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Education for Sustainable Development, Nature and Vernacular Learning

DAVID SELBY¹

∞ Mainstream education for sustainable development conceives of nature as a resource or commodity. The natural world is, for the most part, accorded only instrumental or utilitarian value. As a field it thus aligns itself with a longstanding paradigm in western thinking that sees humans as separate from and dominant over nature. The de-natured nature of education for sustainable development makes it unlikely that the learner will become motivated to care and act for nature. As an alternative, vernacular learning is proposed, i.e. place-based learning rooted in close intimacy and connection with the natural world, with nature perceived as being intrinsically valuable. The importance of fostering emotional affinity with nature is underlined, as are forms of multi-sensory learning that help the learner engage with both spirit and soul of place. Practical examples of vernacular learning activities are enumerated. The importance of nurturing a sense of wonder and joy in the young learner is put forward as vital in fostering an ethic of concern for the planet. Essentially, the argument goes, we only stir ourselves to protect what we have come to love, and thus cultivating a sense of oneness with nature is vital if we are to have any chance of transforming the global environmental condition. Passion is the harbinger of activism.

Keywords: education for sustainable development; instrumental valuing; intrinsic valuing; nature connection/intimacy; sense of wonder; vernacular learning

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Izobraževanje za trajnostni razvoj, narava in vernakularno učenje

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☞ V izobraževanju za trajnostni razvoj prevladuje pojmovanje narave kot vira ali surovine. Večini naravnega sveta sta dodeljeni le instrumentalna in utilitarna vrednost. Kot področje se tako povezuje z dolgoletno paradigmo v zahodni misli, ki ljudi dojema kot ločene od narave in dominantne v odnosu do narave. Denaturalizirana podoba narave, ki prevladuje v konceptu izobraževanja za trajnostni razvoj, pomeni, da je manj verjetno, da bo učenec postal motiviran za skrb in delovanje za naravo. Kot alternativa je predlagano vernakularno učenje, tj. učenje, temelječe na spoznavanju lokalnega okolja, zakoreninjeno v tesni povezanosti z naravo, ki je razumljena kot intrinzično pomembna. Pomembnost spodbujanja emocionalne afinitete z naravo je podcenjena, prav tako pa so podcenjene tudi oblike multisenzoričnega učenja, ki pomagajo učencu, da se poveže duhovno in duševno s prostorom. Našteti so praktični primeri vernakularnih učnih aktivnosti. Pomembnost negovanja občutka radovednosti in veselja v mladem učencu je postavljena v ospredje kot tisto, kar je pomembno pri spodbujanju etične skrbi za planet. Argument pravi takole: sami se zganemo za varovanje le tistega, kar smo vzljubili, in zato je negovanje občutka enosti z naravo pomembno, če želimo imeti kakršno koli možnost preoblikovanja globalnih okolijskih razmer. Strast je znanilka aktivizma.

Ključne besede: izobraževanje za trajnostni razvoj, instrumentalno vrednotenje, intrinzično vrednotenje, povezanost z naravo/intimnost, radovednost, vernakularno učenje

Education for Sustainable Development

In the last thirty years the idea of sustainable development has come to be widely advocated as the best hope for alleviating the global environmental condition, a condition marked by the degradation and thinning of ecosystems, huge biodiversity loss, the ubiquitous spread of toxicity, the desertification of land and deadening of oceans, a worsening epidemiological environment for both humans and other-than-humans, depletion of groundwater, and the spoliation of land not least through the outward march of land-devouring urbanisation (Ehrlich & Ehrlich, 2013). Lurking behind and fueling this multi-crisis syndrome, in which crises in the human socio-economic condition also figure prominently, lies stealthy but rapid onset climate change (Selby, 2014, p. 166).

Sustainable development was famously defined in the Brundtland Commission report, *Our Common Future* (World Commission on Environment and Development, 1987, p. 43) as 'development that meets the needs of the present without compromising the ability of future generations to meet their needs,' a definition that continues to enjoy wide currency. It is generally depicted as a process of maintaining a dynamic balance between three interrelated 'pillars,' or 'dimensions,' i.e. economy, environment and society as the development process is taken forward, with the aim of staying within the constraints imposed by the 'carrying capacity' of the planet.

At the 2014 conference in Aichi-Nagoya, Japan, wrapping up the 2005-14 UN Decade of Education for Sustainable Development (DESD), education for sustainable development (ESD) was declared to be an 'enabler for sustainable development' with the potential to 'empower learners to transform themselves and the society they live in' (UNESCO, 2014a). The *Global Action Programme on Education for Sustainable Development*, designed to provide the roadmap for the post-2015 ESD agenda and launched at the conference, rehearses the core learning content, approaches and competencies of ESD:

- It involves developing in the learner the knowledge, skills, values and attitudes enabling informed decision making and responsible action for environmental integrity, economic viability and the just society in the present and with an eye to the future;
- It entails the use of participatory learning and teaching methods that motivate and empower learners;
- It is fundamentally a rights-based approach;
- It relates to the environmental, social and economic pillars of sustainable development in an integrated, balanced and holistic way, comprehensively embracing, *inter alia*, poverty reduction, climate change,

disaster risk reduction, biodiversity and sustainable consumption and production;

- It encompasses but does not seek to usurp historical and/or current 'adjectival' educations such as environmental education, global education and development education (UNESCO, 2014b, p. 33).

From the perspective of anyone concerned about the wellbeing of the natural world, ESD would seem at first glance to offer an auspicious agenda. The environment, it would appear, figures significantly. A second glance, however, unearths a decidedly anthropocentric vein. 'People,' we are told without further elaboration in the preface to the *Aichi-Nagoya Declaration on Education for Sustainable Development*, 'are at the centre of sustainable development' (UNESCO, 2014a). So where, we might ask ourselves does nature truly stand in the ESD landscape?

A De-naturing of Learning

A word search of recent key international ESD documents, such as those cited above reveals only limited reference to 'nature' and 'natural world'. Rather, nature is referenced through the filter of 'environment', a term derived from the French 'environs', i.e. that which surrounds us but in which we are not necessarily embedded. Only very rarely in the literature searched does the descriptor 'natural' ever precede the term 'environment' thus further confirming the impression of the environmental pillar of sustainable development as a reductively de-natured conception.

The most recent frame-setting international articulation of sustainable development came in September 2015 when the United Nations General Assembly adopted a fifteen-year plan, *Transforming our World: the 2030 Agenda for Sustainable Development*. Described as 'a plan of action for people, planet and prosperity' the *Agenda* lays out 17 interlinked Sustainable Development Goals while enumerating 169 action targets for the collective realisation of those goals. Within the *Agenda* the natural environment is far from overlooked but is reduced in two very specific and significant ways. First, only two out of the 17 goals relate directly to the natural condition, i.e. Goal 14 'Conserve and sustainably use the oceans, seas and marine resources for sustainable development' and Goal 15 'Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss'. Second, as evident in the two goals just referred to, nature is comprehensively looked at through management and resource lenses. The lexicon of the *Agenda* abounds with terminology

such as 'sustainable use', 'conservation for development', 'environmentally sound management', 'science-based management', 'natural resources' and 'sustainable management' (UN General Assembly, 2015).

Shaping the Future We Want, the final monitoring report from the UN Decade of Education for Sustainable Development (UNESCO, 2014c), overviews outcomes of global efforts to implement sustainability-oriented learning. Here we do find references to 'nature' and 'natural world' and descriptions of learning programs that actively engage students with and in nature but, significantly, most of the references made and examples described occur in the report sub-section devoted to early childhood care and education (pp. 68–78) with just a few examples in a sub-section on non-formal education (especially, p. 136). Elsewhere in the report, including in the sub-section on primary and secondary pedagogy, there is but scant consideration of nature-related learning. Throughout the report nature is frequently conceived of as 'resource' requiring sound 'environmental management' and calling for 'sustainable use'.

Overall, the letter and the spirit of such documents tend to underline the *instrumental* valuing of nature that has characterised sustainable development from the outset (Selby, 2007a, pp. 256–257). The field has, for the most part, abstracted and objectified the natural world, its discourse suggesting a preponderantly utilitarian, commodifying, and exploitative conception in which nature has been referred to variously as 'resource', 'natural capital' and 'ecosystem service' (Selby & Kagawa, 2014, p. 146). There are clearly advocates of sustainable development, especially environmentalists coming latterly to the field, who do make token acknowledgement of the *intrinsic* value, both tangible and intangible, of ecosystems and other-than-human animate entities (i.e. as having value in their own right apart from any usefulness to humans). But, cognizant of the primacy given to economic growth in sustainable development discourse (ibid. 143–146), they tend to seek purchase and influence by marshalling the case for nature conservation based upon an instrumentalist rather than intrinsic valuing of the natural world. In this way, sustainable development coincides with the development of the field of environmental economics. The global (but rich world funded) Economics of Ecosystems and Biodiversity (TEEB) project has as its rationale the protection of natural diversity by placing a financial value on 'biodiversity and ecosystem services' so that both their maintenance and loss can be factored into governmental decision-making. By making the economics of nature visible, the thinking goes, governments will be better motivated to protect the natural world in pursuance of their own self-interest (TEEB, 2016).

There are profound concerns here. First, adherents of both sustainable development and environmental economics align themselves with a flawed

paradigm that sees the human being as separate from, higher than and dominant over nature, the paradigm that has brought the natural world to the emasculated state in which we find it today (Selby, 2007b, pp. 165–167). In the name of sustainable development, they collude with the disease and, in dressed-up form, recommend the disease as cure. Brian Swimme and Thomas Berry (1992, p. 199) describe the paradigm as a kind of ‘exaggerated anthropocentrism’ emerging from the late-medieval/early modern western world in which the ‘mystical bonding of the human with the natural world was progressively weakened’ and in which ‘Earth was no longer seen as a communion of subjects’ but became a ‘collection of objects to be adjusted to in an external manner’. That view pervades sustainability discourse. In seeming to protect nature on grounds of usefulness and by commodification of elements making up the natural world, the way is opened for nature to be ‘traded, speculated on, and ultimately owned and controlled’ (McCarthy, 2015, p. 27). Each element deemed useful becomes a line in a ledger while each element held to be of no particular or self-evident utilitarian or financial value stands to be set aside and discounted. What value, Michael McCarthy asks do we give to butterflies, to birdsong? ‘Are they just to be written off, as the great ruination of nature gathers pace?’ (ibid. p. 28).

‘Today’s environmentalism is as much the victim of the contemporary cult of utility as every aspect of our lives,’ writes Paul Kingsnorth (2012, no pagination).

We are not environmentalists now because we have an emotional reaction to the wild world. [...] We are environmentalists now in order to promote something called “sustainability”. What does this curious, plastic word mean? It does not mean defending the nonhuman world from the ever-expanding empire of *Homo sapiens sapiens* though some of its adherents like to pretend it does, even to themselves. It means sustaining human civilization at the comfort level that the world’s rich people – us – feel is right, without destroying the “natural capital” or the “resource base” that is needed to do so.

Second, there are serious concerns as to whether education rooted in a conception of sustainable development that, in the name of scientific exactitude and economic imperative has pushed aside the poetic and visionary can ever help the learner identify with nature and become motivated to care for and act for nature. In the final analysis, sustainable development is a dry, abstract concept far removed from lived, immersed experience. It can engage the intellect, the cerebral, but not the emotions. ‘No one is going to stir the soul with sustainable development, no one is going to write poems about TEEB [...] both are

mere intellectual constructs; they can fill the minds of policymakers, but they cannot reach the hearts of people' (McCarthy, 2015, p. 245). The problem with ESD is that it follows its parent field in its essential instrumentalism and rationalism. Marginalised or missing are notions of human entanglement in nature, human enrichment through nature experience and emotional engagement with nature. Largely absent from its discourse are concepts that lend themselves to embedded affinity with nature such as beauty, attunement, awe, ecstasy, enchantment, intuition, reverence, rhapsody, joy and wonder. The emphasis is almost exclusively on what nature can do *for us* rather than on what nature can do *to us* (Macfarlane, 2015, p. 25).

Let us explore these ideas further and how we might develop learning that opens the way for a renewed intimacy with nature as an alternative or at least counterpoint to utilitarian justification.

Vernacular Learning

Laurie Lee in his childhood autobiography *Cider with Rosie* (1974) recalls in vivid and close detail life in a remote English village in the immediate aftermath of the First World War, a seemingly timeless place but on the verge of intrusion by cars and electricity. He gives a memoir of a boyhood spent in fields, lanes and woods, a life wrapped up in the comings and goings of local folk. 'Winter and summer dominated our every action, broke into our houses, conscripted our thoughts, ruled our games, and ordered our lives' (ibid. p. 136) and so much so that they were conceived of as almost different places, not different times of year. 'There were ghosts in the stones, in the trees, and the walls, and each field and hill had several. The elder people knew about those things and would refer to them in personal terms, and there were certain landmarks about the valley – tree-clumps, corners in woods – that bore separate, antique, half-muttered names' (ibid. p. 105). Place was alive and storied.

What Lee describes is a young life lived in 'porous exchange' (Marren, 2015, p. 191) with immediate nature. As such, place in its diversity came alive and fed into psyche. There were words for everything so that trees were not just trees but particular representatives of particular tree species around which story was invented, memories preserved and passed on to future generations. There was animism within experience. Contrast the riches of connective stimulus open to Lee with the fact that the newest edition of the *Oxford Junior Dictionary* has withdrawn a long list of nature words no longer considered relevant to modern childhood – words such as ash, beech, bluebell, buttercup, cowslip, dandelion, mistletoe, willow – replacing them with words of the indoor and virtual worlds

such as blog, broadband, bullet-point, cut-and-paste and voice-mail (Flood, 2015; Macfarlane, 2015, p. 3). Contrast them, too, with the reduced experience of many millions who can no longer name and describe particular natural and physical entities in their environment nor perceive their distinctiveness but have recourse to generic descriptors such as 'hill', 'valley' and 'wood', thus relegating landscape to 'blandscape', as Robert Macfarlane (*ibid.* p. 23) puts it. If, to borrow from Maurice Merleau-Ponty (1962, p. 24) landscape is not so much the object as 'the homeland of our thoughts', then a pared-down ability to relate to landscape is both cause and consequence of reduced imagination, impaired sensibility and curtailed vision. For Macfarlane (2015, p. 10), 'to celebrate the lexis of landscape is not nostalgic, but urgent'. It is the harbinger of environmental concern and activism. He cites Wendell Berry (2000, p. 41): 'People *exploit* what they have merely concluded to be of value, but they *defend* what they love and to defend what we love we need a particularizing language for we love what we particularly know'.

Ultimately, then, we care most about what we know intimately and deeply. This speaks to a curriculum of successive, repeated, locally grounded learning experiences that foster a sense of belonging. Rob Cowen writes (2015, p. 205):

Familiarity comes with the overlaying of our experiences, memories and stories: *there's the stretch of river where the mayfly rose; that's the owl's nesting tree; these hedgerows were once the boundaries of enclosure.* We project all we are and all we know onto landscape. And, if we're open to it, the landscape projects back into us. Time spent in one place deepens this interaction creating a melding and meshing that can feel a bit like love. In the drowsy light of the coming evening I not only see where I've walked before, but who I was when I walked there. What I was feeling; what I was thinking. And isn't this how we navigate the sphere? Creating fusions of human and place, attaching meaning and emotions, drawing cognitive maps that make sense of the realm beyond our comprehension? Our connection to the world is always two things: instinctive and augmented (*italics in original*).

Connection to place, we note, integrally involves the dynamic interplay of space and time.

Informed largely by scientific and technocratic frames of reference, education for sustainable development is doing little to overturn the 'dissociation of sensibility', the 'breaking up of the ability to feel and relate to life' that set in at the time of Galileo Galilei (McIntosh, 2008, p. 154). Rather, it has colluded with the ongoing estrangement of humanity from nature. And yet, it is a sense of oneness with nature that is likely to translate into transformative action and transformed

ways of being in the world. Noel Charlton (2008, p. 160) argues that ‘the only social process that seems potentially able to override the consumerist, aggressive, power-hungry ethic that is prevalent now, seems to be a psychological dynamic oriented towards the sacred nature of the total ecology’. That dynamic is likely to be most keenly felt through an intimate relationship with the nested entity that is the local place. Kingsnorth (2012, no pagination) writes:

Global campaigning for an abstract “environment” does not appear to work. What does work is engaging with nature on a human scale. Perhaps the best rejoinder to those who believe that the world is a giant spreadsheet is an engagement with its messy everyday complexity. A kind of vernacular environmentalism: and engagement not with “the environment,” but environments as we experience them in lived reality. Perhaps it is time to go back to basics.

Those ‘basics’ might involve learners in going out and perceiving ambient fauna and flora through the seasons and asking of climate change, as Canadian children might: ‘Do we really want to lose the piping plover, the boreal clintonia, snow, the return of spring?’ (Pruneau et al., 2001, p. 135). They might also include:

- Frequent and detailed observation of the fauna and flora in an uncultivated square metre of land accompanied by log writing and sketching;
- Indigenous meadow restoration and maintenance linked to close observation of the emerging meadow ecosystem;
- Examining past accounts and stories, sketches and photographs of place, revisiting storied locations and landscape features, looking for the signature of the past, with learners imagining inhabitation of bygone days;
- Creating school butterfly and bee gardens linked to maintaining a log of insect appearances;
- Conducting a weekly local butterfly transect through spring, summer and autumn months, maintaining records and returning to past records to discern and analyse trends in the frequency of sightings of species (making findings known in the name of citizenship science);
- Replanting and re-wilding projects;
- Harvesting and preparing wild food;
- Developing and maintaining an organic school garden combined with orchard and apiary and exploring the process and biology of food production;
- Joining localized chains of food production as growers, preparers and end-users;

- Learning weaving, woodwork, pottery and other craft skills using materials that learners harvest locally;
- (In areas not subject to light pollution), keeping a record of the movement of star constellations in the night canopy;
- Keeping weather logs, making comparisons year by year, and having learners experience and respond to weather diversity;
- Translating local specimens as viewed under the microscope or through a magnifying glass or as startlingly revealed through binoculars into detailed sketches and descriptive text (and so registering the exquisite beauty of nature in its micro detail);
- Helping revive forgotten or lost local forms of nature celebration;
- Researching local vernacular nature terminology that has fallen into disuse; having learners invent a new vernacular lexicon for places they explore and map (Macfarlane, 2015, p. 326);
- Searching out and observing wildlife in urban contexts;
- Re-naturalizing and re-wilding urban parks and brownfield sites, using them as study focus.

In implementing all such activities there should be encouragement to learners to exercise sensory perception as they strive to engage with the *genius loci*, the spirit of place, and the *anima loci*, the soul of place, as manifest in both the animate and inanimate and in the wider ecosystem. Matthew Shaw (2016, p. 28) advocates a harkening to the spirit of place:

Stones, natural springs, trees, birds, valleys, mountains and even conurbations all have this soul present. Exploring sounds, sights, smells, words, song and feelings gives an opportunity to explore what is hidden below the surface and first impressions. A device to notice more, hear more, to reflect on what a space has to say. What energy is present? What emotions or memories are evoked and stimulated?

In sensory cultivation, the practicing of synaesthesia with learners can be very powerful although it can be, in its counter-rationalism, initially demanding, i.e. the stimulation of a sense impression relating to one sense through the channel of another sense. Ask the class: What colour is the spring birdsong? What taste does a dark sky have? What is the mood of the grain in the rock? What is the sound of blossom in the hedgerows? Landscape, then, 'should not be seen as still or passive; it exists embedded within an ontological web of personal and cultural narratives, collective memory and its sensory associations that are awakened through our engagement with the environments

they embody' (Outcasting Fourth Wall, 2014, no pagination).

There may well be objections to what I advocate. First, there could very well be misgivings on the grounds that rampant urbanisation has taken away direct experience of nature from increasing numbers of children and that what I propose can only apply to rural or small town children, now a minority. But there is intimate nature to be found in an urban context, the explosion of the urban fox population, the return of the otter to rivers flowing through urban areas and the nesting of the once threatened peregrine falcon on inner-city high-rise buildings being landmark examples. Furthermore, many of the learning proposals made above can indeed be implemented in urban contexts. Many an urban school can establish a garden or farm for nature study; schools can become local hubs for re-wilding and nature restoration projects, also using their own grounds; schools can provide learners with sensory experience of nature through study time spent in parks and gardens.

Second, some might take exception to what is proposed here as inappropriate learning for life in an economically and otherwise globalised world that increasingly pervades our lives - a condition, we might add, that is less than critically scrutinised by mainstream articulations of education for sustainable development (Selby, 2015, pp. 26–27). But this is to collude with the denigration of parochialism that has proceeded apace in the last century so that it has come to connote 'sectarianism, insularity, boundedness: a mind or a community turned inward upon itself, a pejorative finitude' (Macfarlane, 2015, p. 62). For the great Irish poet, Patrick Kavanagh, close observer of fine detail in the mundane, deep parochial insight is the surest means of connecting with the universal flow of things, of establishing solidarity with how lives are largely led around the world. 'Parochialism is universal and deals with the fundamentals,' he wrote in his great essay of 1952, 'The Parish and the Universe' (Kavanagh, 1967, pp. 281–283). Kavanagh saw the parish not as 'a perimeter but an aperture: a space through which the world could be seen' (Macfarlane, 2015, p. 62). For John Tomaney (2012, p. 658), 'the local, its cultures and its solidarities are a moral starting point and a locus of ecological concern in all human societies and at all moments of history'. While the globalisation impulse closes us off from our surroundings as moral source, deep sense of place arising out of a focus on the small, the particular and the specific carries within itself the potential to link the learner to the universals in human experience (Brackenborough, 2015).

Third, some might demur that there is something overly idyllic, decidedly soft and romantic, about my depiction of nature and its effect on the learner. This is not the case. In the first place intimacy with nature has to be worked at. There is no instant return or gratification from sitting in a wood 'watching nature'.

It is, rather, a process that runs counter to the swift pace of learning to which most students are now remorselessly acculturated, an acculturation from which education for sustainable development has never seriously broken free under the influence of the disciplines that have led the way in its conceptualisation, i.e. economics and the environmental and social sciences. A discipline of slow learning is called for as a means of attuning to nature. ‘The natural world is really slow,’ writes Jerry Mander (1991, p. 86). ‘Save for the waving of trees in the wind, or the occasional animal movement, things barely happen at all. To experience nature, to feel its subtleties, requires human perceptual ability that is capable of slowness. It requires that human beings approach experience with patience and calm.’ Vernacular learning in nature also involves experiencing the inhospitable, the unappealing, the uncomfortable. ‘It is this endurance of everything that nature throws at us,’ writes the Lakeland philosopher shepherd James Rebanks (2016, p. 226), ‘that shapes our relationship with this place. We are weathered like the mountain ash trees that grow here.’ That ‘weathering’ can be about experiencing nature in winter cold and storms. It can also be about understanding and coming to terms with the cycle of birth, growth, decay and death that afflicts all elements in the natural world, including ourselves. Cycles of birth and death are central to an ecological worldview. Death denial arguably foments our planetary crisis of unsustainability. We consume and rush for a reprieve from loss and death, to dull the experience of the world as it in fact is (Griffin, 1995, pp. 51–52).

Learning in and through Wonder and Joy

To sum up thus far, I have suggested that education for sustainable development, at least in its mainstream conception, marginalises nature, enshrining a valuing of the natural world that is instrumental. In so doing any educational contribution to the wished-for transformation of the global environmental condition is likely to remain out of reach. My proposal is to build a sense of oneness and intimacy with nature through learning that is local and vernacular and that fosters an empathetic and emotional bonding with place. In her lyrical and oft-reprinted essay, *The Sense of Wonder*, written in 1956, Rachel Carson reminds us of how important wonder is to the life experience of the child. She reminds us too that the child intuitively apprehends and adheres to a truth that adults easily seem to forget – that we are all part of the natural world. She writes (1998 edition) about how to nurture in the child the freshness of vision and sense of connectedness with which each of us first saw the world. ‘If a child is to keep alive his (sic.) inborn sense of wonder,’ she counsels parents, ‘he needs the companionship of at least one adult who can share it, rediscovering with

him the joy, excitement and mystery of the world we live in. [...] I sincerely believe that for the child, and for the parents seeking to guide him, it is not half so important to *know* as to *feel*' (ibid. p. 55). Thus wrote the great biologist and conservationist, author of the world-changing 1962 classic *Silent Spring* (2000).

Without a nurtured sense of wonder, an appreciation of nature and resolve to preserve beauty and diversity in this world can easily become constricted as the child moves towards adulthood. For lepidopterist Michael McCarthy, dry, rational, sustainable development will not halt the impoverishment and despoliation of the planet but the cultivation of joy and love through nature engagement – leading in turn to commitment to defend that in which we delight – might. Joy through nature – joy being defined as a form of 'concentrated happiness' (McCarthy, 2015, p. 195) – can revive the 'ancient bond with the natural world surviving deep within us [...] part of our essence [...] the natural home for our psyches' (ibid. p. 246).

All the above is in contradistinction to the ethos of an education for sustainable development that rarely gives space for poetic and numinous insight, relying overly on scientific rationality. 'At the heart of the matter,' writes Michael Bonnett (1999, p. 321) 'is the question of the adequacy of rationality to resolve issues in an area as complex, subtle and multidimensional [...] as environmental concern, not least from the motives embedded in modern rationality *itself*, expressing, as it does, 'certain aspirations to the world, notably to classify, explain, predict, evaluate and, as far as modern rationality is concerned to exploit it' (italics in original). An alternative, borrowing the title of Eban Goodstein's fine (2007) book, is one of *Fighting for Love in the Century of Extinction*.

Other Educations

If not education for sustainable development as presently manifest, what counterbalancing educational fields exist that have the potential and promise to nurture a biophilic ethic (Wilson, 1984) that affiliates the learner with other life forms through intimate experience of the near-at-hand?

Place-based education takes as its starting point the attunement of the learner to the specific attributes and rhythms of place through curriculum content that focuses upon the geographical, geological, ecological, cultural and sociological. The approach is interdisciplinary, experiential, enquiry-based, and involves, according to many of its advocates, an action component. Key to the approach is that of seeing 'human beings as one part of the natural world and human cultures as an outgrowth of interactions between our species and particular places' (Smith & Williams, 1999, p. 3). It, thus, seeks to revive appreciation

of place-informed culture, something eroded through industrial growth (ibid. p. 4). Place-based education has been labelled ‘ecological education’, a key principle of which concerns developing ‘affinity with the earth through practical experiences out-of-doors and through the practice of an ethic of care’ (ibid.).

Bioregional education enjoys a considerable overlap with place-based education, taking as its focus and learning laboratory an area of distinctive geological and natural features that has shaped and informed human cultural expression and practice in that place. ‘A critical component of each bioregion is the human culture which has developed within and is integral to that area’ (Traina, 1995, p. 3). A bioregion may straddle political boundaries. Within its parameters, adherents theorize that there exists amongst the human population a ‘terrain of consciousness,’ a shared feeling of identification with natural and cultural influences in their interplay (ibid. p. 4). The kinship and interdependence of the natural and cultural within the bioregion is of core educational concern (ibid. p. 7). ‘Bioregional education recognizes no separation of learning from life. [...] The process of bioregional education is one of active participation and sharing within the human community and the natural environment. Bioregional education honours the products of the intellect while remaining grounded in a joyful and empowering awareness of spirit’ (ibid.).

Outdoor education is by no means locally restricted but most commonly happens near to the home or school base. It is an approach that aims to offer learners meaningful in-situ experience of both natural and constructed environments that complements class learning while also practising enquiry, observational and other skills ‘out in the field’ (Dillon et al., 2005, pp. 20–21; Woodhouse & Knapp, 2000).

Passion Leading to Activism

Any call for passion for nature allied with passion for place swims against the tide of what is happening to child experience in the contemporary world. Figure 1 below captures the essence of the argument put forward by George Monbiot (2012, p. 30) that we are facing a ‘second environmental crisis: the removal of children from the natural world’. Stories of environmental devastation and loss assail us with insistent frequency. But ‘where,’ he asks, ‘are the marches, the occupations, the urgent demands for change?’ The problem, he responds, is that ‘young people we might have expected to lead the defence of nature have less and less to do with it.’

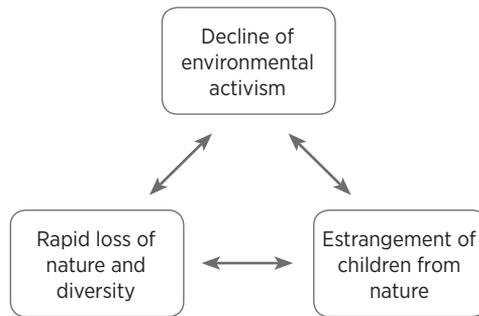


Figure 1. The 'Second Environmental Crisis' (Monbiot, 2012, p. 30)

Monbiot proceeds to enumerate examples illustrative of the 'remarkable collapse of children's engagement with nature – which is even faster than the collapse of the natural world.' Drawing on the work of Richard Louv (2005) on nature deficit disorder in children in the USA (i.e. behavioural problems and hyperactivity, physical and emotional illness resulting from spending little time out of doors) and also on Stephen Moss' 2012 survey, *Natural Childhood*, written for the United Kingdom National Trust, he cites, *inter alia*, the following examples:

- Since the 1970s the 'radius of activity', i.e. the area around their homes in which children are able to roam unsupervised has decreased by almost 90%;
- In one generation the proportion of children in the UK regularly playing in wild places has fallen from more than half to fewer than one in ten;
- In the USA in the period 1997 to 2003, the number of children with outdoor hobbies fell by half;
- 11–15-year olds in the UK spend, on average, half their waking day in front of a screen.

There are myriad factors behind such trends; for instance, safety fears on the part of parents, destruction of the common land on which previous generations of children played, the alluring, addictive quality of indoor electronic entertainment and of virtual worlds and virtual connectivity. But the decline of nature experience matters, writes Monbiot (2012, p. 30), in that 'if children lose contact with nature they won't fight for it.' Estrangement from nature thus clears the way for 'forces which if they cannot be turned, will strip the living planet of the wonder and delight, of the ecstasy – in the true sense of that word – that for millennia have drawn children into the wilds' (ibid). 'Most of those who fight for nature are people who spent their childhood immersed in it,' he notes. 'Without a feel for the texture and functions of the natural world, without an

intensity of engagement almost impossible in the absence of early experience, people will not devote their lives to its protection' (ibid.).

There is, then, a powerful case for the kind of nature learning that education for sustainable development has more or less marginalised. In calling for children to become feral (i.e. released from captivity and domestication) and thus rewilded, Monbiot (2013, p. 169) makes an impassioned plea for a return to the woods:

Missing from children's lives more than almost anything else is time in the woods. Watching my child and others, it seems to me that deep cover encourages deep play, that big trees, an understory mazed by fallen trunks and shrubs which conceal dells and banks and overhangs, draw children out of the known world and into others. Almost the woods become peopled with other beings, become the setting for rhapsodic myth and saga, translate the children into characters in an ageless epic, always new, always the same. Here, genetic memories reawaken, ancient impulses are unearthed, age-old patterns of play and discovery recited.

The children in the woods are learning to be denizens, dwellers in place, something just as important as learning to be citizens. In fostering learning for denizenship, biology education has a crucial part to play. It can cultivate nature intimacy that fuses the scientific and the aesthetic. It can take learning out into locality. It can develop and hone skills and dispositions for multi-sensory nature learning. It can explore how nature informs cultural expression. It can reveal the miraculous in the mundane – the 'World in a Grain of Sand' and 'Heaven in a Wild Flower' to borrow from William Blake (Hayward, 1968, p. 243). It can help build and deepen learner affinity with and love of nature leading to an ethic of active care and defence of nature, an ethic that is the springboard for activism.

In so doing the biological sciences, reconfigured to give space for slow, multi-sensory learning melding the scientific and the spiritual, can play a potentially crucial role in redressing the de-natured condition of education for sustainable development which, it has been suggested, seeks transformation but ignores the transformative potentials and energies that can be unleashed by a lived and felt relationship of committed engagement with the natural world. Such a reconfigured biology education would also find itself rather closely aligned with what has come to be known as activist or action-oriented science education 'in which students not only address complex and often controversial environmental and socioscientific issues and formulate their own positions concerning them, but also prepare for, and engage in, sociopolitical actions that they believe will "make a difference"' (Hodson, 2014, p. 68).

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