

Introduction: unsettling the ESS curriculum

James D. Proctor¹ · Jennifer Bernstein² · Richard L. Wallace³

Published online: 28 April 2015
© AESS 2015

Abstract We launch this mini-symposium, “Status Quo, Conflict, and Innovation in the ESS Curriculum,” with a background and overview of essays, closing with recommendations for future trajectories. The notion of Kuhnian paradigms and the related distinction between settled, “puzzle solving” vs. unsettled, “paradigm shift” moments in the history of knowledge is applied to the Environmental Studies and Sciences (ESS) curriculum to explore its own tendencies toward settlement and unsettlement. We argue that the current moment in ESS is less settled than some believe, and understandably so; moving toward settlement is important and timely, but must be done with proper reflection, which thankfully is evidenced in a range of recent literature. This mini-symposium, which builds upon a number of recent related discussions, includes six articles exploring the contemporary ESS curriculum from a variety of perspectives:

high school preparation, the undergraduate student experience, curricular assumptions regarding social change, recent national-scale curricular assessments, the need for greater attention to regionalism, and the creative possibilities afforded by teaching through objects. We ultimately suggest, via this introduction and the following essays, that rather than accept the curricular status quo as a settled trajectory, we can embrace the richness and diversity of current engagement contributing to the future development of the ESS curriculum.

Keywords ESS curriculum · Paradigm · Theory

Origins

In the classic notion of Kuhnian paradigms, there are more and less settled moments in the history of science (Kuhn 1962). During the more settled, “puzzle solving” moments, relatively innocuous, incremental developments in knowledge may occur, but everyone implicitly agrees upon their paradigmatic basis. During the less settled, “paradigm shift” moments, anomalies cast doubt on the explanatory power of paradigms and eventually precipitate open contestation over these frameworks for knowledge—until things settle down again into some new paradigm and puzzle solving resumes (albeit with an entirely new puzzle to solve). Few contemporary scholars now agree that puzzle solving and paradigmatic revolution are as separable as once thought¹: while some sectors of science are happily at work solving puzzles, others are madly laboring to introduce new paradigmatic foundations for knowledge.

¹ See, for instance, the Stanford Encyclopedia of Philosophy entry on Kuhn (Bird 2013).

✉ James D. Proctor
jproctor@clark.edu

Jennifer Bernstein
jbern@hawaii.edu

Richard L. Wallace
rwallace@ursinus.edu

¹ Environmental Studies Program, Lewis & Clark College, 0615 SW Palatine Hill Road, Portland, OR 97219, USA

² Department of Geography, University of Hawaii at Manoa, 445 Saunders Hall 2424 Maile Way, Honolulu, HI 96822, USA

³ Environmental Studies, Ursinus College, P.O. Box 1000, Collegeville, PA 19426, USA

In the field of Environmental Studies and Sciences (ESS), one could find evidence for the classic notion of more and less settled paradigmatic moments—provided one does not look too far. Thus, for instance, following the second great wave of growth in ESS programs in the USA peaking around 1997 (Romero and Silveri 2006), the debate between Michael Soulé (1998; “What is environmental studies?”) and Michael Maniates and John Whissel (2000; “Environmental studies: The sky is not falling”) sounds like clear paradigmatic contestation, which could be understood in light of the proliferation of new programs at that time. Set against this tumultuous backdrop, the overwhelming recent ESS curricular settlement around sustainability (Vincent and Focht 2009, 2010, 2011) seems to have all the makings of a well-accepted paradigm, upon which future puzzle solving—i.e., incremental improvements to a sustainability-oriented ESS curriculum—would then follow.

But, as with much knowledge, proclamations of paradigmatic settlement in ESS can only be made by wearing blinders. As just a few recent examples of divergent viewpoints over the ESS curriculum that may not fit well onto the substrate of sustainability, Susan Clark and ten co-authors argued that the ESS curriculum is “...disparate and fragmented by goal ambiguity, positivistic disciplinary approaches, and poorly rationalized curricula, pedagogies, and educational philosophies” (Clark et al. 2011a, 701; see also Clark et al. 2011b); Maniates explored how “...current ESS programs undermine student capacity to navigate a turbulent world” (Maniates 2013, 256), and Steven Cooke and Jesse Vermaire noted the distinct partiality of environmental studies and environmental sciences programs, arguing for an integration of both, though not necessarily based on sustainability (Cooke and Vermaire 2015).

This *Journal of Environmental Studies & Sciences (JESS)* mini-symposium, “Status Quo, Conflict, and Innovation in the ESS Curriculum,” explores contemporary expressions of curricular settlement and unsettlement in ESS. Unsettlement is a challenge all fields of inquiry face at some point (often repeatedly) during their development and is understandable in ESS given the diverse fields from which ESS has evolved and—on a personal, departmental, and institutional level—the divergent disciplinary backgrounds of members of our community. Settlement is an important goal for ESS, but not one that should be determined precipitously, especially in the absence of strong empirical evidence, clear theoretical frameworks, and careful and reflective integration of our diverse and often iconoclastic backgrounds. It is this *mélange* that characterizes ESS’s distinctiveness—which is put at risk by weakly integrative and poorly justified notions of settlement.

² A revised paper based on Proctor’s presentation is included in this mini-symposium (Proctor 2015).

Many of us are hard at work on this process of exploration and explication. Indeed, this mini-symposium builds on a number of related recent discussions, of which two were organized by mini-symposium editors Jennifer Bernstein, Jim Proctor, and Richard Wallace. One discussion, organized by Wallace with presentations by Wallace and Proctor,² was a session at the June 2014 Association for Environmental Studies and Sciences (AESS) annual meeting in New York City titled “Searching for Effective Curricula: Debating the National Council for Science and the Environment’s [NCSE] 2013 Report on Curriculum Design.” As the abstract declared, the 2014 AESS session involved “...a response to the curricular and programmatic frames presented in the NCSE report and... discussion of (1) alternative curricular models for ESS, (2) varied approaches to assessing ESS curricula, and (3) the importance of context to ESS programmatic and curricular design.” The standing-room only session and spirited exchange at the AESS session led directly to this mini-symposium, to allow broader discussion beyond the immediate topic of the NCSE report, and to solicit a wider range of contributions.

Another related discussion, organized by Bernstein and co-facilitated by Proctor, took place immediately prior to the AESS 2014 conference in San Francisco. The venue was a workshop sponsored by The Breakthrough Institute as part of their annual Breakthrough Dialogue,³ titled “Environmental Studies in the Anthropocene: Curriculum and Pedagogy for a New Environmentalism,” and featuring approximately 20 participants and animated conversation. The discussion offered critical perspective on the status quo ESS curriculum and ultimately motivated two contributions to this mini-symposium (Kennedy and Ho 2015; Robbins and Moore 2015).

Following these late June 2014 discussions, we announced a call for papers via the AESS email list and other means. Out of a dozen strong proposals, we ultimately selected six for inclusion in this mini-symposium. All papers were subjected to peer review; the final, revised versions are featured here. We hope that they generate sufficient discussion and debate to prompt a follow-up section in *JESS* featuring responses to the essays, and author replies.

Contents

The six essays featured in this mini-symposium offer careful critique and recommended reconstruction of the ESS curriculum. Though most contributions focus on undergraduate education and were authored by faculty currently teaching in ESS programs, the pre-undergraduate experience and student voices are included as well. The first paper, “Discursive Diversity in Introductory Environmental Studies” by Jacqueline

³ See <http://thebreakthrough.org/dialogue>.

Ho and Eric Kennedy, offers a critical student perspective, influenced by their personal undergraduate experiences and suggesting possibilities for broadening environmental problem framings and policy prescriptions in undergraduate ESS courses. Through a survey of introductory ESS syllabi, they argue that there exists an overarching unidimensionality of theoretical perspectives within the curriculum. Ultimately, they advocate for increased attention on intellectual diversity and critical thinking, as well as reflection on the ideological underpinnings of environmentalism and ESS generally.

The next contribution, “Heterodox Environments: Pre-undergraduate ESS Experiences Beyond the A.P.[®]” by Jonathan Lepofsky, presupposes that many students entering undergraduate ESS courses have already been primed via high school curricula such as the Advanced Placement (AP) Environmental Science course. Using Foucault’s interpretation of how modes of power become legitimized, he argues that discourse treats “the environment” as an object upon which humans ultimately act, echoing Kennedy and Ho’s accusation that the ESS curriculum lacks recognition of the epistemological roots of the environment. This conceptualization manifests a positivistic theoretical approach and a pragmatic emphasis on science, math, technology, and engineering (STEM) education. He illustrates the argument in two ways: first, through a summary examination of the AP curricula, and second, through a case study of the Carolina Friends School’s 9th grade ESS curriculum. Lepofsky advocates for a heterodox approach by demonstrating how the environment can be simultaneously studied and critiqued, and makes a case for maintaining epistemological diversity at the high school level in order to more adequately prepare students for college.

In “Fifteen Claims: Social Change and Power in Environmental Studies,” Michael Maniates and Thomas Princen argue that ESS curricula tend to endorse implicit models of power deployment and social change. Via an open-ended list of 15 such claims (e.g., “Change just happens,” “Be green, be political,” or “Good science, good policy”), they caution against the tendency within ESS to deploy a wide and contradictory range of these models without careful contextualization. To illustrate their argument, they provide a case study of ESS student workshops focused on competing claims of social change, observing that during the workshops, students became aware of the diversity of claims, hesitated to prioritize one theory over another, and reflected on the ways in which they lacked the ability to critically compare the competing claims. Ultimately, the workshops support the authors’ advocacy of more explicit consideration, coupled with acknowledgement of the inherent multiplicity, of competing claims of social change and power deployment.

Jim Proctor’s essay, “Theory In, Theory Out: NCSE and the ESS Curriculum,” focuses on a recent, empirically based National Council for Science and the Environment (NCSE) report, unpacking its theoretical assumptions and

implications. Through breaking the report into three successive conceptual steps (“The ideal ESS curriculum builds on diverse forms of knowledge”; “This diverse knowledge can be organized into major curricular models”; and “Sustainability integrates these curricular models”) and analyzing the methodological basis for each step in the NCSE report, Proctor argues that the report’s data-driven appearance masks far-reaching assumptions about the ESS field’s diversity, organization, and ultimately its ability to be integrated under the umbrella of sustainability. He concludes that the NCSE report provides important empirical findings for discussion, yet its larger claims are far from settled and reframes the report’s three steps into future-oriented questions.

In “Between the Local and the Global in the Age of the Anthropocene: The Case for the ‘Regional’ in Environmental Studies and Sciences,” Abigail Jahiel notes that ESS courses often emphasize global- and local-scale processes which neglecting “...the disparate conditions of humanity in various parts of the world, and the relationship of these conditions to other places and to the environment,” evidencing this argument via a brief review of popular textbooks and recent curricular surveys. Jahiel examines literature in geography and political ecology to define this mediating regional scale as both territorial and relational. She demonstrates the usefulness of the regional perspective by using Asia as a case study, looking at land-use cover change and advocating for an increased amount of attention paid to Asia in ESS courses. Jahiel concludes by offering practical ways of incorporating a regional perspective for ESS practitioners, e.g., via explicating how a particular environmental issue such as climate change unfolds differently in various parts of the world.

Finally, in “Teaching through Objects: Grounding Environmental Studies in Things,” Paul Robbins and Sarah Moore argue that introductory ESS courses reflect an outdated narrative structure. Rather than accept generalized claims about scarcity or the universality of environmental problems, the authors make the case that teaching through objects shifts the focus from environmental problems to the process through which society might craft positive environmental futures. Through this object-based approach, students are able to unpack the social, ecological, economic, and ethical underpinnings of seemingly banal commodities and ultimately wrestle with concepts critical to environmental studies that transcend the object itself. Robbins and Moore show how teaching through objects avoids the apocalyptic framing of environmental problems, incorporates a myriad of theoretical approaches, and encourages students to envision positive relationships between humans and the biophysical environment. Challenges to this approach, and how they might be overcome, are presented.

Is there a settled curricular framework for ESS presented via the essays summarized above? Certainly not. But there are plenty of interesting and provocative curricular ideas, and a

general sense that change is needed—in fact, is a good thing—as the ESS curriculum continues to grow and adapt to our complex and ever-changing world. We close this introductory essay, then, by noting some possible and desirable trajectories for moving forward. The ESS curriculum continues to settle and unsettle, and no one will have much control over such dialectic moments, but there may be better and worse paths through these conflicting tendencies, and we would like to suggest a few.

Trajectories

It is very difficult to make recommendations for curricular reform, or even direction, on the basis of a purported understanding of existing programmatic and curricular designs, structures, or content. This is due to a number of factors. First, ESS curricula are extraordinarily diverse and often divergent. Second, the sheer number of programs that exist (in North America alone) makes sweeping generalizations difficult. Third, curricular development at the programmatic and institutional levels is driven by many idiosyncratic factors that often bear no relation to the phenomena we study and attempt to address, and sometimes bear little relationship to acknowledged areas of scholarly theory and practice.

Too often, the hodge-podge that results from this haphazard history of curricular development in ESS is masked under sweeping claims of intellectual plurality. And indeed, the diversity of theoretical and methodological approaches within ESS *can be* a strength; however, it often is not. Rather, it more often demonstrates a fundamental failure to acknowledge (or even understand) the relationship between history, theory, and practice in ESS. This failure, in turn, undermines the accuracy of generalizations about the nature of curricula in ESS. As a result, implications of paradigmatic settlement are premature and claims of the existence of “ideal curricula” are misplaced—or worse, exclusionary of the many ESS practitioners who are working to clarify both theory and method in ESS.

Despite the hodge-podge, progress is being made in establishing strong empirical and theoretical foundations in ESS, including considerations of its interdisciplinarity, role in clarifying human relationships to nature, considerations of agency, and its relationship to problem solving (Proctor et al. 2013). These are areas of further exploration that must be more fully engaged and realized, in both scholarship and pedagogy, before any claims of settlement on curricular paradigms may be made. We, along with many other scholars and practitioners, have done some work clarifying and providing windows on the rich intellectual history and current engagement of these core concepts (e.g., Clark and Wallace 2015, and Wallace and Clark 2014 on interdisciplinarity; Proctor 2013 on understanding nature in the Anthropocene;

Proctor and Bernstein 2013 on concept mapping). A theoretically rigorous and historically accurate foundation allows for an understanding of the application of these concepts in ESS (e.g., Cooke and Vermaire 2015) and what risks await those who forego theoretical rigor and historical understanding (e.g., Clark et al. 2011a; Maniates 2013).

There is much work yet to be done on the settlement and unsettlement of ESS curricula. The potential global futures we face—whether framed hopefully as “planetary opportunities” (DeFries et al. 2012) or cautiously as “planetary boundaries” (Steffen et al. 2015)—place some sense of urgency upon contemporary scholarship, including but by no means limited to ESS. In a Kuhnian sense, the ESS curriculum could serve as an agent of paradigmatic revolution in higher education, nudging other fields toward a stronger critical and applied role in society. Yet, practitioners of ESS must demonstrate that—revolutionary or otherwise—we embrace historical precedent and seek rigor in theoretical justification, rather than simply accept the curricular status quo as representing a meaningful definition of the trajectory of the field at large. In this light, we invite you to read on and explore the richness and diversity of engagement that is contributing to the development of ESS.

References

- Bird A (2013) Thomas Kuhn. The Stanford Encyclopedia of Philosophy. <http://plato.stanford.edu/archives/fall2013/entries/thomas-kuhn>. Accessed 1 March 2015
- Clark SG, Wallace RL (2015) Integration and interdisciplinarity: concepts, frameworks, and education. *Policy Sci*. doi:10.1007/s11077-015-9210-4
- Clark SG, Rutherford MB, Auer MR et al (2011a) College and university environmental programs as a policy problem (part 2): strategies for improvement. *Environ Manag* 47:716–726. doi:10.1007/s00267-011-9635-2
- Clark SG, Rutherford MB, Auer MR et al (2011b) College and university environmental programs as a policy problem (part 1): integrating knowledge, education, and action for a better world? *Environ Manag* 47:701–715. doi:10.1007/s00267-011-9619-2
- Cooke SJ, Vermaire JC (2015) Environmental studies and environmental science today: inevitable mission creep and integration in action-oriented transdisciplinary areas of inquiry, training and practice. *J Environ Stud Sci*. doi:10.1007/s13412-014-0220-x
- DeFries RS et al (2012) Planetary opportunities: a social contract for global change science to contribute to a sustainable future. *Bioscience* 62:603–606. doi:10.1525/bio.2012.62.6.11
- Kennedy EB, Ho J (2015) Discursive diversity in introductory environmental studies. *J Environ Stud Sci* (in press)
- Kuhn TS (1962) *The structure of scientific revolutions*. University of Chicago Press, Chicago
- Maniates MF (2013) Teaching for turbulence. *State of the World 2013*. Springer, pp 255–268
- Maniates MF, Whissel JC (2000) Environmental studies: the sky is not falling. *Bioscience* 50:509–517
- Proctor JD (2013) Saving nature in the Anthropocene. *J Environ Stud Sci* 3:83–92. doi:10.1007/s13412-013-0108-1

- Proctor JD (2015) Theory in, theory out: NCSE and the ESS curriculum. *J Environ Stud Sci* 1–6. doi: 10.1007/s13412-015-0237-9
- Proctor JD, Bernstein J (2013) Environmental connections and concept mapping: implementing a new learning technology at Lewis & Clark College. *J Environ Stud Sci* 3:30–41. doi:10.1007/s13412-013-0109-0
- Proctor JD, Clark SG, Smith KK, Wallace RL (2013) A manifesto for theory in environmental studies and sciences. *J Environ Stud Sci* 3: 331–337. doi:10.1007/s13412-013-0122-3
- Robbins P, Moore SA (2015) Teaching through objects: grounding environmental studies in things. *J Environ Stud Sci* 1–6. doi: 10.1007/s13412-015-0242-z
- Romero A, Silveri P (2006) Not all are created equal: an analysis of the environmental programs/departments in US academic institutions from 1900 until May 2005. *J Integr Biol* 1:1–15
- Soule ME, Press D (1998) What is environmental studies? *Bioscience* 48: 397–405
- Steffen W, Richardson K, Rockström J et al. (2015) Planetary boundaries: Guiding human development on a changing planet. *Science* 347(6223). doi: 10.1126/science.1259855
- Vincent S, Focht W (2009) US higher education environmental program managers' perspectives on curriculum design and core competencies: implications for sustainability as a guiding framework. *Int J Sustain High Educ* 10:164–183. doi:10.1108/14676370910945963
- Vincent S, Focht W (2010) In search of common ground: exploring identity and core competencies for interdisciplinary environmental programs. *Environ Pract* 12:76–86
- Vincent S, Focht W (2011) Interdisciplinary environmental education: elements of field identity and curriculum design. *J Environ Stud Sci* 1:14–35. doi:10.1007/s13412-011-0007-2
- Wallace RL, Clark SG (2014) Convergent evolution in the interest of integrative problem solving: connecting the policy sciences and interdisciplinary studies. *Issues Interdiscip Stud* 32:134–169