

Sustainability Across the Curriculum: Perspectives of Place - the Scripps Knoll/Coastal Chaparral Project

Statement of the Problem

Sustainability and sustainable development, i.e., development that meets the needs of the present without compromising the ability of future generations to meet their own needs." ⁽¹⁾ is not simply about new ways of doing, but even more about new ways of thinking. Sustainability issues are often viewed as too big, not my business, or an issue for future generations. Moreover, it is widely assumed that environmental problems will be solved by the adoption of new technology of one sort or another, representing a change in how humans interact with the environment. Less attention is usually given to how our sense of place within the environment also needs to shift. Environmental and sustainability issues such as overpopulation, resource depletion, and pollution, which result in rapid decline of the habitability of the earth, highlight that the sustainability issue is urgent, transcends traditional discipline boundaries, and has broad biological, political, organizational, social and cultural implications that affect all elements of society.

Solution

To raise awareness, perception, understanding, and imagination, we must change how we educate our students, i.e., we must introduce sustainability into the undergraduate curriculum of academic majors across a broad disciplinary spectrum. We propose to build on best practice solutions, the Piedmont and Ponderosa Projects, which are curriculum development projects piloted and successfully implemented at Emory University and Arizona State University, respectively ^(2,3). Two of us participated this summer in a workshop to learn more about these two curriculum development projects so that we could identify how to adapt them for implementation on the UCSD campus.

At the core of the programs mentioned above are two key concepts:

1. Sustainability and environmental issues can be successfully embedded into the curriculum of existing courses (greening the curriculum). This will make it possible for students and faculty to examine rigorously and critically assumptions about the role and position of humans within the natural world. Through thoughtful in-classroom discussions and rigorous intellectual explorations, students can develop an ability to think critically and deeply about issues of sustainability and their assumptions about the place of humans within the natural world. They can also explore "how to meet present needs without preventing future generations from meeting their needs"⁽⁴⁾ The intended outcome is that students will take on their own new ways of thinking about the place of the human race within the global environment and how to think about solutions to the challenge of sustainability.
2. Contextualizing and personalizing sustainability issues is critical. Experiential learning opportunities that draw on the environmental dimensions of the campus

and its urban and non-urban neighborhoods and link them to the broader national and international issues of sustainability are essential because they provide concrete and personal connection to the abstract concept of sustainability.

Embedding sustainability into existing curricula would have additional multiple secondary beneficial results: It would:

- affect a significant number of students
- highlight the interdisciplinary nature of sustainability
- allow integration of sustainability concepts, questions, and content into existing curricula – i.e., it would promote sustainability without requiring the creation of new courses or any new major requirements for students

Furthermore, given past UCSD experience in focused faculty and student debate around emerging disciplines, we would expect to see both expanded course content around sustainability and pedagogical innovation in the field. Ultimately, we expect the development of new courses in a variety of majors and the development of an interdisciplinary minor and/or minors.

Guiding Principles:

- Sustainability and environment issues are integral to all disciplines:
 - make education about the environment a central part of the normal teaching in all disciplines ^(5,6)
- Faculty learn with and from each other:
 - provide faculty with an opportunity to learn about ecological issues and how to include sustainability/environmental issues into existing curricula from and with other faculty
 - educate faculty in an interdisciplinary effort
 - build connection and support among faculty by building community through a shared learning experience, shared excursions and shared meals.
- Sustainability and environment issues should be made relevant (“reconnect with place”):
 - connect education and information sharing about sustainability and environmental issue to our campus and immediate environment, i.e., campus, beach, coast (cliffs; chaparral); Scripps Knoll, Torrey Pines State Park; campus sustainability efforts;

Plan:

Overview:

We, the three PI’s, will create a quarter-long seminar for faculty, called Sustainability Across the Curriculum: Perspectives of Place, the Scripps Knoll/Coastal Chaparral Project ^(1, 2, 3, 4, 5, and 6). The curriculum will be based on the successful Piedmont and Ponderosa Projects ⁽²⁾, but adapted to the site-specific characteristics of our UC San Diego campus.

As faculty facilitators, we will organize and teach the seminar. We will assure (via an application process) that the faculties participating in the seminar/workshop represent a broad spectrum of academic disciplines. To have an impact, and to allow for fine-tuning

and adjustments, the seminar will be taught for at least three consecutive years. If successful, the workshop will become one of UCSD's sustainability hallmarks and will be taught annually.

For each seminar, we will draw together a cohort of roughly 6-8 faculty members from diverse academic fields across the university. Each faculty member will attend all seminar meetings and will be expected to create a modified curriculum/course material that sustainability issues and concepts have been incorporated into his/her course(s).

Goals:

We hope that the seminar/workshops will achieve the following goals:

- Educate and empower faculty in an interdisciplinary effort
- "Green the Curriculum" so that the theme of environmental sustainability is introduced and reinforced throughout students' educational experiences
- Educate students in all courses of study about the implications of environmental sustainability in their chosen careers (Environmental Literacy)
- Introduce environmental sustainability issues to our own campus and apply our knowledge toward campus stewardship – make the campus 'green'
- Build a strong education component into ESI and ACS Work within our communities at various levels (city, county, state, region, nation, and international) whenever possible to encourage and achieve environmental sustainability
- Create resource materials to achieve the above goals

Specifics:

Faculty Recruitment:

We will work with the Senior VC and the Associate VC for Undergraduate Education to publicize the seminar/workshop. Campuswide announcements will be followed by a special statement and presentation about the seminar/workshop by one of us at the Council of Vice Chairs for Education (chaired by the Assoc. VC for Undergraduate Education). Faculty will have to apply to the seminar/workshop. Acceptance to the seminar/workshop depends on availability, commitment by the faculty member as expressed in the application form, and the goal to achieve academic diversity.

Participating faculty will receive a stipend (\$1,500; equivalent to the stipend paid for teaching Freshmen Seminars). The stipend will be paid in two installments, the first one after the workshop and the second installment when faculty submit their course syllabi to demonstrate that sustainability/environmental concepts and issues have been incorporated into the curriculum.

Seminar/workshop content:

Together, the seminar/workshop group will define sustainability and learn about environmental issues and sustainability by exploring and studying the campus and adjacent ecological entities. The group will discuss and identify mutually agreed upon learning goals for the students enrolled in the course(s) taught by the faculty. The group will also identify strategies and possibilities on how to shape and change existing courses so that they include sustainability and environmental concepts and issues. Subsequently, each faculty member will revamp during the summer his/her existing course(s) to include sustainability and environmental concepts and issues. He or she will also bring ideas for changes in other courses back to his or her department. The group will also put on the table proposals for new courses as those ideas develop.

Structure of the quarter-long seminar:

Led by faculty facilitators (i.e., the PI's of this proposal), the seminar/workshop will meet for an initial 2-day workshop at the beginning of the Spring Quarter and subsequently every other week (total of five meetings) for 80 minutes throughout the Spring Quarter

- initial 2-day workshop:
 - faculty facilitators lead discussions about sustainability, environmental issues, the local UCSD/beach/coast/chaparral/Scripps Knoll/Torrey Pines Park/ecosystem are used to create relevance and an appreciation of our local and very special place; political, economic, social, philosophical, and ethical dimensions of these issues will be explored
 - resource experts (2- 3) provide information on ecology, public health, environmental justice, and an overview of campus environmental efforts
 - Beach/Scripps Knoll/Torrey Pines walks provide some recreation and an opportunity for experiential learning
 - the lectures, discussions, outdoor time, and workshop materials all highlight connections among environmental dimensions of San Diego/La Jolla, the campus, and broader national and international issues of sustainability
- Bi-weekly meetings:

for the rest of the quarter, the seminar will meet every other week for 80 minutes for a total of 5 meetings; campus resource people will present campus sustainability efforts; walks will allow seminar participants to explore the campus and adjacent environments; and, seminar members will share ideas (and progress) about how to adapt the course syllabi and curriculum

Possible Resource Specialists

The list below is not a complete list, but highlights possibilities and the rich resources locally available

- Wayne Cornelius: Department of Political Science, Immigration
- Teddy Cruz: Department Visual Arts, sustainable housing and urban planning

- Paul Dayton: SIO, Director of the UCSD Natural Reserves System that includes Scripps Knoll, coastal ecologies
- Steve Erie, Department of Political Sciences
- Linda Giannelli Pratt: Office of Environmental Protection and Sustainability and Environmental Services, City of San Diego
- Walter Jetz: Division of Biological Sciences, EBE Section
- Gary Mathews: Campus Sustainability Efforts
- Keith Pezzoli: Department of Urban Studies and Planning, regional environmental issues
- Kaustav Roy: Division of Biological Sciences, EBE Section
- Lisa Shaffer: Executive Director ESI
- George Tynan: Department of Mechanical and Aerospace Engineering, Energy
- David Woodruff: Division of Biological Sciences, EBE Section

Other Resources:

One of us is working currently with a group of students to create an inventory of UCSD flora, which includes names, country of origin, and stories about the plants; rationale for campus landscape and how the landscape design and choice is addressing sustainability needs.

Assessment:

We will measure success via three parameters:

1. students' understanding of the meaning of sustainability, students' knowledge of local and global sustainability resources, and students' comprehension that personal actions affect local and global sustainability (We will be using student learning outcome assessment tools received during AASHE workshop⁽²⁾.)
2. number of syllabi of existing courses that demonstrate inclusion of sustainability issues into the curriculum
3. new initiatives (student or faculty driven) that can be traced back to the seminar/workshop

References:

- (1) Brundtland Commission, 1987;
http://www.are.admin.ch/are/en/nachhaltig/international_uno/unterseite02330/http://www.are.admin.ch/are/en/nachhaltig/international_uno/unterseite02330/),
- (2) AASHE workshop on "Sustainability Across the Curriculum" July 2006 (<http://www.aashe.org/profdev/curriculum.php>)
- (3) Urban Places: reconnecting with the Natural World; Peggy F. Bartlett (ed.); The MIT Press; ISBN: 0262524430
- (4) Thomas Jefferson: "...Then I say the earth belongs to each...generation during its course, fully and in its own right. The second generation receives it clear of the debts and encumbrances, the third of the second, and so on. For if the first could charge it with a debt, then the earth would belong to the dead and not to the living generation. Then, no generation can contract debts greater than may be paid during the course of its own

existence.

Sept. 6, 1789

(5) Tony Cortese: President, Second Nature; co-founder of Association for the Advancement of Sustainability in Higher Education (AASHE)

Earth in Mind: on education, environment, and the human prospect; David Orr; Island Press

(6) Paul Kennedy (Yale historian): Called in his book “Preparing for the 21st century.” for nothing less than “ re-education of humankind”.

(7) Barry Lopez: 1988: Crossing Open Ground”; Publisher: Scribner; ISBN: 0684188171

Fiscal Resources Needed:

- In year one, the proof-of-concept stage, we propose that ESI provided funding from the Legler Benbough Grant.
- The goals of year two and three are to embed the project into UCSD’s ongoing process of curriculum innovation. In year two, we will work again with 6 – 8 faculty and we assume that 4 of them will receive a stipend via the instructional improvement grant process (<http://academicaffairs.ucsd.edu/offices/planning/ongoing/iip/>). In addition, we will prepare a grant to the National Science Foundation (Course, Curriculum, and Laboratory Improvement (CCLI) and partner with UCSD development to receive additional funding. We will still require some support from ESI resources. In year three and beyond, and assuming that we successfully applied for extramural funding, the workshop series should be self-sustainable.