This chapter concludes the study by looking at three key areas:
- the key elements that make up a successful e-learning initiative—lessons learned;
- some key trends taking place in e-learning (not limited to the research done for this study), the promise of these trends, and the issues they will raise; and
- general conclusions on this research and its meaning for e-learning support in higher education.

Lessons Learned

One of this study’s principal goals was to identify and describe the key elements that make up a successful e-learning initiative. This list includes not only institutions’ strategies, tactics, and practices but also the lessons they have distilled from experience. The following sections discuss the most important and broadly relevant lessons learned in the course of the study. We present the findings, organized into three broad areas—institutional issues, faculty and department issues, and student issues—as a mix of statements and attributed quotations.

Institutional Issues

Provide academic administration support.

“One of the biggest challenges of e-learning has related to our culture—the fact that we’re old and tradition bound. We’ve learned that unless we secure adequate academic administration support for e-learning initiatives, everything else is a battle.” (St. Philip’s College)

Establish realistic online course standards.

“When online courses are evaluated for fitness, it’s clearly important to maintain high standards. The big question—and one that’s potentially troubling—is how high to set the bar. If you raise the bar too high, then you run the risk of driving away instructors because it’s harder than regular courses. What’s the incentive? There’ll be instructors who say, ‘You’re telling me that I have to work more and I have a higher standard? Why do it?’ If we want faculty to do this on a large scale, we need to put in standards that are not so high that they’re prohibitive.” (University of Southern California)
Anticipate resource pressure.
Support burdens can strain institutional resources, especially when instructors and students access courses 24 x 7. Providing online support tools or outsourcing help-desk functions can relieve some of the burden.

Expect the nature of support requirements to evolve.
E-learning is a relatively new phenomenon. As adoption deepens and broadens, so will the nature and intensity of support requirements. Institutions must evaluate e-learning resource needs constantly to keep infrastructure up-to-date and to better serve instructors’ evolving technical and pedagogical needs. Institutions interviewed identified several evolving areas, including greater demand for multimedia training, a preference for shorter but focused training sessions, continual review of training topics, and greater demand for instructional designers. Online training and help tools are also gaining popularity.

Leverage where you can.
Leveraging resources to handle rising support demands is also important, especially as tight budgets force institutions to use resources as effectively as possible. Examples include
- leveraging resources in consortium, system, or open-source agreements to develop online distance-learning courses and CMS course modules, or to fund CMS upgrades;
- developing common processes and tools to achieve economies of scale; and
- augmenting central resources at the department level to enable the development of specialized instructional design teams that understand an academic area’s particular requirements and nuances of course design.

Provide adequate infrastructure support and demand reliability.
“The quality and reliability of the technological infrastructure is critical. If we’re able to keep this technological infrastructure up and running, it’s going to make the option of teaching e-learning courses a lot more appealing to faculty members.” (St. Philip’s College)

“In order for e-learning to work, it needs to be completely transparent. This means it has to have extremely high performance, including low network latency, high transaction throughput, and a stable, non-crash-prone platform. These types of infrastructure issues can be completely crucial for core parts of the course, such as giving quizzes or an online lecture. Without this stability and performance, the student experience is disrupted instead of improved. When things don’t go right, it becomes evident that the teaching and learning process is very finely tuned and can easily be disrupted by inadequate technology performance.” (USC)

Strengthen incentives.
Although many institutions offer stipends or release time to encourage e-learning activities, expanding these incentives to include considerations for promotion and tenure could prove valuable. This holds true especially for younger teachers who have to balance career interests with e-learning’s rigorous demands.

Start slowly.
“Slow but steady” characterizes the e-learning course development approach advocated by many institutions interviewed. It is a time-consuming and complex process to reevaluate courses and select appropriate technical and pedagogical tools for e-learning applications. Institutions interviewed advised instructors to tinker
with, not overhaul, courses. Also popular are programs that match instructors with instructional technologists, either by assignment or in a formal e-learning course development program.

**Institutionalize practices.** Interviewees stressed the importance of building a common vision about e-learning’s role in their institutions and promoting it from the top down. A common vision provides a communication platform from which administrators and instructors can build consensus and buy-in either through task forces or advisory committees. A vision and supporting collaborative governance make it possible to create a set of e-learning expectations and promote cultural change as these expectations filter down through the institution. The University of Central Florida’s institutionalized approach is key to its e-learning success: “We’ve understood that e-learning is at its core an instructional activity. It has to fit into the faculty culture and the campus environment, and finally it has to meet institutional goals. We approached it from that point of view.”

**Require holistic involvement across the institution.**  
“For e-learning to be successful, it needs to be from the ground up—grass roots. You need to have faculty working with support staff figuring out all the different support systems and how things can be pulled together, [so that] people like the registrar understand the problems and issues of faculty. Moreover, faculty need to make more decisions on how the e-learning programs are going to be pulled together. It is much less successful if there is an administrator telling you what to do and how to do it.” (St. Philip’s College)

**Recognize emerging importance of outcomes.**  
“One of the emerging issues we’re seeing around e-learning is the importance of outcomes. USC is up for re-accreditation and has to have a self-study completed by 2005. For the first time, learning outcomes for e-learning is a factor in the evaluation. So as we as an institution devote a lot of effort and attention to looking at e-learning outcomes, it will give us a better handle on what works, but it may also add a bit more challenge.” (USC)

**Secure administrative support as the foundation for e-learning growth.**  
“It’s very important to have strong administrative support at the highest level. In the beginning we didn’t have it, but we also didn’t need it that much because [faculty] pioneers were willing to take charge and the administration was willing to try it. As it’s grown, the need for structure and the need for more academic administrative support has become overwhelming. Getting that administrative support—and an understanding of why it was necessary—was difficult because it was outside the everyday experience of deans and vice presidents. However, once that was in place, it really helped us by adding structure and control. It allowed us to focus on higher-enrollment courses and thereby serve the biggest part of the population. That administrative support was critical to being able to add that structure.” (St. Philip’s College)

**Faculty and Departmental Issues**

**Offer rich and diverse e-learning training resources.** It is important to offer a menu of training resources—one-on-one consultation, classroom training sessions, and online tools—to address instructors’ different training needs and learning styles. While most prefer one-on-one training for its personalized attention, classroom training ranging from scheduled classes on specific topics to more systematic training programs
reaches a broader audience to help instructors achieve technical proficiency and provide a forum to exchange ideas. Institutions can personalize the classroom experience by augmenting teacher-led sessions with staff members to address specific questions and issues on the individual attendee’s desktop computer.

Encourage faculty resourcefulness.

“While the Instructional Innovation Center will help faculty early on, faculty are expected to be entrepreneurial to keep up with the ongoing demands of the class. It’s akin to teaching them to fish, but not fishing for them. If faculty are having problems with their e-mail management, then the Instructional Innovation Center will provide suggestions on how to fix it, but will not fix the problem.” (St. Philip’s College)

Focus on teaching, learning, and pedagogy—not tools.

“Successful faculty development results from an instructional approach, not from an emphasis on technology. It’s typical for IT organizations to approach e-learning training as an exercise in learning tools, like WebCT or PowerPoint training. We see our role as helping faculty think about teaching and learning and pedagogy, and that’s a big factor in our success and that of the faculty. We focus very much on what our faculty do and what they need, and we do a lot to try to make them succeed on their own terms in this new environment.” (USC)

Leverage multimode instructional benefits.

“We’ve seen a trend where faculty that have developed an online course but also teach traditional courses import many aspects of their e-learning course to their traditional instruction methods. In this way, there’s been a valuable cross-pollination between the two [modes].” (St. Philip’s College)

Provide adequate support for e-learning faculty.

“E-learning instructors can fail because people on high do not understand the intense commitment required of faculty members to be successful in e-learning or the fact that these faculty members are working on evenings and weekends doing all kinds of things to make sure their courses are successful. And we don’t have the monetary incentives to help them along, except while they’re developing the course. Nor do we provide the kinds of support—like a teaching assistant in each department to help all of the distance-learning instructors with phone calls or e-mail—that allow faculty members to focus on teaching.” (St. Philip’s College)

Reward innovation.

“Our belief is that at the beginning of the adoption curve there are about two percent or so who are pioneers—they’re ready to do something innovative, and they don’t mind failing. Then come the early adopters, late adopters, and then nonadopters. The Teaching and Learning Services organization operates with the assumption that the e-learning curve is different; that curve isn’t really about technology per se, it’s about pedagogy. We need to start fresh again in our thinking about how the curve is going to play out. Our belief is that there’s going to be a very small population who are really going to know how to do something pedagogically innovative. But they are going to need a lot of help and a lot of handholding. This will be followed by a wave of early adopters who are not true pioneers but know how to effectively use these new e-learning tools.” (USC)
Evolve faculty training programs over time.

A study by the Research Initiative for Teaching Effectiveness showed that after instructors redesign their first course, they often return to course development and Web services resources to redesign additional courses. This indicates that once faculty adopt e-learning and see its benefits, they become active proponents. (University of Central Florida)

“We as a training and support resource needed to take into account that faculty sophistication profiles were changing and that as a result a ‘one-size-fits-all’ approach—especially one developed with early adopters in mind—was not going to work. We needed to make sure that faculty realize that even though they know their subject matter, they don’t know e-learning. We needed to help them understand that the pedagogy is different from technology and that they needed to structure the class differently for the class to be effective.” (St. Philip’s College)

Student Issues

Keep students plugged into e-learning classes and encourage faculty–student contact.

“From an instructional standpoint, the key issue is making sure that students keep up to counter the perception that it is ‘just an Internet class’ and can be done at any time. Students often feel that they are drifting in space, especially if they don’t communicate enough with the instructor. To keep retention rates up, students and faculty need to strike the right balance between too much and too little correspondence.” (St. Philip’s College)

Prescreen student e-learners.

“As long as students self-advise, retention will always be a problem within e-learning classes. We have people who signed up for e-learning courses who don’t have a computer. While that’s okay because they can take them on campus, it’s not the ideal person for the e-learning course.” (St. Philip’s College)

Trends and Future Support Issues in E-Learning

E-learning in higher education is in its infancy. The Gartner Group, a market research firm, predicts that by 2005, competitive differentiation between higher education institutions on the basis of e-learning capability will widen dramatically as a result of a larger product marketplace with more tiers.1 Support for this critical endeavor is also new and is being crafted successfully in ways consistent with support for other major technology applications. While this study anticipates increasing support demands associated with growing faculty experience and the emergence of multiple instructional media, e-learning’s future also suggests some trends and directions that might be discontinuous and for which planning should begin now. These include

♦ the evolution of new e-learning support roles and the need to rethink instruction as a team-based activity;
♦ the emergence of viable online learning-object sources and the resulting support issues related to digital rights management, quality assurance, technical standards and integration, and stimulation of a faculty culture of reuse;
♦ management of course materials’ “afterlives,” in particular, establishing standards for the retention or destruction of online course records and the integration of such records into mainstream institutional practices related to information privacy and access;
real changes in faculty incentives that recognize the value of effort and outcomes invested and realized in support of e-learning; and

- intensified interest in accounting for learning outcomes in a meaningful way, including the emergence of e-portfolios as a strategy for enhancing the record of student activity, engagement, and performance.

Instruction As a Team-Based Activity

Currently, higher education instructors perform several roles simultaneously: instructor, mentor, researcher/academic, and course implementer/developer. For higher education to take advantage of e-learning opportunities, instructors must successfully integrate the additional roles of technologist and instructional designer, supported to a greater or lesser extent by their e-learning support organizations. Some early team-based course-authoring tools rely on typical faculty roles (author and content manager) as well as newer ones such as content editor, graphic designer, and production coordinator, making the “team” almost like a film production company.

Mitigating the impact of these additional roles, or functions, presents a significant challenge for the continued growth of e-learning in higher education. Faculty members, instructional designers, librarians, information technologists, and others will likely work in teams to assure the quality, reliability, and scalability of e-learning offerings. Interestingly, some e-learning proponents outside higher education are pushing strongly to move some e-learning support burdens to publishers and other owners of the intellectual property associated with e-learning. In other cases, commercial e-learning proponents promote shifting IT support burdens to learning technology infrastructure and tool vendors.

The Promise and Perils of Online Learning Objects

One of the most significant technology trends is the adoption of standards for learning objects. For years, the IMS Global Learning Consortium, the Advanced Distributed Learning Network, and others have worked to define an Internet architecture for learning by developing and disseminating standards and specifications. More recently, the Multimedia Educational Resource for Learning and Online Teaching (MERLOT) has been promoting the development and dissemination of online learning objects through standards and the management of a peer review process designed to “allow faculty from any institution of higher education to decide if the online teaching-learning materials they are examining will work in their courses.”

The emergence of a robust marketplace of academically legitimate learning objects could simultaneously raise the quality of global postsecondary instruction and liberate instructors from mundane and repetitive instructional tasks. Further, developers can write learning objects to exploit various learning styles, making it possible for faculty to help students realize their fullest potential. The evolution of such a marketplace will likely be slow and difficult, constrained first by technical obstacles, second by the absence of new business models to support micropayment-enabled object trade, and finally by faculty skepticism of others’ course content and reticence to shift roles from “sole producer” to “integrator.”

Despite these very real and seemingly intractable problems, too many faculty, too many institutions, and too many publishers see the overwhelming potential in learn-
ing objects to ignore them. The eventual widespread adoption of such capabilities suggests major new support requirements to facilitate rights management, operate standards-based application and network environments, develop tools such as course templates to facilitate instructional learning object use, and provide ongoing education and support to individual educators as they make the difficult transition to roles as integrators.

Managing the “Afterlives” of Online Learning Content

Course management systems create new potential for promoting and capturing a rich and unprecedented dialog among students and between students and instructors. Indeed, there is evidence that faculty believe using these systems increases the level and quality of student-faculty communications. The creation and retention of course archives, along with related and revolutionary trends concerning digital content, have led to the emergence of institutional repositories as a new support strategy “to apply serious, systematic leverage to accelerate changes taking place in scholarship and scholarly communication.”

The vision of institutional repositories, as expressed in the MIT DSpace initiative and elsewhere, is a collection of the intellectual works of an institution’s faculty and students—a record, as Lynch describes it, of “the ongoing intellectual life of the institution.” The creation and management of such institutional repositories represent a significant future support activity associated, in part, with e-learning. This trend’s implications for e-learning support include managing the instructional record throughout its life cycle, including decisions related to student privacy protection, and preserving this aspect of the institution’s intellectual life.

Incentives for Fostering E-Learning

E-learning in higher education began as either the adventurous efforts of individual faculty inspired by the potential of information and communications technologies or as a few institutions’ highly centralized and frequently unsuccessful efforts to expand their institutions’ franchises via online distance-education efforts. Since those early years, a software industry has emerged to promote e-learning on the enterprise level, many instructors have embraced the idea, and several institutions—such as the University of Maryland, Penn State, and the University of Central Florida—have made significant and successful institutional commitments to e-learning.

Still, the early evidence suggests that while the idea of e-learning has gained widespread acceptance, many faculty either await further evidence of course management systems’ efficacy or use only a portion of these systems’ capabilities. Real progress in using technologies to enhance the learning experience and learning outcomes will result from improvements in technologies’ quality (and support) and from teaching faculty’s motivation to use them. Currently, these systems are in their infancy and therefore require considerable knowledge, expertise, and effort from users. Further, the full exploitation of these technologies depends on the widespread diffusion of knowledge emerging in the learning and cognitive sciences. Finally, colleges and universities that are committed to fully integrating e-learning into their instructional mixes need to move beyond small grant programs that surface and reward early adopters. Longer term, colleges and universities, particularly research universities, will need to recognize that effective e-learning is a competitive differentiator and that investment in this activity will prove significant. In particular, higher
education institutions will need to adjust faculty incentives, notably those related to promotion and tenure, to encourage and recognize the time and effort investments that exemplary e-learning efforts will demand.

A Focus on Learning Outcomes

As e-learning gains widespread acceptance, and especially as students move to optimize their schedules and budgets by balancing online courses with “on-the-ground” offerings, pressure will mount for colleges and universities to exchange course credits with one another. The novel and important articulation agreement between community college members of the League for Innovation and the University of Phoenix is one early manifestation of this growing pressure. As this pressure grows and as employers press increasingly for assessments of student performance that they can translate into meaningful expectations of future employees, our students and our institutions will be expected increasingly to demonstrate the learning outcomes of the educational experience. While many demands associated with the pressure toward more refined learning outcome assessments will fall on faculty, new developments such as e-Portfolio will likely create significant new support demands.

The idea of e-Portfolio is new, so key definitions of its nature and scope are still under discussion and refinement. For many, e-Portfolio represents the integrative “glue” that ties together disparate elements of the evolving IT-enabled teaching and learning environment. These elements include:

- learning objects and their scholarship (faculty portfolio), including scholarship related to objects as artifacts, objectives, and evidence;
- templates for course content, workflow, and presentation;
- interfaces with course management systems, student information systems, and other administrative applications; and
- portability between institutions, grading systems, and more.

The e-Portfolio agenda is ambitious, and, once again, its support and cultural aspects will far exceed its technical complexity. Nevertheless, there is momentum, leadership, and investment resources for the teaching and learning movement, which reflects trends that Levine and other higher education scholars anticipate.

Final Conclusions

We can make a convincing argument that e-learning has reached a critical mass in higher education—as a core, maturing method of learning—and is now poised for potentially significant growth. The transformation of e-learning is a natural (and perhaps predictable) outcome of its adoption curve. In the first phase of its adoption, e-learning was largely the province of leading-edge pioneering faculty. While in some cases institutional support performed a function akin to “cloud seeding” to encourage the germination of e-learning initiatives, most early activity came about as a result of faculty innovation and without substantial institutional support.

Like other initiatives rooted in entrepreneurial, decentralized activities, e-learning faces the challenge of achieving coherence within the institution and, ultimately, reasonable standardization. The factor that played the biggest role in raising e-learning to the next level of its evolution was the
development and formalization of support infrastructures at various levels (institutional, school level, and/or department level). This support was critical because it provided a set of processes and resources that could help move e-learning initiatives forward at institutions. How? By articulating training priorities; by finding and addressing technological and pedagogical “pain points”; by providing course development resources; and by providing a bridge between faculty and administrative goals and priorities. These activities and more.

E-learning’s next phase will see both broader and deeper adoption. Institutions currently offering e-learning programs will increase and enrich their mix of offerings. As institutions evolve and grow their initiatives, e-learning will also tend to move inexorably toward closer integration with institutions’ broader mission—a goal one study participant characterized as “taking the ‘e’ out of e-learning.”

Because no single model describes how e-learning is adopted, it is difficult to articulate a set of universal challenges to institutions trying to move their e-learning programs to the next level. At a general level, though, it is safe to say that institutions on the whole will need to reexamine how e-learning fits into their missions and strategies and how to reflect this in institutional resource allocations. Most institutions will need to evolve the infrastructure and roles that have supported e-learning in its earlier stages—structures and roles that made sense in the embryonic and early growth stages but may not be appropriate for the next stages. The degree of adjustment needed will of course vary with each institution’s culture (centralized versus decentralized, for example). In sum, institutions must organize their support resources and infrastructure in a way that can be scaled up as e-learning faculty, students, and courses increase.

A key issue related to scale is technical and training support. To fully understand this, we must recognize that growth in e-learning adoption has both quantitative and qualitative dimensions. That is, while the number of faculty and student adopters will clearly grow, the attributes (technical sophistication, for example) that affect the amount of support they will need will also change. Because e-learning adoption is in many ways self-selective, later-stage faculty adopters may well prove to be comparatively less technically savvy than the first wave of adopters. On a practical level, this may mean a longer learning curve or training track. It may also require institutions (or schools and departments) to offer more-flexible training programs to accommodate the growing divergence of technical skills that comes with broader adoption. The trick will be to balance the need for a standardized track—having pedagogical training at its core—with this need for flexibility.

Student issues present similar challenges. While students’ collective technical sophistication by all accounts grows each year, skills barriers will continue to present a challenge to institutions offering e-learning. All institutions will face this challenge to some extent, but some classes of institutions (such as public community colleges) may find this of greater significance than others. This will compel institutions catering to a less technically savvy student population to establish mechanisms to help students determine if e-learning is appropriate for them. Likewise, these institutions may be more likely to require technical training and support for e-learning students.

One clear theme emerging from the research is the importance of funding for
e-learning support. Put simply, e-learning’s successful growth will depend on program development, which in turn will require adequate funding. While funding models vary considerably, both within and across institutional categories, e-learning funding will likely fare best when it is aligned closely with the institution’s broad goals. These goals may range from increased outreach to lower classroom utilization to market expansion. In any case, securing stable, long-term funding will be critical to e-learning’s success as an established, integrated learning modality. Higher education can also benefit by reducing support needs from the corporate e-learning environment, moving the e-learning support burden to their content suppliers over time, and, in the future, supporting e-learning content standards development.

Finally, as discussed earlier in this chapter, the emergence of standards at an industry level will play a key role in the future of e-learning. Standards, now more promise than reality, face significant challenges, but they appear to be critical to the continued growth of e-learning. Higher education e-learning support organizations will be challenged to support standards creation and ultimately to reinvent themselves to meet the new requirements of standards.

Clearly, the continued evolution and growth of e-learning in higher education institutions will depend heavily on institutions’ ability to build effective models to support e-learning activities.

Endnotes

6. Ibid.
7. Morgan, op. cit.
8. This program is described at <http://www.league.org/league/membership/articulations/UOP.htm>.