments or equity in the new startups.

We break down the leading players into two categories below, but this space is evolving rapidly. Several other high-profile efforts have been announced but not fully realized, such as MicroStrategy ceo Mike Saylor’s commitment of $100 million to create a free online university. As companies build out their course offerings and partnerships, they will eventually be distinguished less by what subjects they offer than by their business and pedagogical models.

Oh, the humanities!
Fathom and Global Education Network plan to use the Net to expand access to the full breadth of resources that educational institutions offer. These are for-profit companies, but they aren’t fixated on the courses that offer the most immediate corporate revenue opportunities. Instead, both take the long view. They are bringing the “soft” subjects such as arts and humanities online because those are the areas where universities and other cultural institutions have unique talents and resources that aren’t yet available through the Net. The two companies also see helping their academic partners become Net-savvy as one of their major functions.

Neither has launched or revealed the full details of their plans, but both have ambitious agendas and powerful backers. Fathom aims to be less a university than a world-class knowledge portal, drawing on the prestige and assets (physical as well as human) of its partner institutions. Global Education Network is creating a core curriculum in the traditional sense, working with a combination of colleges and individual faculty.
Fathom grew out of an internal strategic planning effort at Columbia to figure out how the university could best make use of the Net. Ann Kirschner, who had previously helped the National Football League develop its Internet strategy, was hired in February 1999 to head up the project. “What immediately became apparent was that the university had extraordinary resources, but building on those resources and bringing them to the Web would be very difficult because of the structure of the university,” she says. Even a leading research university such as Columbia didn’t have the resources to build a comprehensive online educational enterprise.

As a result, Fathom was spun off as an independent, for-profit company in which Columbia has a majority stake. Columbia, which also has a deal with Unext (see page 15) for business school courses, has since been joined by the London School of Economics, Cambridge University Press, the Smithsonian’s National Museum of Natural History, the British Library, the New York Public Library, the University of Chicago, the American Film Institute, the RAND Institute and the Woods Hole Oceanographic Institution.

The diversity and trans-Atlantic scope of Fathom’s partners is unique. We’re not used to thinking of museums and research institutes in the same category as universities, though all are treasure troves of knowledge, artifacts and scholars. Kirschner says museums have often been ahead of the curve when it comes to incorporating technology, as part of their efforts to turn their exhibits into learning experiences and to make them as widely available as possible.

Kirschner describes Fathom as “an online business focused on authenticated knowledge.” The partner educational and cultural institutions will create the courses, and Fathom will aggregate and market them on a much broader scale than the universities could themselves. “Because of our partnerships, we are able to place [our courses] like a jewel in the setting of great public lectures and relevant content. We’re aiming to be the best online place to select the knowledge experience that’s right for you,” explains Kirschner. The company will offer a range of content, some free and some by subscription, including lectures, seminars, panel discussions, performances and other materials. It plans to make money from a combination of paid courses and sales of related products such as books, software and travel packages.

Kirschner gives as an example a section on the Fathom beta site based on a recent lecture former South African president Nelson Mandela delivered at the London
School of Economics. Fathom staff Webcast the speech, created an online transcript that will eventually be available in several languages and integrated it with related materials such as books about Africa and courses for those interested in going deeper into the topics discussed. “We haven’t interfered with what’s happening on campus . . . we’ve brought it to another level,” says Kirschner. “What you’ve lost in the immediacy of live theater, you’ve gained in convenience and control.”

For the university partners, Fathom is a way to project their unique identity online, rather than having it be submerged under the brand and interests of a corporate entity. It also gives them something to offer to entrepreneurial faculty members who are being approached by for-profit institutions, so that the university can share in their online activities without squelching the opportunity.

Global Education Network

In late 1998, highly regarded Williams College humanities professor Mark C. Taylor was considering a position elsewhere. The college asked financier Herbert Allen of Allen & Co., an alumnus and trustee, to persuade him to stay. Taylor wanted to take advantage of the Internet, building on his longstanding interest in online and distance education (see resources section). From his discussion with Allen came the idea for Global Education Network (GEN), an ambitious Allen-funded effort to make arts and humanities courses available on the Net.

Allen and Taylor spent most of the past year approaching top-level universities as potential partners, with mixed success. Wellesley has agreed in principle to work with GEN, and Brown and Duke have also expressed interest, but elsewhere the proposal met resistance from faculty and administrators. In many cases, though, individual faculty expressed interest in developing classes for GEN, and received permission to do so from their academic deans. GEN now plans to launch ten courses by the end of January. This summer, Allen brought in Don Burton, a former McKinsey consultant and founder of ParentPartners.com (later sold to the Washington Post and renamed eScore.com) as GEN’s president and ceo.

GEN is focused squarely on the core curriculum of a liberal-arts education, rather than more commercial business and technical courses. Burton acknowledges the challenge, but observes that, “Allen is known for being patient with his capital.” The company sees its primary market as adults interested in lifelong learning and stu-
dents unable to afford a top-quality college education. It also plans to market courses to small four-year colleges and community colleges that want to supplement their curricula with classes from well-known professors and universities. Offering such courses should provide GEN with an initial revenue stream as it ramps up its efforts.

Burton is convinced there is latent demand for the kind of intellectual stimulation at which universities excel, pointing to Websites such as literary agent John Brockman’s Edge.org as examples. “Your intellectual flame dies a little bit when you get into the work world,” he observes, saying that GEN’s goal is to rekindle that flame with compelling online resources.

GEN’s backers know they are engaging in an experiment that will evolve over time. Burton says the company intends to support many different teaching and learning styles, trying to “make the ideas come to life.” GEN is also setting up a video-production studio in New York to shoot and digitize leading professors. “We really believe that we’re going to offer a better learning experience than campus classrooms,” he asserts. Interested parties will get a chance to evaluate that claim starting at the end of this month, when GEN plans to make beta versions of its first two classes available for free on its Website.

**Getting down to business**

The second group of companies, including Unext, Pensare and Quisic, are focused at least initially on professional training, particularly business courses. Here the revenue opportunity is much easier to see, but the up-front costs of creating a full curriculum and getting universities to sign up are substantial. (We discuss some of the other implications for the universities below; see page 19.)

Pensare and Quisic have been offering courses much longer than Unext, but Unext has drawn the most attention this year because of its sweeping vision and star-studded lineup of executives, partners and advisors. There are several companies such as Blackboard and WebCT that work with individual universities or faculty to put courses online, but on a more-limited scale. And of course there are other online institutions such as Capella University that don’t have the cachet of relationships with prestigious physical institutions.
Unext.com

Unext is the most impressive of the new online universities, assembling a full degree-granting business curriculum and a prestigious team. It has relationships with the business schools at Columbia, the University of Chicago, the London School of Economics, Stanford and Carnegie Mellon; advisors and board members include Nobel laureates Kenneth Arrow, Myron Scholes and Gary Becker as well as former US Secretary of State George Schultz. Unext also recruited user-interface guru Don Norman, formerly of HP and Apple, to move from Silicon Valley to the Chicago area to become the president of the company’s learning-systems division.

Unext evolved out of Knowledge University, a company affiliated with the Knowledge Universe education conglomerate started by ’80s junk-bond king Michael Milken and Oracle ceo Larry Ellison. In late 1998, several key Knowledge University employees, including founder Andy Rosenfield, a University of Chicago trustee, law professor and legal consultant, bought a majority interest in the company and renamed it Unext. Knowledge Universe retains a non-voting minority interest.

“What we do is a complement to, not a substitute for, facilities-based education,” Rosenfield says. In other words, Unext’s Cardean University (named for a Roman goddess) is designed for people such as working professionals who can’t avail themselves of facilities-based institutions.

Unext is focusing initially on graduate-level business courses, though it plans to cover the humanities as well. It began offering instruction in July and hopes to have 100 courses available by the end of the year.

Though Unext leverages the brands of its partner universities, the classes (and in the future, certificates and degrees) are provided under the Cardean name, to make clear the separation from the facilities-based institutions. The universities get royalties convertible into Unext stock, which they can use to compensate the faculty.

**UNEXT INFO**

- **Headquarters:** Deerfield, IL
- **Founded:** 1997
- **Employees:** 700
- **Funding:** From mutual funds, principals, board members and others. Estimates it has spent $100 million so far and will spend another $50 million over next 6 months
- **URL:** [www.unext.com](http://www.unext.com)

*FIGURE 1: Unext’s “Get the Net” course, featuring Nobel laureate Gary Becker.*
participants. The big-name universities didn’t come cheap: Unext’s deal with Columbia gives the business school a five-percent stake in the company, or a guaranteed payment of $20 million over five years even if the stock proves worthless. The arrangements with the other partners are reportedly similar.

Once Unext establishes a relationship with a university, it works with it to identify faculty who are interested and qualified to develop courses on particular topics. “We cause them to deconstruct their course in a way that we can turn into a completely unrecognizable Internet experience,” says Rosenfield. Building each online course typically takes three to four months and costs about $1 million. In addition to creating the course itself, Unext recruits mentors who can provide live or asynchronous online assistance to students in that subject area.

Unext emphasizes the value of its inquiry-based pedagogical model (see page 7). “We believe firmly that if you’re going to deliver a course to busy working professionals, and over the Internet, it has to be quite different from the classroom,” says Norman. Everything from the length of the courses (typically five weeks, requiring less than five hours of instruction per week) to the subject matter is designed to give working professionals knowledge that they can put to work immediately. Rosenfield and Norman argue there is no shortcut to quality. “We regard ourselves very much as a service enterprise,” concludes Rosenfield. “Our success depends on serving outstandingly our students.”

**Pensare**

Pensare takes a flexible approach to delivering university and graduate-level programs to the corporate market. Its primary partners include Duke’s Fuqua School of Business, the University of Southern California’s Annenberg Center and Wharton, but it has also collaborated with Harvard Business School Publishing and other institutions on limited-scope projects.

Duke has been working with Pensare for a year. Fuqua offers a 20-month degree program that includes on-campus as well as online components and uses the same admissions standards as the traditional full-time MBA program. Pensare CEO Katherine Leary says the Duke relationship has allowed the company to develop a top-quality collection of business courses, which it can sell into the corporate market with royalties for Duke. To ensure that its courses will sell, Pensare requires its business-school partners to bring one of their
own corporate executive-education customers into the design process.

Leary says that the key to effective online learning in the corporate environment is to relate the programs to employees’ daily work experience. “There’s a real difference between what you can do in a classroom and what you can do online, moving from an event-based experience to a continuous, applied experience,” she says. As a result, Pensare focuses on developing interactive case studies and simulations, as well as opportunities for collaboration, rather than using lots of one-way streaming video. Making the content engaging and relevant is also in Pensare’s interest, because the charges subscription fees based in part on frequency of usage.

Using Pensare’s software development kit, companies can offer university-branded content combined with their own targeted content. Pensare has built a set of re-usable tools and templates to allow companies to modify the materials easily, without requiring significant development resources or programming expertise. These include surveys, group-planning tools and “perceptual mapping” tools to help students visualize scenarios. Students can use the tools collaboratively, and what they generate goes into a knowledgebase that can become a resource for the company. Pensare is also partnering with consulting firms such as Cap Gemini Ernst & Young, which have long-term engagements with many large companies and therefore understand the corporate culture and goals.

**Quisic**

Quisic, formerly University Access, has some 200 corporate clients representing more than 8,000 learners for its online business courses, and partnerships with Dartmouth, the London Business School, University of North Carolina, and University of Southern California, among others. The company enrolled its first student
three years ago and, as CEO Alec Hudnut is eager to point out, has won more than 50 awards for educational excellence.

Last month Quisic acquired IEC, a 17-year-old custom corporate training development company that counts Citigroup, Lexus and United Airlines among its clients. It also recently announced a contract to deliver a learning platform and Spanish-language courses for E-ducavía, a $96-million joint venture of Cisco, IBM and Telefónica that create an online business school for Spanish, Portuguese and Latin American markets.

Hudnut says one of Quisic’s challenges is to teach people how to learn online. The company employs facilitators and trainers to help employees and in-house training managers get the most out of its tools. In some cases, the online experience is richer than its physical-world analogues. “We were very surprised initially when we found that the quality of the interaction between the students and the faculty members was much higher online than in the classroom,” says Hudnut. Faculty members online play more of a guiding role, nurturing peer-to-peer interaction through both synchronous and asynchronous communications, rather than simply delivering lectures.

Quisic is working to enhance its core technology to deliver dynamic learning content personalized to specific students. To do so, Hudnut says, “you need to create content in modular chunks, so that it can be reassembled based on people’s skill sets and interests.” By combining these learning objects (see page 10) with a back-end database and front-end diagnostic and tracking tools, Quisic will be able to customize a course for each student based on his or her interests and expertise.

Hudnut says Quisic take a long-term view of its relationships with schools, working with them on a number of different projects rather than just using them as a channel to professors. He points out that there are some 325 e-learning companies in the market today, but says over the last year there has been a flight to quality, which he believes will continue as customers recognize that delivering effective online education is no easy matter.
Whither (or Wither?) the University

Education and business

The combination of for-profit corporate training and established educational institutions will inevitably lead to some conflicts. It’s relatively easy to figure out how to monetize certain parts of the university – the business school and the engineering school, for example. But that calculus makes it difficult to sustain the English department, except for teaching basic writing skills. Forsooth, how to justify Shakespeare to ye beady-eyed bean counters?

Education has been big business for a long time. Universities generate substantial revenues selling courses through extension and executive-education programs. (Harvard’s extension school alone pulls in $150 million per year.) Venture capitalists have invested $6 billion in education and training companies since 1990, over $1 billion of that this year. If the new e-learning providers succeed, though, the volume of higher education delivered online may dwarf that offered on campus, in numbers of students and revenues generated. University administrators face an identity crisis.

The most innovative and productive thinkers are often those who have had a broad intellectual experience. The value of a university education cannot simply be the specific information conveyed to the student, because that information quickly

EDUCATION PORTALS: LEARNING A LA CARTE?

We’ve focused on the companies doing the heavy lifting to reinvent education online from the ground up. This being the Internet, though, there are many other opportunities and ways to look at the market. Learning is also a resource companies can offer their customers, partners and employees, and it can be treated like any other resource available over the Net.

One approach is to aggregate, organize and rate online courses from a variety of providers. That’s the model behind Hungry Minds, started in April 1999 by Reel.com founder Stuart Skorman. Skorman is animated by a belief that the educational system is failing to reach its potential because it’s too isolated from capitalist economic forces. So Hungry Minds gives learners the opportunity to comparison shop from among over 17,000 online courses. Competitors include CyberU and ZDNet’s SmartPlanet.

Last month, IDG Books acquired Hungry Minds, a natural extension for the publisher of Cliff Notes and the hugely popular “Dummies” series of instructional books, though print/online combinations are notoriously tricky. In addition to its own Website, Hungry Minds offers private-labeled e-learning portals to Websites and companies that want to offer training options in particular verticals.

Then there’s NotHarvard.com, which develops training courses for companies to use as customer acquisition and retention tools. Technology vendors and others can offer free online training to make their customer relationships more sticky, and can also generate incremental revenue (with NotHarvard getting a cut) through sales of books and other related materials. NotHarvard calls this “eduCommerce,” which sounds a bit scary but was bound to happen sooner or later.

The startup, based in Austin, TX, raised $26 million in May from Austin Ventures, TL Ventures, Impact Venture Partners, CenterPoint Ventures and Sanchez Partners. Barnes & Noble also participated in the round and will serve as NotHarvard’s primary distributor of course materials, as well as using the company to create its own Barnes & Noble University.
becomes insufficient and out of date. It must also be more than the diploma, important though that may be as a credential. At their best, universities teach students how to learn. They also provide a home for basic research essential to long-term technological development but difficult to justify in a corporate budget.

From the corporate perspective, most training and executive-education courses haven’t gone far enough in serving concrete business goals. “In the schools we have the mindset that everything you learn is good for you,” says Saba’s Brook Manville. “The school metaphor has tyrannized the business world for a long time.” That’s why the new e-learning providers are spending so much time and money developing new online courses rather than merely digitizing lectures and class materials. The core subjects may be the same, but the way they should be taught depends on the setting and objectives of the effort.

There is room for both vocational and intellectual goals. The traditional separation of higher education from corporate training has reinforced the division between them. Over time, if e-learning companies succeed in signing up large numbers of students and demonstrating measurable results for corporate customers, there’s bound to be feedback into the universities themselves.
Unbundling the university

A university is not a homogeneous mass. Like a corporation, it includes many different constituencies, all directed toward shared goals, but also pursuing individual agendas. The e-learning boom surfaces a fundamental question that is a source of tension in many universities: Who creates the educational value, the faculty or the institution? From there the related question arises as to who reaps the benefit of the intellectual property generated in the educational enterprise.

Universities have generally allowed faculty members to engage in outside profit-making activities within defined limits, and of course non-profit information-sharing through publication and participation in conferences is a central element of academic life. But who gets the royalties from an online course a private company sells for millions of dollars to corporations around the world?

The issues go beyond money. Many faculty members have developed innovative courses that make use of cutting-edge technologies, but their audience is limited to the students that fit into a lecture hall. Others want opportunities to create online courses that simply have no analogue in the facilities-based university setting.

“Faculty members are knowledge entrepreneurs,” points out Fathom’s Kirschner. “They are successful only to the extent they find a new way to do something, or a new way to think of something.” After all, they all received PhDs by (at least in theory) adding to the storehouse of human knowledge. As a matter of job satisfaction and to unlock the full potential of their faculty, universities are being pushed to provide outlets for faculty to innovate in educational content, and online universities are a perfect channel for them to do so.

The exact arrangements vary from company to company. Unext and Fathom sign comprehensive agreements with universities, which help identify faculty to develop online courses. Pensare, Quisic and GEN have similar agreements with some schools, while in other cases (such as Pensare’s relationship with Harvard) they contract to develop a limited number of specific courses or work with individual faculty. Other companies, such as Ninth House, work primarily with independent experts such as management consultant Tom Peters.
The new school
In all cases, both the universities and the e-learning startups are making things up as they go along. If it’s truly possible to deliver courses over the Net that are as good as their classroom-based antecedents, what’s to stop the Harvards of the world from putting less-prestigious schools out of business, or the star faculty members from many institutions deserting the universities altogether? Many students would still go to college for the intellectual journey and the keg parties, but others might think twice if they could get a comparable credential online.

All this is many years away, if it ever materializes, but these are important questions. We think facilities-based universities will survive and thrive in the Internet era, so long as they make use of the new technologies and understand the things they do uniquely well. There is no substitute for the student-to-student, student-to-faculty and faculty-to-faculty interaction that can occur on a campus.

At the same time, traditional universities will deliver a shrinking percentage of higher education, because distance education and lifelong learning will become more prevalent. The smart educational institutions will figure out how to work with corporations to deliver the business-relevant training that generates measurable improvements in employee performance and retention, without losing sight of their broader mission to expand the frontiers of knowledge.

Perhaps the most potent aspect of the Net in education is the opportunity it provides to experiment with new structures and formats for learning. In the end, what matters most is not where we learn, but what, why and how well. Over the next few years the work of educational theorists and researchers will be put into practice on a broad scale, along with the tools to measure effectiveness and business impacts. Beyond the subject matter of all the online courses, we just may learn something about learning itself.

COMING SOON

- Peering beyond peer-to-peer.
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- And much more... (If you know of any good examples of the categories listed above, please let us know.)
Resources & Contact Information

Mark Cavender, **Chasm Group**, 1 (650) 312-1952; fax, 1 (815) 550-5687; mcavendor@chasmggroup.com
Ann Kirschner, **Fathom**, 1 (212) 279-9494; ann.kirschner@fathom.com
Don Burton, **Global Education Network**, 1 (212) 339-2466; dburton@allenco.com
Ira Fishman, **HiFusion**, 1 (703) 848-4467; fax, 1 (703) 848-4426; ira@hifusion.com
William F. Nicklin, William T. Nicklin, **Horse’s Mouth**, 1 (212) 343-8760; fax, 1 (212) 363-9526; wfn@horsesmouth.com, wtn@horsesmouth.com
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- **Jim Kinsella**, CEO, World Online (The Netherlands)*
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Calendar of High-Tech Events

2000

SEPTEMBER 21 **JUPITER INTERACTIVE KNOWLEDGE FORUM** - New York, NY. Covering many of the topics discussed in this issue. To register, call 1 (800) 611-1693; fax, 1 (212) 475-3896; email customerservice@jup.com; www.jup.com/jupiter/events/forum.jsp?doc=knowledge2000.

SEPTEMBER 23-25 **TELECOMMUNICATIONS POLICY RESEARCH CONFERENCE** - Alexandria, VA. The premier gathering of telecom and convergence policy wonks. For information or to register call 1 (202) 452-9033; fax 1 (202) 296-7128; email tpirc@ei.com; www.tprc.org/2000.htm.

SEPTEMBER 24-26 **DIGIVATIONS** - Santa Barbara, CA. Presented by the University of California Digital Media Innovation Program. Technologies and demonstrations from the convergence industries and university researchers. Register at 1 (805) 893-8798; fax, 1 (805) 893-5551; email digivations@dimi.ucsb.edu; www.dimi.ucsb.edu/events/digivations.


SEPTEMBER 25-26 **ASIAN WALL STREET JOURNAL TECHNOLOGY SUMMIT** - Hong Kong. Featuring Esther Dyson. For more info, call +852 2559-9973; fax, +852 2547-9528.

SEPTEMBER 25-27 **ELECTRONIC BOOK 2000** - Washington, DC. Third annual workshop on the changing fundamentals of reading. Sponsored by NIST and NISO. For info contact Victor McCrary at 1 (301) 975-4321; victor.mccrary@nist.gov.

OCTOBER 3-6 **ASP WORLD** - San Jose, CA. Application-service providers strut their stuff. Call 1 (877) 696-0459; fax, 1 (508) 759-4552; www.aspworldexpo.com.

OCTOBER 4-5 **WALL STREET JOURNAL TECHNOLOGY SUMMIT** - Washington, DC. Entitled “The Next Economy: Business, Public Policy and the Internet,” with participants ranging from rapper Chuck D to Treasury Secretary Larry Summers and our own Esther Dyson. For info call 1 (800) 457-5766; email techsummit@wsj.dowjones.com.; info.wsj.com/techsummit.

OCTOBER 5-7 **PRIVACY: A SOCIAL RESEARCH CONFERENCE** - New York, NY. Hosted by the New School University, this conference will look backward at the historical foundations of privacy and forward to what the future may have in store. To register, call 1 (212) 229-2488; fax, 1 (212) 229-5476; email socres@newschool.edu.

## Calendar of High-Tech Events

| OCTOBER 14-18 | **AGENDA** - Scottsdale, AZ. Bob Metcalfe once again leads senior executives in pondering the agenda for the industry. Contact IDG Executive Forums at 1 (800) 633-4312; fax, 1 (650) 286-2750. |
| OCTOBER 15-18 | **DIRECT MARKETING ASSOCIATION CONFERENCE** - New Orleans, LA. Don’t worry, you can trust us. Call 1 (212) 790-1500; customerservice@the-dma.org. |
| OCTOBER 16-18 | **CREATING DIGITAL DIVIDENDS** - Seattle, WA. Applying digital technology for sustainable development. Speakers include Jeff Bezos, Carly Fiorina, Vint Cerf, Martin Varsavsky and many more. Organized by the World Resources Institute. For more info, contact Al Hammond, 1 (202) 729-7777; allen@wri.org; www.digitaldividend.org. |
| OCTOBER 23-27 | **INTERNET WORLD** - New York, NY. This behemoth of a conference makes a stop on the East Coast. To register, call 1 (800) 632-5537; e-mail registration@iw.com; www.pentonevents.com/fall2000. |
| OCTOBER 24-25 | **EMERGENCE** - Budapest, Hungary. Will discuss the 22-country survey of e-work location being carried out by the EMERGENCE project, funded under the European Commission’s Information Society Technologies Programme. For more info, fax +32 (2) 296-8388; email, ist@cec.eu.int; www.emergence.nu. |
| OCTOBER 27-29 | **CAMDEN TECHNOLOGY CONFERENCE** - Camden, ME. This year’s event is titled Pop!Tech 2000: Being Human in the Digital Age. To register, call 1 (888) 877-3128; info@poptech.org; www.camcon.org. |
| OCTOBER 29-31 | **FC:LIVE** - Phoenix, AZ. Fast Company’s Realtime conference for fast companies and those looking for a speed boost. For details, visit www.fastcompany.com/live. |
| OCTOBER 30-31 | **NDA 2000** - Carlsbad, CA. The Red Herring’s annual look at new companies and trends. For more information, sign your John Hancock, or call 1 (888) 286-2167; www.redherring.com/events/nda2000. |
| OCT 30 - NOV 1 | **WEB2000** - San Francisco, CA. For web professionals by web professionals, master standards and best practices, discover new tools and techniques and explore emerging technologies. Contact Rafael Robles at 1 (800) 441-8826; rrobes@cmp.com; www.webshow2000.com. |
| OCT 31 - NOV 1 | **PRIVACY2000** - Columbus, OH. Presented by the Technology Policy Group, this year’s theme is: Information, Security & Ethics in the Digital Age. Speakers include Jason Catlett, Ari Schwartz and Glee Harrah Cady. For more info, fax, 1 (614) 292-1992; bermann@osc.edu; www.privacy2000.org. |
Calendar of High-Tech Events

NOVEMBER 1-3  **EDVENTURE’S HIGH-TECH FORUM** - Barcelona, Spain. This year’s theme is “Clicks and Borders.” See page 24 for more details, and get your registration in soon! Call Daphne Kis, 1 (212) 924-8800; fax 1 (212) 924-0240; daphne@edventure.com; www.edventure.com/htforum2000.html.  E  K

NOVEMBER 6-8  **EMEDIATAINMENT WORLD** - New York, NY. This media and entertainment conference makes its East Coast debut and prepares to razzle dazzle ‘em. Contact Shay Andrews at 1 (800) 535-1812 x202 or email sandrews@emarketworld.com; www.emediatainmentworld.com.

NOVEMBER 8-10  **EXECUTIVE STRATEGY FORUM** - Boston, MA. Sponsored by Forrester Research with tips on plotting your e-business transformation. Contact Forrester Events at 1 (888) 343-6786; www.forrester.com.

NOVEMBER 8-10  **ISPCON** - San Jose, CA. Internet service providers mull the implications of “Making connections. Building empires.” Contact dara.mccathran@expoexchange.com; www.ispcon.com.

NOVEMBER 9-10  **E-BUSINESS IN CENTRAL AND EASTERN EUROPE** - Prague, Czech Republic. Sponsored by the Economist Conferences, with a focus on strategy issues of e-business. Contact Kirsten Rae, +43 (1) 7124-16141; fax, 43 (1) 712-4165; email, kirstenrae@economist.com; www.economistconferences.com.  E

NOVEMBER 11-12  **DOORS OF PERCEPTION 6** - Amsterdam, Netherlands. For design pioneers of the Internet and the entrepreneurs and visionaries who would like to work with them. This year’s theme is “lightness” and focuses on social needs over technology-push on the agenda of innovation. To register, +31 (20) 596-3220; fax, +31 (20) 596-3202; www.doorsofperception.com.

NOVEMBER 11-13  **ONLINE MUSIC** - London, UK. Discuss the impact and changes the Internet has made on the music industry. Organized by SMi Conferences. For more info, call +44 (20) 7252-2222; ctulloch@smiconferences.co.uk.

NOVEMBER 12-14  **PERSONALIZATION SUMMIT** - San Francisco, CA. We know who you are. Speakers including Esther Dyson, Geoffrey Moore and Martha Rogers address personalization and ROI. Call 1 (415) 544-9300; fax, 1 (415) 544-9306; www.personalization.com/summit/SF_2000/over.html.  E

NOVEMBER 13-16  **ICANN SECOND ANNUAL MEETING** - Marina Del Rey, CA. Help shape the future of Internet addressing. See www.icann.org for more information.  E

NOVEMBER 13-17  **COMDEX** - Las Vegas, NV. Check out all the new Vegas hotels, and see a few products along the way. To register, call 1 (781) 433-1665; www.key3media.com/comdex/fall2000.

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E  Events Esther plans to attend.
K  Events Kevin plans to attend.

Lack of a symbol is no indication of lack of merit. The full, current calendar is available on our Website, www.edventure.com. Please contact Kara Holmstrom (kara@edventure.com) to let us know about other events we should include.
Register now for EDventure's High-Tech Forum in Europe, November 1 to 3, 2000 in Barcelona, Spain! For details and a speaker list, please visit http://www.edventure.com/htforum2000.html.


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