Education Initiative
Subcommittee Reports

The following pages contain the original reports from the Education Initiative Subcommittees:

- Engagement Inside the Classroom – **Document A**
- Technology-Enhanced Education– **Document B**
- Real World/Transferrable Skills/Career Competencies– **Document C**
- Co-Curricular and Out-of-Class Activities– **Document D**

Summary: Strategic Planning Report from the Engagement Inside the Classroom Subcommittee:

Question # 1:
Preserve and Strengthen out Academic Excellence
What campus-wide research and education priorities should we invest in for uniqueness and impact?

Effective educational engagement involves faculty and students. Without faculty who are engaged in teaching, the most diligent students may fail to thrive; without students who are engaged in learning, the most dedicated faculty efforts will fail to bear fruit. To fulfill the educational mission of UC San Diego, students and faculty must have a variety of available resources and research opportunities that are unified by the shared purpose of furthering educational engagement.
To achieve that we propose the establishment of a single, comprehensive center within Academic Affairs, provisionally named the **Center for Engaged Learning and Teaching (CELT)**. It would encompass two newly-conceived and interrelated units – provisionally named the *Center for Teaching Excellence* and *the Center for Academic Engagement* – as well as other units that are already in existence at UC San Diego. CELT would integrate a number of programs and services currently distributed across Academic Affairs and Student Affairs, eliminating redundancy while making these programs more effective by building vibrant connections and by heightening visibility and accessibility.
Nationwide, CELT would become a unique model demonstrating UC San Diego's commitment to facilitating and sustaining active, engaged education.

Question # 2:
Create and Outstanding Student Experience
How will you enhance the student learning experience (graduate and undergraduate) so that we improve quality and create engaged alumni?
The Center for Academic Engagement (in combination with the Center for Teaching Excellence) will nurture students for whom learning (not merely getting good grades) is the purpose of education, who feel fully invested in the academic community, and who aspire to standards of excellence that lead to maximum engagement in educational opportunities both in and out of the classroom
The Center of Academic Engagement would provide resources for all students, from those who are first learning to navigate academic culture and master basic skills to those pursuing advanced opportunities such as undergraduate research, in order to promote their capacity to achieve meaningful educational engagement and consequently will become engaged alums.

Question # 3:
Become an Engine of Public Service and Talent Development
Uniqueness and societal impact- how should the campus deliver on the vision of a public university focused on societal impact and how will your effort in support of the vision be unique and outstanding?
Students who are educated within this model will receive the necessary opportunities to develop and practice habits of mind leading to innovation, empowerment, and responsible global citizenship.

Center for Engaged Learning and Teaching

Summary: This proposal reimagines the way that the academic fabric of a research university is woven together to foster educational excellence on the part of faculty, undergraduate and graduate students through scholarly teaching, the scholarship of teaching and learning, and sustained student engagement.

Overview: Center for Engaged Learning and Teaching

Effective educational engagement involves faculty and students. Both must bring to the classroom a genuine commitment to excellence. Without faculty who are engaged in teaching, the most diligent students may fail to thrive; without students who are engaged in learning, the most dedicated faculty efforts will fail to bear fruit. To fulfill the educational mission of UC San Diego, students and faculty must have a variety of available resources and research opportunities that are unified by the shared purpose of furthering educational engagement.

To promote a culture of educational engagement at UC San Diego, we propose the establishment of a single, comprehensive center within Academic Affairs, provisionally named the Center for Engaged Learning and Teaching (CELT). It would encompass two newly conceived and interrelated units – provisionally named the Center for Teaching Excellence and the Center for Academic Engagement – as well as other units that are already in existence at UC San Diego. CELT would integrate a number of programs and services currently distributed across Academic Affairs and Student Affairs, eliminating redundancy while making these programs more effective by building vibrant connections and by heightening visibility and accessibility. The creation of this center, with a robust level of academic staffing and other resources as well as an appropriate commitment of administrative and learning facilities, would demonstrate that UC San Diego is dedicated to facilitating and sustaining active, engaged education as a campus priority. It would be sensitive to considerations within, between, and across academic fields and would be undergirded by an infrastructure including the Library, Academic Computing & Media Services, and the Registrar's Office. All units within CELT would be expected to work together collaboratively and productively, learning from and supporting one another in a shared educational enterprise.

I. Center for Teaching Excellence

Demonstrated teaching excellence is expected of all faculty members at UC San Diego. Internally and externally we are asked to provide evidence of teaching effectiveness and to justify our pedagogical methods. There is a vast and growing body of published research pertaining to the scholarship of teaching and learning. However, it is unreasonable to expect that all of our faculty become experts in this field and develop, on their own, the skills to translate new knowledge about how humans learn into concrete pedagogical applications inside the classroom. There is therefore a need for a resource that would guide faculty members' development of teaching skills, help establish meaningful teaching assessment and evaluation

processes, and promulgate evidence-based information about best practices in teaching and learning.

We propose the establishment of an expanded campus resource operating within the larger structure of the CELT: a Center for Teaching Excellence (CTE), staffed by appropriate faculty and other academic personnel based in relevant academic departments. More broadly conceived than the current Center for Teaching Development, this center would be dedicated to the theory and practice of, and research about, learning and teaching. It would serve the needs of all faculty – ladder-rank professors, other Senate faculty, non-Senate lecturers, and adjuncts – as well as graduate students working as teaching assistants and preparing to enter the faculty ranks in the future. It would integrate research into practice, and advocate a union of scholarly teaching (designing and implementing a course to improve learning) and scholarship of teaching (research on teaching and learning). It would support a campus culture that values, fosters, and rewards continuous improvement in teaching. By doing so, it would also support the success of a diverse student population in a research university context.

Specifically, the CTE would serve to:

- establish a comprehensive faculty development program created in partnership with academic departments that would facilitate scholarly teaching by:
  - ➤ operating according to a non-punitive, non-remedial model of enrichment, enhancement, and development.
  - ➤ promoting the principles of scholarly teaching.
  - ➤ nurturing a community of learning among faculty in and across departments.
  - ➤ offering confidential formative assessment for faculty who request assistance in enhancing classroom teaching – individual consultations, classroom observations, and other forms of support – to provide the necessary feedback and guidance for achieving excellence without being entered into a faculty member's file.

- support the development of faculty evaluation systems for individual academic departments or units, aligned with:
  - ➤ the values, priorities, and culture of the university (CAP; divisions' and departments' positions regarding scholarly teaching and the scholarship of teaching).
  - ➤ the faculty development program (e.g. if part of a teaching evaluation addresses the quality of syllabi, then the CTE should offer workshops or consultations to provide faculty with the knowledge and skills needed to construct an effective syllabus).
  - ➤ specific components that faculty and administrators believe should be evaluated.

- establish a comprehensive TA training and pre-faculty preparation program in partnership with academic departments that would:
  - ➤ train new teaching assistants.
  - ➤ support TAs who want help in further developing their teaching skills.
  - ➤ provide additional programs of development for graduate students to prepare for their role as future faculty members/educators (e.g. the Summer Fellows program)

- orient faculty and graduate student TAs to other teaching resources on campus; in particular, provide discipline-specific orientation to the resources and services available through the Library, enhancing the ability to help students with research.

- promote the scholarship of teaching by conducting and supporting formal, peer-reviewed research on pedagogy, presented in appropriate professional venues, that would become

part of the knowledge base regarding teaching and learning in higher education.

- disseminate research on teaching and learning to the UCSD community by:
  - ➢ collecting and making available to faculty the most up-to-date research on effective teaching methods and new instructional technologies (through seminar series, workshops and informal gatherings, etc.).
  - ➢ partnering with the Library to assist instructors in finding and accessing current education research (e.g. assistance with setting up automatic searches in databases so that relevant literature is delivered via email)
  - ➢ providing forums for faculty and graduate student teaching assistants to share information about their teaching experiences.

- function as a central node within the network of other campus units that support the research and/or practice of teaching and learning, actively facilitating connections and collaborations.

II. Center for Academic Engagement

The necessary complement to excellent, engaged classroom teaching by faculty is a student body for whom learning (not merely getting good grades) is the purpose of education, who feel fully invested in the academic community, and who aspire to standards of excellence that lead to maximum engagement in educational opportunities both in and out of the classroom. We need to provide resources for all students, from those who are first learning to navigate academic culture and master basic skills to those pursuing advanced opportunities such as undergraduate research, in order to promote their capacity to achieve meaningful educational engagement.
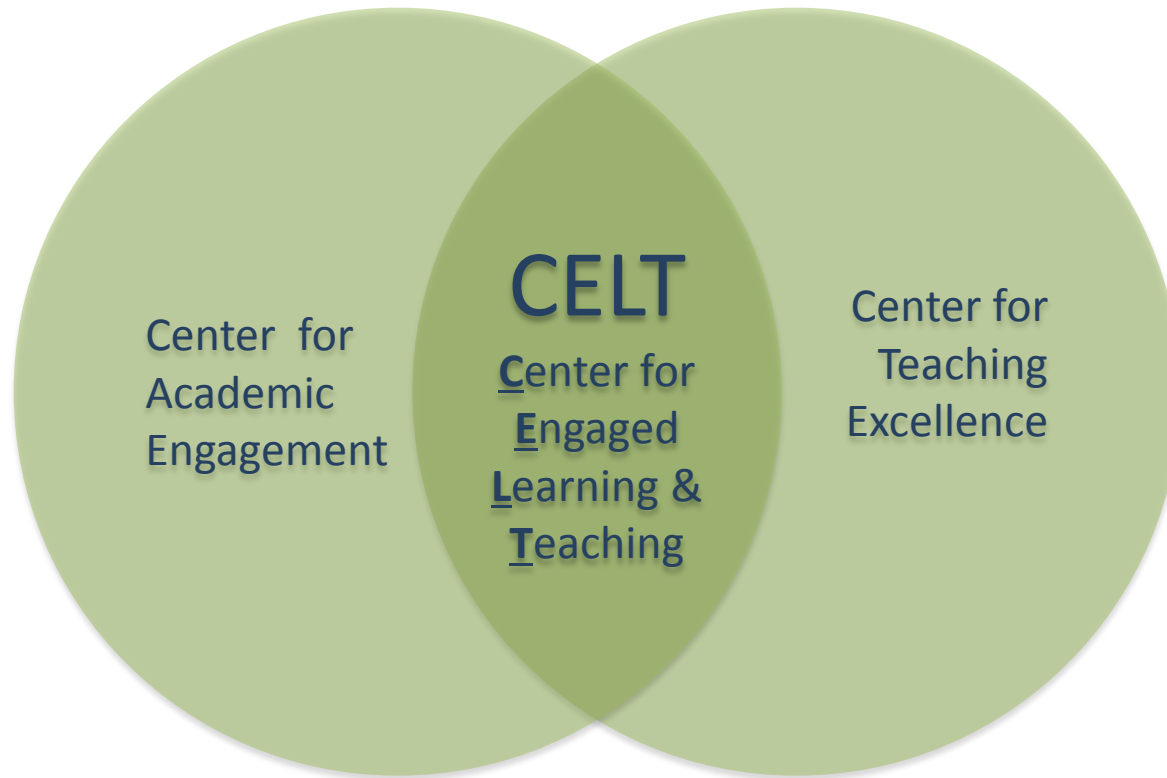
We propose the establishment of a new campus resource, a Center for Academic Engagement (CAE), staffed by appropriate faculty and other academic personnel based in relevant academic departments. The CAE would serve as the institutional umbrella for the following programs and services, all of which would come under the jurisdiction of Academic Affairs:

- a Comprehensive Writing Center (CWC) that combines support for graduate and undergraduate student writers with a program of relevant curriculum enhancement and faculty development, led by a Senate faculty member with lecturer/coordinator assistance and with tutorial staffing provided by graduate student teaching assistants and undergraduate peer mentors. The CWC would emphasize the importance of writing as a means for learning and as an essential component in building key critical-thinking skills. The CWC would recognize the critical position of writing in academic literacy, and would support literacy development by:
  - ➢ operating according to a non-punitive, non-remedial model of enrichment, enhancement, and development.
  - ➢ providing individual assistance and group workshops for undergraduate and graduate student writers addressing a wide range of writing tasks and expectations.
  - ➢ developing and providing writing-related programs at the request of organizations, departments, and other units across campus.
  - ➢ reaching out to, and supporting, target constituencies including transfer and international students.
  - ➢ coordinating and supporting writing-in-the-disciplines projects: serving as a resource for faculty on writing-related issues and as a clearinghouse for writing-

intensive courses, and working collaboratively with the CTE to assist faculty who wish to integrate writing into their courses.

➢ integrating visual, digital, and other literacies into our understanding of academic communication and scholarship.

➢ collaborating with other units to promote the use of writing as a tool for learning and as a vehicle for student engagement at all levels and in all disciplines.

➢ conducting assessment and research in the field of writing pedagogy and practices, to be disseminated institutionally and nationally.

- a Transitions Program for new first-year students, transfer students, and incoming graduate students that would:
  ➢ introduce students to the opportunities, challenges, and expectations of academic culture.
  ➢ offer a first-year experience course including a library component to establish key information and digital literacy competencies.
  ➢ foster attitudes that would lead students to take make stronger connections with faculty during their time at UC San Diego.
  ➢ be developed and operated in collaboration with the undergraduate colleges and academic departments.

- a broadly-focused learning center that would provide tutorial and other forms of support for the development of quantitative literacies and analytical skills.

- OASIS and the OASIS Learning Communities.

- a Center for Academic Ethics that articulates the values of the university regarding academic integrity and responsible scholarship, and that supports practices that are in accord with these values for the entire university community. Supporting units would include:
  ➢ Academic Integrity Office
  ➢ University Ethics Center
  ➢ Research Ethics Program

- undergraduate research and other academic opportunities involving mentorship of undergraduates by faculty, graduate students, and peers. Programs would include:
  ➢ specialized research programs, e.g. Amgen, McNair, Faculty Mentor Program
  ➢ venues for supporting and showcasing student projects and creative work, e.g. Undergraduate Research Conference, Student Film Festival, DECAF
  ➢ internship and other experiential-learning opportunities, e.g. Academic Internship Program, PRIME, Sixth College Practicum, and Global TIES

By uniting all these programs under the umbrella of a single comprehensive Center for Engaged Learning and Teaching, we hope to convey the understanding that teaching and learning are integrally intertwined, that research and practice are mutually enriching, and that we must create multi-directional, active connections to improve what is currently a fragmented approach to teaching and learning at UC San Diego. We hope to promote dialogue, collaboration, and community as we work towards a university that truly values engagement in the educational mission, and that serves as a model for other public research universities. Faculty who participate in and are supported by this model will deepen their understanding of pedagogy that promotes student engagement. Students who are educated within this model will receive the necessary

opportunities to develop and practice habits of mind leading to innovation, empowerment, and responsible global citizenship.
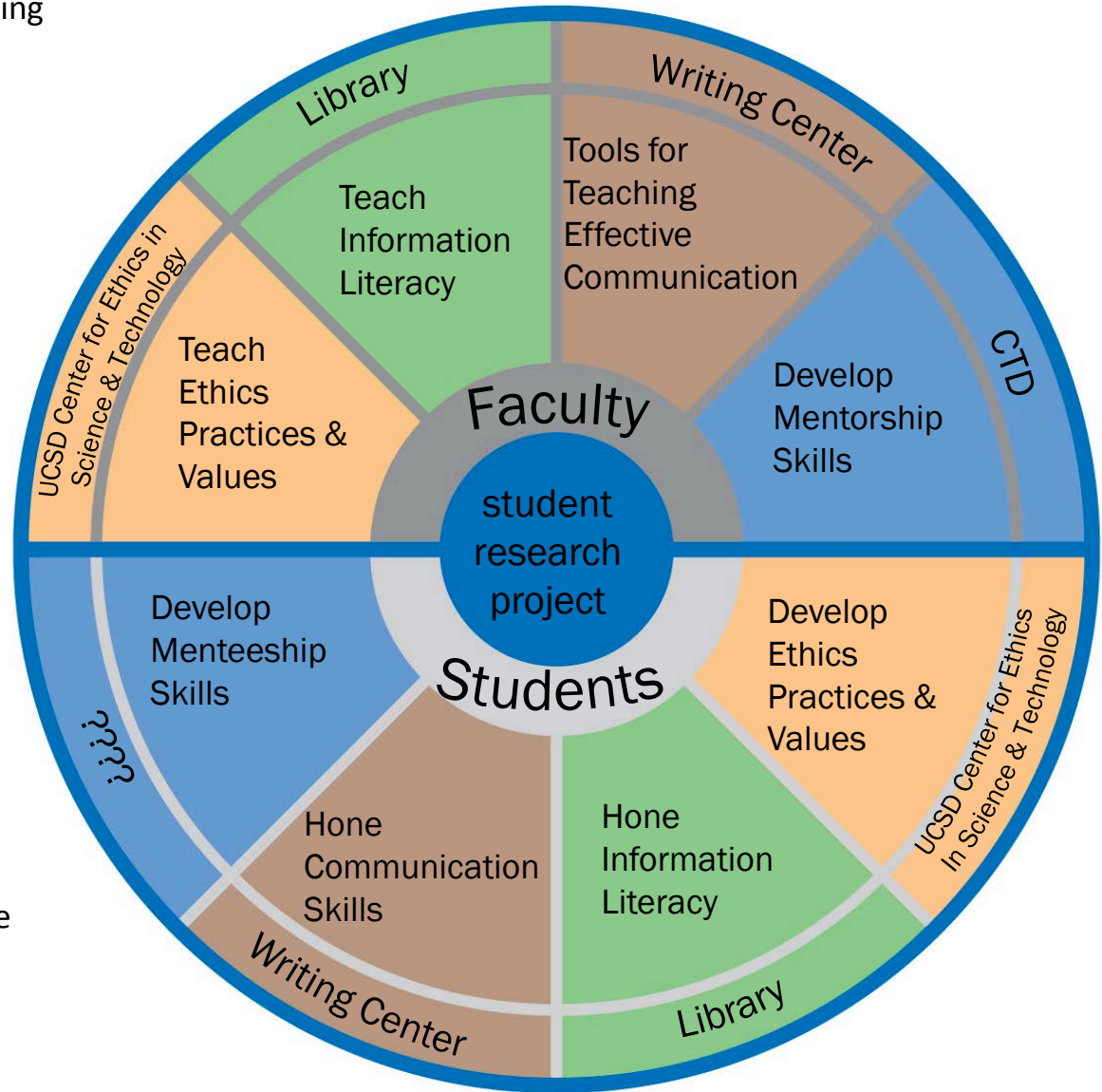
Center for Academic Engagement

CELT
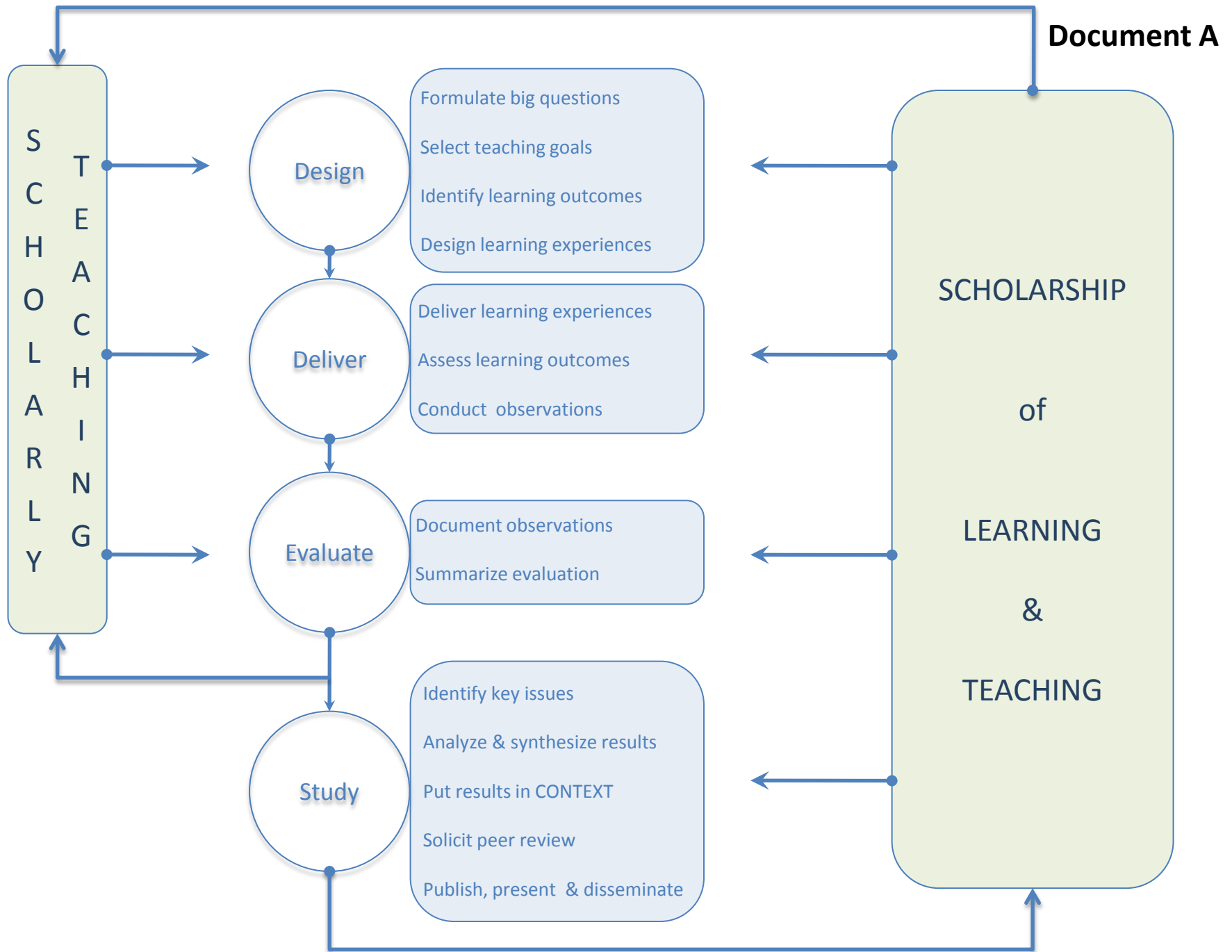**C**enter for **E**ngaged **L**earning & **T**eaching

Center for Teaching Excellence

This figure visualizes how one specific learning experience, i.e., *undergraduate research*, could potentially be enriched by currently existing teaching and learning entities.

Interlocking Undergraduate Research with Educational Core Infrastructure

Although undergraduate research has the potential to be *a high impact learning activity*, enrichment and support opportunities *for faculty as well as the student* would increase its quality (i.e., impact, i.e., student and faculty engagement).

Document A

SCHOLARLY TEACHING

Design
- Formulate big questions
- Select teaching goals
- Identify learning outcomes
- Design learning experiences

Deliver
- Deliver learning experiences
- Assess learning outcomes
- Conduct observations

Evaluate
- Document observations
- Summarize evaluation

Study
- Identify key issues
- Analyze & synthesize results
- Put results in CONTEXT
- Solicit peer review
- Publish, present & disseminate

SCHOLARSHIP of LEARNING & TEACHING

Strategic Planning Report from the Technology Enhanced Education Subcommittee of the Education Initiative
March 2013

Our educational goal should be to offer a learning experience focused on deep understanding, critical analysis, and creative imagination, grounded in the insights of disciplinary traditions as applied to problems of social and intellectual significance.

The use of media and technology can enhance such a learning experience provided that:
- It improves engagement of students and faculty in the education process
- Solves a problem, or fills an unmet need in education

Of primary concern is building better courses for our own students, before accommodating the general public or students from other campuses.

UC San Diego is a research university, and we should therefore expect our TEE use to be systematically assessed and shared with others, in a manner similar to our other academic ventures. There is still much to be learned about appropriately deploying existing technologies, such as clickers, in the classroom. But we also know that new technologies are being developed faster than our ability to determine how best to use them in support of education. Therefore, we should foster experimentation from which we can learn and share better practices. In particular, we should look for effective models that combine learning in both online and offline environments.

A promising hybrid example is the flipped classroom, where class time is spent in discussion, problem solving and interaction, while the primary content acquisition happens online, and at an individual pace, in advance of the class meeting. The student-instructor contact time is reconfigured so that it addresses problem areas or difficult concepts, or allows for extended opportunity for student discussions.

It is critical that faculty and TAs have access to information about available technology, training for its use, and knowledge about infrastructure to facilitate incorporation of technology into courses. Faculty should be able to see successful technology use in action in the classroom, learn the technical details of use, and consult on the best pedagogical methods.

The subcommittee members agree that our campus needs to foster local champions in the departments, who will be the core of the TEE work on campus. However, these local champions will need a "supported home" that enables the kind of cross-disciplinary and cross-goal (e.g. primary research, effective adoption of proven approaches, etc.) discussions needed to bring meaningful change.

This will require robust support from units such as ACMS and CTD working together, ideally, in a shared space. Therefore, the subcommittee recommends the creation of a Center for TEE, or, alternatively a "TEE Network" that is part of a larger Center such as CELT (Center for Engaged Learning & Teaching proposed by the subcommittee on Engagement Inside the Classroom). This "entity" would serve as a home where champions/researchers regularly interact, network within, between, and across

campus units, and share ideas, results, and best practices. It would also support the effort it will take to develop courses, have scholarly assessment, and encourage faculty to learn from the various innovations being developed around the campus and experiment.

This "entity" will need campus-wide leadership as well as non-departmental resources to keep it vibrant and to be able to organize and present a coherent picture of the entire landscape of TEE work at UC San Diego.

Real World Preparedness / Transferrable Skills / Career Competencies

Strategic Planning Response

February 26, 2013

Question1: What campuswide research and educational priorities should we invest in for uniqueness and impact?

Overall, we recommend that experiential learning be made a high priority, and that resources be provided to expand and incentivize experiential learning. In particular, we recommend:

- The development of a "co-curricular transcript", coordinated with real world skills content. This should include a student guidance resource that provides links to opportunities that can fulfill each category at increasing skill levels, and related advising to encourage its use.

- The creation of a campus-wide student Center for Student Engagement to provide resources for student engagement, public service, community engagement and reflection to develop real-world skills. Such a center would provide workshops for both undergraduate and graduate students that address an expanded real world skills list, utilizing expertise from campus, alumni, and the community. The center would also provide the opportunity for students to reflect on their experience, clarify their plans, and make decisions accordingly. An example of an existing center is UPOP (Practice Opportunities Program) at MIT http://upop.mit.edu/about/, which awards a certificate. We could emulate such a center by providing such opportunities starting at Orientation and offering on a continuing basis during breaks.

- Fund additional student training for written and oral communication skills, and coordinate with existing training. For example, divisional or departmental training should be considered as appropriate, and tools should be developed to help faculty embed communications skills into their curriculum.

- Resources to facilitate departments and divisions to include real-world skills into their curriculum as appropriate. Provide training, tools, consultants, assessment and incentives for faculty to contribute towards this goal.

- Devote ongoing resources to engage alumni (via surveys and focus groups) to identify skill gaps, and ensure that information is used to update available experiential learning.

- Dramatically expand campus-wide space and equipment available for student projects (e.g. design and project studios)

Question 2: How will you enhance the student learning experience (graduate and undergraduate) so that we improve quality and create engaged alumni?

- We should increase the quality and quantity of real-world student experiences both inside and outside the classroom: in labs, courses, internships, in the local and global community via public service and service learning, and through real-world student-based projects in student organizations. We need to assess and monitor outside experiences to increase the quality of the student experiences. We should provide scaffolding for student success in internships and research settings, so that students can move beyond the immediate tasks to additional real world skills. To increase the overall quality of internships, we should systematically track feedback from all participants.
- As a research-centric university, we should develop more opportunities for course-based authentic, open-ended research experiences for undergraduates, and provide support for faculty who do so.
- We should engage postdocs, research and project scientists, alumni and real-world professionals as mentors and advisors, and provide recognition and incentives for their participation. In particular, we should recognize their ability to contribute meaningfully to grading and assessment of student performance and accomplishments.
- We should develop on-line tools to connect alumni with students, and provide a menu of opportunities for alumni engagement in all divisions.
- We should develop virtual-world tools (such as virtual experiments) to simulate real-world experiences.
- We should consider adding a thesis or capstone project requirement in most/all majors, at least as an option; honors designation is a possible mechanism to do this.

Question 3: Uniqueness and societal impact- how should the campus deliver on the vision of a public university focused on societal impact and how will your effort in support of the vision be unique and outstanding?

- Coordinate, expand, and publicize the current activities on public service and community engagement (CREATE, Global TIES, etc), and coordinate with co-curricular transcript. Research has shown that it is very important for students, especially those from underrepresented groups, to connect with how their work can have impact on their communities, and indeed, it benefits all students. This effort could be important for both recruiting and retaining a diverse student body. Incentivize faculty, postdocs, research and project scientists to engage in this kind of work.
- Reward and recognize faculty for delivering and articulating the societal impact of their work, both locally and globally. Develop ways of assessing faculty contributions in this area.
- Engage with the community to identify questions of societal importance that students can help to answer (perhaps via course-based authentic research).
- Require graduate students to provide a publicly available impact statement describing their dissertation/thesis finding.
- Publicize what we are doing to educate students for roles in the real world where they will solve societal problems.

Education Initiative
Co-Curricular Transcript Sub-Sub-Committee
Strategic Planning Report
11 March 2013

Overview

One measure of the success of UC San Diego is our ability to educate "a holistic student capable of leading and innovating in a diverse and interconnected world, and developing and adopting more effective forms of pedagogy."[1] The Co-Curricular Transcript Sub-Sub-Committee seeks to assist students, faculty and staff in meeting this goal by proposing three closely integrated tools:

- an *enhanced electronic transcript* (e2T), providing a certified record of academic accomplishments, created and maintained by the Registrar;

- a *co-curricular* record (CCR), providing a certified record of co-curricular activities, created and maintained by the Registrar;

- an *electronic portfolio* (eP), providing a tool to guide students in their co-curricular planning as well as a repository for documents illustrating their achievements.

As envisioned by the committee, each of these documents would be located on a "dashboard" available to all students on TritonLink. The links between these tools are essential to their success. Taken together, they will provide infrastructure essential to an integrated educational experience. They will serve as a *record* of educational accomplishments, as a *roadmap* for educational planning, and a site for *reflection* on educational goals and purposes.

To the best of our knowledge this set of tools is unique and will help distinguish UC San Diego as an educational leader and innovator.

Enhanced Electronic Transcript

E2T describes a proposed UCSD Academic Record in its future form. With all the content of the current transcript and in a completely electronic form, the e2T will have hyperlinks to additional information providing access to both current and to-be-developed additional data from the academic record. For example, the title of a course can be hyperlinked to the course description in the electronic catalog. The course number can be hyperlinked to the name of the instructor for that term. New information that can be added via other databases could be instructor biographies, contextual grade information, links to completed theses and dissertations, etc. Other than a process for determining what enhanced information to include, and the availability of the data source, there are no limits to the enhanced information that could be added.

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[1] Draft mission, overarching values and strategies, and measures of success, 20130304 revised.

The e2T is a concept that is trending among leading research universities, such as Stanford. It has been discussed in concept form only so far at UCSD, although the Registrar is advocating this model for further discussion and development.

Co-Curricular Record

Content: Which skills and activities should be included?

1. The list of approved items will grow and change over time, just as the list of approved courses grows and changes over time. Oversight of the list would be provided by a standing committee that would evaluate/approve items just as the Undergraduate Council evaluates/approves course proposals.

2. Without too much difficulty it should be possible at the outset to identify a stable core of items, such as working in a research laboratory, studying abroad, or leading a significant student organization like the AS or the BSU. These and similar "standard" items will provide a stable set of options. The committee will also need to evaluate new and unique items to determine whether they belong on the CCR. Some new items will become standard options; others will be unique to a given student.

3. Some items might include student-created content in the form of a brief project description. For example, a Chemistry student taking Chem 199 could list salient details about the project and his/her achievements. To preserve the integrity of the CCR, this content would need to be reviewed and approved by a designated official.

4. The initial list of items could be constructed in two ways. First, we can draw on the map of high-impact practices Marina has created. Second, we can ask each college, department or program to identify (additional) items that would enhance the major. The list will vary by unit – lab work is essential to STEM fields, less so to majors in DAH. Submission of such a list would be voluntary – some units might choose not to participate. But the list would provide needed guidance to students; from the moment they declare a major they would be able to see not simply the courses they need to complete, but also the co-curricular that they should become involved in.

Process: How is the transcript populated? What categories should be used, and how does the registrar know that a student has met the requirements for an activity or accomplishment to be listed?

5. The CCR should be a record of *activities* (worked in a bio lab for three quarters; organized a campus-wide recycling effort; etc.) and not *skills* (demonstrated effective oral communication; demonstrated effective cross-cultural collaboration; etc.). Assessment of skills is inherently problematic. (For example, it's fairly easy to indicate that a student worked in a lab. It's much more difficult to indicate that in the lab they developed a specific competence in teamwork, or research, or communication.)

6. However, the committee charged with approving items for the CCR could use the lists of high impact practices, and transferrable skills, to guide them in approving the inclusion of a specific activity. The approval process could even include identifying the specific skills

associated with the activity, which could be indicated on the CCR. (The CCR should include a statement of purpose so that recipients know what it signifies. It could also include a "key" to skills, so that a specific activity – e.g., "laboratory research" – would also list the three most important skills developed in that activity.)

7. We should make populating the CCR as simple as possible. In those cases in which there is an associated course record – study abroad; participation in 199s; AIP; etc. – it should be possible to use existing campus systems to automate the process. In other cases – e.g., non-credit bearing work in a lab, or leadership of an important student org. – we could create a unique non-credit-bearing course that would allow us to use a simple P/NP grading rubric. (If I run a lab, and have two students working in it, I would get a CCR gradesheet at the end of the quarter, which could be completed with virtually no effort.) And for unique activities, or ones that have not yet been added to the automatic process, we could use a simple petition system.

Electronic Portfolio

The web-based eP would serve as both a framework to guide the journey toward proficiency and as a resource to identify the experiences needed to achieve competency in the identified areas. The university would be responsible for identifying the university curricular and co-curricular experiences and their related competencies on the website.

The eP is a web-based electronic record of a student's academic and co-curricular educational journey at UC San Diego. With an initial focus on the overall key competencies a student should have achieved at the completion of their degree, the eP will serve as a framework for students to identify experiences that will assist them in gaining proficiency in each of these university identified competencies. Competencies include: effective oral and written communication skills, critical thinking and problem solving skills, effective cross-cultural collaboration, etc. Students would choose an artifact from selected experiences (in-class and out-of-class) that would best exemplify their learning and record it in the eP. All student participants would have the same competency objectives, but would each develop their own path through curricular and co-curricular experiences to gain proficiency within each of those competencies.

Students would be prompted to answer a series of questions throughout their UC San Diego tenure, such as:

- Who do you hope to become?

- What do you hope to achieve?

These questions would help students to continuously ruminate on their educational/career goals and encourage reflection throughout their journey. Answers to these questions would continue to evolve as students learn and grow.

Implementation

The committee is confident in the proposed framework (e2T; CCR; eP), but keenly aware that implementing it will require substantial thought research and design. We recommend that a task force be charged with the creation of these tools. The sketches provided above may serve as starting points, but should not be considered binding. Market testing – of employers and graduate programs, as well as of students – will be crucial as this project moves forward. We also recommend that implementation be incremental rather than all-at-once. Once overarching goals and values have been specified it should be possible to build these tools in small pieces that can be tested and refined. Over time these small pieces will yield a single, comprehensive product.

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