



Chapter 5: Educational Effectiveness in a Research University Dedicated to Student Learning

WASC's Accreditation Standard # 4 focuses on creating an organization committed to learning and improvement. Improving the academic environment to facilitate learning has been the dominant theme in the USC's Capacity Report, and this chapter will provide evidence that USC is making significant efforts to assess the effectiveness of teaching and learning. The following examples are representative of broader efforts to assess student learning and encourage faculty reflection on ways to be appropriately attentive to the needs of students in a learner-centered research university. Although not all courses and programs are subject to the same intensive assessment described below, we believe that these reflect USC's commitment to critically examining our pedagogy to determine how well we are equipping our students to excel in their future professions. USC is committed to the kind of sophisticated assessment reflected in these projects, and we are determined to take a leadership role as a major research university with a robust academic environment in devising the best ways to analyze our success in the classroom. We will begin with a discussion of two faculty committees that have assessed educational effectiveness, then we will describe several targeted assessment programs, and finally we will provide a description of several university-wide resources that bring attention to the need for nuanced assessment of educational effectiveness and provide tools to perform this critical activity.

University Faculty Committees Focused on Educational Effectiveness

- **Learner-Centered Education Task Force.** The Learner-Centered Education Task Force was formed in fall 2005 on behalf of the Academic Senate and the Office of the Provost to survey the state of learner-centered education at USC, with particular attention to identifying best practice models. The Task Force published a report, "Learner-Centered Teaching and Education at USC: A Resource for Faculty," intended to help the faculty understand USC's new vision for increasing academic excellence (Appendix 5.1). The committee found that learner-centered pedagogy was well-

embedded in units across the University. The term “learner-centered” describes a concept and a practice in which students and professors learn from one another. It proposes a “shift away from instruction that is fundamentally teacher-centered and focuses instead on learning outcomes.” It is not intended to diminish the importance of the instructional side of the classroom experience, but “instruction is broadened to include other activities that produce desirable learning outcomes.” The Task Force advised faculty colleagues that a change toward learner-centered teaching may require a re-centering of assessment practices to include more and different evaluations of the learning experience. In many cases, this may mean substantial revision of mid-semester and end-semester class evaluations to include questions regarding the learning experience. The committee also felt strongly that longer-term assessments need to be implemented, including some at graduation and at post-graduate intervals among our alumni. In addition, an “Inventory of Learner-Centered Teaching at USC” found that many forms of learner-centered education had been in place at USC for several years in response to the emerging pedagogy nationwide and in keeping with fertile interests at USC to improve our efforts on behalf of our students.

- **Committee on Educational Effectiveness.** The Committee on Academic Programs and Teaching (UCAPT) in 2006-2007 was charged (1) to consider strategies for enhancing the effectiveness of undergraduate learning that have been built into USC’s rich programs and might usefully be shared and expanded; and (2) to share with the USC community ways of investigating the results of an effective education. In considering the components of effective assessment, the committee focused on the question, “How do we know our students are learning what we think we are teaching them?” The extraordinary diversity and richness of the learning community at USC makes it challenging to propose a single model for how educational effectiveness can be gauged. The committee presented one general model of the components of assessment discussed by Barbara Wright, Associate Director of WASC (Wright, April 14, 2006) and analyzed how it applied to USC at the course, program and institutional level.

Discussion of the ways in which USC’s faculty uses evidence of learning led the committee to examine several programs that have explicitly addressed the evidence of student learning in the process of improving instruction. Two case studies were presented as examples of the range of programs already in place at USC, including one from Chemical Engineering and one from the USC College Writing Program. Chemical Engineering’s approach is experimental, and it is notable for the clarity of the statement of goals and the use of multiple kinds of evidence to assess student learning. The “Assessing Critical Thinking Through Student Writing” project was designed to assess change over time in students’ learning, and is described in the next section. The committee was impressed by the variety and depth of thinking about how to evaluate the effectiveness of student learning, and they concluded that it is important to disseminate information about these efforts across the University as a catalyst for thinking about student learning and assessment.

Assessing Particular Programs: A Few Examples

- **Critical Thinking Across the Curriculum.** “Critical thinking” is widely seen as the defining element of American higher education, the core objective of a liberal education, and a requirement for informed participation in a democratic society. The evaluation of the development of critical thinking during the early years of the USC undergraduate experience is the focus of a multi-year project called “Assessing Critical Thinking Through Student Writing: An Academic Model of Accountability.” The assessment of the development of student thinking is demonstrated through the change from the freshmen year to the junior year in their ability to write clearly and analytically. The assessment strategy compares class papers from the freshman writing course, Writing and Critical Reasoning, and the upper-division advanced writing course.

The first stage of the project included development of a system for scoring critical-thinking content, training a cohort of 15 readers, and evaluating the content of 475 student essays written in response to one of two assigned prompts in a timed-writing situation. The eventual goal is to use essays assigned by faculty from course work rather than a test, but for the first reading as many variables were controlled as possible. Two prompts were used so that a longitudinal study would be possible at a later time, when the students who had written the freshmen papers become juniors or seniors.

An “anchor set” of eight essays was identified by three Chief Readers to guide the training and scoring of critical thinking using the “Holistic Critical Thinking Rubric”; this resulted in a four-point scale. To assess freshman and junior writing, different readers read each essay at least three times, and any gaps of two points in scoring led to another reading by the chief readers. The results indicate that 45.3 percent of the papers written by students in the freshman writing class were judged to fall into the upper half of the scale, while 58.2 percent of all papers written by juniors and seniors fell into the upper half of the scale. When transfer students were removed from the Advanced Writing cohort, the score rose to 65.5 percent in the upper half of the scale.

The second stage of the project addressed faculty concern over the validity of the research method. Nine experienced faculty members agreed to rank-order the anchor set of eight essays from the Stage One reading, using whatever criteria they normally employed in practice. The individual faculty rankings differed from one another and from the judgments of the Stage One scorers. No two faculty members produced the same rank order; however, when their rankings were assigned point values, averaged, and ranked by means, the resulting order mirrored the order obtained in the Stage One reading by the cohort of socialized scorers. Both sets of scorers found common ground, without facing the obstacle of a universally acceptable definition of the term “critical thinking.”

Stage Three of the Critical Thinking Project is evaluating student learning by evaluating papers assigned in class. Project leaders have just begun to look at essays written in response to a variety of prompts assigned by the faculty members under guidelines established by the USC Writing Committee and the Advanced Writing Programs in three schools: the Marshall School of Business, the Viterbi School of Engineering, and the USC College. These results will be available for USC’s Educational Effectiveness review by WASC.

Improvements in the undergraduate Writing Program have been stimulated by the assessment method created for the Critical Thinking Project. A cohort of writing instructors has been trained to think carefully about critical thinking, particularly as it is demonstrated in student writing. The assessment effort has spurred faculty to make clear what aspects of critical thinking they see as important. The ultimate purpose of program assessment is to improve the quality of instruction and the skills acquired by students enrolled in classes.

- **Assessing the Learning Outcomes of the Diversity Requirement.** One of the thorniest assessment challenges facing undergraduate education is assessing the outcomes from participating in the diversity requirement, which is part of the curriculum of about 63% of all four-year colleges. Virtually all assessments of such courses have focused exclusively on their contribution to reducing students' prejudices toward other groups, an important goal of this requirement. According to these previous studies, diversity courses make a significant contribution to reducing racial prejudice.

At USC, diversity courses are expected to address many dimensions of the human condition that create diversity, and students are exposed to analytical frameworks within which these issues can be understood and addressed. It is the University's goal to prepare students through the study of human differences for responsible citizenship in an increasingly pluralistic and diverse society. None of the research related to diversity courses to date has attempted to address what happens to students' understanding of human conditions that create diversity.

The Teagle Foundation has funded a planning grant for June 1, 2007 – March 31, 2008 to develop: (a) the methodology for studying the impact of diversity courses on student learning outcomes; (b) a white paper summarizing the conceptual issues, including how the institution sets boundaries for what is and what is not a "diversity course;" and what learning outcomes are identified most readily by the faculty as being the domain of these courses. The combination of the planning and implementation of the study will occur in three stages: (1) during the planning stage, learning from faculty at USC about their objectives for the diversity requirement; learning from faculty at other institutions who have engaged in learning-outcomes assessment; and the design of the methodology and selection of measures; (2) implementation of the study; and (3) expansion of the study into several other institutions.

Darnell Cole, Associate Professor of Education; Melora Sundt, Associate Dean of the Rossier School of Education; and Roger Benjamin, President of the Council for Aid to Education, will learn how USC faculty articulate the learning outcomes one should expect from diversity courses. They will broadly define learning outcomes so that domains such as career aspirations and choice, civic engagement, content knowledge, and cognitive competencies are included. They will identify all *active* courses meeting the diversity requirement of the 103 courses listed in the Catalogue, and they will analyze the syllabi to generate a rubric for sorting courses by common characteristics. Then they will gather data from the Registrar on students' course-taking patterns. The final part of the planning stage will be the design of the research project and the white paper.

The University wishes to use the findings of this study to improve student learning and to strengthen the curriculum. USC, with a majority of minority and international students, provides an environment for a more complex dialogue about diversity.

- **The Digital Portfolio Project: Harnessing the Power of the Grid.** Portfolio-based assessment protocols are widely used to evaluate student learning over time and in different disciplinary contexts. Educators across the educational spectrum are increasingly interested in creating and maintaining a system for digital (or online) portfolios. At the university level, digital portfolios enable students to collect and present evidence of their learning over time and through different courses. The digital port will allow faculty and peers to review and comment on student work and allow students to reflect on and revise their work. Faculty can use portfolios to assess course and program learning and to revise the curriculum. The portfolios also will give our students a vehicle in which to showcase their work to potential employers or graduate schools, even long after they leave the university.

Many USC courses now include student exercises and activities that yield digital and media-rich projects. This means that digital portfolio systems must have significant storage capacity and a well-designed user interface to archive projects created in different applications that incorporate a variety of media. To ensure long-term archiving and accessibility, such a portfolio system must also incorporate conventional meta-data tagging of portfolio elements. Efforts to create a robust digital portfolio system initially ran into difficulties due to limited computing capabilities, and there remains a pressing need to create a more robust system. The Digital Portfolio Project is currently in the process of creating a large-scale, media-rich digital portfolio system with persistent, accessible data. The Institute for Multimedia Literacy, described in Chapter 3, has been awarded three terabytes of space at the San Diego Supercomputer Center, and IML hopes to spread this resource throughout the USC campus and, eventually, to create a broader network of institutions that can share a vast amount of storage space.

The initial portfolio project has centered on the work of IML's students in the Honors in Multimedia Scholarship program, described in Chapter 3. This year access to the Digital Port will expand to the Multimedia in the Core (MMC) program in USC's General Education Program. It has the potential to accommodate students in the Masters of Teaching program in the Rossier School of Education and for program assessment in the Writing Program. The "ePortfolio" of the future will allow instructors to access student work that other faculty are assigning, in order to obtain ideas about successful assignments. It also will be a search tool for faculty to review all the work received from students, in order to find "showcase-worthy" models from which future students can learn and to determine progress in critical thinking and other skills over time.

(<http://www.usc.edu/programs/cet/resources/eportfolio>)

- **Experiment in Increasing Responsiveness to Learners of Science.** Seeking new ways to improve students' learning and the learning environment in introductory science courses, Drs. Albert Herrera and William McClure applied to the Fund for Innovative Undergraduate Teaching to support Biological Science 220 in Spring 2007 with a new format. This course is the second in a five-semester sequence of biology for majors. It

is considered a very difficult course, and it faces the challenge of a very large enrollment. Six hundred students typically have been taught in two sections of 300 in back-to-back lectures of one hour three days a week. One three hour laboratory is also required. This course reinvention provides an example of assessment of a novel teaching strategy utilizing technology, and it demonstrates our commitment to experimenting with new forms of teaching, assessing the results of that experiment, and then making appropriate changes on the basis of what we have learned.

The course was changed in three major ways: (1) all lectures were pre-recorded and given to the students as videos and podcasts available at all hours; (2) students were separated into 13 discussion sections of about 50 students each; and (3) quizzes were given online each week to encourage students to study the videos without procrastination. Material relevant to each week's lectures was considered in each discussion section by examining a series of original research papers. In addition, question-and-answer sessions and reviews for exams were recorded.

Results of the attempts at course redesign were evaluated by personal discussion between the students and the faculty, and with a survey given at the completion of the course. Faculty members regularly met with students in Q & A sessions, visited the laboratories, and discussed the course both in person and through extensive use of the Blackboard discussion board. In a survey containing 50 questions, most students agreed that the new methods were "all right," but they needed some revision. In particular, the technology for delivering the videos was flawed, especially for students using Macs. The students found the absence of traditional lectures a disadvantage. Students had varied reactions to the discussion groups, which were taught by seven different faculty members, using widely differing content and methods of assessment. Discussion groups that were closely related to the video lectures were appreciated. Groups in which the content deviated from the lecture were less popular. Online quizzes and other techniques used in the course were well received.

Professors Herrera and McClure concluded that the new format was a qualified success, several aspects of which should be continued in academic year 2007-08 in a modified format. They will return to a standard lecture format, supply streaming videos and podcasts soon after each lecture. Live lectures will also allow them to return to the use of "clickers" (personal response system) and other in-class techniques to enhance interaction. The professors will also continue the valuable discussion groups in a more compact and focused format. In addition, the faculty members plan to obtain longer-term data on the progress of these students in order to compare the performance of this cohort of students in subsequent courses in the biology sequence with that of students in the year preceding. They will survey students near the end of the next two academic years to do this.

Although the analysis of the success of this experiment was particularly intensive, all courses and programs that receive support through the Fund for Innovative Undergraduate Teaching and through other funds overseen by the Office of the Provost must be analyzed. The grantee must provide the Office of the Provost with a report on the instructor's analysis of the effectiveness of the project in meeting its objectives for students, and this information is available to other faculty on the CET website. (http://www.usc.edu/programs/cet/awards_grants/fund/winners/index.html)

University-Wide Resources: Making the Issues Salient to Faculty

- **The Center for Excellence in Teaching.** The mission of the university-wide Center for Excellence in Teaching (CET) is to provide shared leadership, vision, and support in the pursuit and development of effective and innovative teaching and mentoring to foster and enhance deep and lifelong learning. In a learner-centered environment students are empowered to become engaged partners in their own education by capitalizing on their own learning interests and curiosity; developing their own skills to find, synthesize and use information in creative ways and with a sense of purpose; and participating in the exciting process of knowledge construction. To foster innovative student ownership and enthusiasm for the learning process at USC and to promote outstanding student achievement, CET supports a wide variety of programs related to creating excellence in teaching and ideal learning environments.
(<http://www.usc.edu/programs/cet/>)

Major programs directly related to a learner-centered education at USC and offered by CET include:

Fund for Innovative Undergraduate Teaching: Since 1999, the Fund for Innovative Undergraduate Teaching has supported initiatives across the undergraduate curriculum designed to affect both students' learning and their learning environment with grants up to \$10,000. For example, this Fund provided support for the pilot program in Biology, described above. During 2006–2007, the fund was devoted specifically to projects designed to enrich and expand the classroom experience for first-year undergraduates. Three fundamental attributes of successful projects included: (a) *innovation*; (b) *impact*; and, (c) *assessment of student learning*.
(http://www.usc.edu/programs/cet/awards_grants/fund/)

University-wide Forum on Assessment: In keeping with the university's emphasis on learning-centered teaching practices and assessment of classroom outcome, CET has shifted a portion of its work to become the outlet where faculty and students can engage on such topics as learning and assessment of learning outcomes. The Center of Excellence of Teaching has regularly held university-wide forums on assessment. Recent offerings have included: (a) Assessment of Student Learning (January 2007); and (b) Course Assessment and Student Learning Outcomes (September 2007). Although each forum had its own focus, there are many common themes, including qualities of valid assessment; the differences of class, teaching, and learning assessment; and the use of rubrics in assessment and how to construct good rubrics in such practices.
(<http://www.usc.edu/programs/cet/resources/assessment/>)

CET Faculty Fellows: CET's Fellows are a group of nine active members who serve three-year terms. Distinguished Fellows have completed their term of service and maintain an affiliation with CET. Collectively, they constitute an interdisciplinary forum for the discussion of diverse approaches to teaching and

learning across the disciplines. They serve students directly via mentoring and organizing special courses, and indirectly as evangelists for teaching excellence throughout the University. They serve faculty colleagues by sharing their teaching strategies, successes, and challenges both in and out of the classroom. In addition, the Fellows collectively seek to provide an intellectual resource on teaching, learning, and policy evaluation for University administrators tasked with responding to challenges posed by the changing national educational environment. (http://www.usc.edu/programs/cet/faculty_fellows/)

- **Academic Program Review.** One of the fundamental ways that the University assesses its capacity to provide an ideal learning environment is through regular review of all of its academic programs. Since our last WASC site visit, USC has established a formal Academic Program Review (APR) process which includes peer reviews of all the University's academic units and programs. The purpose of APR is to foster academic excellence at all levels, to determine how to raise academic quality, and to provide guidance for administrative decisions in support of continual future improvement. The University Committee on Academic Review (UCAR), a permanent standing University committee, oversees the Academic Program Review process, and the Office of the Provost funds and oversees the reviews. (<http://www.usc.edu/admin/progrev/>)

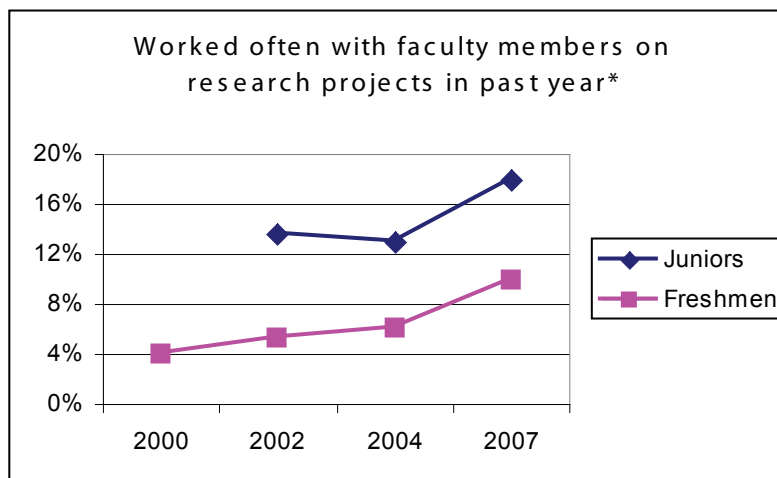
The first cycle of reviews (UCAR I) was conducted from 1999 to 2006, and more than 150 distinguished faculty members from other research universities and 154 senior faculty from across USC assisted in the evaluation of 61 programs, departments and professional schools. A list and schedule of those reviews is provided in Appendix 5.2. At the conclusion of the first cycle of reviews in 2006, the chair of UCAR surveyed chairs, former chairs, and deans of schools, departments and programs that participated in reviews for their views on the benefits and shortcomings of the APR process. Former chairs and members of USC's internal review committees, and members and former members of UCAR, also were surveyed. Although the surveys found great support for a regular process of academic review of departments and schools, it also found some weaknesses. For example, one finding of the evaluation was that internal review committees were slow to report, and another concern was that deans were not sufficiently engaged in the process.

The Guidelines for Academic Program Review were revised in 2006 to address these and other concerns. The revised guidelines are provided in the Appendix, together with the Provost's memo announcing the beginning of a second round of reviews and identifying the major changes in the guidelines (Appendices 5.3, 5.4). The second cycle of program reviews (UCAR II) using the new guidelines began in 2006–2007, and the current schedule of initial reviews is provided in Appendix 5.5. The reaction to the changes in the process has been very positive. In particular, the Memorandum of Understanding that the dean, department chair and vice provost write and sign to focus on particular issues of interest to the unit under review has met with broad support. The streamlined process has moved more quickly, allowing the unit to receive meaningful feedback in a timely way.

- Student Feedback.** One way of assessing our progress is to collect information from students on their perceptions about their educational experience. Four surveys were recently conducted by the USC Division of Student Affairs' Office of Student Outcomes Research, which describe positive student reaction to continuing enhancements to the undergraduate experience at USC. They have found that USC students value the intellectual community on the University Park campus above all other aspects of their undergraduate experience. These surveys also confirm that students are overwhelmingly satisfied with academic quality and their opportunities for community engagement and research involvement with faculty.

[\(http://www.usc.edu/student-affairs/student_surveys/\)](http://www.usc.edu/student-affairs/student_surveys/)

One survey that has been regularly administered since 2000 is the College Student Experiences Questionnaire (CSEQ), which concerns in part what students do with their time in and out of the classroom. One key dimension for a research university such as USC is the extent of participation of students in faculty research projects, a priority for the University described in detail in Chapter 2. As the following graph shows, the frequency of participation in research has increased noticeably for both freshmen and juniors:



In addition, another 9% of freshmen and 16% of juniors reported in 2007 that they *occasionally* worked with faculty on research. Thus over 1/3 of juniors worked at least occasionally on research projects. The value of research participation lies not just in the experience itself but also in the positive effect it has on a student's overall undergraduate experience. For example, the extent of research participation was found to correlate significantly with a variety of perceived gains including understanding science, understanding new technology, consequences of science and technology, thinking analytically, analyzing quantitative problems, synthesizing ideas, vocational preparation, and skills for professional careers. These results have supported our commitment, at the university and school levels, to invest substantial resources to provide undergraduates the opportunity to participate in this sort of hands-on learning, an expensive but worthwhile endeavor.

The Listening to Students Initiative involved in-depth interviews with 268 students in 2006 and 2007. Undergraduates were asked what was most important to them at USC, and nearly half of those interviewed (49%) said they valued academic experiences the most, citing small class size, engaging campus events, and overall academic rigor as key areas. Another 23% said they most valued the people and social interactions at USC; and 13% said they valued student clubs and organizations the most. Remaining respondents cited student diversity, the community surrounding USC, housing and athletic programs as their favorite aspects of the student experience.

With academics topping the list of what students value at USC in the Listening to Students survey, it comes as no surprise that a second survey, the 2006 Student Satisfaction Survey, found high student approval of the intellectual environment and academic quality at USC. Administered to more than 1,000 undergraduates in spring 2006, the survey found that more than 64% of respondents were satisfied or very satisfied with opportunities to engage intellectually with peers both inside and outside the classroom. No fewer than 82% of respondents were satisfied or very satisfied with classes in their major, nearly 80% were satisfied with their professors' teaching, and 71% were satisfied with faculty encouragement to be proactive in the learning process.

Both surveys affirmed efforts by USC to foster community involvement. During the Listening to Students Initiative, 64% of respondents said that USC challenged them to get involved and make a difference, both locally and globally. The 2006 Student Satisfaction Survey found 60% of students were either satisfied or very satisfied with the availability of volunteer opportunities. USC attracts locally engaged, globally minded students, according to the 2007 USC survey of incoming freshmen. More than 85% of respondents said that becoming a community leader was important or essential, and 86% said that cross-cultural understanding was important or essential.

Challenges and Opportunities

The pedagogical goals of a research university like USC are ambitious. We seek to stimulate students' ability to think innovatively, to write critically, to understand the many dimensions of the human condition that constitute diversity, to be literate in traditional ways and in new forms of multimedia expression, and to reflect on core values in all their complexity. We hope that our students will take the tools we provide them through interactions in and out of the classroom to solve problems that will face society in the decades to come and that we cannot now predict. We aim to teach them to ask the right questions in the face of new experiences and challenges, to reason to an answer, and then to submit that answer to additional questioning. These ambitious pedagogical objectives present challenges in the assessment of educational effectiveness.

- Devising appropriate methods to assess the effectiveness of programs of this complexity is an enormous challenge for any university. It is particularly challenging in a large research university in which there are substantial opportunity costs for faculty who spend time devising and applying measures of educational effectiveness; this work takes them away from research and creative projects, teaching undergraduate and graduate students, and mentoring graduate students and junior faculty. We affirm our commitment to determining in a meaningful way the effects of our teaching and interaction with students so that faculty value and apply the insights that are obtained.

- USC understands that part of the obligation of increasing responsiveness to learners is to develop sophisticated and nuanced approaches to assess what they are learning and to use those insights to further strengthen our educational programs. A continuing challenge is disseminating the results of these analyses throughout the university via the Faculty Portal, the CET Website, and the Undergraduate Programs Website. The two university-wide committees discussed in this chapter organized faculty forums to share their findings and facilitate discussion. In February 2006, an all-University faculty assembly met to discuss “Learner-Centered Education Across the Disciplines at USC” and examples of best practices were provided by faculty from Biological Sciences, Engineering, Business, International Relations, and Psychology. In November 2007, a faculty forum was organized on assessment, with CET Faculty Fellows providing perspectives from a wide range of disciplines, including Cinematic Arts, Gerontology, and the College Writing Program.
- We anticipate continued progress on our assessment efforts between now and WASC’s Educational Effectiveness review in 2009. For example, new efforts will be undertaken to understand the learning outcomes of pilot programs in Multimedia Learning in the Core Curriculum, the “Innovation Inside” curriculum of the USC Stevens Institute for Innovation, and other new and more established educational programs and initiatives. We are committed to the appropriate kinds of assessment because we firmly believe that we can always improve our academic community. We are never content with the status quo.