

## ON CHANGING THE POLY IN POLYTECHNIC

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Why do birds fly south? Because it's too far to walk.

Jokes are funny, in part, because they artfully use inconsistency. In response to a question about why birds fly south, we probably expect a biological explanation for their behavior. Instead we're given a *non sequitur* that, while mostly true, is not what we expected to hear. In this case the inconsistency is humorous because we understand, after the fact, that the answer is meant to be other than what we expected. The humor in this riddle also points to a strong cultural desire for consistency. This cultural motivation manifests itself in a variety of different and interesting forms of anticipated consistency: verbal messages with nonverbal messages; content messages with relational messages; form with content; one message at one time with another message at another time.

Furthermore, Cal Poly has recently made a commitment to fostering sustainability and it is uniquely poised to become a leader in sustainability education because of its strong emphasis on agriculture, engineering, and design. The university, however, will not fully succeed in promoting sustainability without creating another kind of consistency: an alliance between its polytechnic nature and its social, cultural, and human natures. Cal Poly ought to redefine the "poly" in polytechnic as a joining of technical skills to the liberal arts.

Sustainability is a vague word. Or rather: the word sustainability is used vaguely. First, consider that sustainability is a noun form of a verb that is usually used as an adjective. The root verb is to sustain, and when we talk about sustainability, we're talking about an action that is intended to have a desired sustaining outcome. Sustainabili-

ty is not a means but an end; it does not proscribe actions so much as delineate goals. The way in which these goals are achieved is left for us to decide. What sustainability is is clearer than how it is accomplished.

Second, sustainability is typically used as a comparative adjective that hides its categorical imperative. Sustainability often modifies other activities. On campus, for example, we might hear about sustainable agriculture, or sustainable design, or sustainable energy use. As a result, sustainability can become a standard by which these programs and actions can be assessed. This categorical or “hard” version of the word is in contrast to a “soft” or comparative adjective often used to suggest a range of possibilities. One form of agriculture, we might be told, is more sustainable than another form. That is, according to common usage, sustainability means that people practice things in ways that use less energy, use fewer resources, create less waste, and are less destructive of the environment and of human cultures. Used in this way, the word sustainability is used not as a standard to judge the value of our actions as much as an incentive to make those actions last longer.

The comparative use of the word sustainable is suggestive of the way the word conservation was used during the first half of the 20<sup>th</sup> Century before the word environmental replaced it in the 1960s and 70s. Samuel Hays observes that the word conservation originally grew out of water reclamation issues facing American Western states in the last decades of the 19<sup>th</sup> Century.<sup>1</sup> Later, the meaning of the word expanded to refer to an increased efficiency in the utilization of water, forest, and rangeland resources. To conserve was to store away for later use. George Perkins Marsh, Carl Schurz, Gifford Pinchot, Theodore Roosevelt, and Franklin Roosevelt—all of them giants of early 20<sup>th</sup> Century conservation—clearly envisioned and spoke of conservation in these terms.<sup>2</sup> Like money in a bank account, natural resources were conceptualized metaphorically as capital to be saved and spent wisely. In these terms, conservation, whether of money or of natural resources, was a comparative activity. In short, it did not matter whether one saved a dollar or a thousand dollars, one was saving.

And therein lies the difference between conservation and sustainability. The economic metaphor of conservation does not imply a threshold that savings must measure up to before it is considered successful. Sustainability, on the other hand, is built upon a biological metaphor of carrying capacity and does imply such a standard. Carrying capacity implies a boundary level that determines what an ecological community is “capable” of carrying.

Hence, sustainability is more appropriate as a categorical adjective rather than a comparative adjective like conservation. In forestry, for example, a sustained yield is an output of forest products over a certain period of time that is equal to the amount of wood the forest can grow in that same amount of time. In water policy, ground water is

used sustainably when the same amount of water that is pumped out of the aquifer is put back in. Sustainability means the amount of something used by people cannot exceed the amount created by the ecosystem. Whereas conservation means slowing down the use of resources to make them last longer, sustainability means reducing net resource use to zero so that our resources will last indefinitely. That is the threshold of sustainability.

We commonly use the word sustainability, however, to mean something more like conservation. And since, when we do so, we are not in a frame of mind to think in terms of sustainability thresholds, we often neglect to consider what those thresholds might be. The ultimate success of sustainability efforts and of sustainability education, however, means that we must consider the thresholds of sustainability. Where those thresholds lie has not really been determined. How we should reach those thresholds has not been determined either. And what we mean by those thresholds—this issue particularly—has definitely not been determined.

The inherent vagueness of words, in turn, can easily become a pretext for inaction. After all, the argument goes, if a word means more than one thing then it essentially means nothing. But this argument is not correct. A vaguely used word like sustainability still has meaning, but we must discuss and debate that meaning and what that meaning ought to be. In short, the process of debating the word's meaning is part of our use of that term. That means we have the opportunity to use that word strategically, to use it in ways that are not available to us with other words whose meanings are more fixed. Tarla Peterson, in her book *Communicating Sustainability*, argues that the ambiguity of the word sustainability is beneficial because it allows for more action by having a wider range of possibilities for what sustainability can mean.<sup>3</sup> The ambiguity allows for debate because there is no orthodoxy to dictate what actions ought to be generated by our desire for sustainability. Debate, in turn, is opportunity for the liberal arts because no realm is as well equipped to handle vagueness, no realm finds people more eager to wade into ambiguity, than the liberal arts. The liberal arts embrace the gray area, the subtlety, and the nuance in human affairs.

By becoming a signatory to the Talloires Declaration on the Environment in April of 2004, Cal Poly publicly acknowledged that sustainability should become a standard by which the university would be evaluated. What the signing of the Talloires Declaration did not do is specify where that standard is and how it should be achieved. As a polytechnic university, one of Cal Poly's best responses to these issues is to develop technologies that promote sustainability. This is not an inappropriate path for a polytechnic institution since many of the problems that hinder sustainability are technical in nature: a technical problem calls for a technical solution. The university has already advanced in this direction. In the press release announcing Cal Poly's commitment to the Talloires

Declaration and to sustainability, President Warren Baker said that the campus's master plan, the Cal Poly Land Project, and the Campus Sustainability Initiative "bear witness to our dedication to creating an institutional culture of sustainability."<sup>4</sup>


If the university continues on a course focusing primarily on technical solutions, then engineering, scientific, and planning practices will resolve, de facto, the vagueness of sustainability. There will be little discussion about the inherent ambiguity of sustainability, and the opportunity to use that vagueness strategically will be lost. Sustainability is not just a technical issue but a social and cultural issue as well. It is a human issue. While polytechnic solutions are necessary to help us meet the standards of sustainability, humanistic and social discussion is needed to help us determine what those standards ought to be and how we ought to meet them.

The reluctance of many to value the liberal arts, especially at a polytechnic university, is understandable even if it is not agreeable. Technical fields are perceived as the cutting edge of contemporary culture, and the deliberative subjects of the liberal arts appear to have a less significant place within an economic culture that is moving away from discursive productions of issues and toward visual consumption of images. That is why the university's commitment to sustainability represents an opportunity to demonstrate the relevance of the liberal arts to the university and to our culture as a whole. Sustainability is not an engineering problem; it is a human issue.

A cultural devotion to consistency applies at Cal Poly as much as it does anywhere. Students are likely to learn as much by what they see happening around them as they do from their teachers, and Cal Poly is expected to demonstrate consistency between what is taught and how it is taught. As Cal Poly embraces sustainability as part of its educational vision, we need to be reminded to teach sustainability in a sustainable manner. Otherwise, students will observe the inconsistency and judge the university's actions to be a better indication of the state of the world outside academia. This will, in turn, result in the failure of our efforts to teach sustainability. Furthermore, fostering the sustainable teaching of sustainability means that the liberal arts ought to be a crucial component of sustainability education.

By committing to sustainability, Cal Poly has created an opportunity to educate students not just in ends but in means, not just in how to solve problems but in what problems to solve. The commitment represents an opportunity to redefine polytechnic to mean more than "applied sciences" or "many technical fields." Rather, polytechnic can refer to a healthy and necessary association between the technical fields and the liberal arts. Cal Poly can become a premiere example of the fusion of technology and humanity.

Cal Poly has opened a door. We have given ourselves a challenge to be consistent, not just between what is taught and how it is taught but between the technical realm of our

existence and the social and cultural realms of our existence. It's time for everyone to walk through that door. 

## Notes

1. Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920* (Pittsburgh, University of Pittsburgh Press, 1999), 5.
2. Roderick Frazier Nash, *American Environmentalism: Readings in Conservation History*. 3rd ed (New York: McGraw-Hill, 1990).
3. Tarla Rai Peterson, *Sharing the Earth: The Rhetoric of Sustainable Development* (Columbia: University of South Carolina Press, 1997).
4. "Cal Poly Announces Signing of Talloires Declaration on the Environment During Earth Day Activities April 23, 24." 22 April 2004, press release, <<http://www.cla.calpoly.edu/~smarx/April232004/talloiresrelease.html>> (4 September 2004).