

Chapter 22

SHIFTING THE UNIVERSITY: FACULTY ENGAGEMENT AND CURRICULUM CHANGE

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The slumped shoulders and slack jaws were impossible to ignore: these students were not responding to my lecture on climate change. My strategy was to grab students by their intellectual and ethical lapels and impress upon them the enormity of the threat that human civilization faces in the climate crisis. Despite my review of urgent reports from communities around the world affected by global warming, their eyes remained glazed.

With one student-initiated shift in approach, my listeners sat up and asked engaged, clarifying questions. They willingly discussed a litany of ecological horror stories with curiosity, interest, and insight into both problems and solutions. What happened?

Educating about climate change is a huge challenge. Creating the informed populace that will support rapid and fundamental political, economic, and social change is a task that falls centrally within the purview of higher education. Not just faculty, however, but students, staff, administrators, and alumni are all part of this educational mission. Through our experiences as an anthropologist, faculty member, and campus leader for sustainability (Peggy Barlett) and theologian, graduate student, and Climate Project presenter (Ben Stewart), we have seen that opportunities to expand awareness and galvanize action exist not just in the classroom, but throughout the life of the institution (Barlett and Chase 2004; Orr 1993; Rappaport, Creighton, and Bacow 2007). How can anthropologists and others in higher education contribute effectively?

Our perspectives on educating for climate change derive from our experiences in anthropology and higher education. Peggy's work in institutional change for sustainability began in the 1990s with a neighborhood watershed alliance and then expanded to a focus on Emory University. Through dialogue, communities of practice emerged in the Ad Hoc Committee on Environmental Stewardship, the curriculum development program called the Piedmont Project, and the Sustainable Food Initiative (Barlett 2004). Activities around campus planning and construction, purchasing, forest preservation and restoration, and existing university governance and policy

supported a university-wide awareness of the challenges of sustainability and climate change. This work built on an anthropological attentiveness to multiple scholarly languages, political agendas, values, and worldviews within the academy. The experiments with praxis applied ethnographic knowledge of other times and places and of other universities' efforts to Emory's early steps toward new cultural practices and meanings. This reorientation of knowledge toward the future helped guide the disparate constituencies of faculty, staff, students, and administrators toward a common commitment to sustainability (Minteer 2006; Miyazaki 2004, 2006). Ben's personal connectedness with the outdoors and with experiences of degradation in wild areas inspired him to take leadership in student environmental organizing, become involved in Al Gore's Climate Project, and pursue further graduate study into the role of religious rituals in fostering environmental sensibilities. These anthropological and theological perspectives provided the grounding for our Emory efforts: how to build cultural change and how to assess impact.

In our experience, certain intellectual and personal dispositions and their collective expression in an emerging shared vision for a more sustainable society play an important role both in basic-level learning about climate change and in longer-term engagement with its issues and movements. In this chapter, we will describe the role of three dispositions—hope, imagination, and engagement with place—in supporting climate change efforts, using illustrations from the unfolding processes at Emory University.

THE HIGHER EDUCATION CONTEXT

The fundamental mission of higher education—educating the citizens and leaders of the future—is particularly urgent with regard to the science, technology, policy, and broader cultural shifts connected to climate change. Many universities are accepting this revised mission into traditional classroom activities. New courses and sustainability minors, majors, masters, doctorates, and certificate programs are emerging in schools at all levels (AASHE 2008). Some schools opt for a “sustainability literacy” approach that uses movies, speakers, competitions, and sustainability-themed living programs to educate about climate change and sustainability challenges. Academic leaders have been important in public education that engages with citizen groups, faith-based communities, and local governments to develop appropriate policies to reduce greenhouse gas emissions. The research function of higher education is crucial, from studies on energy-saving technologies to behavioral change strategies. Even in schools that have no researchers on climate-related issues, however, the validation of the need for urgent action offered by academic leaders can reassure innovative political leaders and support movement. Academics also help by sharing strategies and policies being enacted elsewhere—our traditional research function put to applied use.

In addition to these research and teaching roles, the operations of colleges and universities contribute to climate change efforts. As users of energy, buyers of food, and consumers of everything from computers to chalk, higher education facilities have an opportunity to walk the talk of sustainability. Nearly five hundred colleges and universities in North America, for example, have made climate change and energy conservation commitments (AASHE 2008). All types of institutions are involved: community colleges, research centers, religiously affiliated schools, liberal arts colleges, technical schools, and both public and private universities. New governance structures—energy taskforces or sustainability councils—have been established on many campuses, along with sustainability offices, centers, or institutes with full time staff. New policies to move toward climate neutrality have emerged at colleges and universities around the world, and students have voted for increased fees to support ways to address their concerns.

More sustainable practices in campus operations—buildings, grounds, energy management, and water use—are becoming better known. New “green” buildings are commonplace, including classroom buildings, libraries, residence halls, laboratory buildings, recreation centers, student unions, and stadiums. Renovations to existing buildings are important as well and teach occupants through nontoxic, renewable, and recycled materials, natural lighting, and green cleaning products. In addition to the building occupants, green construction and renovation spread awareness of climate change strategies to professional communities of architects, engineers, contractors, builders, and planners. In addition to projects in energy efficiency, colleges and universities are investing in solar panels and windmills, and other sources of renewable energy. Culture change in the use of electric lights, building temperature settings, and elevator use offer all employees and students opportunities to reduce energy use connected with daily university life.

Sustainable food initiatives also help by reducing the miles that food travels. New guidelines for purchasing locally grown and sustainably produced foods are being adopted at many schools. Waste reduction and recycling on campus are sometimes linked to changes in purchasing policies that encourage energy-efficient appliances and computers, specify paper and other products with recycled content, and award contracts to businesses with a stronger sustainability profile. Efforts to reduce the harmful effects of car use include bicycle promotions, carpooling, subsidized public transportation passes, and shuttle programs. Replacing campus fleets with hybrid vehicles, electric carts, or alternatively fueled vehicles provides significant savings, both in dollars and in emissions. Many campuses have found biofuels based on local cooking oil to be a catchy way to reuse what was previously seen as waste.

Each of these arenas of action within the educational institution requires individuals to embrace the problems of climate change and seek solutions. There are numerous circumstances in which climate change innovations

may be met with slumped shoulders, slack jaws, and glazed eyes, if not with outright resistance. Our experiences with diverse constituencies suggest that in addition to accurate content, we need to focus on how to support individuals to cope with fear, despair, guilt, and confusion often generated by climate change information. We will discuss three such ways: instilling hope, supporting imagination, and building a connection to place. We have seen impact in climate change efforts without any of these three, but our experience suggests that the vitality and persistence of a movement “with legs” is fostered by such an approach. We will explore each of these issues in turn.

HOPE

The vignette that opens this chapter suggests that as educators promoting campus cultural change, common climate-change teaching strategies are not as effective as they could be. Surely, we think, the electrifying photos of melting permafrost, desertified cropland, and cataclysmic hurricanes will motivate students to engage the looming environmental apocalypse. One day, after some initially sluggish discussion following such a lecture, a student asked Ben if there were any workable solutions to the climate crisis. As he briefly sketched some possible strategies—wind and solar power, compact fluorescent light bulbs, LEED-certified green buildings,¹ carbon taxes, and forest protection—the minds and bodies in the room came out of hibernation. Through attention to solutions, and the hope those solutions generated, the listeners connected with the problems and to some complex routes toward solutions.

Many anthropologists have commented to Peggy over the years how discouraged anthropology students can become when classes emphasize the massive threats to cultural integrity and economic livelihood caused by globalization, war, ecological disasters, and even sometimes government aid programs. We often seek to help our audiences take issues seriously by showing them how urgent the problems are—a logical strategy. But when it comes to global climate change, the problems are so serious that many simply shut down in the face of bad news (Moser and Dilling 2007). When listeners instead encounter real, workable solutions to the climate crisis (or other global dilemmas), they are more able to begin to engage the problems and threats. We propose, then, a paradoxical strategy: before expecting intellectual mastery of problems, try introducing some solutions. Understanding even a few small-scale solutions can create a hopeful and imaginative intellectual space in which learners may be able to engage larger-scale problems with greater thought and perseverance (Moser and Dilling 2007).

Climate change is not the only subject that can be painful to learn. Writer bell hooks argues that when learning anything authentically new, students

may experience difficulty and trauma (hooks 1994). One of three key capacities necessary for “deep learning” in general is for students to “be able to handle the mental trauma that accompanies challenges to longstanding beliefs” (Bain 2004). When the seriousness of the threat entailed in climate change is added to the more basic trauma of authentic learning itself, a focus on solutions and an atmosphere of hope becomes all the more important in the classroom—as well as in other contexts. Former vice-president Al Gore, in making presentations to audiences on the topic of climate change, has noticed this phenomenon: “An astonishing number of people go straight from denial to despair, without pausing on the intermediate step of saying, ‘We can do something about this’” (Gore 2006).

The willingness to engage in action for change requires a disposition of hope in the face of serious problems. Such a disposition is based, in turn, on a sense of possibility for solving the challenges of climate change. The globally devastating problems of climate change can be experienced as disempowering, an assault on—first—individual agency. They can be perceived as an assault on collective agency as well, as political, religious, and other institutions are perceived as inadequate to the task of leadership. Resistance on the part of students and others to the “doom and gloom” of the climate change message need not be seen, then, as avoidance of responsibility, but rather an unarticulated, inchoate unwillingness to accept the implication of impotence and collective irresponsibility. It can also be seen as an inability to imagine a more sustainable future and the steps necessary to achieve it (Crapanzano 2003). Many people resist facing problems to which they can see no solution—or else become resigned to them. Glimpses of intelligent solutions, however, may stimulate further thought and curiosity.

Detailed information about the scientific issues, political debates, economic policies, and technological solutions of climate change is daunting. Especially for academics trained to value expertise, global climate change requires many of us to stretch out of our comfort zone into new territory. For some people, this new knowledge feels important and exhilarating—a chance to develop competence in an issue of great societal importance. For others, it feels like a quagmire, an opportunity to be criticized as naïve, and a hard place to take a stand. Providing information that is readily understandable, in manageable chunks, and at the appropriate level is crucial.

In addition, fully comprehending the implications of climate change requires rethinking personal values and aspirations. How much do we care about biodiversity and the survival of polar bears? Enough to sacrifice the daily comfort of air conditioning or heating? Enough to struggle with roommates, family, or office mates about building temperatures? To refuse to buy a gas-guzzling, high-status car? Or to refuse to take a vacation that requires air travel? Many complex trade-offs are required with other lifetime goals, including those of significant others. Replanting a lawn into a low-maintenance yard that requires no mowing or a home location that

reduces commute time are major decisions that can emerge from new climate change information. Such rebalancing of the costs and benefits of lifestyle choices is fraught, time-consuming, and absolutely necessary. It shifts ethical priorities and “intensely local ideas about work, leisure . . . respectability, and virtue” in order to construct an alternative future (Appadurai 2004, 68).

Rethinking institutional priorities and values, as well as those of individuals, is an important response to the realities of climate change. With the massive character of the changes needed, it is easy to get discouraged. One faculty member dismissed his school’s efforts to buy more local food, saying, “It’s just some local apples in the dining hall.” On the one hand, our training as critical observers, especially of bureaucratic shortcomings, is valuable to prevent complacency and to stimulate a realistic sense of movement. At the same time, meaningful change can sometimes begin with almost invisible shifts. More powerful change can emerge from hearing a positive story or the inspiration of tracing a thread from the past into an imagined future. One graduate student, for example, was very impressed to learn of voluntary efforts by a grounds crew to save rare wild azaleas from a campus construction site. He remarked, “I didn’t know people cared so much here.” Later, he led a student environmental organization that inspired scores of student activists. Hearing the story of the acts of concerned campus employees gave him hope.

At an early stage of Emory University’s efforts to reduce electricity use, we promoted specific behavioral changes by making arguments at several levels of analysis. First, globally, we emphasized that Atlanta’s electricity comes mainly from coal-fired power plants that are heavy contributors to greenhouse gas emissions. A local argument pointed out that electricity reduction also improves Atlanta’s air quality. An economic argument appealed to the frugal. The experiences of several schools stimulated hope by showing that others had successfully been down this path. Tulane saved \$200,000 a year by turning computers off evenings and weekends, and one unit of Harvard reduced their annual expenses by \$300,000 through voluntary electricity reductions (Sharp 2002).

IMAGINATION

As anthropologists, we know how to stimulate imagination by sharing accounts of other lifeways, values, gender roles, and ecological circumstances. The realization that such alternative ways of living in the world are possible is an important beginning to fruitful anthropological study—and for many individuals, to personal growth. Just such an imaginative exercise is crucial to the teaching of climate change. As participants in privileged institutions, employees and students in higher education are members of cultures that are more or less embedded in a pattern of massive carbon dependency and waste. If the climate crisis is to be solved, correspondingly massive shifts in these cultures will need to take place. Thus, thinking through solutions to

the climate crisis will require the deployment of a focused anthropological imagination: imagining a culture of the near future that intelligently and responsibly manages carbon emissions. Across the disciplines—from business to religion to architecture—students and scholars who can compellingly imagine a shift to carbon-neutral cultures will be the most effective spokespersons, and their services will be in ever-increasing demand.

CLIMATE CHANGE DINNERS

One way that we have tried to foster imagination at Emory is through a series of climate change dinners, open to applicants from faculty, graduate students, and undergraduates. Our strategy in holding these dinners was to build a supportive group environment, share factual information and diverse perspectives on climate change, and then through small group discussions, to encourage the leap to imagining a different Emory, a different Georgia, or different national policies.

The climate change dinners emerged as an idea after several campus events highlighting climate change. There were showings of *An Inconvenient Truth* and slide shows by various faculty and graduate students trained to make Al Gore's presentation. In November 2006, we hosted a talk by Professor Eban Goodstein from Lewis and Clark College, leader of the Focus the Nation effort, followed by the development of a faculty and graduate student interest group. To promote climate change awareness and action, the group explored some curricular innovations, but decided it was more feasible to hold two dinners a semester, leading up to the Focus the Nation event on January 31, 2008.

Part of our philosophy behind the climate change dinners was a recognition that lack of familiarity with the issues and the expectations of professional expertise can work against the ability to imagine change. Relying on the willingness of individuals to self-educate on a subject as contested as climate change is too risky. Compassionate intellectual support is a first step to help faculty and students step outside their specializations. Information about climate change needs to be provided in ways that can be understood by widely divergent disciplinary languages and shared without imposing a dogma or party line. Ideally, the sharing needs to be enjoyable and compatible with the constraints of severe time pressures. A respectful collegial community helps create the intellectual risk taking that will grow into a commitment to action—whether that action is personal behavior, classroom content, or institutional service toward new policies.

Our solution, then, was to design the climate change dinners in a way that was as easy as possible to add to busy schedules, included informed lectures, but also allowed for discussion that might build connections across fields. From both research and personal experience, we know that face-to-face interaction in small groups is essential to building groups that work together effectively for deeper cultural change.

We also decided to encourage the widest possible mix of undergraduate and graduate students and faculty from all fields. We announced the dinners through an all-university email. To control numbers and balance, we asked for a short paragraph about past interests in climate change and reasons why the dinners were of interest. This small effort allowed us to pick a group of roughly fifty individuals per semester who had a serious interest in learning about the issues. Those selected were called “climate change fellows,” a credential that had some value for a student resume. Table 1 shows that the participants came from all professional schools of Emory as well as the graduate school of arts and sciences and our two undergraduate colleges.²

Table 22.1: Breadth of Climate Change Dinner Participants, Spring and Fall, 2007

<i>School</i>	<i>Faculty/Staff</i>	<i>Graduate Students</i>	<i>Undergraduates</i>
Emory College	18	9	14
Law	2	5	–
Business	3	5	5
Theology	2	2	–
Public Health	3	11	–
Medicine	9	3	–
Oxford College	1	–	–
Nursing	1	1	–

Each dinner featured two distinct approaches to the climate change challenge, in order to attract diverse conversation partners and showcase multidisciplinary ways to engage the issues. Examples of topics and pairings of faculty presenters that were considered are:

1. The Science of Climate Change and Media Coverage (Chemistry and Journalism)
2. The Law and Politics of Climate Change (Law and the Carter Center)
3. Global Health and Ethics (Biology, Public Health, and Philosophy)
4. Business Responses and Popular Culture on Climate Change (Business and Sociology)
5. Denial and Faith (Psychology and Religion)

Lectures were limited to twenty to thirty minutes. At the first dinner, for example, a professor who teaches atmospheric chemistry presented climate change facts and debates. His presentation was followed by a journalism professor who critically reviewed the ways the media have covered (and not covered) the issues.

Guided discussions were important to build the impact of the event for participants. At each table of five to eight, one person was asked to be a discussion facilitator. Most facilitators were chosen from the faculty interest group, but well-known faculty members were also invited to increase visibility for the event. Written discussion questions were prepared in advance

and provided to each table. The groups were encouraged to begin with some simple sharing of intellectual and personal backgrounds and how these informed people's interests in climate change. Tables were then adjourned to obtain dinner at the buffet, the lectures were presented, and an open question and answer session followed. Small groups at each table then turned to questions about practical implications of the lectures, both "How does this information affect my own life?" and "How does it affect our lives here at Emory?" Thus, the discussion groups moved from the personal to the didactic and then to implications for action, which allowed participants to imagine transformed practices. Some groups talked about how to overcome roadblocks, either at home or in an academic department. Tips and strategies were shared. The dinner ended with announcements that allowed further focused action.

These climate change dinners sparkled with good energy. Speakers prepared well and their information was interesting. The atmosphere combined respect for complex issues, enjoyment of learning new perspectives, and a validation of an ethic of care for the earth. The discussion guides kept tables from focusing too long on one knotty issue or being bogged down by one dominant person. The social interactions spilled over before and after the event, as people from across the university chatted, introduced each other to colleagues, and deepened their understanding of particular threads of concern. Though the experiences of participants were varied, in the language of the anthropology of hope, these dinners extended our collective horizons, affirmed a cultural heritage of possibilities, and took steps to constitute new aspirations for the future (Appadurai 2004, 61; Miyazaki 2004, 140; Moser and Dilling 2007).

Efforts like this to encourage imagination and deepen knowledge can be adapted to many different campus cultures. Our dinners were catered and paid for by the provost, but a potluck, a modest dinner fee, a shorter lunchtime gathering, or a breakfast would all work well.

The social context of learning and discourse, and especially the size of groups, is important. Nina Eliasoph, in *Avoiding Politics: How Americans Produce Apathy in Everyday Life*, observes that larger groups in North America tend to rehearse familiar social scripts and to focus on the level of individual, private concern, rather than the level of the communal, public concern. Smaller groups, when given safe opportunities, are more likely to abandon familiar social scripts and to speak generatively and hopefully to the public good (Eliasoph 1998). In the climate change dinners, the discussion guide seeks to move the small-group conversation from the individual level of concern outward toward concern for the larger community. Supportive small groups provide opportunities to express doubt, to question the need for the change, to reveal exasperation, or to confess a failure. Whether they emerge casually, such as in a workplace conversation, or more formally, such as in a faith-based study group, they can provide collegial support for the

time and energy to rethink values and priorities. “The public processing of pain,” even when it seems entirely to obstruct movement, can actually help name roadblocks and sometimes thereby diminish their importance.

ENGAGEMENT WITH PLACE

One critical way to create a relationship with the past and optimism for the future is through a strong connection to place (Barlett 2006). At Emory, we are in the process of building on the experiences of place-based education on campuses such as Michigan State (DeLind and Link 2004) and Grinnell College’s Center for Prairie Studies (<http://web.grinnell.edu/cps/>). The importance of place to sustainability efforts was highlighted at Emory through woods walks in 1999. Undertaken simply to expand our knowledge of the hidden corners of the Emory campus, the walks became a valuable to community building as well as to ecological knowledge. Guided by biology professors, an interested group of faculty, staff, and students was subsequently inspired to carry out some removal of invasive kudzu, ivy, and privet and to engage in a multiyear woodlands restoration project.

Efforts to build a sense of responsibility about climate change and more sustainable campus practices require that we know something about the place where we live and work and have some sense of identification with it in order to care. Professor Barbara Patterson, leader of the Emory as Place program, argues that for us truly to inhabit the Emory campus, we have to experience it through expanded sensory awareness—through seeing the seasons come and go, hearing the birds sing, feeling the wind, and watching the creeks. The social history of the campus—the Native American “trunk road” that forms a university boundary, Emory’s role in the civil rights movement—are also parts of the place we have inherited. Awareness of place raises productive questions about how we will hand this place on to future generations. Everyday campus scenes shift in meaning as they are understood as secondary forest—home to beaver, fox, and herons—and sites of past social struggle. A series of guided walks, written materials, and restoration projects spread the Emory as Place message. This kind of embodied learning supports a sense of belonging and an ethic of care and can be a useful component of climate change work.

WALKING TOUR BROCHURE

In 2000, as part of Emory’s millennium year celebration, the Ad Hoc Committee on Environmental Stewardship developed a self-guided walking tour brochure to highlight some of the environmental challenges and innovations on campus (Barlett 2002). Metal signs were posted at ten sites to encourage a pause to reflect on the issues illustrated, such as a new road that reduced a campus forest, eroding stream banks after a parking lot construction, and a new certified green building. Several thousand small brochures were distributed, and the walking tour is still used in courses and by groups such

as local Boy Scouts. The walking tour brochure is available online at www.environment.emory.edu/who/walkingtours.shtml.

CLIMATE CHANGE IN THE CURRICULUM

Climate change issues are also fostered in Emory's formal curriculum development program for sustainability, the Piedmont Project (Barlett and Eisen 2006; Barlett 2005a; Eisen and Barlett 2006). This faculty development program was adapted from Northern Arizona's Ponderosa Project (Chase and Rowland 2005) and Tufts University's Tufts Environmental Literacy Program (Rappaport and Barlett 2008) and offers a supportive learning environment for twenty faculty a year who want to develop new courses or introduce a new module into an existing course in order to integrate sustainability or environmental issues.³ Faculty applicants commit to attending a two-day workshop and then revise courses independently over the summer. In August, a field trip provides experiential learning around a sustainability issue in Atlanta and an opportunity to share syllabus progress. A final dinner the following spring provides a further moment for reflection and new connections.

The Piedmont Project does not prescribe a sustainability approach or mandate a focus on climate change. Faculty innovate in diverse content areas and also in teaching methods, inserting sustainability-related materials into Chinese, Spanish, French, German, and Portuguese language and literature courses, for example. Modules on the environmental movement, environmental justice, and environmental human rights are added to courses in sociology, history, anthropology, and political science. Green chemistry labs and environmental health issues in physical education classes are further examples of ways that sustainability is integrated across the curriculum.

Many of the 110 faculty participants in the Piedmont Project after the first six years have incorporated issues of global climate change, consciousness about consumption and energy use, and behavioral change projects into their courses. For example, some students calculate their environmental footprint, explore contrasting national energy-use patterns, assess gendered impacts of water shortages abroad, or consider coastal impacts of sea-level rise. We have found that some of the most popular innovations, however, are those that help students become more aware of Emory or Atlanta as a place.

PEDAGOGICAL EXPERIMENT ON CLIMATE CHANGE

How we teach also effects engagement with climate change. A small experiment in teaching methods that Peggy tried in 2000 suggests that a place focus may make climate change material more meaningful. To create the experiment, colleagues in the chemistry, religion, business, and economics departments made available one class day, and two different teaching methods were used to expand climate change awareness. All classes were given a pretest on climate change knowledge, attitudes, and values, and then a posttest at

the end of the semester. The first teaching method was a conventional lecture, using vivid slides on climate change and health consequences, developed by Physicians for Social Responsibility. The second method involved a shorter lecture on climate change with the same slides, followed by small group discussions. After the lecture, the class was asked to turn around in their seats to form small groups of four and to explore the following questions for fifteen minutes. These buzz-group questions brought the scientific issues into the concrete realm of students' experience and possibly with places of meaning for them:

- (a) What is your hometown and what are the impacts climate change might have there over the next one hundred years?
- (b) What is your favorite beach location and what might be the impact of rising water levels there?
- (c) What island nations have you visited and what might be the possible effects on them of sea-level rise?
- (d) Which outdoor sports or exercise do you enjoy and how will it be affected most by rising temperatures and volatility in weather events?
- (e) How does your personal lifestyle contribute to global warming and what actions can your group name to reduce greenhouse gas emissions?

Posttests of information retained showed higher levels for the classes that had buzz groups; classes in which lectures lasted for forty-five minutes without discussion showed slightly lower levels of information retention when tested several months later. This result may be due to the opportunity to process the information in discussion with peers or to the exercise of translating the scientific predictions to outcomes in concrete places with personal meaning.

Given our experiences over the past seven years, we would modify both the lecture and the discussion questions to share stories that inspire hope and foster imagination of different strategies and lifeways that address climate change concerns. We would ask how overall quality of life might be enhanced by actions to reduce greenhouse gases (Nordhaus and Shellenberger 2007; Weston 2007). We would also use more concrete examples from the Emory campus, so that visible and audible cues would trigger memory. We also might make the presentation in more informal arenas—campus clubs, Greek organizations, and other groups—where people already know each other and will continue to interact. These groups might encourage the small scale needed for productive discussions and heightened community disposition to act.

CONCLUDING THOUGHTS

Climate change as a phenomenon is itself reconfiguring many—perhaps most—of the earth's living systems. Simply keeping track of the physical, biological, and social changes being brought about by climate change is

a challenge of immense proportions for universities and will require significant investment of educational and research energies. However, even more basically, the task of educating the citizens and leaders of the future for understanding and solving climate change calls for pedagogies that can support the deep learning necessary for large-scale cultural reorientation toward dealing with problems of such a wide scope and acute character. We have suggested that higher education can welcome the climate change challenge through traditional teaching and learning methods, but also through some counterintuitive means, such as starting with solutions before presenting problems, initiating imaginative conversations, and cultivating an on-the-ground relationship to the university's locale. Fostering the enhanced awareness of small groups and then connecting to shared institutional values around environmental and global stewardship will reorient knowledge toward the construction of a different future, building the dynamism of cultural change. Among a much wider repertoire of teaching tools, we have suggested that the capacity to learn and act is supported by teaching methods that galvanize hope, nurture imagination, and foster a relationship to place.

NOTES

1. LEED stands for Leadership in Engineering and Environmental Design, a certification process developed by the US Green Building Council.
2. Emory's original location in a small Georgia town forty minutes from Atlanta is now the two-year Oxford campus. On the Atlanta campus, four-year degrees in Arts, Business, and Nursing are offered, together with professional degrees in Nursing, Medicine, Public Health, Law, Business, Theology, and Arts and Sciences.
3. Begun in 2001 with funding from a teaching innovation grant, the Piedmont Project now is funded by six deans from across the university. Faculty receive a modest stipend for their summer's work.

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