

THE NINE ELEMENTS OF A SUSTAINABLE CAMPUS

Mitchell Thomashow

For Sustainability: The Journal of Record

Mitchell Thomashow is the President of Unity College. He is the author of two books, Ecological Identity: Becoming a Reflective Environmentalist (The MIT Press, 1995) and Bringing the Biosphere Home (The MIT Press, 2001) and he is a Steering Committee Member of the American College & University Presidents Climate Commitment (ACUPCC).

From the Whole Earth Catalog to a Sustainable Campus

Forty years ago, in the late 1960's, I was a college student in New York City. Every Friday afternoon I would hop on the subway, get off at Bleecker Street, and wander through the record stores and bookshops. It was an exciting time to be a student given the profound social, cultural, and political changes. Every week there would be new books, magazines or records in the shops and I wanted to read and listen to all of them.

One day I spotted an unusual, oversized paperback book with a stunning picture of the earth on the cover. Laced across the top in a familiar 60's San Francisco style font was the title: The Whole Earth

Catalog. I flipped through the pages and glanced at the sections—whole systems, natural history, land use, community, learning, tools—and each page was organized like the “things to do” books I used to play with as a kid. The catalog recommended books to read, maps to peruse, ideas to consider, and tools of all kinds. Implicit throughout the text was a message of sustainability posed as a challenge for an impending era of ecological limits. For many years and through many editions I did the best I could to track down the various resources in the Whole Earth Catalog. It became my most treasured reading list and guide.

In retrospect The Whole Earth Catalog served as a visionary inspiration for living a sustainable life. It provided an enduring, resilient, community-based, do-it-yourself, hands-on guide for living and learning. Forty years later, I realize that my entire career path is a response to that challenge. Now as a college president this is the educational philosophy that continues to guide me. Sustainability is not just a LEED certified building or providing more local foods in the cafeteria. It is a powerful philosophy of life, derived from ecological principles, common sense, and a respect for the complex magnificence of our remarkable planet.

Sustainability as a “way of life” has a long tradition in American higher education. Whether its Thoreau’s musings and experiments,

Helen and Scott Nearing's homesteading, Lewis Mumford's vision of ecological cities and technology, or the countless attempts to link character, community, and ecological living (see David Shi's pertinent history [The Simple Life](#)), the Whole Earth catalog served to coalesce and revitalize a perennial philosophy.

Forty year later, the ecological stakes are much, much higher. It's crucial to understand that sustainability is a response to a planetary emergency. We are in the early stages of the sixth megaextinction (a catastrophic loss of species), plunging declines in biodiversity, and a rapidly destabilizing climatic/oceanic circulation.

This response poses an immediate challenge for all educators. How do we teach sustainability as a way of life? Make no mistake—this is the single biggest challenge for higher education—ultimately connected to turbulent economic times, the accessibility and affordability of schooling, and how we think about the future of the planet. Our goal should be nothing less than to train a new generation of sustainability leadership, graduates who understand the intricate connections between economics and ecology, place and planet, how we live and the consequences of our actions.

As a means for meeting this challenge, and as a guide for both curricular and institutional transformation, I propose nine elements of

a sustainable campus, designed to evoke a whole new twenty-first century catalog of transformational sustainable practices. These entail three broad categories—Infrastructure (Energy, Materials, and Food), Community (Governance, Investment, and Wellness), and Learning (Curriculum, Interpretation, and Aesthetics). Imagine these categories as dynamic, unfolding, emergent, and intrinsically interconnected. Any sustainable practice may involve multiple categories. For example, a sparkly and ecologically efficient Platinum-LEED building may reduce the carbon footprint of a campus, but if it doesn't also serve an inspirational curricular or interpretive function, it may not achieve its full educational potential. These nine elements aren't a checklist, nor are they criteria for measuring success. They are meant to evoke the necessity of envisioning and applying sustainable practices to all aspects of campus life.

A sustainable campus requires a balance between protocols, behaviors, habits and routines, along with creativity, deliberation, and reflection. We need peer-reviewed protocols such as those developed by the ACUPCC (American College and University Presidents Climate Commitment) so we have a common agreement as to appropriate standards. Such protocols serve as the basis for supporting sustainable daily life practices, from energy conservation to growing local foods.

The subsequent behaviors must also be the subject of deliberation.

Why exactly are we doing this and what do we hope to accomplish?

At Unity College in Maine, we aspire that our campus becomes an exemplary learning and living laboratory for a sustainable culture. We hope that people who visit our campus (students, parents, community members, donors) will get dozens of ideas that will in turn inspire their own practices. We feel that if we can do this in rural Maine where the winters are very long, at a college that is undeniably “resource strapped” we can set an example for any campus anywhere. Like many other excellent colleges that share similar aspirations, we are learning how to do this, and many hours of effort and intention separate our aspirations from our accomplishments. We are collaborators and learners. Just because Unity College has an environmental mission, it doesn’t mean that we lack controversies, contradictions, and countervailing influences. Sometimes we slip into self-righteousness in our efforts to be virtuous. That’s why a healthy dose of humor is always required. As the poet Jim Dodge writes, purity is the end of potential!

As a college president, these nine elements are the source of my motivation and ambition. They reflect how I attempt to apply what I learned from the Whole Earth Catalog. This is way more than a career challenge. It’s deeply rooted in a search for meaning and purpose, a

values-based orientation, and a commitment to fulfilling my responsibility as a planetary citizen.

ENERGY

In the late 1970's, the University of Massachusetts (Amherst) hosted an annual Toward Tomorrow Fair, a showcase for what was then called "appropriate technology." I vividly remember the poster advertising the fair. It depicted a small city in a campus-like setting, with windmills, solar panels, passive solar architecture, bicycles, monorails, and all manner of farms, gardens, and orchards. Imagine a college campus with a similar landscape—buildings displaying a full range of renewable energy resources, creating a uniquely educational energy architecture. Each building serves as a model for conservation efficiency, ecological design, and interactive learning, powered by an innovative renewable energy source.

Energy refers to the ability to do work, involving the transformation of matter to produce heat and electricity. The point of sustainable energy practices is to maximize the efficiency of those processes so as to minimize unwanted byproducts. We require a new energy algorithm that enables us to heat and cool our buildings, move people and their goods from one place to another, and power our machines, without simultaneously altering the biosphere.

For colleges and universities a primary challenge is how to approach zero-carbon energy use. This can be accomplished through a combination of ingenious technical innovations, renewable energy sources, and rigorous conservation/retrofitting. It's essential that these efforts are fully transparent so that all energy users understand the flow from source to destination to byproduct, or what is typically described as life cycle analysis.

Energy cost accounting, the foundation of a truthful ecological economics, should be built into all budgetary approaches, incorporating not only the short and long term campus dollars and cents (sense) but also the ecological and climatic ramifications of such decisions. On a more tangible level we can link the magnitude of energy choices to the scale of daily behaviors. How does turning on a switch or turning up the thermostat impact both the traditional budgetary spreadsheet, but also the planetary carbon budget? I can think of no better educational project than outfitting all campus buildings with the capacity to monitor such choices by calibrating all of the necessary equivalencies and ratios. Campuses can become monitoring cooperatives, defined by the ubiquity and transparency of their energy networking systems.

Energy structures serve as instructional landmarks on the campus landscape. Windmills, solar panels, and geothermal

installations all require interpretive displays that help campus users better understand the complexity of energy choices, while allowing our students to develop new habits of thinking about their energy use.

MATERIALS

Just outside of Austin, Texas, the Center for Maximum Potential Building Systems, has a small complex of office buildings and residences exclusively using recycled materials, oriented towards energy efficiency, water conservation, and low cost. With his ingenious collaborators, Pliny Fisk, the lead architect, has developed a style resembling advanced tinker toy. The buildings are constructed so there is a seamless connection between design, sustainability, and transparency. Visitors and dwellers alike immediately understand the purpose, function, and origins of all of the materials. This is an outstanding template for construction approaches on college campuses.

Materials refers to the manipulation, rearrangement, and heating and cooling of matter to produce the stuff of our goods, appliances, dwellings, and tools—from laptop computers to Nike sneakers. Sustainable materials practice emphasizes minimizing the energy use and byproducts involved in the manufacture of these goods, valuing

resilience, durability, and recyclability. Whether you choose to use recycled materials in campus construction projects, or initiate “paperless” meetings, the mindful use of materials is intrinsic to countless procurement decisions.

From an infrastructure perspective, life cycle analysis and ecological cost accounting have a major role to play in coordinating sustainable materials practices. Every campus purchase has both an ecological and economic impact—from using green cleaning materials to installing recycled carpets. Materials originate someplace on the planet, derived from the biosphere and delivered to your doorstep. What do we use and where does it come from? Which materials are most likely to minimize ecological impact?

A campus is an ecological location with a geographical, cultural, and landscape context for its materials use. What works best in Arizona may not be well suited for Maine. However, we can share our experiences and experiments by developing common expectations about sustainable materials practice. Why shouldn't this awareness become a priority for a whole campus pedagogy—a way to build interdisciplinary focus and meaning among engineers, architects, artists, ecologists, and educators? What better way is there to learn about how we use (and abuse) our place and planet?

FOOD

Conceive of a college campus as a food-producing, edible landscaping, demonstration-garden laboratory. Lawns are bisected by garden strips and framed with permaculture shrubbery. Rooftop gardens supply food for high-rise dormitories. Administration buildings have small greenhouses attached to their entrances. Cafeterias not only serve more local and organic food, but they have compelling exhibits that illustrate farm to garden food pathways, or calculate the energy costs of different methods of food production. The campus becomes a local and regional center for cooperative food growing efforts, a home for intergenerational, culturally diverse, bioregionally based experiments in food preparation and production.

Everybody has to eat and the curricular potential of learning about food unveils dozens of learning opportunities from lessons about biodiversity to practical, real world food-growing skills. Where does your food come from? How is it prepared? How much energy is used in its production? What foods are best suited for the ecology of our campus? What's the cultivation and domestication history of the food we eat?

College administrations can lead the way by incorporating food production schemes into campus master plans, or by looking for inexpensive and innovative ways to initiate food landscaping opportunities, or by using more local and organic foods at college and community events.

GOVERNANCE

How does an organizational culture support and implement sustainability as a way of life? What is the relationship between sustainability and participatory governance? How do you use sustainability as a means to motivate, unify, and inspire an entire campus?

Benjamin Barber in his groundbreaking book Strong Democracy describes thin (or representative) democracy as a small group of elected officials making all of the decisions all of the time. In contrast, with strong democracy everybody makes some of the decisions some of the time. This makes good sense for in a setting where all constituents contribute ideas, voice, accountability, and leadership to sustainable practices and policies.

On a college campus there must be alignment between mission, governance, and curriculum. If the motivation is entirely generated

from the grassroots, it will always be a struggle to influence senior leadership and the Board of Trustees. If leadership for sustainability comes mainly from the administration, the people may not necessarily follow. This is why sustainable practices must be built into the mission, master plan, and strategic plan for a campus, conceived as crucial to its educational philosophy. Otherwise, sustainability will be marginalized, trendy, and viewed as just another special interest.

Leadership at all levels of an organization provides meaningful support in dozens of ways: building sustainability initiatives into job descriptions and performance evaluations, setting curricular objectives, following reasonable but firm guidelines regarding procurement, commencement, transportation, and other aspects of events or operations.

Two caveats: Sustainability is not the political philosophy of an esoteric, green politics. It is beyond traditional left/right categories, embodying elements of traditional conservative and progressive political approaches. Second, decisions related to governance will be complex and controversial, and not always consensus-driven.

INVESTMENT

Every college campus has a significant economic impact on the surrounding community. Colleges, communities, and businesses can work together to transform their regions into thriving sustainable economies. Colleges serve as dynamic economic multipliers. Their investment decisions have profound ramifications. What would happen if these decisions were made so as to train a new generation of sustainability leaders for a green economy?

Imagine our dynamic sustainable campus with its innovative energy systems, expansive gardens, and creative use of recycled materials. Consider these initiatives as the source for partnerships with green businesses. The campus becomes an incubator, the place where businesses and faculty work with students and community members to develop innovative entrepreneurial approaches. Faculty and business leaders work together to consider the technical skills, life experience attributes, and knowledge foundation that will best equip the new sustainability professions.

When large universities support green businesses they provide secure and stable markets that allow those businesses to reinvest in research. Smaller colleges can help support local farmers or other green vendors for whom the extra business may be crucial. By awarding contracts and opportunities to green businesses, campuses support the elements of a green regional economy.

Similar approaches can be applied to college investments. Are our portfolios sufficiently green? Which of our investments support sustainability initiatives? How might endowment investment guidelines incorporate rigorous ecological cost accounting? Is investment measured exclusively by the percentage return in a financial portfolio or do we consider criteria such as zero-carbon energy initiatives, ingenious recycling programs, or other green investment opportunities?

WELLNESS

Ultimately, the point of a sustainable campus is to provide a nourishing and supporting learning environment that promotes personal, community, and planetary well-being. Placed in an ecological context, we emphasize the importance of biodiversity, atmospheric and oceanic circulations, and ecosystem services in relationship to the human community. The idea of sustainability necessarily implies that human health is linked to ecosystem health.

Yet wellness also provides an extraordinary lifelong learning opportunity. How do we model the importance of sustainable personal and professional lives? Don't most students, staff and faculty, complain about being overworked, time stretched, and maxed out? Is

it just the demands of the job, the context of American professional life, or the culture of higher education? Many campuses deal with a wide assortment of student (and staff/faculty) human health problems, often related to stress, including smoking, alcohol, funky diet, and poor physical conditioning.

Given the urgency of addressing the “planetary emergency,” there is no choice but to work intensively and thoroughly. But if work is perceived as meaningful, purposeful, service-oriented, and collaborative, it is considerably more fulfilling. This is a crucial curricular and administrative mandate—how to provide meaningful work, balanced with a healthy work place, and opportunities for relaxation and leisure. Working hard doesn’t always mean working well.

As a foundation for campus wellness, I encourage curricular and workplace efforts that generate reflective awareness about diet, nutrition, exercise, spending time outdoors, stress-reduction, and meditative activities. A healthy campus is a more interesting and vital learning community, provides students with wellness habits and routines, and may even save money on health insurance. I suggest that it’s hypocritical to advocate for a sustainable planet and community when we don’t maximize human wellness.

CURRICULUM

What you know and how you think is always a reflection of how you live. In my view the best sustainability curriculum is one that provides the hands-on experience of living, implementing, and designing a sustainable campus, tangibly linked to the more formal curricular expectations of programs and majors.

There are countless discussions of what students should know. Although I have my strong opinions, too (every college graduate should understand ecological and evolutionary concepts, basic biospheric circulations, the geological time scale, and spatial and temporal variation related to environmental change), I also understand that there is no universal standard for curricular decisions. Curriculum is contextual and the substantive basis for programs and majors will depend on the interest, strength, and mission of the institution.

For example, see the AASHE (Association for the Advancement of Sustainability in Higher Education) website to view the vast array of impressive and exciting new programs—from business and medicine to climate mitigation and engineering, from two year technical training to

advanced PHD research. Arizona State has an entire school devoted to sustainability (GIOS, Global Institute of Sustainability).

Surely every college and university should have introductory courses that provide a substantive and experiential framework for lifelong learning about sustainability concepts. Every major should have sustainability-related courses that provide a foundation for the relevant discipline and career. We need more career-oriented sustainability majors and programs with opportunities for deeper study.

However, these initiatives are empty without the tangible application in the campus community. Colleges and universities have an impressive breadth of educational outreach. Every visitor, participant, and community member learns something from the campus environment. The sustainability curricular agenda must be seen as comprehensive, direct, and intrinsic to the educational mission of a campus.

INTERPRETATION

Do you remember your most recent visit to a National Park? At the entrance gate you were given a map that highlights the key natural features of the landscape and suggests places for you to visit.

If you went to the interpretive center, you saw several educational displays, explaining the ecological, historical, or geological setting that makes the place so special.

What if college campuses took a similar approach? When you arrive on campus you receive a map and guide to all of the campus sustainability efforts. This would include tours, exhibits, recommended buildings to visit, and other features of the sustainable landscape. Campus signage would emphasize these initiatives, providing various interpretive aides. Admissions tours would point out these features, too.

Are there organic gardens on campus? Show them on a map and explain why they are there. Is there a geothermal installation? Develop a kiosk at the site that diagrams how it works. Is there a LEED building on campus? Have the special LEED building plaque become the starting point for a guided tour through the building. Every one of these initiatives embodies a detailed and rich story of decisions, choices, innovations, and awareness.

The campus is an ecological place, located in a changing environment. There are compelling stories that precede and follow every sustainable action. Let's make them transparent and interesting, rooted in the history of the campus and projected into the future. If

the campus is in the desert, explain how the ecological setting determines water usage patterns. If it's in a cold climate, explain how the campus stays warm through innovative energy design. Make these stories ubiquitous through signage, curriculum, website exhibits, and all campus publications.

AESTHETICS

In the Autumn of 2008, Unity College organized a program called The Art of Stewardship. We brought fifty artists, scientists, and sustainability activists to campus. We asked them to envision the college as a campus canvas for environmental art. They presented us with ideas including mandala sand paintings, murals on the sides of buildings, recycled materials art sculptures, soundscape designs, native plants sculptures, an arrow of time to represent geological events, and landscape artwork that captures the movement of water, grass, and pollen.

These projects ideas can be constructed at minimal expense, while providing local and regional artists with a venue to display their work. They also represent terrific opportunities to get students, staff, and faculty engaged in taking great pride in the campus, as well as making the landscape much more interesting.

There is also a deeper cognitive advantage. At the core of understanding sustainability, biodiversity, and climate change is a perceptual challenge. Art projects use imagination to convey scale. They are a bridge to scientific understanding. Further, art projects catalyze some of the emotional responses surrounding these issues, from despair and grief to wonder, celebration and gratitude. Ultimately, this kind of collaborative art allows the campus to experience reciprocity between the built environment and the natural world.

Sustainability should entail aesthetics every step along the way. The people who live in a place should have the opportunity to make it their own through ephemeral and permanent artistic installations. This has the great virtue of making a campus a more vital and dynamic place. Even better, every art project contributes to the sense that the campus is a place in space and time, a living and working environment that creates an aesthetic mark in the bioregion.

Now it's Your Turn

These nine elements are part of my own emerging narrative, both as a sustainability explorer and a college president. Hopefully, they provide you with a template of ideas for your campus, adapted to

your roles and responsibilities. I hope that you will find your own sustainability narrative, that you will come up with an entirely new catalog of ideas and possibilities, and you will realize that these initiatives are crucial to your educational position and your planetary citizenship. When you come up with a great idea, and you've accomplished something really neat, send me a note and tell me what you've done. Maybe it's something I can write about in a future essay, or include in my own work, or I can pass on to someone else who will find it helpful.

The Nine Elements of a Sustainable Campus (Examples from Maine)

Jesse Pyles

Unity College in Maine is organizing its institutional efforts according to the *Nine Elements of a Sustainable Campus*. We're proud to be a part of a statewide culture in higher education that values sustainability, and recognize important achievements at schools throughout the state that contribute to a more sustainable world.

Nine Elements		At Unity College	Throughout Maine
Infrastructure	Energy	Completed in 2008, the Unity House is a LEED Platinum residence for the college president. The 1,930-square-foot, "net zero carbon" home is expected to produce more electricity than it uses every year, and is complete with a five kilowatt photovoltaic system, solar hot water, and a cold climate heat pump.	The University of Maine at Machias is greening the O'Brien House – the designated residence for the president – to demonstrate practical renovation of an old home for energy efficiency.
	Food	All community and catered events place a primary emphasis on the use of local and seasonal foods. Food produced in the campus community garden is used in the college cafeteria and at the local food shelf.	In 2008, 20% of Colby College's (Waterville, ME) food budget was spent on local and/or organic food and supplies. These purchases supported 72 local suppliers.
	Materials	Unity College is committed to environmentally sensitive building practices. Maplewood, a residence hall, and its sister building, the Health Center, feature 100% renewable electricity, super-insulated ceilings and walls, low-e windows, and low VOC paints, glues and adhesives.	At Bates College (Lewiston, ME), the annual Clean Sweep end-of-year move out swap brings more than 1000 shoppers from campus and the surrounding community. Nearly \$12,000 was raised in 2008 by the event and donated to seventeen area non-profits.
Community	Governance	Unity's full-time Sustainability Coordinator reports directly to the president and serves on the Master Planning Committee. Additionally, sustainability criteria are an important part of performance reviews for all departments on campus.	Qualifications for key staff positions at the University of Maine at Farmington include demonstrated experience in sustainability. Their Facilities Management Director, Food Service Director, and Student Life Director positions require a commitment to sustainability.

	Investment	Partnering with the local community development organization last fall, more than 20 campus participants weatherized dozens of area homes with financial support from the college, state, and local agencies.	Bowdoin College purchases renewable energy credits (RECs) to support renewable energy production at a certified low impact hydropower facility seventeen miles from their Brunswick campus.
	Wellness	In addition to a robust student wellness program, employee programs such as <i>Sustainable U</i> encourage lunchtime hiking, walking, yoga, and meditation activities for college staff.	The University of New England's (Biddeford, ME) "Free Bike" program for freshman students provided bikes, helmets, and locks to more than 100 entering college students last fall. The bicycles were issued "for keeps" to resident students agreeing to leave their cars at home.
Learning	Curriculum	Every degree granted uses the environment as the integrating context for learning. The Environmental Stewardship Core Curriculum focuses every student on the theory and practice of sustainability.	As part of their core curriculum, every student at Saint Joseph's College of Maine (Standish) takes the four-credit Ecology and the Environmental Challenge course focusing on sustainability issues.
	Interpretation	Tours of the Unity House offer campus community members and visitors an up-close look at sustainable design and performance. Sustainability improvements to the campus infrastructure are done with intent to educate all community members.	The University of Maine at Farmington's LEED Silver Education Center, opened in January 2007, was designed as an educational resource for the region, offering public tours to highlight such sustainability components as its geothermal heating and cooling system and non-toxic building materials.
	Aesthetics	This summer, Unity College will host a four-day Art of Stewardship conference to promote "creative inventiveness in response to escalating environmental issues." Unity publishes Hawk and Handsaw: the Journal of Creative Sustainability	At College of the Atlantic (Bar Harbor, ME) a building slated for destruction was salvaged and renovated to preserve the campus ambience of seaside cottages. The 8,900-square-foot Deering Common student center, previously a family summer home, is now heated by wood pellets secured from Maine suppliers.

Jesse Pyles is the Sustainability Coordinator at Unity College in Maine.