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Learning for sustainability in times of accelerating change

edited by: Arjen E.J. Wals and Peter Blaze Corcoran

We live in turbulent times, our world is changing at accelerating speed. Information is everywhere, but wisdom appears in short supply when trying to address key inter-related challenges of our time such as; runaway climate change, the loss of biodiversity, the depletion of natural resources, the ongoing homogenization of culture, and rising inequity. Living in such times has implications for education and learning. This book explores the possibilities of designing and facilitating learning-based change and transitions towards sustainability. In 31 chapters contributors from across the world discuss (re)emerging forms of learning that not only assist in breaking down unsustainable routines, forms of governance, production and consumption, but also can help create ones that are more sustainable. The book has been divided into three parts: re-orienting science and society, re-connecting people and planet and re-imagining education and learning. This is essential reading for educators, educational designers, change agents, researchers, students, policymakers and entrepreneurs alike, who are concerned about the well-being of the planet and convinced of our ability to do better.

I hope you share my excitement about the innovations for sustainability that this book catalogues and analyses. While the ecological news is grim, the human news is not. Even in a time of accelerating change, people are showing their enormous capacities to learn, adapt, restore and protect.

From the Foreword by Juliet Schor, author of ‘True Wealth: how and why millions of Americans are creating a time-rich, ecologically-light, small-scale high-satisfaction economy’

This book implies a ‘culture of critical commitment’ in educational thinking and practice – engaged enough to make a real difference to social-ecological resilience and sustainability but reflexively critical enough to learn constantly from experience and to keep options open in working for a sustainability transformation.

From the Afterword by Stephen Sterling, Professor of Sustainability Education, Centre for Sustainable Futures, Plymouth University, United Kingdom

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How can education, teaching and learning play a (better) role in creating a more sustainable world? If you have any ideas then please join the discussion with editor Arjen Wals and other contributors at: transformativelearning.nl

This publication is supported by kind contributions from the Netherlands’ national education for sustainable development program ‘Learning for Sustainable Development’.

From the Afterword by Stephen Sterling, Professor of Sustainability Education, Centre for Sustainable Futures, Plymouth University, United Kingdom

We are living in times of incertitude, complexity, and contestation, but also of connectivity, responsibility, and new opportunities. This book analyses the consequences of these times for learning in formal, non-formal, and informal education. It explores the possibilities offered by the concept of sustainability as a central category of a holistic paradigm which harmonizes human beings with Earth. To change people and to change the world are interdependent processes – this book contributes to both.

Moacir Gadotti, Director of Paulo Freire Institute, São Paulo, Brazil

From the Afterword by Stephen Sterling, Professor of Sustainability Education, Centre for Sustainable Futures, Plymouth University, United Kingdom

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Alison Laurie Neilson
Alison Neilson is a Postdoctoral Research Fellow with the Biodiversity Group at the University of the Azores. Her current research involves knowledge production and environmental justice issues and she works closely with coastal fisheries communities. She has studied wolves, deer, macaws and other birds and bats. She has captured vampire bats in Guyana and birds and worked for the Ontario Ministry of Natural Resources in the Wildlife Policy Division. Alison has trained hundreds of educators in environmental education methods, and facilitated workshops on diversity, global education and environmental racism. She has been on the steering committee for the Canadian Association for Environmental Education and Communication and has organized conferences on environmental and sustainability education. Alison has a PhD in Comparative International Development Education from the University of Toronto and she has taught courses in the fields of environment, education and social justice in various universities. Alison’s passion includes using art for disrupting ways of knowing. She has authored numerous creative academic publications including the book, Disrupting Privilege, Identity and Meaning: A Reflexive Dance of Environmental Education. She is the founding coordinator of RCE Açores, a network for sustainability education part of the UN international network of Regional Centres of Expertise (RCE).

Doug Blomberg
Doug Blomberg is a former high school teacher, who has worked the past twenty years as an educational researcher and teacher educator in Australia and North America. His concern for environmentally respectful living prompted the inclusion of Environmental Science as a compulsory subject in the curriculum he designed and implemented for a new senior secondary school in Australia in 1979. His philosophical explorations have focused on an ecological epistemology for which the integral, multi-dimensional character of the world provides an ontological frame. This supports a perspective that runs counter to that which views the world in one dimensional, primarily rational-scientific terms; this perspective motivates Doug’s ongoing advocacy for curricular structures that promote holistic learning. Doug has published two books, including Wisdom and Curriculum: Christian Schooling after Postmodernity and many articles in academic and professional venues that explore these and related themes, as well as speaking at conferences with diverse audiences. He is currently Professor of Philosophy of Education and Academic Dean at the Institute for Christian Studies, Toronto.

Rosalina Gabriel
Rosalina Gabriel is a biologist with a PhD in Plant Ecology from the University of London (Imperial College of Science, Technology and Medicine) and she is an Assistant Professor with tenure at the University of the Azores. Her research focuses cryptogamic plants (e.g., mosses, liverworts, hornworts, lichens) and environmental education and sustainable development. She has 26 papers published, 25 book chapters, and authored four books and edited two. She has lectured at scientific meetings and is involved in several international research projects. She has taught Biology, Cell Biology, Environmental Education and Ecological Systems. She co-developed the Master’s Degree in Environmental Education at the University of the Azores. She is on the coordinating committee of the RCE Azores, a regional centre of expertise for education for sustainable development, part of the international network of the United Nations University. Rosalina is passionate about teaching about biodiversity and about her family, whom she reckons extends widely, encompassing not only her husband, daughter and son, mother and father, sister and brother, nieces and nephews, aunts and uncles, many cousins and dear friends but also all humankind. She aims to say with St. Francis that the birds, the wolves, the sun and the water are also her brothers and sisters.

In A. Wals & P. Blaze Concoran (Eds.) Learning for sustainability in times of accelerating change. pp. 269-282. Wageningen University Press, Wageningen, NL.
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Spirited practice of transformative education for sustainability

Abstract
This chapter is an invitation to join the authors on a journey to an island in the Atlantic Ocean to consider that which seems normal and abnormal within your place as well. Three teacher educators from different places invite the reader to reflect on what it would mean to take spirituality seriously within learning for sustainability. Successfully meeting complex challenges and uncertain futures requires the full breadth of human understandings: spirituality has too long been pushed aside. A workshop about biodiversity for educators in the Azores islands, Portugal led us to explore our own narratives of educational experiences and heightened our motivation to listen to and support diverse ways of knowing. The inclusion of a local spiritual leader as a speaker in the opening of the workshop sparked a strong reaction: an opportunity for important reflexive practice and transformational education that can honour the diverse spiritual understandings that learners carry with them. The conversation presented here questions the official narratives of secularism in school systems and the unintended consequences of teaching from a place of unexplored assumptions about our own spiritual beliefs and how this may affect others in the classroom. Educators are asked to consider what inspires (“spirits”) their practice and how this reflexion may bring more vitality to education for sustainability.

Bem-vinda aos Açores

I am standing in line waiting to describe my baggage. Apparently it arrived but was too heavy for the small plane from my first island stop, to Terceira Island, my final destination. My new boss rescues me by giving her address for delivery of my wayward bags. We drive to her home. Greens and browns colour the moistened ground. Fences of piled rocks segregate patches of green along the hilly landscape. Some patches contain four or five cows; others are empty save the hanging wisps of fog. Cobble-stoned roads rattle the jeep as we enter the small city. Ceramic tiles with images of saints and Mary and baby Jesus peer at me from every white-washed building. Clay tiled roofs, palm trees, chapels on every corner, images and symbols of the Catholic Church envelop me as I fall asleep in my new home.

Over the subsequent months I will witness a complex array of sacred ritual married to the mundane. I will watch a pair of teenagers traverse a cobble-stoned square, one on her knees as part of a short journey to honour the patron saint of her parish, her friend beside her simultaneously texting and listening to music with an occasional glance at the young man selling tremoços (lupine beans) and cold beer to the gathering crowd. Another group carries a sack of flower petals from the ubiquitous Hydrangea, a non-native plant that adorns tourist knick-knacks much to the annoyance of biologists concerned with promoting native species. These blue petals along with the extravagant yellow blossoms of Conteira, a serious invader that chokes native vegetation, and green Japanese cedar, another exotic species, will be placed on the roads to make beautiful tapestries with shapes of dolphins, common to the waters here, as well as the crown and dove symbols of the Holy Ghost. Processions carrying statues of Mary and Jesus and other saints will walk along these flowered routes.
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While travelling the islands I will sit in ‘Casas do Povo’, community centres, and hear elderly women tell how the sea can be angry and have a need to take a human life and how certain saints have protected communities from the hunger of the sea or the volcanoes. Former whalers and fishers will speak from deep knowledge of the ways of the sperm whale and how reading the signs of the ocean as well as the local priest blessing their boat are important to successful and safe fishing trips. I realize that not only have I encountered exotic plants in a seemingly remote archipelago, I have seen rituals and symbols of belief that, while unfamiliar to me, are in fact as indigenous to the culture and place as one can get on land first inhabited less than six centuries ago and which for a time was an important cross-roads between Europe and the Americas.

Alison’s Reflections

Introduction

We are teacher educators, born and raised in geographically diverse locations – Portugal, Canada, Australia. We have taught humanities, physical and social sciences, including environmental education in elementary, secondary and tertiary schools as well as in nonformal programs. During the United Nations International Year of Biodiversity in 2010, educational events around the world focused on enhancing public understanding of biodiversity. As part of another UN initiative, RCE Açores (a ‘Regional Centre of Expertise for Education for Sustainable Development’), we organized a workshop for teachers. This chapter invites the reader into a conversation sparked by our attempts at highlighting spirituality and biodiversity in our pedagogical practice. It is a glimpse into our intersecting life journeys of making meaning of our work and boundary crossing to seek wisdom within ourselves and among those around us: vital for building a sustainable world.

Teaching about, for and in a bio-diverse manner

Alison: Arriving in the Azores, I was immediately struck by the pervasiveness of religion in the daily life here. While myself an atheist from Canada, I quickly realised that, despite my personal convictions, I could neither engage effectively with these people nor treat them with integrity if I were not to seek actively to understand this dimension of their lives. I am a wildlife biologist, an environmental educator and community activist. In my doctoral research, I came to realise more profoundly in my interviews with other educators that a respect for biodiversity needed to extend to the individual and cultural diversity that seems an inevitable expression of human life. I knew I could not serve those I sought to teach unless I consciously sought not only to understand but to empathize with their perspectives. This would not necessarily require me to jettison my own: indeed, I believe that dialogue is at its most productive when people explicitly bring their basic convictions into the discussion.

Doug: Alison and I had engaged in many discussions about narrative understanding and its relation to paradigmatic-scientific interrogation of the world. These are terms Jerome Bruner uses to describes two different modes of thought that are basic ways of knowing the world (1990, p. 79). People understand the world in complex stories that respect context and particularity. These are vehicles that help them make meaning and form judgments about how they should live their lives. Science is very powerful precisely because it focuses on regularities and seeks to articulate the structure of experience in
abstraction from concrete situations. Our understanding of biodiversity and sustainability would be much the poorer without it. But we are both concerned about the privileging of science and its disruption of our primal connections with ordinary experience. We believe we need to challenge the power of theoretical modes of thought, without in any respect seeking to deny the vital contributions that scientific investigation makes to our lives. Though we differed from one another in basic spiritual convictions – reared an atheist in Australia, I became a Christian late in my teens – we recognised that our differences could also provide complementary perspectives. As Alison said, it’s about respecting our differences as individuals and as members of different cultures – including spiritual cultures. I was excited when Alison invited me to participate in the workshop, and enthusiastic about what I might learn as, among other descriptors, a teacher and philosopher of education.

Rosalina: I am a Catholic biologist and educator. Hailing from mainland Portugal, I am still a bit of an ‘outsider’ in the Azores even after 20 years and raising a family here although I have participated in local religious customs, such as the pilgrimage to Serreta. I have been thinking about diversity of life, professionally and personally. Biodiversity has emerged in my thoughts as a wealth to be enjoyed, preserved and shared. Working mainly with some of the most humble of nature’s beings – bryophytes (mosses, liverworts and hornworts), I’ve been amazed at their green beauty and silent role in the ecosystems. I am intrigued with the possibility of articulating how our diverse spiritualities can serve biodiversity and sustainability educational efforts. It seems to me that it is in the very act of sharing our stories – our certainties, our doubts, our questions, and our faith – that we help each other teach for and in a biodiverse way. We face complex unstructured issues for which standard answers are not likely to lead to sustainability. If teachers and scientists are not reflexive about their ways of knowing and are unwilling to consider the personal and social validations of these sources, I fear that students will keep waiting for nonexistent “right answers”. Even with respect to issues that deal primarily with physical environments, ambiguity and constant change are now being factored in by biologists (see Millennium Ecosystems Assessment http://millenniumassessment.org); biodiversity and sustainability inherently include human components so it is obvious that we need a range of answers rich in complexity.

Our physical bodies make life; spiritual convictions motivate and give direction to that embodied life. In our view, what animates a person’s life, the love that gives it its focus, constitutes a person’s spirituality; people’s lives are oriented by deep values that provide their moral-spiritual compass. Indeed, the same can be said of communities and cultures, for we would not live or move or have our being without these supports. Thus, schools too embody a vision of ‘the good life’.

Should not education about the diversity of life celebrate the diverse ways that we know and make life? Should not education help us all to draw on our spirituality to be inspired by the possibilities born of faith and belief, whether these take a religious or secular form (cf. Shweder et al. 2003)? Should not education enable us to call on the full range of our intellectual, physical, emotional and spiritual potential?

Local issues of understanding and constructing ‘biodiversity’
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Alison: Rather than descending on the Azores as a scientist preoccupied with dissecting and examining ‘objects’ microscopically, I saw myself as responsible to respect the new world I encountered, just as I call people to respect diverse forms of animal and plant life. What then is the phenomenology of Azorean life? How could I, an outsider do justice to these ‘others’ as I encountered them? How could I respect their difference rather than trying to colonise them? If one of my primary motivations is indeed to do justice to the rich diversity of creatures with which we share the planet – not to demand that they conform to human demands as objects (of exploitation, consumption, etc.) rather than as subjects first and foremost – how could I exempt myself from doing the same when it came to persons?

We have learned to use research methods which employ radical listening approaches (Tobin and Kincheloe, 2010), for instance, using creative methods with children (Rodrigues 2007), and meditation, art and photo elicitation with adults (Neilson 2008, 2010) to broaden our understanding of biodiversity and weaken the influence our scientific expertise might have on how participants communicate their understandings. Rather than dismissing the spiritual beliefs and practices of those with whom we dialogue as ‘childish’, our stance as researchers is one of respectful listening. If research is indeed learning – coming to know what previously we did not – no other stance is appropriate. If Barbara McClintock can ‘listen’ to ears of corn, we should listen at least as respectfully to our human interlocutors (Code 1991). While working with teachers, we need to remain vigilant about the over-extension of our “expertise”, while still drawing on our understanding of normative practices within teaching about biodiversity.

For most of the history of environmental education and before the phrase education for sustainable development, (EfSD) was even coined, interdisciplinary approaches have been promoted (Dreyfus et al.1999, Gough 1997, Palmer 1998). This is difficult to accomplish in schools (Lousley 1998, Russell et al. 2000); in Portugal, even after a reorganization of the formal system toward EfSD, Schmidt and others (2010) found narrowly defined and traditional subjects. While an emphasis on multiple disciplines of science and knowing about science (e.g. Day 2002) is a worthwhile goal within the realm of science education, we are concerned for the hegemonic effect of not leaving room for other ways of knowing. Much of the discourse in formal discussions about this type of education has focused on knowledge and learning as if it were power neutral (cf. Kassas 2002). In our teaching about biodiversity, we seek to follow Paulo Freire’s call for educators to dissolve power in pursuit of cultural freedom, to ‘unalienate’ and ‘defetishize’, making visible what has been hidden through oppression and giving voice to people who have been silenced (Gadotti 2008). Busting learners from their classroom cages to offer them the cacophony of city streets or the caress of an ocean breeze is a favoured way to teach (Neilson 2009), but simultaneously we invite learners to draw on their own spirituality, not solely their cognitive (and sometimes their embodied) knowing.

While the UN’s video for the 2010 International Year of Biodiversity (www.youtube.com/watch?v=V1VYmpTikgw) proclaims that ‘Biodiversity is life; biodiversity is our Life’ and that it provides ‘an awful lot of spiritual comfort’, its view of spirituality is superficial and gratuitous in the context of a monochrome vision of life. It highlights a normative scientific approach via the use of database graphics, a clear disconnection between people – the cause of biodiversity losses – and ‘nature’, and an uncontested view of capitalism for conservation. It affirms the global environmental
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discourse that humans can only be seen as alien to ‘the environment’ and that their presence is always harmful (King 2010), which has supported the ‘global push among First World nations to control and isolate fragmented pockets of nature in the world’s periphery’ (Hakkenberg 2008, p. 76).

Each of us needs to draw on the strength, depth and history of our spiritual traditions; otherwise, we meet these troubling simplified messages with little support for engaging with the local ‘product of interactions between social and natural systems (Sajise 1995), and ...close links with local ecological, economic and socio-cultural functions’ (Xu and Wilkes 2004, p. 959). Conversely, scientists regularly engage with the messy complexity of biodiversity; the online issue of Conservation Biology (April 2010) focused on conservation social science in the International Year of Biodiversity. In the special collection of re-issued articles, there was an emphasis on the complexity of conservation work along with issues of power and multiple ways of knowing (local, traditional ecological knowledge) (Berkes 2004/2010), on conservation issues as inherently social (Mascia et al. 2003/2010) and socioeconomic inequity as a predictor of biodiversity loss (Holland et al. 2009/2010).

Appreciating biodiversity is not necessarily difficult, but simplistic approaches limit the potential of educational efforts. Local kindergarten teachers indicate that they know little about the local social and biological conditions (Pacheco 2008), and although children from the Azores have complex understandings of the environment, the sea and marine life were rarely included in their understandings (Rodrigues 2007). When describing swimming areas in the ocean, children focused on the water but few included different life forms within it, although these natural pools are teeming with life (Risch 2010). This leads us to ask if there something about the way we teach that encourages us to miss life in all its fullness. For instance, keeping our spiritual knowing out of the classroom means we have one less way of knowing from which to make sense of the world.

Engaging spirit of place

The spirit of places, common outside of schools, needs to be remembered while teaching about biodiversity. After all, the personal and cultural is part of biodiversity, and body, mind and spirit is part of the personal and cultural. Sheridan and Longboat (2006) remind us that people and places have spiritual identities; they disrupt the person-place dualism and put mind, landscape and depth of time back together with an ecological sense of imagination as ‘the cognitive and spiritual condition of entwining with local and cosmological intelligences’ (p. 370). Haluza-Delay (2010) suggests that ‘place meanings and place attachments will differ among individuals and social groups, sometimes dramatically’ (p. 307), prompting our concerns about the potential implications of educators promoting essential concepts of place that privilege only one kind of spirituality (atheism). Drury and others (2003) suggest that we can disrupt this colonialism by engaging different perspectives to develop a sense of ‘we-ness’ within the ‘personal and collective, discursive and material, social and ecological’ process of place making (Haluza-Delay 2010, p. 307).

Anderson (2004) writes about reciprocal relations between self and place and the ways in which different identities can be taken into different places. So, as educators, if we bar the door of our classrooms to spiritual identities, what are we excluding? What places do we make off limits? Gruenewald (2003), describing place-conscious education, calls on educators ‘to reflect on the consequences of a school-centric curriculum that ignores the
pedagogical significance of experience with familiar and forgotten places outside schools’ (p. 646).

Important theoretical arguments have shown where oppressions exist in the ways that places are represented by official bodies including schools (Baldwin 2004, Willems-Braun 1997). We believe, however, that recognizing the spirit of places, the potential for them to be sacred in variable and dynamic ways, is important to thinking about biodiversity. The deconstruction of oppression makes room for more diverse life, but we need to be humble about our ability to recognize sacredness and work for healing where the sacred might have been disrupted along with the oppressive.

The opening evening of our two-day workshop featured Doug’s presentation, *Education for Wisdom, Spirituality and Biodiversity*. We wanted to introduce local organizations and individuals to the teachers, many of whom are from mainland Portugal – 1500 km from the islands. We hoped that they would make connections that would be helpful for their learning about the community and biodiversity and support their teaching. We ended the evening with one of the younger parish priests speaking about the cultural and spiritual rituals the Catholic Church performed related to fishing and other ‘nature’ activities. The priest was informal in his dress and remarks, speaking mostly about his life in the community; he was perhaps slightly uncomfortable with his ‘church in schools role’ as he spoke little about actual religious practices.

If the priest was uncomfortable, he was not the only one. One of the teachers later vigorously questioned the appropriateness of inviting a priest to speak to teachers. It is at this juncture that we believe critical reflection about beliefs, motivations and the actual outcomes of our practice can be made. Would the teacher have reacted strongly had we invited an indigenous person to speak about their cultural and spiritual understandings of biodiversity? In Canada it is becoming common to start environmental education events with blessings from an indigenous elder. Indigenous, Buddhist and New Age perspectives appear in practices and writings about the environment that we have experienced and read, however, as Haluza-Delay (2000) points out, writings on ecological spirituality (e.g. Booth 1999) and worldviews (e.g. Disinger and Tomsen 1995) under-represent church and religious perspectives (Hitzhusen 2007). Can we normalize the ‘spirited body’ within education systems without privileging any one spirituality or supporting stereotypes of religion?

**Journeys of mind, body and spirit**

An important part of our argument is our continuing journey of embodiedment of knowing and the inherent complexity in which we live our theories. We believe that our narratives are important for revealing how we negotiate becoming reflexive educators and the ways in which we construct knowledge in community. We invite readers to dwell in our conversation and reflect on their own embodied and spirited ways of knowing.

Doug had this to say in his opening address: Though it is more than fair to say that environmental education is not my area of expertise, I think it is also the case that there is hardly a topic more complementary to my educational intuitions than this one. Because I understand the world to be a richly woven tapestry of multiple threads and colours, I believe that learning about the world must respect this rich and interdependent complexity – what I term its ‘integrality’. Informal educators generally
achieve this much more readily than teachers in classrooms, where the ultimate value is that of rational control of oneself and the world in the pursuit of economic success, for students and the nations they inhabit. Without underplaying the significance of bread to feed the world’s distressingly too many hungry mouths, humans live by and for much more than bread alone, yet the classrooms of the Western world act more and more in denial of this.

Alison: I wonder about the way some spirituality is let into the classroom and some is excluded. Although church and state were supposed to be separate in public schools during the time I was in school (1970-1984), the Lord’s Prayer was read every morning, we were read bible stories in class and Christmas and Easter are still official holidays.

Rosalina: I was not as surprised as Doug by the reaction of the teacher to the priest’s participation. I would have expected that a Portuguese teacher, going to an academic training event would have found it peculiar to listen to a priest. While you were saying the Lord’s Prayer in Canada, none of this was happening in Portugal, other than perhaps in a few religious colleges. Our 1974 revolution questioned and challenged the influence of the church in Portugal and society was heavily influenced by the Communist party as well. When we were in England and my daughter was 5 years old she went to the school of the Holy Trinity Church, where they would have a mass every week or every month.

Doug: I don’t know that I was surprised by that teacher’s reaction. It was perhaps that I realised how fraught this interaction could be, and needed to frame my response tactfully. Her response was to me evidence that people’s lives are oriented by deep values, convictions that constitute their ‘bottom line’. These convictions provide our moral compass and express human spirituality. It is not so much that we have ‘spirits’, than that we are ‘spirited’ beings. This ‘spiritedness’ applies equally to the institutions that people form to enable them to live out their life’s vision. Schools too embody a vision of ‘the good life’ – but the vision of schools as I know them is not one with which I have much sympathy. And it is important to stress that values are not primarily cognitive or conceptual: they are ultimate convictions that grasp and are grasped by persons-in-community: they are embedded in practices.

Alison: I felt comfortable with identifying myself as an atheist to the parish priest. I cannot communicate honestly and with integrity if I hide my basic convictions – though I also realise the importance of being tactful. Directly disclosing my beliefs while engaged in teaching to be reflexive requires care so that I disrupt the process of creating norms instead of merely replacing one norm for another. However, I am troubled by uncontested statements of ‘teaching to change values for sustainability’; so I feel the need to uncover my own beliefs to educators to help consider the complex mix of values and convictions at play in education. I remember your careful and deliberate focus on wisdom and spirituality in your opening presentation and your words of caution about conflating diverse religious beliefs and practices and spiritualities. In the same way, I want to caution about blaming and melding personal beliefs and community values with the destructive economic systems imposed globally by an elite few.
Rosalina: Separating religious beliefs from the religious institution is also an issue, especially over the centuries, when the church was in a powerful position, it hurt many people. I think that the church not living up to their moral teachings infuriates people more than when governments harm people. But it is not the Pope or priests who improve the church; it is saints – ‘just’ people, pure in the eyes of the Lord; everyone can be a saint. If people are angry, perhaps they have a reason to be angry and it is right to suffer their anger and try to make right the wrongs. Of course it is a bit sad, when we have all this publicity about the sins of priests and no publicity when, for instance, in January 2010, in his New Year address, the Pope wrote about biodiversity.

Doug: I agree that people have a reason and a right to be angry when what they recognize as fundamental humane values are violated. Sheldrake defines spirituality as the ‘deepest values and meanings by which people live’ (2007, pp. 1-2). What we need to do as teachers is to respect these ‘deep values’, to connect with students at the level of the basic convictions that they bear in their bones.

Alison: Well, we can agree living by the ‘value and meaning’ biodiversity is a spiritual conviction that leads us to respect multiple dimensions of life. We have to respect life´s complex processes and this generates way more uncertainty than prescribed curricula allow for. We all need to learn from multiple ways of knowing. Through collaborations with a broad range of people, we can learn to recognize expertise across academic fields as well as the knowledge and wisdom acquired from working with one’s hands on the sea and on the land.

Doug: But what brings coherence to these various ways of knowing? We should view things from many perspectives, but how do we bring them together so that we know what to do? I think that it is spirituality directed towards a transcendent dimension that enables us most fully to respect the rich diversity of life and various ways of knowing. If we find the ultimate source of meaning within the bounds of experience, we will be inclined to reduce the varied kinds of meaning to the favoured dimension. This transcendent value is for me a personal God. But for others it may be a fully secular principle – which I think motivates you, Alison. You call it ‘Life’.

Rosalina: I know that we can use powerful scientific methods to explore the wonders of life. I´ve spent much of my academic career exploring the partnership of algae and fungi in lichen, for instance. But should we not also just appreciate the beauty and marvels of life that everyone can see everywhere? It is here where we see things “whole” – coherent, as Doug has said. Science abstracts from the wholeness of life to delve into its dimensions. Biodiversity is about seeing that all life is in a real sense one – and lichens demonstrate this synergy marvellously. It is within our emotional and spiritual lives that we have the greatest capacity for dealing with ambiguity and complexity and acting with compassion for seeing that we (not just humans) are all in this together. These are the qualities most likely to help us create a sustainable world.

Implications for teacher education

In A. Wals & P. Blaze Concoran (Eds.) Learning for sustainability in times of accelerating change. pp. 269-282. Wageningen University Press, Wageningen, NL.
We are by no means alone in suggesting that Western schools are infected with a rationalistic spirit (e.g. Robinson 2001). To decry this is neither to denigrate rationality nor the inestimable benefits that have accrued from scientific inquiry. It is to say that rationality and the technical control it enables are but a part of the story. The world is not a machine, but a complex, interrelated ‘organism’. It deserves to be treated tactfully, not in a predominantly technical manner. For this, other ways of knowing are necessary. One of these is that fundamental form of knowing we term ‘spirituality’.

We must teach (about) the world in the way in which we want it to be known and tended, for we are never merely engaged as educators in transmitting information. We are engaged in formation. To think we are merely ‘bankers’ – as Freire (1970) would say – withdrawing information from our heads and depositing it in the heads of others, is to be engaged in a very powerful kind of formation indeed. It is formation directed to the head, not to the heart. Trapped within a dichotomy between ‘facts’ and ‘values’, it routinely excludes attention to the latter, while paradoxically assigning greatest value to supposedly neutral factuality.

Thus, attending to values is not a matter of smuggling spirituality into the classroom. It is rather a surfacing of the values that everyone inevitably brings. This is essential if we are to invite not merely a head knowledge about but a heart commitment to the value of biodiversity. It requires critical collaboration in which each person ‘engage[s] with ‘concrete others’ in order to genuinely test his [sic] own view... listening attentively to other peoples’ stories’ (Benhabib 1992, cit. Stone-Mediator 2003 pp. 74-75). In our collaboration, we continue to test our own deepest beliefs. We ask how we may unconsciously dismiss or disparage the differences amongst ourselves, because we believe that our spiritual convictions, whether Atheist or Christian, are always with us regardless of what we teach. As teacher educators, we seek to help educators understand how their beliefs may support instead of hinder efforts at education for sustainability. By including the local priest as a speaker in the workshop, we invited participants to test their own views and a strong norm in Portuguese schools. In our work around education and environmental issues, we have seen easy inclusions of “safe” spirituality – indigenous or “exotic” customs – little if any practice that hinted to the learners that they could or should draw on their own spirituality while in school. We believe in honouring educators as able to integrate the outcomes of their reflexions within the differing contexts of their teaching. It is by respecting each other’s full repertoire of ways of knowing, not any specific knowledge, technology or recipes for teaching, that we will most effectively promote sustainability.

Alison’s Reflexions
I take a break from writing and walk by the small império on my street. I read its story of social criticism, diversity and equality, celebration of spirit and sharing of food in repainted colours signifying the newly elected Brotherhood of the Holy Spirit. Domination and consumption that drive unsustainable practices are absent from the cult rituals that arose from pagan fertility rites that now flourish in participatory and progressive communion. This is neither religious ceremony nor a biology lesson about biodiversity. Yet, as I remember enjoying the feasts and walking behind the ox carts as the brothers handed out meat, bread and wine, I am led to think about what it would mean if sharing were the main drive in your life – is this not sustainability in action? Imagine how we may serve sustainability if we learn to support this type of wisdom and social learning in our teaching.

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