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Sustainable Campuses and Institutions: The Need to Lead and the Transformation to a New Social Paradigm

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***Abstract.** As we have entered the twenty first century, perhaps no more urgent agenda is before us than to address the legacy of environmental problems created by the era of industrialization and to learn to live as part of our earth's systems, including necessary social and economic adjustments. This paper offers a blueprint for achieving this agenda.*

***Keywords:** sustainability, ecological literacy*

As we have entered the twenty-first century, perhaps no more urgent agenda is before us than to address the legacy of environmental problems created by the era of industrialization and to learn to live as part of our earth's systems, including necessary social and economic adjustments.

Professors, teachers and students have a great potential and an even greater responsibility to change their institutions, creating leading models for the transformation to a sustainable world. Fortunately, there is a sustainability revolution underway at American Institutions. In this paper I will discuss the steps I and others have taken at my own college in the U.S. as illustrative of the areas of institutional transformation necessary and partially underway.

By sustainability, I refer to the core changes necessary to achieve such goals as:

- To live within the interest of nature's capacities for **renewal, regeneration and assimilation** rather than off of irreversible expenditures of natural principal.
- To meet the needs of people today without sacrificing the ability of **future generations** to meet their needs.
- To create **global equity** of resource access and wealth by reducing over-consumption and enabling sustainable livelihoods.
- To **avoid irreplaceable losses** of species diversity, critical habitats, beauty and "nature."
- To **avoid pushing irreversible limit-conditions.**

Sustainability can not be thought of as adjustments to the current modern paradigm which is fundamentally unsustainable and anti-sustainable to its core. Rather, sustainability is best thought of as a successor paradigm to replace the modern period.

Institutions of higher education are the best innovators for the new sustainable paradigm and experimental contexts for creating sustainable change. They are generally in a position to take concrete actions for sustainability. They have capabilities to do research, innovation and evaluation. They can offer observable and replicable models for the larger society. They are able to train leaders for sustainability and to do outreach and capacity building. To do this they first need to be able to transform their own institutions. I view sustainability as the newest and best theory of management. The

transformation to a sustainable institution requires rethinking many core components of the university. Our institutions are often tradition bound and loath to change. Yet, if we cannot remake our institutions in a sustainable mold, how can we expect to transform the rest of society?

I have long talked about four contexts within which such experimentation can and must occur. These are the “4 C’s of Campus Sustainability: the **curriculum**, the **campus** as a physical environment, the **culture** practiced by faculty and students and the **community** impacts of the institution. These four contexts are independently and cumulatively realms for observation and analysis, innovation and trial, evaluation and refinement and the creation of new paths.

In line with the four C’s, we can distinguish four key contexts of learning. Curriculum is an ideal context for improving ecological literacy. Campus culture is a key context for developing and reinforcing sustainable values. The campus is a primary setting for learning to engage in sustainable actions. And the community provides an additional laboratory for developing and practicing community literacy. These four contexts and their learning modes of course overlap and interact. Table 1 summarizes the 4C’s and their primary modes of learning, offering examples.

Table 1: 4C’s, Learning and Examples

Context	Learning	Example
Curriculum	Ecological Literacy	Understanding the Law of Conservation of Matter and the first and second laws of thermodynamics as they apply to the practice of life
Culture	Sustainable Values	Learning to understand responsibility for consequences and to value such sustainable tenets as the importance of future generations
Campus	Sustainable Behavior	Consumption, recycling, electricity and water use
Community	Community Literacy	Understanding how to mobilize civil society through social networks

Our understanding of sustainability generally includes a common set of environmental indicators to which social and economic indicators can be added. Many are fooled into thinking that technological fixes can address issues of sustainability. But the need for a paradigm shift tells us that technology alone cannot bring about societal changes that are required. Therefore, it must be understood that sustainability has both technological and social strategies that must be put in play. Table 2 shows some of the common indicators that are addressed through sustainability. It is not an exhaustive list.

Table 2: Tech Fixes vs. Social Change strategies

Technological Fixes	Social Change
Waste: Better disposal	Waste: shifting from waste disposal to materials cycling
Consumption: Producing longer life products	Consumption: Meeting needs without over indulging wants
Food: Improving yields using compost	Food: creating local foods based on regenerative principles
Green design: building better performing buildings	Green design: emulating nature for core principles in design and use
Energy: Improving efficiencies and using renewables	Energy: Shifting energy use to a solar basis and a renewable mentality and making buildings net energy producers
Transportation: Hybrid vehicles	Transportation: pedestrian scale so that vehicles are not needed
Water: low flush toilets	Water: making buildings water self-sufficient
Pollution: introducing a new method to remove a pollutant from the environment	Pollution: reorienting production to eliminate the use of and production of hazardous materials
Greenhouse Gas Emissions: replacing oil or coal with natural gas	Greenhouse Gas Emissions: removing combustion altogether

In my 40 years as a college professor, 36 at Ramapo, I have had ample opportunities to experiment with approaches that fit each of the 4 C's. To highlight just a few examples....

Curriculum: I developed, won funding for and administrated a four year long project in the 1990s to infuse the entire curriculum of my college with ecological literacy. Ecological literacy was defined “as the wisdom and knowledge needed to create and maintain a sustainable society.” The project, the second of its kind in the U.S., reached more than half of the faculty and altered the curriculum to the point that every graduate was exposed to ecological literacy. While we found that most students started out with good sustainable values, they had very poor ecological literacy. Their actions were thus easily compartmentalized from their understanding. Graduates influenced by this project showed substantially improved ecological knowledge. Our other milestones have included creating one of the first undergraduate programs focused on sustainability, creating a course in World Sustainability that currently is used to reach most of the college’s more than 5,000 students in support of ecological literacy and the development of the first masters program in sustainability studies, to begin in fall 2010.

Culture: I was a key faculty member over a 25 year period running the Alternative Energy Center at Ramapo, where students were directly involved in growing food, making energy, recycling, pumping water and educating the public. A cycle of community events was held that drew hundreds of students. Others worked at the center, participating in the community gardens and the like. Spontaneous social events made the center a natural draw. The center then spilled over into other campus events, helping to make and keep a sustainable culture alive. As a result of our work, Ramapo

became one of the first institutions of higher education in the U.S. to make sustainability a part of its formal mission statement and to build it into the core of its strategic plan.

Campus: Over more than a decade, I chaired a series of committees aimed to bring about sustainable change on the part of the administration regarding campus management, construction, infrastructure and purchasing decisions. We worked on creating a campus arboretum, managing the campus pond and improving mass transportation. Decisions were made to improve the efficiency and make different choices regarding construction and purchasing. I wrote the grant and was the initial administrator of a project that created the New Jersey Higher Education Partnership for Sustainability, an organization that invites campuses to partner in achieving sustainable goals. This organization has reached nearly every campus in the state and provides active training and project development support for the entire network.

Community: through various grants, the Institute for Environmental Studies I head has run a series of regional sustainability conferences beginning in the mid-1990s that service the region's communities and create partnerships for achieving sustainable outcomes. My most recent event also included a large Exposition where vendors demonstrated green products and technologies for the public. Kidspo was offered as a demonstration site for children whose parents attended the conference. The event further sought to assist New Jersey in its goals of implementing its law setting greenhouse reductions in line with the Kyoto Protocol. Carried to its extreme, my approach creates what I have long called a "Sustainability shop" that engages faculty and students in supporting municipal leaders, businesses and civil society organizations in their efforts to develop sustainable programming.

Sustainability is an exercise in social learning. It requires key learning elements often missing from our education as normal. It is critical, interdisciplinary, experiential and field oriented (local and global), promotes the knowledge needed for sustainable choices, and employs an innovative learning process that are anticipatory and participatory. It is inherently constructivist in its approach. And it utilizes such forms as social networking, Web 2.0 and face-to-case meetings to link collaborators, share information and expertise; provide mutual support and mutual learning.

Because so many of these elements are rare in society, including in our institutions, there is a need to build the learning capacity of the institution or community before sustainability actions can succeed. An important challenge in doing so is that sustainable change requires unlearning conventional approaches while learning new ones. Links across institutional partitions are needed for an "interdisciplinary and integrated" approach.

At the same time, new network institutions are evolving that create goals and help institutions develop approaches for meeting them. The most recent example in the U.S. is the Presidents' Climate Commitment administered by AASHE, the American Association of Sustainability in Higher Education. AASHE has seen the majority of U.S. College and University Presidents sign this commitment to reduce greenhouse gasses in a comprehensive institutional change approach. AASHE has emerged as an organization networked out of other organizations that is helping to mobilize students as a force for change, as well. Other key U.S. organizations are Second Nature and the National Wildlife Fund Campus Ecology network.

Conclusion

The collapse of world sustainability that results from prior and current practice threatens current and future generations. And increasingly, our students know this. Sustainability is thus the logic organizing principle for student action. In this sense, the definition of student success is the degree to which the college experience prepares people for the emerging reality they will face not only in work but in life. The college experience must provide an opportunity to learn the importance of and transformative skills to forge a revolutionary shift to a sustainable basis for society.

Student success thus requires meaningful experiences that provide for a critical understanding of the failings of the old ways while enabling and equipping students to chart the way ahead. They must learn not to do what we have already taught (and modeled for) them to do and to change in ways we have ourselves been unwilling to change. Ours is a tendency to replicate the ways and means of the existing order. Therefore, these are lessons that we are ill prepared to “teach” for obvious reasons. And perhaps we should not be trusted to do so. We are thus less in the position to teach from our own experience and knowledge than to facilitate discovery and then get out of the way despite our educational predilections.

Required is a mode of experiential metalearning based on the very real challenge to transform the world to a sustainable basis. The task requires the creation of a fully interdisciplinary learning space in which learning is integrated around real challenges. Integral is the realization that the best way to promote student success is to transfer responsibility for student success to those most dependent upon their succeeding.

Who then is to prepare our students for future success? They are to prepare themselves. We need to create the context in which they can do so. Our role is to facilitate and guide them. And the college---with its curriculum, cultural life, campus and relationships to community---context ideally suited for this learning to occur. As opposed to the old notion of campus as a microcosm of society, we now realize that college is neither a miniature representation nor a mirror of the society around it. In key ways, it exaggerates through the potential for reflective experiment and consideration the dynamics of the larger world. It is the perfect place to support the required learning for student success. It is a macrocosm!

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