INTRODUCTION

What’s Required to Take EfS to the Next Level?

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Student and employer demand, high-level institutional commitment, and faculty interest are inspiring the integration of sustainability themes into higher education curricula and research agendas. Generally, Education for Sustainability (EfS) has evolved from the study of the environment to a broader study of humans’ relationship with the environmental resources that support life on this planet. The growth and expansion of this field has created synergetic relationships between the life sciences, social sciences, humanities, and professional schools. Scholarship is crossing disciplinary boundaries to draw on the resources needed to craft answers to society’s most pressing challenges. Organizing principles, like problem-based learning, facilitate this cross-disciplinary work and illustrate the interconnectedness of issues and fields of practice. Because moving toward sustainability requires multidisciplinary collaboration, questions and challenges arise around tenure track and promotional requirements for faculty, funding, budgeting, and academic/disciplinary homes for faculty and students (*Rowland et al. 2009*). Additionally, models of integration vary from infusion into courses throughout the curriculum to the establishment of sustainability as a unique academic discipline.

There is a paradigm shift underway in society. Many have suggested that North American and Western European societies are undergoing a transformation away from twentieth century resource intensive and extractive modes of production and wealth creation. The culmination of such a paradigm shift, however, requires a citizenry that is radically more (and more accurately) informed than most of the general public today. The predominant Western mode of education is outdated. The most pressing problems across the globe – famines, armed conflicts, demographic transitions – are the result of dynamic biophysical, social,
and psychological processes. Solving such wicked problems requires an educational system that trains students to be adaptive learners who can anticipate disruptions and envision their solutions and attendant opportunities at multiple scales – from the local to the geopolitical. Most classroom experiences do not currently reflect this general need. Often times, in spite of institutional demand, faculty members seem reluctant to cede control over the curriculum to make possible more innovative curricular developments. It is their notoriously conservative and slow response to social and market needs that results in this dearth of graduates who have a vision of what a sustainable career, much less a society, looks like.

Nevertheless there are several levers that are driving change, not the least of which are the faculty leaders who recognize the value of educating students to be interdisciplinary problem-solvers. Perhaps even more important, however, are external drivers such as funding bodies and potential employers. These significant pressures can shape the educational mission and pedagogy of higher education institutions. Funding agencies are, themselves, demanding cross-disciplinary collaboration and an articulation of sustainability-focused metrics from applicants. Employers who are recruiting graduates with interdisciplinary educational backgrounds see a distinct advantage in the competitive global marketplace. They are increasingly interested in taking advantage of the public relations benefits of sustainability, as well as the significant advantages of increased employee retention and productivity. Graduates are articulating a desire for employment in organizations that demonstrate a commitment to shared values.

For students educated in sustainability, theory and practice are coming together at the intersection of classrooms and co-curricular experiences. The leading edge of change in sustainability studies and sciences has begun to provide a vision of a world where the integrity of ecosystem services is envisioned as an important prerequisite for flourishing social systems. Some of the low-hanging fruits in this transition have been the relatively expeditious changes made on campuses, from efficiency gains in physical plant operations to movements underway in student life. Students engaged in co-curricular opportunities are benefitting from the hands-on opportunities to apply principles of sustainability to real-world scenarios. The academy has arguably also, although haltingly at first, begun a similar transition.

Because the curriculum is primarily the responsibility of the faculty, change must also be initiated by them. To that end, the Association for the Advancement of Sustainability in Higher Education (AASHE) has hosted curriculum workshops since 2006 that have reached more than 340 faculty, administrators, and graduate students, representing more than 200 campuses (AASHE 2010: 2). The success of these workshops, according to facilitators Geoff Chase and Peggy Barlett, is the empowerment of faculty leaders on campuses to foster the creativity of their colleagues in creating change. The impact of these workshops at
Barlett’s home institution, Emory University, for instance, has been profound. After seven years of faculty workshops, nearly 80% of all departments on campus offer at least one sustainability-related course. According to a recent survey, pedagogical innovations included new readings on sustainability topics (58% of respondents used such readings), generation of new units or modules related to sustainability (64% of respondents), new laboratories, exercises, or research projects (44% of respondents), and transformed courses (34% of respondents).

With well over 300 participants from varying institutions in the national workshops, these offerings will continue to initiate positive transformations in campus culture. With a membership of about 1,140 academic institutions and associated businesses, the hosting organization, AASHE, can be considered the nationwide clearinghouse for the most important trends toward sustainability in higher education.

Following a Summit on Sustainability in the Curriculum in February 2010 in San Diego, CA, AASHE published a Call to Action (AASHE 2010). The Call to Action outlines the challenges inherent in curricular change, including the scale of the issue (there are 1.2 million faculty in the United States alone), the multiplicity of curricula on campuses (from general education to graduate education and co-curricular education), the interdisciplinary nature of education for sustainability, and the diversity of types and sizes of educational institutions. Among the opportunities noted in the report is the acknowledgment that the work of faculty is supported by a network that includes “students, staff, administrators, employers, accreditation agencies, foundations, and non-governmental organizations” (AASHE 2010: 3). Collaborative partnerships among these stakeholder groups provide the leverage for expediting the curricular changes necessary to support teaching and research for sustainability.

In November 2010, following the San Diego event, the US Department of Education hosted another sustainability summit in Washington, DC. Speakers at this summit emphasized that the US Departments of Labor and Education are looking toward partnerships between four-year and two-year institutions of higher education to lead the green jobs revolution. While questions were raised about broader workforce demand for graduates educated in sustainability, the clearly outlined expectation was that the educational system would inform the workforce about the case for a transition to sustainability. This expectation was not limited to institutions of higher education. The Call to Action was directed at the K–20 system in the US – kindergarten through graduate-level education.

According to Debra Rowe, President of the US Partnership for Education for Sustainable Development, many countries across the globe have national strategy plans in place for education for sustainability (see chapter 4, this volume). US Secretary for Education Arne Duncan acknowledged that educators play an essential role in preparing students for jobs in the green economy, and that they also prepare them for their roles as environmentally literate and responsible
citizens. Most importantly, he also acknowledged that the Department of
Education had not yet done enough to lead this effort.  
This book is an attempt to provide a glimpse of the ways in which sustainabil-
ity is being integrated into education. The focus is on the ways in which a wide
variety of campuses are making positive steps toward EfS. There have been
advances in K-12 education, which is important, since the willingness and ability
of students to engage effectively in such work at the college level is, of course,
affected by the quality and character of their K-12 education. But this volume
primarily provides an accounting of undergraduate and graduate education,
including elaboration on the role of partnerships with disciplinary associations
and accrediting agencies, and raises questions about who creates drivers for change
in the short, medium and long term. In addition, it explores different ways of
integrating sustainability into the curriculum, from including it as a general edu-
cation requirement (as at the College of the Menominee Nation, see chapter 6,
this volume), to an organizing principle for a graduate program (see chapter 5,
this volume). Also included are examples of programs that are preparing profes-
sional students for the new green economy (as in some of the professional schools,
see chapters 7–9, this volume). Finally, there are examples of effective, sustaina-
bility-oriented problem-based learning experiments in post-secondary education
(see chapters 10–12).

It is also important, however, to elaborate on what this book is not. It does
not aim to be a complete set of answers that will guide a campus in a curricular
transformation. It has become clear that many sustainability challenges must be
resolved in a manner appropriate for each specific campus culture. Wake Forest
University hosted a conference in February 2010 in Winston-Salem, North
Carolina, titled, Taking It to the Next Level: Strategies for Adaptation across the
Sustainability Curriculum, which highlighted the importance of site-specific cur-
ricular adaptation. Several cases that were presented at the conference are high-
lighted in Section 5: Transformational Approaches. The conference challenged
participants to consider questions such as:

- Should sustainability be infused into every academic discipline, or should it
  emerge as a unique multidisciplinary field?
- In the case of multidisciplinary collaborations across departments, where
  should faculty be housed and how are funds and time allocated?
- Are multidisciplinary fields rigorous enough to stand up to academic scrutiny,
  or are they less rigorous alternatives to single discipline studies?
- Should faculty be rewarded for researching and publishing across disciplines
  and for securing cross-disciplinary grants? If so, how?
- How is sustainability different than other multidisciplinary fields? Are
  co-curricular opportunities for applied learning particularly important in this
  emerging field? Is career development for sustainability different than general
career development?
These are important questions, and ones that must be answered to approach sustainability in any educational institution. This volume does not, nor does it seek to, completely answer these questions; the answers are ultimately local and specific, not generalizable.

What this volume does provide, however, is a foundation for exploring curricular change, or rather some blueprints of strategies that have (or in some cases, have not) worked in particular circumstances. These blueprints may variously provide inspiration, guidance, and instruction for others seeking to take education for sustainability to the next level. In this transition, there is no single answer or silver bullet that will create a learning environment which ensures our species’ and civilizations’ meaningful long-term prospects. Broad outlines, however, do exist and this volume presents some promising strategies and anticipated difficulties toward those ends. The approaches here are context-dependent and cannot be uncritically exacted and applied just anywhere. But they may help to shape how those working at all educational levels think about the ways in which education can and must be transformed. They illustrate some of the inclusive and deliberative community and political processes that can lead to sustainable learning outcomes.

Outline of Chapters

The volume is divided into five sections: Section 1: Understanding the Landscape for Change; Section 2: Sustainability Across the Curriculum: Strategies and Tactics; Section 3: Educating the Professional; Section 4: Problem-Based Learning; and Section 5: Transformational Approaches.

Section 1: Understanding the Landscape for Change begins with a contribution from Meredith College. The college initiated a sustainability program following a 2010 survey of freshmen, which demonstrated significant student interest in sustainability programming. Although like many colleges and universities Meredith continues to suffer from budget constraints, individual faculty and staff continue to drive change by participating in sustainability-oriented training, and integrating systems thinking and sustainability themes into courses. Next, the contribution from the team from the School of Environment and Natural Resources at The Ohio State University illuminates some of the strategies they have employed to gather student input as they design and grow their sustainability-oriented course offerings (Bruskotter et al.). This data may act as a helpful reference for other institutions considering the development of sustainability-oriented coursework. Finally, Debra Rowe and Lucas Johnston’s analysis compares the relative successes and differences in approaches between disciplinary associations in the US, Mexico, and Sweden. The chapter concludes with a discussion of a possible international common ground for sustainability learning outcomes.

Section 2: Sustainability Across the Curriculum: Strategies and Tactics details some different approaches to bringing sustainability to educational settings and
provides some helpful data about how to actualize curricular developments. In undergraduate and graduate schools, education for sustainability has typically followed one of two patterns: the “infusion” model, in which sustainability is broadly integrated into existing curricula, and the “distinct discipline” model, wherein sustainability or sustainable development is envisioned as a distinctive interdisciplinary field. Karim et al. examine the organizational structure of a graduate program that illustrates the latter strategy—the distinct discipline model. Varying interpretations and definitions of sustainability have been obstacles to both program administrators and students. These authors offer a methodology for formulating sustainability-related problems in a contextually appropriate manner, and a framework for communicating the values that are central in education for sustainability. For an example of an alternative model, William Van Lopik’s account from the College of the Menominee Nation is particularly instructive. There, the Sustainable Development Program encourages the integration of sustainability themes in courses across the curriculum (the “infusion model”), but also mandates that all students take an Introduction to Sustainable Development course as a general education requirement.

While both of the models above educate students about sustainability in general, historically little attention has been paid to profession-specific education for sustainability.

Section 3: Educating the Professional addresses this lacuna by providing perspectives on educating graduate-level professionals, in various fields, for sustainability competency. Chapters included here detail challenges and opportunities which emerged from novel programs integrating sustainability into education for healthcare (Rich and Wadhwa), engineering (Minster et al.), and the hospitality and tourism industries (Millar et al.).

Section 4: Problem-Based Learning explores pedagogies related to teaching “big ideas.” In the first case, Savelyeva introduces readers to the Global Seminar program, which focuses on intensive and international faculty–student interaction, and includes faculty from the US, Mexico, Costa Rica, Italy, Australia, Sweden, Honduras, South Africa, Germany, Austria, China, and Denmark. Narrowing the focus to the local, Farrell’s chapter examines the creation of the Campus Ecology class and accompanying textbook at St Olaf College (Northfield, Minnesota), detailing some strategies for helping students draw connections between everyday choices and broader scale (even global) environmental impacts. Next, Barber and Rousseau’s chapter examines the “living home,” an interdisciplinary curricular development at Lethbridge College (Canada) that engages engineering, interior design, and multimedia production students in building homes with attributes appropriate for specific climates. Helping students make such connections will increasingly be the task of teachers who must themselves be able to think and work across disciplinary boundaries. Ultimately, it becomes clear that sustainability
may require a shift in cultural and educational priorities, and a new vision of what constitutes a good teacher.

Section 5: Transformational Approaches explores the outlines of such a shift. Angela Halfacre and her colleagues at Furman University (her home institution) and Middlebury College provide a comparison of different tactics for integration. Furman’s emergent model of integration affords for the development of new programs for studying and implementing sustainability, resonating to some extent with the approach taken by the College of the Menominee Nation. Middlebury’s adaptive approach, on the other hand, seeks to integrate sustainability through already existing academic units. Also covered in this section is Canada’s first College of Sustainability at Dalhousie University, which houses the Environment, Sustainability and Society program, an undergraduate double major program in which students earn simultaneous degrees in sustainability and a more traditional discipline, ensuring that students from across the university’s academic foci are exposed to education for sustainability (see Wright’s contribution). Next, Charles Redman and Arnim Wiek suggest that a significant transformation in current modes of education is a prerequisite to a sustainable society. Based on Redman’s experience as the Founding Director of Arizona State’s School of Sustainability, they suggest that student learning outcomes must include a capacity for systems thinking, as well as anticipatory, normative, strategic, and interpersonal competences. To provide these skills, educational institutions need to become more adaptive problem- and future-oriented bodies. Finally, Vice Provost for Undergraduate Academics at St. Mary’s College (CA), Richard Carp, concludes the volume by arguing (echoing some of Redman’s suggestions) that because the academy is complicit in the practices that are indicative of an unsustainable society, a sustainable culture requires re-imagining the purpose of higher education, and the relationships between teachers and learners.

One of the most important seeds of a sustainable culture is the compassion that Paul Rowland so eloquently highlights in his foreword: a willingness to engage others with distinctly different value sets and priorities from a standpoint of compassion and humility. Whether such a radical proposal will gain widespread traction in higher education, traditionally one of the most insular institutions in the Western world, remains to be seen. But the growing scholarly and popular attention to sustainability signals that the beginnings of such transformations are already underway.

Notes

1 Editor’s notes from the summit.
References
