Reflective Essay 2b: Research, Scholarship, and Creative Activity

Introduction

Research is an integral part of our institutional identity. The pursuit of research and scholarly activity emerged from the interests of individual faculty, quickly evolved to a more clearly articulated component of faculty culture, and has long been embraced as a defining characteristic of our campus mission. To sustain these efforts, the University has recruited an extraordinary cohort of new faculty—377 since 1997—who engage enthusiastically and productively in research, scholarship, and creative activity. The pervasive nature of research and scholarly activity at SDSU is also illustrated by examining the Research and Facilities Organization. The University has seven Specialized Research Facilities, three National and Regional Research Resource Centers, three Consortia, and 41 Organized Research Centers and Institutes. These centers include almost all SDSU colleges and, in most cases, involve faculty and students working collaboratively in research settings.

Our investigation of the University's commitment to, and capacity for, research, scholarship, and creative activity will address two related components. First, we will describe capacity issues involving faculty including a description of University support and expectations for faculty research and creative activity. We will then describe student involvement in research to demonstrate our capacity to examine student learning in this context. We are cognizant, however, of the interrelationship between faculty and students and the richness this relationship brings to learning. Thus, the organization of this essay is for reader clarity only and does not suggest that faculty and students learn in separate environments.

Support for Faculty Research and Creative Activity [CFRs: 2.8, 2.9 & Q1; 3.2 & Q1]

Graduate and Research Affairs consists of two divisions: a) the Graduate Division, which is responsible for curricular and policy oversight for graduate programs; and b) the Division of Research Administration and Technology Services, which provides services, guidance, and support for research and creative activity. The Division of Research Administration and Technology Services is the office that gives final approval of all SDSU research grant and contract proposals to federal, state, corporate, foundation and other private sponsors. This office also provides direct consultation to faculty on various proposal development matters and serves as the administrative liaison with the San Diego State University Foundation, which is responsible for the identification and dissemination of grant information to the University community. A data base of faculty research interests allows the Foundation to match grant opportunities with appropriate researchers. The Foundation provides program guidelines, application materials, and assists with budget preparation, award negotiation, completion of applications, and duplication and mailing of proposals. The Foundation also administers all funded grants and contracts.

Research and scholarly activity take both time and money and SDSU recognizes that support is necessary to achieve personal and institutional goals. While the San Diego State Foundation provides support for securing external grants and contracts and seed money for internal grants, state funds support internal grants, sabbatical leaves, and travel money for professional meetings. The Office of Faculty Affairs provides information on sabbatical and difference-in-pay leaves, the Research, Scholarship, and Creative Activity Awards (RSCA), and Faculty Development Program Awards (FDP). The purpose of the RSCA is to support creative and scholarly research or curriculum development while the FDP supports research and creative activity to assist in achieving tenure or promotion. The Faculty Grant-in-Aid (GIA) program is supported with Foundation money and is administered through Graduate and Research Affairs, with the purpose of supporting faculty members who are beginning a research project or pursuing a project that may lead to external funding. The RSCA, which is funded by the CSU, is administered at the College level, and since AY 1997-98 an average of $237,000 has been awarded

to approximately 67 faculty in all Colleges each year. The FDP, entirely funded from the SDSU budget, is administered at the University level and each year has awarded a total of $95,000 to approximately 18 faculty while the GIA has awarded a total of $92,000 to an equal number each year. These data also illustrate that the amount allocated to these three awards has either increased or remained fairly stable since 1997-98. In addition to these internal grant opportunities, some Colleges offer additional opportunities for faculty within the respective College to apply for these special funds. Taken together, Graduate and Research Affairs, SDSU Foundation, Office of Faculty Affairs, and the College Deans provide a variety of resources to assist faculty with their research and creative endeavors.

University Expectations for Research, Scholarship, and Creative Activity [CFR: 3.3 & Q1]
SDSU faculty members are instrumental in advancing the goals of a large, urban, public research university, and have varying demands upon their time, energy and attention. Retention, tenure, and promotion documents divide faculty workload into three parts: teaching effectiveness, professional growth and creative activity, and service. Within each category, several specific activities are included. Under teaching effectiveness faculty include: a) student evaluations; b) course development; c) creation of supplemental teaching materials; d) textbooks; and e) pedagogical publications. Under professional growth and scholarly activity faculty include: a) publications; b) creative activities; c) paper presentations; and d) grant-writing. Under service faculty document participation in: a) faculty governance; b) student mentoring and advising; c) community activities; and d) professional organizations.

SDSU must conform to the workload requirements set out by the Chancellor's office: each full-time faculty member is responsible for 15 weighted teaching units (WTUs) divided among teaching, supervision and advising, instructionally-related research, and service, as well as less routine activities such as curriculum development. A typical CSU faculty member teaches 12 WTUs and performs university service for the remaining three WTUs. However, SDSU tenure and tenure-track faculty have for many years had a 9-unit or less teaching load by employing the CSU assigned time code for instructionally-related research. This practice has allowed us to sustain and enhance our research mission and to provide faculty who actively engage in research the time necessary to carry out those responsibilities (assigned time), while remaining diligent in assuring its responsible use. Other faculty may buy out their teaching time through externally funded grants and contracts, or may be released by one of the highly competitive grants funded by the university. Under the leadership of the Provost, colleges [e.g. College of Sciences] have developed clear criteria that are communicated to all faculty members. The goal is an equitable (although not necessarily equal) distribution of work across the entire faculty so that, as a whole, they can meet the multiple goals of a modern research university.

Several factors impact faculty workload issues. The university's longstanding commitment to research and graduate program development is but one. At the same time, our increased emphasis on student learning outcomes—both internally and externally motivated—affects both newly hired and more experienced faculty in the classroom. The campus tradition of shared governance, from the department to the Senate, places heavy service demands on faculty at a time when demographic shifts decrease the number of tenured, experienced individuals available to play leadership roles. For example, 189 faculty have retired between 2000-2004 with an additional 158 faculty currently in the faculty early retirement program. The recent extension of a "Golden Handshake" resulted in 46 additional full retirements, as well as 21 more faculty entering the faculty early retirement program. Furthermore, new imperatives, such as the international focus that has become a hallmark of the institution, compete for faculty time and attention

Student Involvement in Research and Creative Activity [CFRs: 2.3, 2.5, 2.9 & Q3]

San Diego State University's emphasis on research and creative activity developed in conjunction with its dedication to teaching. Initiation of research programs and creative activity that encourage and are dependent upon undergraduate student involvement naturally flowed from our history as a teachers college and as part of the CSU system. Thus, research activities are integrated with teaching to provide students with an in-depth understanding of their fields of endeavor–perhaps the best sort of hands-on education that can be offered. We will return to this issue in the Educational Effectiveness Report.

Undergraduate student involvement in research and creative activity takes place in a variety of ways. Each semester approximately 600 - 650 students take independent study units to work on research and/or creative projects with a faculty member. Research projects are also embedded in most laboratory classes required by several departments. Six departments (Astronomy, Chemistry, Geological Sciences, Mathematics and Statistics, Physics, and Public Administration) require completion of a senior thesis and all departments in the College of Engineering require students to conduct a senior design project. Creative activity is required in a number of courses in departments such as Art, Design, and Art History, Music and Dance, and Theatre within the College of Professional Studies and Fine Arts, where student performance is a key measure of learning. Departments and schools within the College of Health and Human Services require internships, field experience, or clinical practice along with student reflection on these experiences. The College of Business Administration encourages students to engage in internships and Management majors are required to take a course in which students explain the learning experience associated with the internship and describe their progress on their learning objectives. Junior and senior level undergraduate students also have an opportunity to work in teams and perform small business consulting. In this capacity, students might conduct market research, develop financial, business, or marketing plans, or create customer satisfaction surveys and conduct analyses.

These avenues for student engagement in research do not include the many other students working with faculty on grants or other special programs. While it is difficult to quantify the total number of undergraduate students engaged in research and creative activity, examination of the curricular requirements of our majors indicates that faculty believe strongly that providing students with these opportunities is an essential part of their educational experience. A review of all department- and college-level reappointment, tenure, and promotion letters in AY 2003-04 showed that more than 47% of the departmental letters and 35% of the college letters identified bringing research into undergraduate learning environments as a factor in recommendations. While the University Policy File specified that "effectiveness of teaching may also be measured by …involving students in research, scholarship, or creative activities," college and departmental policies are less explicit. Only about one-third refer to mentoring student research in their criteria for evaluating teaching effectiveness.

The College of Sciences has made a serious commitment to provide opportunities for undergraduate student engagement in research through the creation of the Office of Student Research and Support Programs. In some cases, these programs provide underrepresented students with opportunities that improve their academic and research capabilities while encouraging them to pursue doctoral work. While eligibility requirements vary somewhat depending on the program, most require completion of a minimum of 60 units, a GPA of 2.8 to 3.0, interest in obtaining a graduate degree in a science-related field, and a designation of low income and/or first-generation college attendee. Programs provide a variety of services including seminars, tutoring, and required research work with faculty mentors. Some programs also pay students a stipend for their research activities. The following programs are available to students: a) the McNair Scholar program, which also publishes a McNair Journal; b) the Minority Access to Research Careers program; c) Minority Biomedical Research Support; d) the Minority

Science Program; e) Research Careers for Minority Scholars; f) Minority Access to Energy-Related Careers; g) Minority International Research Training; and h) Undergraduate Mentoring in Environmental Biology. The Education Center on Computational Science and Engineering, established in 1998, is another resource that is fostering use of high performance computing in the undergraduate curriculum. A number of undergraduate student projects have evolved from joint projects of faculty fellows and students

Summary

As this essay indicates, research and creative activity are embedded in the institutional culture with numerous faculty and undergraduate and graduate students working together in these endeavors. It is clear that we have developed the infrastructure to support these activities through creative use of resources, purposeful development of programs, and embedded expectations of student engagement in the majors. What is less well known, however, is the impact that these activities have on student learning, particularly at the undergraduate level. A systematic examination of student learning that results from engagement in research will be explored in detail in the Educational Effectiveness Review.