
Editorial

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Biographical notes: Stephen Sterling is Schumacher Reader in Education for Sustainable Development at the Centre for Sustainable Futures, University of Plymouth, and also Senior Advisor to the UK Higher Education Academy's Education for Sustainable Development Project. His research interests lie in the interrelationships between systemic change, learning, ecological thinking, and sustainability, and his publications include the Schumacher Briefing *Sustainable Education* (Green Books 2001). His work at Plymouth centres on a five-year initiative to put sustainability at the heart of the university's work and operations.

James Gray-Donald is a consultant with Energetics Ecology Ltd. He was the research coordinator for the Centre for Sustainable Futures from 2005–2007. He received his doctorate from the Ontario Institute for Studies in Education/University of Toronto in 2005 with a dissertation called *The Environmental Missionary*.

Some time ago, the Centre for Sustainable Futures (CSF), at the University of Plymouth, UK, conceived an idea for a conference. Called 'Voices from the Margins' the proposal was based on the perception that 'Education for Sustainable Development' (ESD), enshrined in the UN Decade of Education for Sustainable Development (DESD), and increasingly in government statements and documents, was in danger of becoming an uncritical hand-servant of an official line on sustainable development. Clearly, the use of the term 'ESD' does not necessarily connote one way of approaching the relationship between education and sustainable development, but nevertheless, much debate around this term tends to be uncritical, instrumentalist, and not particularly self-reflexive. Working at CSF, the editors of this IJISD issue wanted to widen and deepen the debate, and embrace 'voices from the margins' as a source of different perspectives and

inspiration. As it happened, the ‘Voices’ conference never happened: but we took the spirit of the proposal into this special issue of IJISD. We put out a call for papers that might present new or challenging thinking in the area of education and sustainability, which might open up – even ‘constructively subvert’ – a debate which in some ways has become simplified and trammelled as part of the cost of achieving a more mainstream status.

We work in the higher education sector, and have been involved in an initiative to embed sustainability in the ethos, culture, work and operations of the University of Plymouth, and by extension, use this work as an exemplar to others working similarly in the sector. Through involvement in this field over years, we have become aware of the various views and tensions arising as various players – from policy and funding bodies to individual academics and support staff – struggle with understanding, and acting on, the implications of this deep challenge: one that is increasingly visible and insistent, seen against the backdrop of almost daily reports on climate change, energy prices, economic instability, migration and myriad other related sustainability issues.

It’s possible to group these views – what might be termed learning responses to the sustainability imperative – roughly into four groups, based on the degree to which they are both critical of dominant assumptions (in education and society) and also self-critical; and secondly, the degree to which they subscribe to a commitment to sustainability, however this is interpreted. This analysis yields a table as follows:

	<i>Uncritical</i>		<i>Critical</i>	
<i>Non-committal</i>	A	Business as usual position. Mainstream. Little or no critique of dominant assumptions, or evidence of ESD, although growing awareness of need for some response	C	Liberal position. Embraces need for ESD but adopts critical, sceptical line. Problematises ESD, particularly position B. Favours pluralism, and rationalist, liberal approach, putting prime value on educational process
<i>Committed</i>	B	Advocacy position. Stresses urgency and need for universal ESD as self-evident, with emphasis on ‘sustainability literacy’ rather than educational transformation	D	Cultural change position. Embraces need for ESD as implying changed cultural paradigm both in education and sustainable development, interpreted from a committed but critically self-reflexive stance based on an ecological relationalism, (contextual relativism)

A is the dominant *business-as-usual* position involving little or no engagement with sustainability and involving little or no critique of dominant socio-economic and environmental values. At the same time, there is a growing awareness and acceptance, that somehow, sustainable development needs to be ‘covered’ or ‘delivered’ by the educational policy and practice, and some progress towards this might be in evidence.

B is the *advocacy position*, championed by enthusiasts and NGOs concerned by the self-evident urgency of sustainability issues, and frustrated by the slowness of the response of education. Hence there is an explicit critique of (*A*). There tends to be an instrumental emphasis on ‘sustainability literacy’ rather than on deeper implications for change in educational thinking, learning and practice.

C is the *liberal position*. This is critical of (A) for not taking sufficient notice of sustainable development (which is recognised as important), but it is also critical of (B) suggesting that a rush towards developing sustainability ignores different interpretations of what this might mean, and if done badly, comes at the cost of academic freedom and sound pedagogy and learning. This position holds that sustainability depends on critical appraisal of all views and alternatives.

D is the *cultural change position*. This sees unsustainability as arising from deep seated cultural assumptions and norms, and articulates the need for urgent cultural change based on systemic, ecological/relational thinking which is also self-critical, necessarily exploratory and capable of multiple interpretation within different contexts. It is critical of, and attempts to surface, deep seated cultural metaphors and values which, in different ways, influence responses (A), (B) and (C) and constrain transformative responses to the deep challenges of unsustainability, complexity and uncertainty.

The last position is least explored in conventional debate about ESD, but this is a position we, as editors, would subscribe to and would suggest is the most fertile ground in pursuit of IJISD's commitment to paradigmatic change, as it applies to education and learning. These four positions are not exclusive of course, and there is interaction between them, but the model perhaps clarifies some of the tensions both in the debate and manifest within any one institution. It is perhaps for the reader to decide where, if this model holds up, any particular contribution to this issue of IJISD lies, but we think most of them explore ground in position (D). At the same time, it must be noted, there is difference and conflict between the papers, as well as areas of convergence, and this, we feel, is all to the good. Similarly, we do not expect the reader to agree with all that is presented here: rather, perhaps, emerge possibly inspired, possibly irritated, but we hope, informed, stimulated and challenged.

In seeking out different perspectives, we have cast our net to include a number of 'think pieces' which would not necessarily count as research *per se*. We have papers from well-established and respected writers, as well as some in the early stages of their career. We have international representation (although our attempts to get contributions from the South were unsuccessful). A number of papers come from or via the CSF at the University of Plymouth, and represent aspects of the range of innovative research interests being pursued there. Some papers address ESD specifically, others the deeper learning issues around current responses to our strange, volatile and troubled times where, according to Vaclav Havel "it is as if something is on the way out and something is painfully being born" in Scharmer (2006).

David Selby, the Director of the Centre for Sustainable Futures, formerly an innovative and influential educational writer in the field of Global Education, is now a strong critic of 'business as usual' ESD and proponent of radical approaches. In *As the Heating Happens: Education for Sustainable Development or Education for Sustainable Contraction?* an analysis of future scenarios by the leading climate change scientists is compiled. Selby then argues that what counts as 'sustainable development' is not doing enough to avert the massive ecological damage that we are already beginning to experience, and that will lead to vast and painful social upheaval. A key argument put forward is that sustainable development policies and practices (which often themselves embrace high and stable levels of economic growth) are at cross-purposes with the actual policies and practices of those who advance the former; for example, academics flying around the world to conferences about climate change, governments promoting ESD, and the promotion of international competitiveness of school graduates.

David Selby argues that we are manifestly caught in states of denial and under the banner of Education for Sustainable Contraction and – similar to Martin Luther in the 16th Century – he nails “Ten Propositions to the Door of the Academy”.

Chet Bowers, a prolific writer and long-time critic of educational norms and practices which he sees as contributing to environmental crises, offers a think piece which emphasises the use of language and metaphors in education which, often unwittingly, contribute to rather than challenge consumerist consciousness. ‘The first step’, he writes,

“in making the transition to thinking within a new paradigm is for educators at all levels...to be aware of the root metaphors that frame interpretations, that reproduce past misconceptions and prejudices, and are responsible for the silences that have put us in a collective situation where it may be too late to slow the rate of global warming and other forms of environmental degradation.”

Bowers outlines the importance of recognising and recapturing what he terms the ‘cultural and environmental commons’, the former being mutually interdependent relationships and community-centered activities, skills, knowledge that are less dependent upon consumerism, the latter being “shared access to forests, rivers, oceans, air, animals, air, and so forth”. Both, he maintains, are being enclosed by the money economy, leading to a loss of intergenerational knowledge of how to live less consumer dependent lives. The role of the educator is to act as a mediator, encouraging students to engage in a discerning and critical ‘thick description’ of their experiences, distinguishing between those rooted in the relational commons and those of the market economy, and to develop “communicative competence necessary for challenging and negotiating new understandings”.

Ken Webster, a consultant in education and sustainability, shares Bowers’ belief that a different form of consciousness is needed, that such change is difficult, and that this should be based on an ecological metaphor. Rather than look to community however, Webster builds a lively argument around McDonough and Braungart’s (2002) ecological design of economic and production/consumption systems which “rejects the idea that we have reached an age of limits” but rather “the limits of a failed design approach”. Webster suggests this systemic ‘cradle to cradle’ approach, not only provides a pattern for redesigning economic life to be in harmony with natural systems, but also provides a compelling ‘story’ which addresses some of the limits and weaknesses – in Webster’s view – of much current ESD. ‘In educational contexts’, he says,

“it is using Nature as Teacher, and applying a living systems perspective to all aspects of industrial society as a way of framing the possibility of a sustainable future. It is a kind of ‘ecoliteracy’ but explicitly framed, through example, as a coherent approach consistent with the realities of a globalised economy.”

The themes of systems approaches and educating towards a critical consciousness are taken up by Richard Bawden, an eminent systems educator. Bawden like Bowers, invokes Einstein’s dictum that, in Bawden’s words “we can’t solve problems by using the same level of cognitive development we used when we created them”. With this in mind, Bawden outlines the cognitive and learning theory behind, and the design of, a model of radical systemic pedagogies that he developed for a graduate course ‘Sustainability and Systems Thinking’ at the University of Michigan. This drew on his long former experience at Hawkesbury Agricultural College, Sydney, where Bawden led a

groundbreaking project to design and implement innovative curricula and ‘pedagogies for persistence’. This explored cognitive development theory which showed that transformative learning depended on epistemic change in the learner, and that this involved “persistent existential and conceptual challenge” to develop systemic competency. The paper then shows how the Hawkesbury experience was translated into the short graduate course at Michigan, involving five pedagogical around the principles of cognition, complexity, contestation, contingency and collectivity.

Along with systems thinking, there have been a number of educational academics who have been discussing the paradigm shift occurring within the scientific disciplines from mechanistic science to quantum science. James Gray-Donald provides a literature review of a wide array of these authors, explaining why it is of interest to educational thinkers and practitioners, and then offers a few cautions. A shift from modes of either/or thinking to both/and thinking in quantum physics may have implications for modes of learning and educational assessment. Principles of uncertainty and chaos deeply affect scientists’ belief in being able to be entirely objective and to manage or control a complex situation, which a number of educational writers believe is even more true with a complex system such as the management of a school. One of the surprising findings of Gray-Donald’s work is that the authors are not referring to each other much at all: another is that they are not critical of adopting lessons from technical science and applying them broadly to a range of human/ social/ educational settings. Upon review of the quantum education literature, Gray-Donald makes the recommendation that a turn in educational theory to science would not be complete or adequate without a serious engagement with holistic science.

Brian Goodwin is a professor of Holistic Science at Schumacher College in the UK and presents a lucid essay describing how science has become a science of quantities at the exclusion of a science of qualities. He argues that given the various crises in which we are mired, science can no longer ignore the study of qualities. “Qualities such as experience of colour, of odour, or a sense of beauty at the spectacle of the planets or the elegance of the equations that describe their motion ...” were excluded from the realm of the natural sciences which in part led to the divorce of the spiritual from the empirical. Goodwin invites the reader and scientists to let go of a ‘need to control’ and instead enter relationships of participation and appreciation of the natural world. He provides a novel example of a scientific study that measures the qualities of farm animals using non-experts as the observers. The essay concludes with a discussion of how universities and educational bodies can meet the turn to holistic science through simultaneously engaging with their local communities.

Adam Croft was a student of Brian Goodwin’s and wrote an impressive dissertation for his MSc in Holistic Science at Schumacher College. His paper *We comprehend that which comprehends us: An exploration of hermeneutic Gaia* is adapted from his dissertation. Croft advances Brian Goodwin’s ideas about a science of qualities to the earth or *Gaia* through the use of hermeneutics. The Hermeneutic approach was first applied to religious then philosophic texts and then in the 20th century to the human experience (usually included under the umbrella of philosophy). It is roughly the study of how meaning is constructed with an emphasis on reflexive modes of understanding and interpretation. In the 21st century, Croft applies hermeneutics even more broadly. “Qualities such as meaning and agency, once accepted as peculiarly human and thereby privileging human moral status, are now integral to the science of a language-based Earth”. With particular relevance for ESD, Croft continues “The science of hermeneutic

Gaia constructs an ecological understanding of meaningful, animate participation within a living Earth in a time in which proper relationship with our planet has become a necessity". This is an invitation to a new way of thinking of science, and opens up exciting possibilities for teaching science in much more dynamic and interesting ways that, we suspect, would appeal to a greater range of students.

Laura Batson was also a student of Brian Goodwin's who wrote an outstanding dissertation for her MSc in Holistic Science at Schumacher College. She explores how science education has focused on logical reasoning to the exclusion of cultivating intuition. She writes,

"An education for sustainable development is one in which the student's intuitive ways of knowing are developed alongside their deductive and logical ways of knowing, so to be in accordance with the wisdom of nature."

In line with this statement, Laura leads the reader through a series of line drawings or 'curve art' that she created in order for her to express and come into relation with form. Fascinating reflections on these forms are included which are then integrated into a rich analysis.

"When a student uses artistic expression to gain intuitive understandings of scientific concepts, they take what seems objective and external, and bring it into relation with what is subjective and internal. Suddenly the 'self' is connected to the 'subject' in a deep and intimate relationship."

Ingrid Molderez continues the focus on the importance of using art to complement and even understand science. She problematises the concept of sustainability in a parallel way to David Selby and sees that it has become a concept that is at odds with itself. While at first sustainability was a marginal concept, it has now been adopted and integrated into dominant modes of techno-managerialism. Molderez argues that sustainability is now being asked to create new things instead of maintaining a balance, while behind its mask, it (and the science which it relies upon so heavily) are caught in a range of dualisms that do not paint an accurate or appropriate picture of the 'way things are'. The key example is that,

"system and environment are identified as being separate. By tracing the tensions within this approach and investigating a process of creating meaning in action shows how the division between system and environment is problematic. Instead, an argument is offered for openness, inclusion, tolerance, difference, reflection to be the guiding principles of education for sustainable development."

Sustainable development is meant to be for all people and ESD is one means to help create that path. However, as Ingrid Molderez pointed out, ESD has not been as open and inclusive as it could be. Fumiyo Kagawa takes ESD to task and asks it to be more inclusive by asking some important questions in *Whose emergencies and who decides? Insights from emergency education for a more anticipatory Education for Sustainable Development*. Most importantly she argues for the need for mutual learning: by emergency education about ESD, and ESD about the sheer moral weight and suffering due to emergency situations related to violent conflict situations (e.g., civil wars) and natural disasters. The majority of ESD relates to environmental problems, and even then does not often delve into issues of environmental racism or eco-apartheid. Neither does ESD often arouse interest in what counts as an emergency situation and what should be the reaction. Kagawa proposes three conceptual parameters for emergency education

initiatives that help the reader understand the range of what is possible, what is common and what could be done. She then presents a series of insights from emergency education that are worthy of consideration by ESD theorists and practitioners. These are timely reminders of the intense realities that are often obscured from view.

Like other authors in this collection, Joanna Blake is critical of the ESD debate, but not so much on the grounds of what it does say, rather on what it – consistently, it seems – leaves out. Following Kagawa's paper on emergency education, Blake uses the so-called 'natural disaster' example of Hurricane Katrina to argue that ESD needs to develop an integrative and holistic approach that takes full account of gender aspects. A search of ESD literature including official documents reveals how far this dimension is missing. Blake reviews ecofeminism critically but argues that this falls short of the contextualised – rather than merely theorised – approach that is needed. In brief, Blake argues for a deep learning for sustainability ESD that is essentially relational, localised, and "necessarily premised on an awareness of complex social dynamics as they intersect with ecological change with an emphasis on relations, coalitions, and associations between dynamic processes".

John Barry is Co-Chair of the Northern Ireland Green Party and a Reader in Politics at Queen's University Belfast. He presents powerful ideas about how Higher Education is at the rhetorical stage of supporting ESD but in its actual practices is still set up in ways that makes it very difficult to implement change. For example, interdisciplinary research is key to innovation in (or towards) sustainability and ESD but it goes against the way that academics and universities are graded by the funding bodies, and therefore those who stay within their disciplines and work on their own are promoted and funded. The paper presents radical insights that will challenge many readers within Higher Education. This is at the core of his argument of what universities should be doing; namely provoking debate and sparking passionate interest in the pursuit of knowledge to overcome the problems with which we are faced.

In his chapter, Tom Thomas presents a case study which reflects the difficulties of educating for change in a business school setting. His research centres on core curricula in an undergraduate Business, Government and Society course, and the extent to which it serves to promote or undermine the legitimacy, among business students, of environmentally sustainable business practices. Whilst the course affected positively the students' personal values and attitudes towards the business case for sustainability, it increased the discrepancy between these values and their perception of business executives' values, possibly reinforcing student cynicism about businesses' response to the sustainability agenda. Thomas suggests that ESD can consequently, and ironically, reduce rather than increase student inclination to act on their values once in the workforce. To deal with this dilemma and 'double-edged sword', he suggests a way towards pedagogic strategies that support 'strong sustainability' practice in business.

In conclusion: Looking at the overall response of formal education systems, policies and practitioners to the socio-economic-ecological critical conditions that we face, it is hard to escape the thought that, ironically, education is a 'slow learner'. As the organisational change writer Scharmer suggests in relation to most human institutions and systems:

“The same problem affects our massive institutional failure: we haven’t learned to mold, bend and transform our centuries-old collective patterns of thinking, conversing, and institutionalising to fit the realities of today.” (Scharmer, 2006)

Whilst there is evidence enough to support this notion, we believe this collection of essays shows that an exception is taking place, one which indicates some of the routes of learning and rethinking towards a ‘culture of critical commitment’ that urgently needs to take hold in the mainstream if education is truly able to become and be a part of any sustainability transition.

References

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