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Sustaining interest: Teaching sustainability

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Teaching and learning requires course coordinators to draw upon a wide range of skills to encourage critical thinking and deep learning. While the delivery of courses in marine environment and management is usually advantaged by the availability of fun teaching tools and case studies (such as boats, and the marine environment itself), delivering courses on social sustainability can seem dry by comparison. Despite the fact that the subject of social sustainability inherently involves people and the excitement of politics, it is harder to give students “real life” experience in this context. This paper, based on case study research principles, reflects on the development of curriculum for a course called *Developing Social Sustainability*, at the Australian Maritime College, Tasmania, Australia. It highlights how the adoption of a critical pedagogical approach helped not only to “sex up” the notion of sustainability but encouraged a process of learning *for* rather than *about* sustainability.

Introduction

Education, in addition to being a human right, is a prerequisite for achieving sustainable development... Education for sustainable development can provide critical reflection and greater awareness and empowerment so that new visions and concepts can be explored and new methods and tools developed (emphasis added; UNECE, 2005, p. 1).

Sustainability is a vexed and contested term yet sustainability is fundamental to our survival and that of the planet. We need to find ways of teaching sustainability that go beyond motherhood statements to realise reflectively critical understandings of sustainability in practice (Egri & Rogers, 2003; Timpson et al., 2006). As Welsh and Murray (2003, p. 221) note: “the emancipatory potential of knowledge is the fundamental premise underlying...teaching scholarship”. In this context, development of sustainability curriculum needs to move from education *in* and *about* the environment that motivates and equips individuals, to *be* sustainable and reflectively critical of how they live, work and make decisions. In turn, this will encourage the development of generic skills that will promote long term sustainable practice.

Teaching sustainability though, is a challenging enterprise. This paper outlines one attempt at surmounting this challenge. It presents the process of curriculum development for a unit called *Developing Social Sustainability*, which was run for the first time in 2008, within the National Centre for Marine Conservation and Resource Sustainability, Australian Maritime College, Tasmania. It is part of a degree in marine and coastal conservation. Overall course design was constructed within the framework for ‘Learning for Sustainability’ suggested by Tilbury, Keogh, Leighton, and Kent (2005, p. 20):

Education for sustainability is an innovative and interdisciplinary process requiring participative and holistic approaches to the curriculum...(It) has a transformative agenda that requires and often leads to professional, curriculum as well as structural change.

Course design is also consistent with the notion put forward by UNESCO of culture as the fourth pillar of sustainability, and a necessary factor in achieving long term sustainability (Hawkes, 2001). The fourth pillar is based on a number of interlinked dimensions including; environmental responsibility, economic health, social equity, and cultural vitality. Effective education about sustainability is vital to build these dimensions, and assist communities to make informed and sustainable policy decisions. In Australia, formal recognition of the need to build sustainability into education is highlighted in various government papers such as the report *Today Shapes Tomorrow* by Environment Australia (EA, 1999). This report was one of the first to emphasise the importance of environmental education. Subsequent reports into a national framework for sustainability have continued to build on this work (Tilbury & Cooke, 2005).

Context: The history of sustainability

The evolution of the notion of sustainability harks back as far as the 1960s and 1970s when *The Limits to Growth* report was published (Meadows, Meadows, Randall, & Behrens, 1972), and which, along with Rachel Carson's (1962) *Silent Spring* and Erlich's (1968) *The Population Bomb*, presented compelling arguments to consider the effect of resource consumption and extraction upon the planet. The 1980s saw the formation of a number of specific protocols relating to the environment, including the establishment of the World Conservation Strategy in 1980, the formation of the World Commission on Environment and Development in 1983, the Montreal Protocol on Substances that Deplete the Ozone layer in 1987 and concluded with the Brundtland report *Our Common Future* in 1987. This report famously provided the world with the first definition of sustainability: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987). The Rio Summit in 1992, designed to encourage nations to look at ways of merging development with environmental protection, produced the documents *Agenda 21*, and the *Rio Declaration on Environment and Development (the Rio Declaration)*. These focussed on inter-governmental agreements and commitments to achieve sustainable development. Two Earth Summits, (held in 1997, and 2003) have been held to follow up and revisit the commitments made under Agenda 21. Terminology about and around sustainability then has been embedded in environmental discourse for over twenty years; and businesses, governments, NGOs and communities across the world have attempted to build projects and programs that will forge sustainable outcomes (Hossay, 2006). It is in this context that education has emerged as a focus and tool to support the building of sustainability.

Method

This paper reflects on the development of a single course only and as such must be seen as a research endeavour still in the preliminary stages of investigation. It forms part of an ongoing action research project into how to embed critical thinking within interdisciplinary curricula about sustainability. This project draws on the case study approach which facilitates the exploratory nature of this work (Yin, 2003). Specifically, this project aligns with the following definition of a case study:

The essence of a case study, the central tendency among all types of case study, is that it tries to illuminate a decision or set of decisions: why they were taken, how they were implemented, and with what result (Schramm, 1971, cited in Yin, 2003).

The paper is a description of a series of decisions about curriculum development, and a reflection on whether or not these decisions yielded any useful starting insights and lessons

into how to embed critical pedagogical thinking into considerations of sustainability. Information for the paper was sourced from; (i) a personal reflective narrative based on journal entries and notes written during the period of curriculum development, (ii) peer feedback, (iii) literature review and (iv) formal and informal student evaluations including SETL results. It is acknowledged this reflection is preliminary and therefore not conclusive. Future curriculum work will build on the lessons learned and access ideas (sourced since delivery) from other learning support mechanisms such as the web site on education for sustainability developed by UNESCO (2002, <http://www.unesco.org/education/tlsf/>), which provides lesson plans and activity ideas that will be of future benefit. Nonetheless, lessons learned from this course development have already had multiple benefits, providing guidance in ongoing instructional design for other related units within a new degree.

Course description

The unit description for *Developing Social Sustainability* is “To provide the student with a critical understanding of the impact of human action on the environment, as well as the effects of the environment on society and individuals”. In this context, the syllabus includes: (i) the development of practical approaches to the social sustainability of fisheries and marine, coastal and aquatic environments, (ii) definitions and measures of quality of life, social wellbeing, social and human capital and their connections with sustainability issues, (iii) the role and conduct of social impact assessments, (iv) the conduct of social research for marine and coastal environments, (v) the relationship between ecosystem health and human health, (vi) traditional fishing, indigenous fishing and community management approaches relating to sustainability and (vii) the study of environmental values, pro-environment behaviour and environmental responsibility. Given the subject matter, there was, from the start, an intent to build interdisciplinary teaching tools, and an interdisciplinary delivery of the content. The advantage of an interdisciplinary approach is that it enables the use of a variety of tools and prevents students from trying to shape problems to “fit” the issues (Lattuca, 2001, p. 107).¹ Students were also asked to reflect on the “yin and yang” of sustainability (i.e., the contrast between the different sides of the term). For example students were encouraged to continually think about what both unsustainable and sustainable practice looked like in different contexts. They were thus challenged continually to critique and then build active responses to the various problems highlighted. The course was also designed so that taking the course situated the student on a sustainability spectrum by facilitating reflectively critical understandings of “global to individual” sustainability dilemmas and solutions, as well as “deep to light green” constructions of the term.

The course was based on a theoretical approach that draws on the philosophical approach of John Dewey who in rejecting Cartesian dualism reconstructed the idea of education within a series of first principles including the belief that education is (i) not simply preparation (i.e., means to an end), (ii) a process of growth but not self realisation, and (iii) not value neutral (Boisvert, 1985). In this context, and to effectively implement this syllabus, a critical pedagogical approach was applied with critical thinking as the central endeavour. As noted in the report *Engaging People in Sustainability* (Tilbury & Wortman, 2004, p. 36):

Critical thinking is an essential part of learning for sustainability...uncovering the layers of assumptions that inform our thinking and actions, much like peeling back the layers of an onion, is an essential step (and) ...allows us to reconstruct a deeper

¹ It is acknowledged that Lattuca is one of many scholars writing in the field of interdisciplinarity, but as her work is appropriate in the context of this project it has been used as the starting baseline from which to consider the subject here. It is envisaged that as the research is built, so will considerations and reflections on interdisciplinarity.

understanding of how new political, economic and social structures better lead us to sustainability.

Building on the framework provided by Kearins and Springett (2003, pp. 193-194) this course was developed according to the principles of (i) reflexivity, (ii) critique and (iii) social action and engagement. Reflexivity refers to building student capacity to think through the ways in which social phenomena are constructed and how personal and cultural value systems might impact on environmental decision making and outcomes. In so doing they are then able to build connections between different problems and disciplines to build holistic solutions, crucial to building sustainable practice. The ability to critique follows naturally from this process, allowing students to interrogate the ways in which power and knowledge interrelate and again impact on decision making. Students can then understand how the accepted discourse about the environment may in fact be laden with cultural values and systems, and how to “see” the more hidden, implicit facets of decision making. Application of this principle also shakes students out of the discursive complacency that the very word *sustainability* invokes, by requiring them to interrogate its meaning in detail. When brought together the two skills of reflexivity and critique encourage the application of the third principle – social action and engagement. At this point, students are encouraged to consider ways of enacting sustainability in their daily lives and in considering how day-to-day societal practices may be transformed. This process of encouraging social action and engagement also ensured that the link between interdisciplinarity and what it teaches us about sustainability was explicated.

Unleashing emancipatory potential...

Class learning activities based on this critical pedagogy were planned with the intent that they were context based and transformative in practice. As such, activities were designed to give students opportunity to find their own (qualified) voice within the subject matter. It should be clarified that while this was constructed as essentially an emancipatory exercise, it was meant to build student confidence to reflect critically on and solve problems, not create the next generation of environmental campaigners – a mis-perception about emancipatory [environmental] education techniques that devalues its actual potential to transform patterns of conventional thinking into a pattern of innovative problem solving. Learning contexts were thus used as a vehicle for helping students think about the issue rather than focus on the content *per se* (Lattuca, 2001, p. 151). The model used by Welsh and Murray (2003, pp. 228-231) was adapted to create the following learning contexts.

(i) Co-learning rather than instructional course design

Co-learning is a powerful teaching tool where it can facilitate open dialogue between all parties. In this unit then, a conscious approach was taken to develop some spaces where student and teacher met on common ground (or what Welsh and Murray, 2003, call the “same epistemological ground”), where all issues are contestable. In this case, specific activities were designed to build mutual learning while encouraging students to question the construction of particular terms such as *sustainability*. Class activities were designed to get students to determine their own construction of sustainability, by asking them to research its multiple definitions (abounding in the literature), and their own deconstruction of those terms. This activity was shared by both lecturer and students and results disseminated equally. No judgement was given as to right or wrong interpretations of sustainability but all terms were discussed and questioned. In this context, students were also asked to develop definitions or constructions of what “unsustainability” or unsustainable practice looked like.

This approach was decentering, in that it created more even power relations between student and teacher, and created the space where students started to depend on and build their own knowledge about the subject matter.

Another class exercise required students to find images of sustainability. Based on the premise that this was the first time the course was being delivered, the request to help build the course in this way appealed to students, who put much time and care into preparing images of sustainability for future inclusion into course materials. Again this decentered relations between teacher and student to create a co-learning environment that encouraged critical discourse by the students about sustainability, but in a visual context. This approach also built appreciation of the interdisciplinary nature of sustainability and the crucial importance of breaking down rather than building boundaries.

(ii) Different ways of seeing

Creating an appreciation of the interdisciplinary nature of sustainability was also part of activities that were constructed to encourage students to be critically reflective. In this case, the notion of conceptual interdisciplinarity, that is where a variety of perspectives are brought to bear on the particular issue or problem was applied (Lattuca, 2001, p. 96). This context helped students to critique disciplinary answers to questions they asked. It was especially important to build student understanding that unless social dimensions were addressed, environmental sustainability is an impossible challenge. Activities focused on ensuring students forged links between the social, economic and environmental facets of sustainability. One activity was based on the children's book *The Lorax*, written by Dr Suess (Giesel, 2006)². *The Lorax* is a tale of environmental destruction, and a perfect foil for teaching sustainability. In the book, the chief character the Onceler, narrates the story of the rise and fall of the Truffula Tree. Students were asked to read the book, and then do research to locate similar examples in a marine context. Students were then asked to reflect critically on the two stories, and compare and discuss them in light of their emerging understandings of sustainability, so as to develop some deeper understanding of the topic. This also encouraged students to see, in a tangible way, that there are many different ways of seeing, many different ways of understanding the same concept and that decision making in this area has multiple challenges.

(iii) Problematizing concepts

Another approach embedded in curriculum development was the establishment of activities aimed at student problem solving. As such, a series of "sustainability challenges" were set. In one class activity, students were asked to envision their favourite lunch. These menus were then shared. Students were then asked to do research on the origins of, costs and the ecological footprint of producing that lunch. This part of the exercise alone stimulated the students. Many found the discovery process quite absorbing, with one student likening the process to a detective story, where a series of clues finally led you to the end. This activity highlighted to students the energy used, the global contexts and the social justice issues inherent in the production of food, and the social, economic, cultural and environmental costs of producing a simple lunch. The exercise enabled complex investigation by students of multiple sources and problems in an international context. The third part of the exercise required students to build an alternative lunch, one which would be as satisfying, but would be "sustainable". This process again, engendered a detailed problem solving process. It is inherently critically reflective as it makes students operationalise their understanding of what

² 'Dr. Suess' is the writing name of Theodor Suess Geisel, who is the author of all Dr. Suess books.

is sustainable through the production of a new lunch. The final part of this assignment was a sharing of findings. Feedback indicates this was a sobering yet stimulating exercise for students. The overall value of this exercise from a curriculum perspective was that it enabled students to become “active knowledge producers instead of passive recipients” (Welsh & Murray, 2003. p. 230).

Another activity required students to take on the role of either (i) a developing nation (such as Bangladesh) or (ii) a developed nation (such as Australia), and write a policy for that country on environmental refugees (disenfranchised as a result of the impacts of climate change). In this case the inherent conflict presented by such a challenge was used to model critical thinking about sustainability. This exercise helped students understand multiple perspectives on the topic, and it encouraged personal engagement as students often had to argue against and for positions and build a mutual policy (the required output of the exercise). As Lattuca (2001, p. 153) notes; “Students who explore opposing points of view and who move between disciplines develop new ways of thinking”.

(iv) Solution based

At the outset, given the subject matter, building a course that was solution rather than doomsday based was a core aim. It is important to avoid creating a course where students become overwhelmed with hopelessness, or feel powerless, an outcome that would defeat the emancipatory aim of the course overall. The curriculum thus targetted the opportunity for students to positively construct solutions by giving them the space to make decisions and choices and then defend them. In other words, by building knowledge they are encouraged to act.

One course activity that built on this principle was teaching students how to conduct a sustainability audit. To focus attention, the audit was conducted on the unit itself. The students were asked to review the unit ‘Developing Social Sustainability’, and assess its “footprint”. In groups, students were formally instructed in how to conduct a sustainability audit, then guided through the process resulting in an audit document. Again this exercise promoted appreciation of the interdisciplinary nature of sustainability, as the audit covered social, cultural, environmental and economic dimensions. Again student responses to this task were very detailed, with feedback showing they were surprised at the sheer scope of areas covered in such an audit. It also helped them problematise concepts, and build sophisticated responses to problems at hand. This exercise explicitly asked students to (i) identify problems and (ii) find solutions. This exercise was also instructive to the course designer, as gaps in the unit were revealed. For example, the travel and infrastructure costs for delivery to proportionately few students was identified as an issue as were obvious factors like the use of paper rather than e-resources, and the proportional costs of administering the course remotely. Specifically, students found that future course delivery, in this and other units, could be constructed in and of themselves in a much more sustainable manner.

(v) Ground truthing sustainability

Finally, course design was constructed to build student insights into how sustainability could be operationalised in real life contexts, such as in developing nations where resources, or even appreciation of the need for sustainability, is often considered a middle class luxury. In this context, assessment was constructively aligned to make students apply knowledge and insights about sustainability gained during the course to real life situations. Assessment was thus set as a consultancy brief. Students had to tender for the rights to do the social research needed for a development in the Sundarbans region of Bangladesh, a region of high natural

and cultural value, yet under threat from climate change, and subject to extreme poverty. Students had to demonstrate in the tender an appreciation not only of the issues and context of the place but the real life contingencies they would have to address in order to ensure the development would be sustainable. A verbal presentation, anchored to this assessment (fashioned as part of a job interview process), further required students to market their views and justify their positions. These exercises were designed to get students to consider what sustainability looks like in practice, and in a developing world context.

Reflection on curriculum design: A good start.

On reflection, the challenge of getting students to make the transition from understanding the term sustainability as a *verb* rather than an *adjective* is not one that was fully met or tested. The course name itself “social sustainability” belies the essential and inherent interdisciplinarity of the sustainability project. The disjuncture between delivery of ideas about sustainability, and the fact that course delivery itself was considered unsustainable, was uncomfortable and highlighted the wide scope of curriculum reform that is yet needed in institutional contexts to ensure such courses “walk the talk”. Moreover, the small size of the student cohort (eight in all) while probably facilitating deeper learning, means that strong conclusions cannot be drawn from the efficacy of course delivery (in a curriculum sense), hence the reflective nature of this paper.

Nonetheless, overall, initial feedback indicates that the basis of curriculum design and the critical pedagogical approach in this instance constituted a good start in attempting to teach learning *for* sustainability rather than *about* it. The main advantage of consciously embedding and then implementing the principles of reflexivity, critique and action/engagement into class activities was to help students understand the different dimensions of and the spectrum of sustainability. Course design also supported the intent to move from theory to practice and drew on the interdisciplinary nature of the term sustainability.

As Pesonen (2003) notes, envisioning sustainability and garnering critical reflection on sustainability is very difficult. However, despite the challenges it presents, it is nonetheless a fundamental endeavour for the teaching professions. The emancipatory potential of education should never be underestimated or undervalued, or as Dr. Seuss as eloquently concludes:

“But *now*,” says the Once-ler,
“Now that *you're* here,
the word of the Lorax seems perfectly clear.
UNLESS someone like you
cares a whole awful lot,
nothing is going to get better.
It's not.”
”SO...
Catch!” calls the Once-ler.
He lets something fall.
“It's a Truffula Seed.
It's the last one of all!
You're in charge of the last of the Truffula Seeds.
And Truffula Trees are what everyone needs.
Plant a new Truffula. Treat it with care.
Give it clean water. And feed it fresh air.

Grow a forest. Protect it from axes that hack.
Then the Lorax
and all of his friends
may come back.”

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