



Chapter 4: Enhancing Learning by Enabling Faculty: Technology-Enhanced Learning and Distance Learning

With recent advances in new and emerging education and information technologies, educators have transformed the way they teach and the way students learn, including how information is accessed, shared, synthesized, and communicated. Experimentation with and adoption of new technologies in learning environments has long been a staple of institutions of higher learning, and USC is on the forefront of these advances.

In 2006, the Office of the Provost established the Technology Enhanced Learning and Distance Learning Initiative (TEL_DL) and appointed Suh-Pyng Ku as Chief Technology Officer for Enhanced Learning to support USC's academic mission to promote learner-centered technology-enhanced education. The TEL_DL professional staff is charged with developing USC's capability to offer technology-enhanced learning opportunities to students on campus as well as at remote locations. The TEL_DL team works with all 18 USC schools and Childrens Hospital Los Angeles to help implement technology into teaching practice, and to help schools develop technology-enhanced learning strategies and distance learning programs. TEL_DL also provides a set of ongoing program metrics and assessment tools for measuring student learning outcomes and program efficacy.

In 2007, Ilee Rhimes was appointed as Chief Information Officer and Vice Provost for Information Technology Services (ITS) to accelerate the university's growth and prominence in information technology services. He named Professor Susan Metros Deputy CIO and Associate Vice Provost for Technology Enhanced Learning to lead the TEL_DL team along with multimedia classrooms and general access labs, web services, and emerging educational technologies. Within this larger organization, the TEL_DL team will be well positioned to support the USC academic community in exploring both instructional technology process and practice as they relate to the broader implications of convenience, collaboration, communication,

mobility, accessibility, literacy, assessment, and information seeking. The TEL_DL team will continue to work closely with USC's faculty and information technology professionals to advance teaching and learning at USC and to match existing and emerging instructional technologies and enterprise systems to specific distance learning and technology-enhanced program models.

Infrastructural Support

TEL_DL has focused on building the technology-enhanced infrastructure, training faculty and staff, and developing new pedagogical tools. They have developed and provided both enterprise-level technology systems (e.g., studio classrooms, Blackboard course-management system, USC on iTunes U, and Google Apps for Education), as well as personalized and mobile teaching alternatives (e.g., mobile briefcases, audio podcasting, and personal response clickers). Recent projects and experiments are outlined in the following table:

PROJECTS	DESCRIPTION	ADVANTAGES	OUTCOMES
<p>1. Studio Classrooms</p>	<ul style="list-style-type: none"> • Technology upgrade of 19 state-of-the-art studio classrooms across the University Park campus, the Health Sciences campus, and Childrens Hospital Los Angeles. • Capabilities include 4-point video conferencing, webcasting/archiving, touch screen control panel, dual projectors and screens, document camera, electronic writing tablet, special lighting, cameras, and wireless speakers and microphones. 	<ul style="list-style-type: none"> • Instructors can enrich their teaching with seamless integration of multiple technologies and multimedia into their teaching. • Instructors can archive their thoughts/lectures and allow students' self-paced, personalized learning as well as aid student performance and academic retention. • Instructors can bring in remote presenters into the classroom and reach/interact with remote students. 	<ul style="list-style-type: none"> • Increased use of media and other interactive teaching strategies incorporated into the lecture environments across the entire USC campuses. • Archived lectures, for students' personalized learning. • Connected various campuses/speakers.
<p>2. General Use Classrooms Upgrade</p>	<ul style="list-style-type: none"> • Many general use classrooms are being upgraded to multimedia classrooms (Lite+). • A Lite+ room provides a LCD projector, a projection screen and speakers. In addition, a Lite+ room is equipped with an AV wall box with a DVD/VCR player, a fold-down table, lighting controls, and an external laptop jack, and a helpdesk phone. 	<ul style="list-style-type: none"> • Instructors can enrich their teaching by incorporating technology and multimedia into their teaching. 	<ul style="list-style-type: none"> • Summer 2006-Summer 2007, 48 rooms upgraded • By Spring 2008, 42 additional rooms will be upgraded.

1. <http://tel.usc.edu/teach/studioclassroom.cfm>

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3. Personal Response System (Clickers)	<ul style="list-style-type: none"> Adopted the Turning Technologies ResponseCard as the recommended standard for USC so the same clicker can be used in multiple courses. A clicker is a pocket-sized keypad device, along with PowerPoint presentation, enables instructors to poll an entire class of students and view instant aggregated results. Includes an experimental program to loan faculty clickers and receivers (50 faculty members and 500 students). 	<ul style="list-style-type: none"> Anonymously gauges students' understanding and retention of material during class. Increases class participation. Provides immediate feedback. Allows faculty to revise or reinforce their teaching instantaneously. 	<ul style="list-style-type: none"> Spring-Fall 2007: about 6,000 clickers are owned and used by USC students in their classes. Both faculty and student survey results suggest clickers are enhancing learning outcomes.
4. Mobile Briefcases (i.e. Portable Studio Classrooms)	<ul style="list-style-type: none"> Faculty loan of 10 available mobile briefcases (i.e., portable studio rooms) that provide quick set-up of multimedia technology in virtually any classroom. The mobile briefcase can be used for teaching, videoconferencing, podcasting, and course capture. The in-class presentations and demonstrations can include PowerPoint slides, images, audio files, enhanced audio files, digital video files, DVDs/CDs, software and web sites. If lectures are recorded, they can be made available to students for personalized learning via Blackboard course management system or podcasting via USC on iTunes U. 	<ul style="list-style-type: none"> Enables faculty archiving and podcasting. Allows students' personalized mobile learning and aids student performance and academic retention. Increases availability of studio classroom technology. Avoids the need to construct additional studio classrooms. Provides schools/faculty with a model for an affordable, portable, and powerful teaching/learning system. 	<p>Fall 2006-Fall 2007:</p> <ul style="list-style-type: none"> 27 faculty from 16 schools have used the system for multiple courses they teach. Connect USC's main and Heath Science campuses; various exchanges between USC and China. Increasingly, faculty members are purchasing the mobile briefcases on their own.
5. Audio Capture/ Podcast Units	<ul style="list-style-type: none"> Experimental faculty loan of 10 digital audio recording devices and support for publishing lectures on "USC on iTunes U." 	<ul style="list-style-type: none"> Enables mobile and personalized learning. 	<p>Fall 2006-Fall 2007:</p> <ul style="list-style-type: none"> 27 faculty from various schools are involved.

3. <http://tel.usc.edu/teach/AboutPRSclickers.cfm>
4. <http://tel.usc.edu/teach/mobilebriefcase.cfm>
5. <http://tel.usc.edu/teach/audiopodcasting.cfm>

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6. Immersive Technologies (e.g., Second Life)	<ul style="list-style-type: none"> • A virtual society in which members can build, explore and interact. • An online, video-based, interactive tool. 	<ul style="list-style-type: none"> • Allows students to engage in immersive, experiential learning experiences. 	<p>Piloted in Fall 2005 by the Annenberg School, and in Fall 2007 in Education, IML and Marshall ethics courses.</p>
7. Blackboard Learning Management System	<ul style="list-style-type: none"> • Centrally supported online learning management system providing instructors and students with a suite of productivity, communication and collaboration tools. • Virtual library access and Clickers building blocks will be integrated with Blackboard. • By Spring 2008, faculty and students will be able to use single sign-on to access Blackboard. 	<ul style="list-style-type: none"> • Instructors manage courses and extend educational resources. • Students check grades, access course content, communicate, and collaborate online. • Easy to deploy “just-in-time” teaching techniques by providing content when and where it is needed. 	<ul style="list-style-type: none"> • In 2006-07 academic year, there were 2,400 active courses using Blackboard. • Increasingly, faculty require students to submit their course assignments through Blackboard.
8. USC on iTunes U	<ul style="list-style-type: none"> • USC on iTunes U is a secure, single sign on, online service that provides access to a variety of USC audio, enhanced audio, and video podcasts (hosted by Apple, Inc. for secure storage of content). • For the private academic site, faculty can publish their course files so that only their students can access them. 	<ul style="list-style-type: none"> • Enables mobile learning— extend learning and teaching anytime, anywhere. • Students can subscribe to the iTunes course and browse the file via a desktop, laptop or podcast via an MP3 player or iPhone. 	<ul style="list-style-type: none"> • October 2006-Fall 2007, 55 courses by 42 faculty • In Spring 2007, there were 11,660 browses and 4,878 downloads. • In September 2007, there were 4,538 browses and 585 downloads.
9. Google Apps for Education of USC Students	<ul style="list-style-type: none"> • A USC branded, integrated suite of Google applications for students, including email, instant messaging, calendaring, docs and spreadsheets, and Web publishing. 	<ul style="list-style-type: none"> • Allows students to collaborate and communicate online. • Addresses students’ preference for Web access. • Opportunity to partner with a technology innovator to allow our students to continue benefiting from more sophisticated features developed in the future. 	<ul style="list-style-type: none"> • Initial roll out by Law School (100% opt in) and USC Viterbi’s DEN program. • A full roll out to all USC students in Spring 2008.

6. <http://graphics.usc.edu/cgit/index.php>
<http://secondlife.com/>
7. <http://tel.usc.edu/teach/blackboard.cfm>
8. <http://tel.usc.edu/teach/iTunesU.cfm>
9. <http://www.google.com/a/edu>
<http://www.usc.edu/uscnews/stories/14240.html>

Resource Support for Teaching and Learning

The TEL_DL team also has developed resources to aid the USC community in utilizing and integrating technology into teaching and learning on campus and at a distance. In addition to the many face-to-face and online training sessions that are conducted and archived online, other resources include: (1) “Digital Case Studies” by USC and other renowned faculty capturing real-world practices from faculty forums, the annual Teaching with Technology Conference, and technology-specific Communities of Practice; (2) “Resource Manuals” on using TEL_DL supported systems; (3) a “Technology-Enhanced Learning and Distance-Learning Course Syllabus Template” addressing key considerations in developing a technology-enhanced or distance-learning course; (4) “50 Ways to Use Technologies to Enhance Your Class,” a white paper raising faculty awareness and engagement in the uses of educational technologies to improve student learning outcomes; and (5) the “Distance Learning Support Manual” offering an analytical framework for initiating a distance-learning program by the deans and program directors. Finally, the TEL_DL team actively consults with faculty to discuss how to expand existing programs and establish new markets via technology-enhanced and distance learning.

- **Funding Opportunities:** Beyond providing infrastructure and resource support, TEL_DL offers funding opportunities to encourage and seed faculty-initiated projects for technology-enhanced learning aimed at improving student learning outcomes. These include: (1) the Technology-Enhanced Learning Incentive Program which focuses on the implementation of low-threshold, low-cost technologies that could be integrated quickly and easily into courses; (2) the Provost’s Grant for Teaching with Technology designed to provide seed funding for faculty-driven new pedagogical technology projects that support engaged learning; and (3) the Provost’s Prize for Teaching with Technology which honors faculty who demonstrate outstanding innovation in the area of technology enhanced teaching.
- **Community Building and Knowledge Sharing:** Guided by the TEL_DL Faculty Advisory Committee, the TEL_DL team cultivates communities to share knowledge, experiences, and ideas for continuous quality improvement. TEL_DL team members also are members of the Center for Scholarly Technology. In this role they serve as ambassadors to all 18 USC schools and Childrens Hospital Los Angeles supporting and advancing the use of educational technologies throughout the university. A variety of working groups also have been established to target different users including (1) the TEL_DL Technical Circle, a learning community of technical professionals from all USC schools and continuing education, providing a monthly forum for USC IT professionals and leaders to exchange ideas and best practices about implementing existing, new and emerging educational technologies into their respective schools; (2) the TEL_DL Faculty Forum where faculty members meet monthly to showcase and facilitate discussion about their use of technology enhanced learning; (3) the Annual Faculty Colloquium designed to focus on the challenging issues such as intellectual property, copyright, and Fair Use, especially as they relate to technology-enhanced and distance learning; (4) a Service and Management Workshop designed to help administrators learn more about the goals, approaches and components of TEL_DL-related initiatives; and (5) an annual Teaching with Technology Spring Conference to bring together faculty, staff, and administrators to share knowledge and experience, exchange ideas, and learn best practices for teaching with current and emerging technologies.

Challenges and Opportunities

- USC should continue its efforts in assessing students' learning outcomes and appropriately integrating technology and pedagogy. With the many technological tools available to faculty, academic leaders will want feedback from both students and faculty to effectively integrate technology and pedagogy. Furthermore, as individual schools and departments develop programs and identify markets, USC will need to refine its institutional program metrics and assessment tools to better measure student learning outcomes and program efficacy.
- USC will continue to engage faculty in developing their instructional technology skills. For example, as online learning-content management systems become more powerful and easier to use, we should encourage faculty to use online systems to develop and offer engaging learning experiences and to communicate with and provide feedback to their students.
- As the adoption of the technology continues to rise, USC will need to continue to improve the speed, security, and reliability of USC's network and its learning-technology applications, resources, and tools.
- Finally, USC faculty and staff need to collaborate across support and academic units to design and build a universal digital assets repository that will enable tracking, managing, maintaining, and sharing print and media content for teaching, learning, research and outreach.