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Supporting E-Learning at the University of Southern California

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EDUCAUSE is a nonprofit association whose mission is to advance higher education by promoting the intelligent use of information technology.

The mission of the EDUCAUSE Center for Applied Research is to foster better decision making by conducting and disseminating research and analysis about the role and implications of information technology in higher education. ECAR will systematically address many of the challenges brought more sharply into focus by information technologies.

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Preface

The EDUCAUSE Center for Applied Research (ECAR) produces research to promote effective decisions regarding the selection, development, deployment, management, socialization, and use of information technology (IT) in higher education. ECAR research includes

- research bulletins—short summary analyses of key IT issues;
- research studies—in-depth applied research on complex and consequential technologies and practices; and
- case studies—institution-specific reports designed to exemplify important themes, trends, and experiences in the management of IT investments and activities.

While technologies offer many new learning possibilities, they also present new challenges. Institutions must adapt pedagogical practices, ensure technical proficiency, and develop and maintain a reliable and robust technical infrastructure to use e-learning effectively. These demands translate into a host of new instructor and student support requirements that institutions must address.

To help institutions achieve these goals, ECAR and IDC conducted research to learn about the evolving student and instructor support requirements for online distance-learning courses, hybrid courses, and traditional courses that leverage technology. The research examines the issue from the perspectives of support providers and support users. From the provider perspective, ECAR examines central resource organization structures, resource availability and effective practices, and the challenges presented by e-learning's increasing popularity. From the user perspective, ECAR examines the e-learning course creation or adaptation process, challenges faced, and the effectiveness of support received for the process. The research also examines instructors' and students' technical proficiencies and support requirements. This research proceeded in three phases.

Phase 1: Online Survey

ECAR conducted an online survey of the EDUCAUSE membership to develop a baseline on the state of e-learning courses and their central support activities in higher education. It received 274 valid responses, which represents 18 percent of the surveyed EDUCAUSE membership. The survey's general topics included:

- online distance learning, hybrid course offerings, and student and faculty participation;
- student and instructor technical proficiency, e-learning activities, and support requirements;
- availability of instructor training and technical, course/curriculum, and support resources;
- infrastructure and organization of support resources; and
- current and future challenges to meeting support requirements.

Phase 2: Telephone Interviews

We conducted the second-phase interviews to drill down into the "whys" and "hows" of central resource support models for e-learning. We recruited interview candidates from a group of willing respondents from the initial survey; EDUCAUSE staff and an ad hoc advisory committee comprising EDUCAUSE members involved in e-learning also helped with recruiting. We selected candidates on the basis of several criteria, including reputation as a leader in e-learning, percentage of hybrid and/or online course offerings, and degree of faculty and student involvement in e-learning. During January and February 2003, ECAR invited 23 institutions to participate in qualitative interviews, and 19 institutions accepted the invitation.

ECAR and IDC created interview guides to solicit in-depth opinions on the issues touched on in the survey research. IDC and ECAR analysts conducted telephone interviews with support provider representatives (for example, a manager from the central IT department, a manager from the instructional technology unit, or a representative from the institution's faculty resource center) and support user representatives (such as the academic senate chair of the instructional technology committee or an appropriate dean or department chairperson) from each institution.

Phase 3: Case Studies

For the case study field research, ECAR and IDC chose six institutions from among the qualitative research participants and other institutions that have significant e-learning initiatives or have implemented noteworthy central e-learning support models. The case studies seek to gain a deeper understanding of the various central e-learning support models and, by extension, what has worked well and what needs improvement. We assume that readers of the case studies will also read the main report, which incorporates the case studies' findings within the report's generalized context.

ECAR wishes to thank the University of Southern California leadership for their time, assistance, and diligence in support of this research. In particular we thank Sue Gautsch, director of teaching and learning services, Center for Scholarly Technology; Mike Pearce, deputy chief information officer; John Silvester, vice provost for scholarly technology; and Geoffrey Robert Spedding, associate professor, aerospace and mechanical engineering.

We hope that readers of this ECAR case study will learn from their experiences.

Case Background

Founded in 1880, the University of Southern California (USC) is one of the world's leading private research universities, and California's oldest. USC enrolls more than 28,000 students spread across two Los Angeles-area campuses. The University Park Campus, three miles south of downtown Los Angeles, houses USC's College of Letters, Arts, and Sciences; its graduate school; and 14 of its 16 professional schools. USC's Health Sciences Campus, located seven miles

from the University Park Campus, houses the Schools of Pharmacy and Medicine and is a major center for basic and clinical biomedical research. The university offers 77 undergraduate majors and 101 minors, and 139 areas of study for master's, doctoral, and professional students.

USC operates many distributed-learning initiatives, including video-based distance learning, blended courses (which mix traditional classroom with Web components), and fully online courses. The USC schools of engineering and gerontology deliver the largest number of fully online courses, offered as part of fully online degree programs. The Davis School of Gerontology targets the master of arts in gerontology (MAG) and graduate certificate in gerontology online degrees to health-care professionals. Similarly, the USC School of Engineering targets its Web-based Distance Education Network (DEN) to full-time working professional engineers. The DEN system delivers videotaped course content via Webcasting.

The most significant blended course is offered through USC's Marshall School of Business, which offers four undergraduate and four graduate-level blended courses. The school also participates in a joint online degree program with the Davis School of Gerontology and the School of Policy, Planning, and Development.

Funding for USC e-learning initiatives comes primarily from a combination of centrally funded grants and the various schools' budgets. The nature of these school-specific funding mechanisms varies from school to school.

Drivers of E-Learning at USC

E-learning at USC grew out of the university's video-based distance-learning program, developed in the 1970s to deliver advanced academic training to off-campus students. As computing technology and then the World Wide Web evolved, USC began to centralize its resources, in part to better support faculty seeking to incorporate technology into their instruction. E-learning initiatives are, however, relatively decentralized because of USC's structure, which delegates much program and policy management to individual schools and departments.

USC's E-Learning Roots

USC's earliest experience as a distributed-learning provider arose through its close partnerships with several southern California-based aerospace companies, such as Hughes Aerospace and TRW. In 1972, several of these companies approached USC with the proposal that it provide advanced academic training to their burgeoning base of engineers and technicians—and that it do so remotely, using ITFS-based video (later extended to satellite-based delivery). Thus began an extremely successful and pioneering program known first as the USC Instructional Television Network (ITV) and later as the Distance Education Network (DEN). The video-based ITV/DEN program laid an invaluable foundation for USC's more sophisticated initiatives because it strengthened the USC brand and established its viability as a remotely delivered resource. Equally important, it strengthened USC's position as a provider of distributed-learning services to an instruction-hungry population.

Fast-forward to 1989. While the mass adoption of Web technology was still years away, the proliferation of other computing and networking resources on campus made the incorporation of technology into USC's academic practices an important institutional priority. Toward this end, USC created the Center for Scholarly Technology (CST) in 1989. At its founding, the CST was conceived as a bridge between USC's academic computing organization and its library

system, which was (and continues to be) viewed as a crucial scholarly resource.[1] While this bridging has remained a key element of the CST's mission, the Web's mainstreaming in the mid-1990s helped reshape the CST's role and redefine its focus.

A New Course for Scholarly Technology at USC

In late 1994, the Web's increasingly pervasive influence led to a fundamental shift in the CST's mission toward providing support for faculty seeking to incorporate technology into their traditional instructional methods. Under this more activist approach, the CST worked with pioneering faculty as a facilitator of technology by helping faculty develop and incorporate technology-based tools, such as interactive Web sites, into traditional classroom lectures. According to John Silvester, vice provost for scholarly technology and head of the CST, the key motivation for this shift was to smooth the way for faculty to adopt basic e-learning tools. "We made the conscious decision to broaden the acceptability of using technology in the classroom by establishing tools that would shorten and flatten the learning curve," he said. "Up to that point, faculty faced a somewhat challenging climate for adopting Web-based tools."

Silvester traces much of this perceived challenge to the university's computing environment, whose high degree of centralization and focus on technical computing made Web publishing complex for the average faculty member. "There were a lot of faculty that were trying to create and maintain Web sites but were very frustrated because our centralized computing environment made it fairly difficult," Silvester explained. "This was compounded by the fact that our central academic computing organization grew out of an engineering computer lab and still had many of the trappings, such as a heavily UNIX environment. While this [kind of an environment] was okay for engineers, it wasn't for the rest of the faculty." In short, USC needed a Web environment conducive to the widespread faculty adoption of Web-based e-learning.

Responding to this need, the CST introduced Web-based course management tools to faculty in 1998. USC's approach was to deploy its course management system (CMS)—known as Trojan Online Teaching and Learning Environment, or TOTALe—centrally for use across the USC enterprise. This central course management platform deployment has let USC integrate it with other back-end USC platforms for increased efficiency. TOTALe is currently built using the Blackboard CMS. To support the use of this resource, the CST builds and populates e-learning course "shells" at the request of faculty. These shells provide secure site access, the ability to easily share and put course materials online, and tools for grading, assessment, and collaboration.

The Emergence of Decentralized E-Learning

The CST's emergence as a centralized facilitator of e-learning at USC—coupled with the deployment of a centralized course management platform—might suggest a pattern of centrally governed e-learning adoption. However, USC's experience to date paints a different picture. As will be explored later, USC's e-learning experience thus far is noteworthy for its relatively *decentralized* character. This is most clearly evidenced by the fact that USC's individual schools and departments conceive, advance, and support e-learning initiatives. The three prime examples of this, weighted by the sheer number of their offerings (briefly outlined earlier and discussed in detail below) are the schools of engineering, business, and gerontology.

How, then, do we reconcile the CST's centralized flavor with the decentralized e-learning initiatives that have emerged thus far? The twofold answer relates to both the CST's service delivery model and, in the bigger picture, USC's institutional culture. While the CST is a centralized USC resource, its core function is to make itself available to faculty and/or departments at their discretion. It thus functions as a flexible, on-demand e-learning facilitator for USC's faculty and departments—*not* as an establisher of institutional policies.

We can trace the second half of the equation to USC's highly decentralized culture, under which its 16 schools exercise much control over their policies and programs. This decentralized culture largely reflects USC's disciplinary diversity as an institution, as well as the fact that schools exert control over their funding, goals, and policies. This combination of diversity and a culture of decentralized control at the school level has made it inherently more challenging for USC to articulate a set of institutional goals and policies for e-learning. Despite this challenge, Silvester believes that USC has nonetheless established some bedrock principles to keep the schools' e-learning strategies in synch with the university's student-centric institutional mission. "We believe USC's overall goal is to create the optimal learning environment for students—to ensure that students get access to the high-quality faculty that we have on campus, as well as to the research," he explained. "Within that framework, we look at technology-based initiatives like e-learning in the context of how they enhance the learning environment. It's part of our mission as a private university—that is, our goal is not to reach out to a larger population, but instead to focus on the university's existing student population. . . . Looking at where and how e-learning has been deployed at USC, one sees that it's used in cases where instruction and learning can derive significant benefit from the infusion of technology."

The notion that USC's schools have been driven by highly practical e-learning goals—specific to targeted populations—is reinforced by the characteristics of the highest-profile programs. For instance,

- the Davis School of Gerontology targets current health-care professionals,
- the School of Engineering (through its DEN program) targets full-time working professional engineers, and
- the Marshall School of Business targets several of its online programs to either overseas students (mainly in Japan) or working professionals.

The fact that gerontology and engineering online courses are offered only as part of fully online programs further exemplifies how, presently, most of USC's e-learning course offerings are targeted to off-campus students. While USC also offers e-learning classes outside fully online degree programs, these offerings are relatively limited in number. This reflects the comparatively early stage of USC's e-learning adoption outside the "hotbed" areas discussed above. At a deeper level, Silvester said, it reflects a lack of a broad consensus on e-learning's role across the university. "There's been a lot of debate about e-learning over the past four or five years," he noted. "The fact that we haven't arrived at a consensus as an institution as to where we are going with e-learning has to some extent dampened our adoption. It's an issue we've had to work out in order to move forward."

Sowing Seeds of E-Learning at the Department Level

As a by-product of the decentralization of USC's e-learning initiatives, individual schools and departments have been the primary advocates for e-learning, and poli-

cies vary from school to school. An example of such a policy is that some schools require faculty to maintain a home page for their classes. Another increasingly common requirement is that faculty post grades electronically using USC's TOTALe CMS grade book functionality to overcome the outdated practice of posting grade sheets using part of the Social Security number.

While the CST does not advocate e-learning at the department level, it does actively support departments that are either considering or in the process of launching e-learning initiatives. Many of these initiatives focus—at first—on enhancing traditional courses through effective technology use rather than developing full distance-learning courses.

To address this need, the CST makes itself available for consultations with individual faculty members or entire departments. Faculty consultations tend to focus on instructional needs but may also touch on areas such as training and project development. The CST's department-level engagements, which are of a more ongoing nature, are especially important because they provide critical input to the departmental decision makers who ultimately sponsor, back, and approve e-learning initiatives. In this sense, these engagements—which may range from a brief question-and-answer session to an onsite department training workshop—create a more fertile climate for a department's e-learning adoption.

The CST also allows departments to apply for grants to support their proposed technology initiatives. These so-called "curricular design grants," funded by the provost's office and USC's Information Services Division (ISD) through the CST, make up part of USC's TOTALe initiative. The CST offers two grant categories.

Jumpstart grants provide $1,000 to $10,000 to individual faculty or teaching assistants with "pedagogically constructive" ideas. Specifically targeted activities include

- the complete redesign of a course using USC's Web-based CMS,
- developing new tools (known as modules) using Web or other technologies,
- repurposing an existing module to achieve a different learning goal with students,
- upgrading existing modules with more functionality or supplementary content, and
- supporting student Web and multimedia projects.

BarnRaising grants fund interdepartmental or interdisciplinary groups of two to five faculty members ($1,000 to $10,000 per participating faculty member) to leverage their combined instructional goals and processes toward a larger educational impact. Specifically targeted activities include

- completely redesigning a course using USC's Web-based CMS, and
- developing new modules using Web or other technologies.

The following section examines the processes by which these grants are evaluated (i.e., proposals) and awarded to faculty.

Tracking the Life Cycle of an E-Learning Proposal

USC reviews and approves proposed e-learning courses using relatively standard processes across the institution. Where e-learning courses are proposed as part of a grant application (such as a curricular design grant), the process begins with the submission of the application to the CST. A proposal's key elements include

- teaching and learning issues or challenges associated with the proposed course,
- pedagogical objectives that address these issues and challenges,

- activities designed to meet these pedagogical objectives, and
- desired learning outcomes from these activities.

From this point on, the evaluation process follows a common path applicable to e-learning courses proposed as part of a grant application or developed outside the grant framework. In both cases, the organizational route followed depends on the proposed course's amount of online activity as a proportion of overall class time. Projects deemed "distance learning" (at least 50 percent of course time spent online) are evaluated by USC's Distance Learning Curriculum Committee (DLCC), an independent standing committee charged with ensuring that all existing and proposed distance-learning programs and courses conform to academic quality standards. The committee's mandate is to provide a recommendation on the proposed course in conjunction with the appropriate faculty curriculum review committee (undergraduate or graduate) to the provost. Another critical contribution of the DLCC is the review of distance-learning program proposals prior to their submission to the substantive change process at the Western Association of Schools and Colleges (USC's regional accreditation agency).

Proposed courses not deemed distance learning (including blended e-learning courses) do not require DLCC review, although some proposal sponsors, such as the Marshall School of Business, might request that the DLCC review them for feedback purposes. As a rule, however, only a faculty curriculum review committee evaluates non-distance-learning courses. Key elements considered in the evaluation include

- maintenance of high academic quality standards,
- adequate provision of the curricular content,
- the appropriateness of examination and certification measures, and
- how student services (such as library and computer access, or advising) will be provided.

In the case of grant-related e-learning courses, the grant's approval triggers a period of close collaboration between the faculty member and the CST (examined in the following section), the goal of which is to implement the innovation defined in the proposal. During the ensuing instructional design and development process, the CST's and the instructor's respective roles are well delineated, with CST focusing on project development and faculty on pedagogical issues.

Bridging the Gap: From Proposal to Pilot

A faculty member who has been awarded a grant works closely with a CST teaching and learning services project manager, who guides the development process. This project manager in turn works closely with a team of programmers, graphic artists, and instructional designers. A CST development project typically unfolds in the following phases:

- *Phase 1: Educational objectives and project features.*

On the basis of the initial proposal, a CST project manager works with the faculty member to formalize the specific educational objectives and project features required to meet these objectives.

- *Phase 2: Curricular and technology design.*

With the project manager's assistance, the faculty member further develops the curricular lesson, activity plans, and related grading policies while identifying the appropriate technologies to be used, including a definition of the technology access and support needs.

- *Phase 3: Project schedule, responsibilities, budget, and resources.*

The project manager develops a time line for the project design, development, testing, training, and implementation in the identified course(s), including dates for team reviews at the end of each phase. The project manager also specifies each person's role in the process and the means for acquiring the necessary resources. At this time, a budget is drafted for the project and funds are allocated.

- *Phase 4: Interface, technology, and evaluation design.*

The project manager and the development staff design the project interface, data, and technology support model. Where applicable, the project manager and development staff draft a plan for evaluating the project with the faculty member proposing the course.

- *Phase 5: Development, media acquisition and production, and testing.*

CST Web services staff develop the project as specified, including interface and database development and programming, graphic design, and media production.

- *Phase 6: Pilot implementation, support, and evaluation.*

In the specified course, recipients pilot the new curricular design with the developed project. CST supports and trains the faculty members, their TAs, and their students as agreed upon. Where applicable, a formal evaluation of the project is conducted.

- *Phase 7: Project close, handoff, and future recommendations.*

Upon completing the pilot run, the faculty members and CST project manager finalize the project by preparing a closing document that outlines the project's educational objectives, the means by which they were or were not achieved, the total project expenditures (including CST staff time and other expenses), and future recommendations for further or repeated implementation. This document is presented to the sponsoring department or program head(s).

School/Department-Level Development

While the above flow describes the case in which the CST performs course development for an e-learning proposal, it's important to note that development can also occur at the school or department level using a school or department's resources. For example, the Marshall School's blended business courses were developed by the school's departmental instructional design group, known as the "eLearning Team." This group and all other USC entities involved in e-learning support—along with their processes—are described in more detail below.

Supporting E-Learning at USC

Thus far, much of the discussion has focused on the backdrop against which e-learning has developed at USC. This section provides a closer look at the practical challenges the institution faces and how it has adapted its support resources and processes to address them.

Key E-Learning Support Challenges: Faculty

With USC on the threshold of widening its e-learning deployment, it faces a number of support-oriented challenges. One of the most significant concerns technical support. The most prominent support issue relates to how an institution with a highly centralized IT organization can address the support needs of a highly *d*ecentralized and heterogeneous group of academic organizations (that is, schools and departments). Mike Pearce, deputy CIO in USC's Information Services Division, sees a higher degree

of departmental support as inevitable as e-learning adoption grows across the university. "As the number of faculty offering e-learning courses increases, it could clearly put a strain on our help-desk resources," he said. "The feeling [in ISD] is that much of the help desk support [for e-learning] will need to be provided by the schools or departments—some of which are geared up for it, and some of which are not."

One of the biggest factors expected to impact USC's faculty support strategy is the heterogeneity of the faculty population, in terms of both subject matter and technological sophistication. Pearce explained, "As we set out to support faculty expansion of e-learning, we have to deal with the fact that we have a small organization that's trying to service this large population with a highly heterogeneous level of sophistication. Layered on top of that are differences in content and differences in the types of things these departments are trying to do [with e-learning]. Our belief is that there can be no 'one-size-fits-all' model for it. For example, contrast the needs of the School of Education with those of the business school. . . . Our operating assumption is that the most successful support model will be a tiered approach, with a ubiquitous, highly leveragable central component, and a distributed component at the user level. But the problem [with this approach] is that at the distributed level there are also different levels of sophistication, as well as issues related to funding."

For this tiered approach to be workable, Pearce sees it as essential to address the delineation of responsibilities around these tiers' boundaries, specifically, the "handoff" that may need to occur from one tier to another. "The key challenge that we've encountered is the question of how to create a viable IT governance model for e-learning," he said. "We believe that whatever model emerges must be flexible enough to delegate highly specific support requirements—like cutting-edge applications—to the department or school level."

Key E-Learning Support Challenges: Students

E-learning research suggests that all other things being equal, higher technological sophistication among students generally coincides with a lower demand for technical support. In USC's case, this intuitive maxim appears valid: support issues among the university's tech-savvy student population have not been a significant problem. Nor have any particular types of problems emerged as frequent culprits, aside from general issues such as connectivity.

In fact, the real student challenge facing USC may lie in how it keeps pace with the stratospheric expectations students have developed in the age of the Web. Sue Gautsch, director of teaching and learning services, a unit within the CST responsible for providing faculty support, believes that USC's e-learning success will depend to an extent on its ability to meet these lofty expectations. "The expectations and mindsets of our current students are very different than those of 10 years ago," she said. "While exposure to technology is an important influence, it's really more than technology. It's more the fact that they've grown up in a world that has given them a strong customer-service mindset. The result is they see themselves as *customers*—not just students. So their ideas of what being a student means relate to how well USC will serve them as a customer—paying good money. As a private university, USC needs to be especially responsive to this as an institution, and e-learning may well play a role in that."

Gautsch also sees e-learning dovetailing with changes in students' attitudes toward information and how they acquire it, which

the Web has heavily influenced. "Students entering USC have grown up with the Internet. As a result, they're more inclined to seek out information on their own, and are more likely to be both independent and skeptical," she noted. "So they are probably somewhat less likely to buy everything that the professor says and in fact may see the professor more as a facilitator of their learning experience—the proverbial 'guide-on-the-side,' not the 'sage-on-the-stage.' We see e-learning as playing right into that learning mindset."

Overview of USC's E-Learning Support Infrastructure

USC's e-learning support infrastructure includes the three institutional entities discussed so far—the Center for Scholarly Technology (CST), the Information Services Division (ISD), and the various department- and school-level resources—and a new unit, the Center for Distance Learning.

The CST, an ISD unit, is headed by Vice Provost Silvester and consists of three subunits.

Teaching and learning services (TLS), headed by Sue Gautsch, comprises primarily instructional designers and trainers. TLS's core services include the provision of

- scheduled training in Blackboard, digital video, multimedia presentation software, and specialized instructional software;
- departmental and small group training (for five to 15 people) in the Leavey Library (see below); and
- one-on-one training at the TLS Faculty Development Lab.

TLS also sponsors events such as speaker series, forums, open houses, and conferences.

Web services operates the USC gateway Web site and also provides programming, development, and IT architectural support to the university community on a charge-back basis. Their services can be built into instruction design projects as appropriate.

The *research, planning, and development group* is responsible for strategic planning and monitoring developments in IT and services that impact academic instruction and research. As such, they contribute to the development of distance-learning and instructional technology strategies and policies.

As USC's central IT organization, the ISD naturally plays a significant role in the support of e-learning. Although the CST provides instructional support and consultation for e-learning projects, the broader ISD organization's role is to provide end-user support to both faculty and students through its central help desk. While relevant to e-learning users, help-desk staff typically address more general technical problems such as e-mail and network connections. At an even higher yet still relevant level, the ISD supports e-learning by maintaining the university's infrastructure. As Pearce pointed out, e-learning growth has meant a near-continuous increase in infrastructure upkeep requirements. "As technology has become more embedded in learning—including things like e-learning and wireless—we've needed to keep pace on the infrastructure side," he said. "This has meant more servers, switches, databases, and so forth—all of which need to be supported."

Another part of the e-learning infrastructure is the department- and school-level resources that support programs at the local level. These resources may range from a single administrative staff or TA to an entire work group. An example of the latter is the "eLearning Team" within the Marshall School of Business, a mix of instructional designers, editors, programmers, and graphic designers. In a fashion similar to that of the CST, this team's mission is to

work with Marshall's faculty to develop distributed-learning courses, as well as to train graduate student TAs working for Marshall's e-learning courses. Marshall's first e-learning class, an undergraduate marketing class, launched in spring 2002.

The final piece of the e-learning infrastructure is the Center for Distance Learning (CDL), an organization created by the Office of the Provost in 2002 and whose mandate is to improve the coordination of distance-learning projects across the university. Headed by Thomas O'Malia, who is also professor of clinical entrepreneurship in the Marshall School of Business, the CDL was formed in large measure to offset the fragmentation that had characterized USC's e-learning efforts. This fragmentation was both unsurprising—after all, most initiatives germinated at the school or department level—and largely in sync with USC's decentralized overall culture. However, fragmented, decentralized program development also made it more difficult for USC to establish a coherent set of policies and strategies to guide the development of e-learning courses. Indeed, with no central authority to galvanize e-learning, and no external imperative like community outreach, e-learning at USC has lacked a catalyst for growth, believes the CST's Gautsch. "There has been no huge driving force to make e-learning grow," she said. "Part of this is a result of fragmented efforts across the university."

In its first year, the CDL has focused its efforts on

- improving communication between the various distance-learning activities at USC;
- identifying a methodology and tools to support the conversion of traditional courses to a distance-learning modality in a "production" (rather than a "boutique") mode; and
- identifying candidate courses for experimentation in conversion to full distance-learning programs.

One way to understand the CDL's role within USC's e-learning strategy is to compare it with that of its virtual sister organization, the CST. While the CST functions as an experimental ground—or R&D department—for e-learning, the CDL focuses more on the operations or production component of course development. Thus far, the CDL has focused on facilitating the development of blended e-learning courses; it was instrumental in helping the Marshall School of Business develop several of these courses in 2002.

E-Learning Spotlight: One Faculty Member's Experience

When Geoff Spedding, an associate professor of aerospace and mechanical engineering, first heard in 1999 that Web-based course management was available at USC, his curiosity overcame some initial skepticism. "After dismissing it as just one more piece of work, I decided that it would be in my interest to pursue it," he recalled. "It sounded like something that probably has a future." In many ways, Spedding represented a prototypical early e-learning adopter. Although not a "techie type" by any stretch, he was nonetheless a comparatively advanced technology user within his department and thus a likely candidate for a trial of the recently deployed technology.

As for his primary motivation, Spedding said, "It was all about whether using e-learning was good for the students. I felt reasonably assured that [Web-based e-learning] would be something with a future, so I wouldn't be wasting my time if I learned it." After attending a CST seminar, he concluded that—at least at first glance—it was relatively easy. And while not perfect, it seemed to offer major advantages over

his current practices. He resolved to spend one week getting up and running and then decide where to go from there.

One of the first benefits Spedding registered from e-learning came before his first class began. "The most immediate benefit I experienced was that it forced me to more intelligently organize my course plan and my materials," said Spedding, whose previous organizing efforts were limited to his syllabus and memory. "By making me adopt a more systematic and hierarchical approach to organizing my material, I found that it improved my efficiency and ultimately made it easier to post documents in electronic form. Even at that early stage, my belief was that even if this was the extent of the benefit, it would be worth it."

But being an early adopter had its challenges, the most prominent of which was a stream of software bugs from new releases. As a result of one such bug, his electronic grade book was permanently deleted, causing him chagrin and his students mild frustration. (He is quick to point out that his students "cut me a good deal of slack" for most online instructional issues of this sort.) Although new releases ultimately resolved most of these problems, the fact that Spedding had few peers to exchange notes with made it difficult to diagnose and solve these bug-related problems. "When you are the first person to discover a problem like this, it often takes a while to work out."

Despite his positive experiences with Web-based course management, Spedding initially had a hard time selling his departmental colleagues on its benefits. "Their reaction was a mix of trepidation about the additional workload that [e-learning] represented and skepticism about whether it was worthwhile," he said, adding that while he is on the sophisticated side of the technology spectrum, his peers are distributed across it. "It was less a question of technical skills than of cultural inertia. Over time, as we've done more of it and the software has gotten better, they've become much more open to adopting [e-learning]—and I'm no longer the only one in the department using it."

Lessons Learned in USC's E-Learning Experience

Although e-learning implementation is in its fairly early stages at USC, the institution has nonetheless learned important lessons that will prove valuable as usage expands. Some of these lessons are discussed below.

Setting 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 on standards 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." (Gautsch)

Infrastructure Adequacy

"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 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 fine tuned and can easily be disrupted by inadequate technology performance." (Spedding)

E-Learning Adoption

"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 it 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 hand-holding. 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." (Gautsch)

Emerging Importance of Outcomes

"One of the emerging issues we're seeing around e-learning is the importance of outcomes. USC is up for reaccreditation and has to have a self-study done by 2005. For the first time, learning outcomes for e-learning are 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 may also add a bit more challenge." (Gautsch)

The Future of E-Learning at USC

In the near term, e-learning at USC is expected to grow at a steady pace. Although many elements of the university's policies will remain the same—such as its adherence to the principle that e-learning initiatives are done for students' benefit—some will likely change. One potentially new direction for USC may be a more coordinated—and increasingly centralized—approach to e-learning. The establishment of the Center for Distance Learning signaled such a change, Gautsch believes. "The big question is how all the different organizations that are involved in different ways with e-learning are going to interact in the future," she said. "How it all plays out will determine how we as an institution plan for, grow, and support e-learning."

Endnote

1. A good example of this linkage between the library system and scholarship at USC is the Leavey Library, which strongly supports undergraduate teaching, research, and technology-enhanced study. Another is the Doheny Memorial Library, which serves as the nerve center of USC's Information Services Division and houses the CST.