

This article was downloaded by: []

On: 19 January 2012, At: 02:01

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Journal of Adventure Education & Outdoor Learning

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/raol20>

Developing sustainability-literate citizens through outdoor learning: possibilities for outdoor education in Higher Education

Alison Lugg^a

^a La Trobe University, Bendigo, Australia

Available online: 06 Dec 2007

To cite this article: Alison Lugg (2007): Developing sustainability-literate citizens through outdoor learning: possibilities for outdoor education in Higher Education, Journal of Adventure Education & Outdoor Learning, 7:2, 97-112

To link to this article: <http://dx.doi.org/10.1080/14729670701609456>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.tandfonline.com/page/terms-and-conditions>

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae, and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

Developing sustainability-literate citizens through outdoor learning: possibilities for outdoor education in Higher Education

Alison Lugg[★]

La Trobe University, Bendigo, Australia

UNESCO's challenge to Higher Education institutions to provide educational leadership in sustainable development, provides an impetus to develop innovative, interdisciplinary curricula and pedagogy. Whereas Higher Education curricula in sustainability and sustainable development have tended to come from the environmental sciences, recent studies have highlighted the need for more holistic, experiential, interdisciplinary approaches. As a pedagogical approach, outdoor learning may have something to offer since it lends itself to holistic and experiential learning and enables integration of knowledge and skills from a range of discipline areas. Outdoor and environmental education research suggests that educational experiences in outdoor settings can be significant in developing environmental sensitivity and knowledge. Such knowledge and attitudes are components of ecological literacy and, more recently, sustainability literacy. This paper considers how outdoor experiential pedagogy might contribute to the current sustainability education agenda. It focuses on Higher Education since this sector has the obligation and the capability of instigating a 'ripple' effect in developing sustainability-literate citizens. It discusses possibilities and issues arising from a review of outdoor, environmental and sustainability education literature, particularly, but not exclusively, from the UK. The paper is a precursor to an empirical study into how outdoor learning might contribute to the development of sustainability-literate graduates.

Introduction

While both sustainability and sustainable development (SD) are related and contested concepts, both arise from an awareness that 'human development aspirations and the capacity of the environment to support them were on a collision course' (Parkin, Johnston, Buckland, Brookes, & White, 2004a, p. 5). *Sustainability* can be seen as a goal to which humanity can aspire while *sustainable development* is a process

[★]School of Outdoor Education and Environment, La Trobe University Bendigo, PO Box 199, Bendigo, Victoria 3552, Australia. Email: a.lugg@latrobe.edu.au

for achieving that goal. Debates around these concepts arise with regard to what is to be sustained, how, for whom and by whom? The term 'sustainable development' is in common use since being defined by the World Commission for Environment and Development (WCED) in 1987: 'Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs' (Bruntland, 1987, p. 47). This definition leaves much open to interpretation and is underpinned by a contested assumption that it is possible for current generations to anticipate the needs of future generations (Redclift, 2005). Subsequent attempts to define the term are similarly problematic; nevertheless, SD has been embraced globally in what Wals and Jickling (2002, p. 223) refer to as an Orwellian process of 'doublethink', whereby, believing 'that sustainability is inherently good', people can simultaneously promote the sustaining of ecological processes and of consumerism. This perceived clash of values is at the root of much debate in sustainability discourse and education has an important role in developing students' abilities to analyse such issues as well as the skills to develop practical solutions to the environmental, social and economic problems underpinning the sustainability agenda (Bowers, 2001; Orr, 2004; Sterling, 2004).

Like the multiple interpretations of the terms *sustainability* and *sustainable development*, terminology and approaches to *sustainability education* are necessarily diverse since sustainability education is a contextually situated and evolving field of study (Leal Filho, 2000). The term *education for sustainable development* (ESD) is used by UNESCO¹ and is now in common usage but, as outlined above, the notion of 'development' is problematic in this context. Some use the term 'education for sustainability' (EfS) but this is contested by those such as Jickling (1992) who see it as promoting particular values and behaviours and therefore an educationally unjustifiable form of indoctrination. While it is not the purpose of this paper to debate such educational issues, it is important to be aware of the discourse and contextual issues surrounding the notions of sustainability and sustainable development when considering the potential for outdoor education to facilitate learning relevant to these concepts. Since a significant argument for the role of outdoor education pedagogy relates to advocacy for *interdisciplinary* approaches to sustainability education, a broad conceptualization of sustainability and of the role of education will be adopted for the purpose of this paper. Therefore I use the term *sustainability education* (SE) which is more inclusive of multiple perspectives and does not, in itself, suggest a particular value orientation.

Sustainability education in Higher Education

A decade after the United Nation's (UN) adoption of Agenda 21 in 1992, UNESCO's declaration that 2005–2014 is a Decade for Education for Sustainable Development (DESD) is a call for the international education sector to make ESD a high priority in curriculum and structural planning (Nordic Council of Ministers, 2003). That the Higher Education sector has an important role to play in the development of a sustainability-literate society is largely undisputed; however reports by the UK Higher Education Partnership for Sustainability (HEPS) and the Australian

Research Institute for Education for Sustainability (ARIES) reveal that, while there is general consensus that *interdisciplinary* approaches to sustainability education need to be developed in Higher Education curricula, there is often a 'gap' between rhetoric and reality (Parkin et al., 2004a; Tilbury, Podger, & Reid, 2004). Universities have tended to focus their attention on management and resource issues rather than curriculum development despite the efforts of some motivated individuals and groups within higher education institutions to develop interdisciplinary sustainability education curricula (Parkin, Johnston, Buckland, Brookes, & White, 2004b).

Barriers to the development of curricula and pedagogies based on sustainability principles in higher education institutions have been identified (see Cortese, 2003; Martin and Jucker, 2003; Domask, 2007; and The Higher Education Academy, 2006, for example), but a full discussion of these is beyond the scope of this paper. In summary, many of the identified barriers relate to Higher Education structures and reward systems that support discipline-based curriculum, pedagogy and research. However deeper, more complex barriers relate to fundamental cultural and social values that see humans as separate from 'nature' and that promote individualistic, competitive, materialistic world-views (Orr, 1992, 2004; Bowers, 2001; Cortese, 2003; Sterling, 2004). These authors argue that the Higher Education sector has a moral obligation to challenge 'unsustainable' cultural values in its own structures and practices, particularly through developing more holistic, collaborative and experiential approaches to curricula and pedagogies. The deeply problematic nature of such a paradigm shift is summarised by Orr (2004, p. 5):

The kind of education we need begins with the recognition that the crisis of global ecology is first and foremost a crisis of values, ideas, perspectives, and knowledge, which makes it a crisis *of* education, not one *in* education.

While the problems of educational transformation are acknowledged by its advocates, similar views are reiterated in recent literature including some national reports on sustainability in Higher Education:

Change for sustainability requires the integration of these activities such that the context, content and process of learning reflect the principles of sustainability. This involves a process whereby universities and colleges assess every aspect of their role and adopt a whole-of-institution approach . . . this type of learning organization has embraced transformative learning . . . it encompasses the notions of experiential learning, action learning as well as critical reflection (Tilbury, Keogh, Leighton, & Kent, 2005, p. 26).

That such critically reflective processes necessarily take time to develop and are subject to changing political and social priorities, may be another reason for the limited evidence of coherent engagement with the sustainability agenda in Higher Education institutions.

Outdoor education in ESD policy and curricula

Despite the evidence that Higher Education has been slow to respond to the sustainable development imperative, more recent reports and policy initiatives suggest that this

situation is changing, with the response of the Higher Education sector to the United Kingdom (UK) Government sustainable development agenda now gathering momentum (Holcombe, 2005; Sankey, 2006). The UK sustainable development strategy, *Securing the future* (2005), calls on *all* education sectors to 'embrace sustainable development and to promote the concept of *sustainability literacy*² among their students' (The Higher Education Academy, 2006, p. 3). However the Scottish Executive (2006) has taken the lead in establishing a firm educational agenda through the Action Plan *Learning for our future*. This plan provides a detailed commitment to supporting the development of ESD curricula and resources in the formal and informal education sectors and urges higher education institutions to integrate ESD into curricula, develop students' sustainability literacy and citizenship skills, and 'encourage the development of generic cross-disciplinary modules in sustainable development and trans-disciplinary approaches to teaching and learning' (p. 9). Significantly, *Learning for our future* identifies *outdoor education* as a vehicle for sustainability education, recognizing its potential for developing *environmental awareness, citizenship* and for *linking* different strands of the school curriculum (p. 7). It pledges to support the development of outdoor learning opportunities provided by NGOs such as the John Muir Trust, Royal Society for Protection of Birds (RSPB), Scotland and Scottish Natural Heritage (SNH) and to build capacity within and between these programmes. This is an important step towards *publicly* and *formally* recognizing the role of outdoor learning in environmental and sustainability education and provides real impetus for the development of interdisciplinary curricula incorporating outdoor education pedagogy. This policy direction seems to reflect a recent shift in social attitudes in favour of outdoor learning, in schools at least, with the positive tenor of the reports of the Office for Standards in Education (2004) and the House of Commons Education and Skills Committee (2005) on outdoor learning in schools. These attitudinal shifts seem to be underpinned by concerns for the health of both the environment and of the nation's young people, two agendas that are at the heart of both outdoor education and sustainability education.

This shift is recognized by Higgins and Kirk (2006) who advocate an interdisciplinary approach connecting geography, citizenship education, outdoor education, environmental education and sustainability education in the Scottish school curriculum. Although the authors recognize that sustainability education is gaining prominence in the political agenda in Scotland and that there are some specific references to education for sustainable development³ in teacher education guidelines, they point out that it is listed only as an *optional* module in teacher training (p. 318). This leaves the implementation of ESD in initial teacher education (ITE) dependent on the level of motivation of individual institutions and the authors suggest that there is significant imperative and opportunity to develop sustainability education in ITE programmes.⁴ Therefore although Government and public recognition of outdoor education as a vehicle for sustainability education refers specifically to school education, it is also directly relevant to higher education in that teachers and other professionals who work with young people need to be prepared

to teach/work in outdoor contexts (as well as indoors) and to understand how outdoor pedagogy might best be used. A review of research on outdoor learning by Rickinson et al. (2004) also acknowledges the importance of higher education institutions using outdoor pedagogy, where relevant, in the training of undergraduates and student teachers.

However a recent Australian study with pre-service teachers suggests that, although outdoor experiential approaches to environmental and sustainability education can engender positive environmental attitudes, *transformational* effectiveness is limited (Odgers, 2007). Findings based on data from a pre- and post-course questionnaire, revealed that the pre-service teachers' environmental attitudes became even more positive after a course based on outdoor environmental activities (such as water quality monitoring), but their *behaviours* did *not* change significantly. While these results raise questions about the effectiveness of this particular example of 'real world' pedagogy, the data was too limited to infer any particular reasons for the findings. It does however suggest the need for research into the nature of the students' experiences and the pedagogical processes as well as other influencing factors.

Outdoor education in higher education

In a recent survey of outdoor studies in UK higher education institutions, Humberstone and Brown (2006) found that undergraduate programmes in outdoor, adventure and/or developmental education are burgeoning, with well over 100 degree programmes offered in more than thirty HE institutions (p. 5). The authors suggest that with the development of such programmes and the increasing level of research in the field, the outdoor sector in the UK has developed to the extent that 'the profession can now claim that the outdoors as a field of study is on the academic agenda' (Humberstone & Brown, 2006, p. 3). Despite this positive scenario, the authors point to significant issues for outdoor educators working in higher education institutions in balancing the demands of different stakeholders such as outdoor sector employers, students and policy-makers, with the demands of HE institutions for academic rigour and curricula innovation. The emergence of outdoor pedagogy as an academic field of endeavour poses both problems and possibilities for academics and practitioners in the sector, and for the connections between outdoor and 'indoor' curricula and pedagogy at all levels of education. Interestingly approximately one-half (7 out of 15) of the higher education outdoor education programmes described in this text, claim to pay some attention to sustainability objectives.⁵ The extent to which this reflects a response to new educational imperatives or policies is uncertain but will be addressed in a forthcoming research project. This paper explores possibilities and problems in the intersections between *outdoor* and *sustainability* education, two emerging academic fields, in higher education contexts. In particular it is interested in the contribution that outdoor pedagogy might make to the development of outdoor education graduates' sustainability literacy.

Sustainability and ecological literacies

The reports of The Higher Education Academy (2006) and HEPS (Parkin et al., 2004a) suggest that graduates from UK higher education institutions should be *sustainability literate*. Sustainability literacy is an emerging concept that has developed from Orr's (1992) groundbreaking notion of *ecological literacy*, often used synonymously with the term *environmental literacy*. Orr (2004) argues that, in order to understand current environmental issues, *all* university graduates should have a basic knowledge of the principles of: thermodynamics, ecology, energetics, sustainable agriculture and forestry, limits of technology, steady-state economics and environmental ethics, and the practical skills to enable the 'art of living well' (Orr, 2004, p. 14). In order to develop such literacies Orr (2004) argues that interdisciplinary learning *in natural environments* is essential since there is an ontological connection between discipline-based learning and human exploitation of 'nature':

And there is a connection between knowledge organised in boxes, minds that stay in those boxes, and degraded ecologies and global imbalances . . . This is not merely an intellectual failure to recognise our dependence on natural systems, . . . it is rather a deeper failure in the educational process to join intellect with affection and loyalty to the ecologies of particular places, . . . a failure to bond minds and nature . . . I suggest that at all levels of learning . . . some part of the curriculum be given to the study of natural systems roughly in the manner in which we experience them (Orr, 2004, p. 95).

Through his critique of educational processes and institutions Orr offers a challenge for sustainability education and an opportunity for outdoor education to make a significant contribution to developing ecological literacy. A similar imperative to facilitate educational experiences in natural environments is highlighted by Stables and Bishop's (2001) conceptualization of 'strong' environmental literacy as 'reading' the environment as socially constructed 'text'. The implication of this view is that interpretation of an environment occurs through *interaction with* this environment. The conceptualization of environment 'as text' then supports Orr's argument that people need to interact with 'nature' in order to better understand its ecological, social and aesthetic value and our relationships with the world. These arguments clearly suggest a potential role for outdoor education at all levels of education and particularly in higher education if appropriate curricula and pedagogy are to be developed and modelled.

Sustainability literacy encompasses ecological/environmental literacy and includes an even broader set of knowledge and skills, involving understanding the symbiotic relationships between *environmental*, *social* and *economic* dimensions of sustainable development (Parkin et al., 2004a, p. 9). According to the authors, a sustainability literate person must have the skills and knowledge to assess and make decisions by taking these three dimensions⁶ into account simultaneously rather than separately, thus setting a cultural and structural challenge for Higher Education institutions. The Higher Education Academy (2006) builds on this notion of sustainability literacy by outlining a set of knowledge and skills that should be attained by 'sustainability-literate' graduates in order to contribute to the 'long-term future of the economy and

ecology of our communities' (p. 2). Examples of knowledge and skills identified are as follows.

- Appreciation of the importance of environmental, social, political and economic contexts for each discipline.
- A broad and balanced foundation knowledge of sustainable development, its key principles and the main debate within them.
- Problem-solving skills in a non-reductionist manner for highly complex real-life problems.
- Ability to think creatively and holistically and to make critical judgements.
- Ability to develop a high level of self-reflection.
- Ability to understand, evaluate and adopt values conducive to sustainability.
- Ability to bridge the gap between theory and practice; in sustainable development, only transformational action counts.
- Ability to participate creatively in inter-disciplinary teams.
- Ability to initiate and manage change (The Higher Education Academy, 2006, p. 6).

The intention is that each university works out how best to ensure that these literacies are addressed, for example, within each discipline area or in 'custom-made' multi-disciplinary courses. The Higher Education Academy recognizes that the development of curricula to address these sustainability literacies requires lateral thinking, openness to new ideas and flexible structures on the part of institutions to incorporate different modes of teaching and learning.

Outdoor education and sustainability literacy

It is clear from a perusal of the 'literacies' outlined above that there is considerable potential for experiential methods such as community-based and/or outdoor pedagogy to make a significant contribution to developing sustainability-literate graduates. This potential is even more evident when we consider the sustainability literacy knowledge and skills listed above with the three skills identified as integral to ESD in Scotland's *Learning for our future* (Scottish Executive, 2006): (1) *joined-up thinking*, (2) *participative working*, and (3) *reflective practice*. These generic skills strongly reflect those advocated by outdoor educators such as Higgins (1996), Loynes (2002) and Nicol (2002, 2004) in their arguments for development of concept-based outdoor education practice underpinned by ecological and sustainability objectives. The three skills are also very similar to the criteria used by O'Connell, Potter, Curthoys, Dymont, and Cuthbertson (2006) as a basis for demonstrating the potential for SE through outdoor recreation education and practice. Their work is based on Lefebvre's (2000) criteria for evaluating sustainability education pedagogy:

1. interconnections between social, environmental and economic aspects of issues covered,
2. emphasis placed on interacting and learning with nature,

3. teaching methods and strategies develop skills and attitudes to enable reflection, critical thinking, collaboration and action for social change,
4. materials and curricula support community involvement and participation towards contextually and culturally appropriate learning.

O'Connell et al. (2005) argue that not only is outdoor recreation relevant to the above criteria but that it is essential that outdoor recreation educators in HE institutions adopt an SE approach:

It has become fundamentally clear that sustainable education training in outdoor recreation rests on the curricula planners and instructors who teach in this exciting and rapidly growing area. It has also become evident that the future of this field is untenable should teachers in post-secondary outdoor recreation programs not recognize and act on their responsibility to train sustainable leaders for tomorrow (O'Connell et al., 2005, p. 91).

Although this argument relates specifically to outdoor recreation leadership training, it can equally be applied to outdoor education in higher education contexts.

It is worth noting that the sustainability literacies identified by The Higher Education Academy (2006) emphasize personal and interpersonal skills, many of which can be addressed through outdoor or experiential education. Murray, Brown, and Murray (2007) support the need for personal, values-based approaches to sustainability literacy, arguing that they are more likely than employment skills or performance-based approaches, to motivate individuals to take personal action to live more sustainably. The authors advocate use of Neuro-Linguistic Programming as a strategy for examining personal values and beliefs in relation to sustainability issues. Similarly, outdoor experiential pedagogy could offer an effective medium for this purpose, but to date arguments for outdoor pedagogy in sustainability education have tended to relate to development of *environmental* literacy. There is an opportunity here to draw upon outdoor learning for connecting personal and social with environmental literacies to create an experiential approach to sustainability literacy development. There is particular scope for development of an outdoor education pedagogy such as this through the higher education sector where critical reflection skills are often a pedagogical focus.

A significant rationale for addressing sustainability literacy through outdoor learning relates to the potential of *educational* outdoor experiences to enhance environmental knowledge and *empathy* (Higgins, 1996; Nicol, 2002, 2004; Orr, 2004; Higgins & Kirk, 2006). Empirical research relating to this potential has produced varied results. In an overview of environmental education research, Rickinson (2006) argues that much is known about environmental outcomes but very little about learning *processes*, a conclusion that has also been drawn in relation to outdoor education research (Neill & Richards, 1998). It seems that researchers in outdoor and environmental fields have tended to focus on 'what' questions rather than 'how' questions which, in relation to the development of curricula and pedagogy, reveals a significant deficiency in knowledge generation. Notably for outdoor educators, Significant Life Experience (SLE) research in the UK and many other countries, has

established that outdoor experiences in ‘natural’⁷ environments, particularly in childhood, are significant formative influences in establishing an environmental conservation and/or activist ethic in adults (Tanner, 1980; Corcoran, 1999; Palmer, Suggate, Robottom, & Hart, 1999). However, understanding of this phenomenon is limited as Gough (1999) and Payne (1999) point out. Further research needs to focus on the specific nature of these outdoor experiences, how similar experiences might influence different individuals, how people of different social and cultural groups interpret their outdoor experiences and how these findings might ‘translate into culturally sensitive and contextually specific curriculum and pedagogical practices’ (Payne, 1999, p. 366).

The nature of the experience—pedagogical considerations

The issues raised above may relate to findings from Rickinson et al.’s (2004) *A review of research on outdoor learning*, which tentatively suggests that, *if well planned and taught*, fieldwork experiences⁸ particularly those with residential components, *may* enhance students’ environmental knowledge and affinity, by providing connections between the *cognitive* and *affective* domains thus assisting higher order learning (p. 24). In particular they highlight the potential importance of the *affective* domain, in that many studies reviewed, reported that both fieldwork and outdoor adventure experiences *can* (but may not) foster positive attitudes, self-perceptions and interpersonal skills. The importance of affective learning in developing environmental sensitivity and concern is also highlighted by Higgins (1996), Martin (2004) and Shallcross (1996) who similarly identify that this is a critical dimension of environmental and sustainability pedagogy but a much neglected area of outdoor and environmental education research. Significantly, though, the report by Rickinson et al. (2004) emphasizes that research does *not* indicate strong links between participation in outdoor *adventure* activities and environmental concern and awareness (p. 32). This finding, supports the conclusion of Haluza-Delay (1999) but contrasts with the findings of some empirical outdoor and environmental education research (Palmberg & Kuru, 2000; Martin, 2004). However all authors qualify their claims by emphasizing the importance of spending *extended periods* in outdoor environments and of *careful facilitation* of the experiences. All these studies suggest that the *nature of the experience* and, therefore, the framing and pedagogical strategies employed, are crucial factors in engendering environmental empathy. While the findings of the Rickinson et al. (2004) review do not directly discuss the potential of outdoor learning to contribute to the sustainable development agenda, they do relate to environmental education and clearly highlight the potential for enhancing curricula and pedagogy in schools and Higher Education institutions by incorporating outdoor experiences into curricula.

‘Connectedness’ and sensory experience in outdoor environments

The aforementioned research suggests that learning from the experience of ‘nature’ is significantly influenced by the *nature of the experience*. Like Orr, Nicol (2004) sees a

connection between a lack of direct experience of natural environments and a world-view that separates humans from the rest of the natural world:

it is lack of sensory immersion that leads people not to be aware of their connection to landscape. This is why taking people outdoors is so important so that they can engage their senses and experience their connectedness to places (Nicol, 2004, p. 14).

This notion of 'connectedness' is critical to understanding ecological perspectives of the world and of sustainable ways of living *in* and *with* the world. Outdoor education, unlike many other forms of 'indoor education' is in a unique position to offer experiences that *may* engender awareness and understanding of human connectedness to other forms of 'nature'. Higgins (1996) concurs, arguing that 'in most aspects of our lives there is virtually no form of environmental feedback' (p. 8) and proposes that outdoor educators shape experiences that demonstrate both short and long-term ecological consequences of human actions. In arguing that direct experience of nature and natural processes can engender a connection with the environment, Higgins and Kirk (2006) emphasize the *sensory*, *affective* and *cognitive* potential of the outdoor experience as a catalyst for SE:

For some, feeling water falling from the sky as rain, sitting on a river in a canoe are opportunities to discuss the water cycle and perhaps develop a theme to include global climate change. Similarly boiling water for a hot drink (using a fire or camp stove) can stimulate discussions on the storage and release of carbon from wood or oil and hence global carbon balance, embracing environmental, social and economic dimensions (Higgins & Kirk, 2006, p. 321).

This example illustrates a key difference between outdoor learning and 'indoor' learning in that the latter can facilitate cognitive development but the nature of the immediate classroom environment significantly limits the range and depth of sensory experience and affective learning. Alternatively the outdoor environment offers a more holistic mode of learning through direct, sensory, affective and cognitive engagement with ecological systems and processes, such that the consequences of individual and collective actions may have *immediate* and *real* outcomes for the learner. The immediacy of the feedback for learners offers powerful pedagogical possibilities for outdoor education to contribute to the sustainability agenda. However it again reinforces the importance of the teacher's knowledge and skills to frame and facilitate this learning and to maximize serendipitous opportunities for developing environmental learning and/or sustainability literacy. It is *not* merely a matter of exposing people to outdoor experiences and hoping that they become infused with environmental awareness or sensitivity.

Critiquing values, perspectives and relationships

Pedagogical approaches to environmental sensitization through outdoor experience vary considerably. Martin (1999), for example, argues for a more socially critical approach in which outdoor experiences can provide opportunities to examine human-nature relationships from different perspectives and to critique social norms

that may perpetuate exploitative values and behaviours. In his work with students studying an outdoor education degree at La Trobe University, he uses an analogy of 'nature as friend' in which students are encouraged to re-visit particular environments over time and in different seasons and conditions so that they may develop a more 'intimate' relationship with the place (Martin, 1999). Similarly Preston and Griffiths (2004) use an action-research approach in which outdoor education students⁹ revisit and explore local environments using different 'ways of knowing' or knowledge paradigms to guide their activities.

A different approach is taken by Brookes (1998)¹⁰ who focuses on developing an understanding of local environments and bioregions through paying particular attention to ecological features and relationships through outdoor experience. For example, in constructing winter alpine experiences in southeast Australia, Brookes leads ski touring as a way of knowing the mountain environment rather than using the mountain terrain as a site for practising skiing skills. This approach involves careful consideration of how the experience is framed and facilitated:

Rather than choosing a site suitable for the next skiing skill in the sequence, and speaking of the skill but not the site, the teacher may be explicit in placing all skiing skills in a context of snow and terrain, and in allowing snow and terrain to largely determine the sequence. It is helpful if teachers develop a whole mountain view, rather than attending just to the trails. Leaving the trail can subtly change the experience, trails imply destination in a way a snow bound forest does not. Paying attention to the question 'what lives here and how do they live' can provide a quite different experience to a skills-centred programme (Brookes, 1998, pp. 87–88)

In shaping the experiences in this way, Brookes consciously attempts to construct a 'reconciliatory' relationship with the land rather than a 'colonising' approach that may, at least in part, perpetuate unsustainable world-views and practices. Such an approach challenges dominant notions of outdoor education practice and provokes student's consideration of *why* and *how* they are learning in these outdoor environments and what educational imperatives might be addressed through such experiences. These socially critical pedagogical approaches to outdoor environmental education are ultimately concerned with challenging social norms and developing more sustainability literate graduates. As such they may be open to criticism for perhaps promoting values that could be seen as education *for* sustainability (Jickling, 1992), rather than sustainability education. These are significant educational issues that illustrate that, like sustainability education, outdoor and environmental education are value-laden, contested fields and suggests that such characteristics should inform pedagogical development and curricula design in these areas.

While the arguments for developing environmental or ecological literacy through outdoor experience are persuasive, there has been limited systematic research in this field¹¹ and the processes of knowledge production and skill development (for ecological literacy) through outdoor education experience are not well understood (Brookes, 1998; Nicol, 2002; Rickinson et al. 2004). This situation is however improving in that several recent case studies do address particular pedagogical approaches to

outdoor environmental education in higher education contexts (see Martin, 2004; Preston & Griffiths, 2004; Stewart, 2004 and Thomas, 2005, for example). These studies have mainly occurred in Australian outdoor education degree or postgraduate programmes thus leaving considerable scope for similar research in the UK and other countries. With the current social, political and ecological imperatives for sustainability education there is clearly a need for more research in outdoor environmental pedagogy. There is potential for research that connects *environmental* pedagogy with *personal* and *social* dimensions to address at least two 'legs' of the 'three legged stool' of *sustainability*. The possibilities for outdoor education to address economic aspects of sustainable development are less obvious but consideration of how these dimensions interact may considerably enrich curricula and pedagogy in this field. These 'gaps' in research, curriculum and pedagogical knowledge, along with the current educational and political drivers, indicate that there is *good reason* to undertake research exploring the potential of outdoor education pedagogy to contribute to sustainability education.

Conclusions

Clearly Higher Education has a role to play in developing sustainability literacy but understanding of what knowledge and skills are required is emerging and contested and university structures are not conducive to interdisciplinary approaches to learning.

Higher Education research has identified the importance of interdisciplinary, experiential, holistic pedagogy in developing sustainability literacy in tertiary students. This paper suggests that outdoor education may have something to offer in this regard and that direct experience in natural environments can (but may not necessarily), facilitate connections with and concern for nature. If approached from a critical paradigm, outdoor experience can also offer alternative world-views and practical approaches to more sustainable living. However there is limited understanding of *how* and under what circumstances these environmental connections and perspectives develop.

Outdoor educators in higher education contexts in the UK (and elsewhere) have exciting opportunities to explore and develop interdisciplinary, holistic, experiential and, possibly, action-oriented approaches to sustainability education. Such curricula and pedagogical development may make a positive contribution to the development of sustainability-literate citizens and to the development of outdoor education knowledge and practice. However such possibilities will not be realized through simple 'add-ons' to existing structures and practices, they require what Sterling (2004) refers to as '*response-ability*', that is, the ability of educators, policy-makers and institutions to respond and adapt to the 'wider context of the crisis of unsustainability and the opportunities of sustainability' (Sterling, 2004, p. 50). A cultural and educational paradigm shift such as this is a significant but necessary challenge for all. The 'response-ability' of outdoor educators to rise to this challenge remains to be seen.

Notes

1. United Nations Educational, Scientific and Cultural Organization.
2. This concept is explained later in the paper, p. 6–7.
3. This term is used where there are specific references to it in the literature.
4. However the development of SE in Initial Teacher Education programmes may improve after the publication of the *Learning for our future* Action Plan.
5. The extent to which these programmes are oriented towards sustainability goals varies considerably.
6. These three dimensions are often referred to as the ‘triple bottom line’ or ‘three-legged stool’ model of sustainable development.
7. The degree of ‘naturalness’ varies considerably but is usually outside urban settings.
8. This refers to learning about nature or particular environmental features through outdoor experiences.
9. At The University of Ballarat.
10. La Trobe University Bendigo.
11. This observation is limited to English language literature.

Author biography

Alison Lugg lectures in outdoor and environmental education at La Trobe University, Bendigo, Australia, after having spent the last three years at Moray House School of Education at The University of Edinburgh. Alison’s research interests are in curriculum, pedagogy and sustainability education. She is investigating the role of outdoor pedagogy in sustainability education and sustainability literacy development, as a Ph.D. project.

References

- Bowers, C. A. (2001). Challenges in educating for ecologically sustainable communities. *Educational Philosophy and Theory*, 33(2), 257–265.
- Brookes, A. (1998). Place and experience in Australian outdoor education and nature tourism. In *Outdoor recreation – Practice and ideology from an international comparative perspective*, Umea, Sweden.
- Bruntland, G. (ed.) (1987). *Our common future: The World Commission for Environment and Development*. Oxford: Oxford University Press.
- Corcoran, P. B. (1999). Formative influences in the lives of environmental educators in the United States. *Environmental Education Research*, 5(2), 207–220.
- Cortese, A. (2003). The critical role of higher education in creating a sustainable future. Society for College and University Planning. Retrieved on 16 April 2007 from: http://www.aashe.org/resources/pdf/Cortese_PHE.pdf
- Domask, J. (2007). Achieving goals in higher education: An experiential approach to sustainability studies. *International Journal of Sustainability in Higher Education*, 8(1), 53–68.
- Gough, N. (1999). Surpassing our own histories: Autobiographical methods for environmental education research. *Environmental Education Research*, 5(4), 407–418.
- Haluza-Delay, R. (1999). The culture that constrains: Experience of ‘nature’ as part of a wilderness adventure program. *The Journal of Experiential Education*, 22(3): 129–137.
- Higgins, P. (1996). Outdoor education for sustainability: Making connections. *Journal of Outdoor Adventure and Experiential Learning*, 1(4), 4–11.

- Higgins, P., & Kirk, G. (2006). Sustainability education in Scotland: The impact of national and international initiatives on teacher education and outdoor education. *Journal of Geography in Higher Education*, 30(2), 313–326.
- Holcombe, E. (2005). *A worldwide comparison of ESD initiatives in Higher Education*. Report for Robin Harper, Member of the Scottish Parliament, Edinburgh, 29 April 2005.
- House of Commons Education and Skills Committee (2005). Education outside the classroom, Second Report, Session 2004–5, 10th February. London: the Stationery Office. Retrieved January 5, 2007, from <http://www.publications.parliament.uk/pa/cm200405/cmselect/smeduski/120/120.pdf>
- Humberstone, B., & Brown, H. (eds) (2006). *Shaping the outdoor profession through higher education: Creative diversity in outdoor studies courses in higher education in the UK*. Penrith: Institute for Outdoor Learning.
- Jickling, B. (1992). Why I don't want my children educated for sustainable development. *Journal of Environmental Education*, 23(4), 5–8.
- Leal Filho, W. (2000). Dealing with misconceptions on the concept of sustainability. *International Journal of Sustainability in Higher Education*, 1(1), 9–18.
- Lefebvre, D. (2000). Sustainability education evaluation tool. In A. Jarnet, B. Jickling, L. Sauve, A. Wals and P. Clark (Eds.), *A colloquium on the future of environmental education in a postmodern world*. Yukon College: Whitehorse.
- Loynes, C. (2002). The generative paradigm. *Journal of Adventure Education and Outdoor Learning*, 2(2), 127–130.
- Martin, P. (1999). Critical outdoor education and nature as friend. In C. Miles, & S. Priest (Eds), *Adventure programming* (pp. 463–470). State College, PA: Venture.
- Martin, P. (2004). Outdoor adventure in promoting relationships with nature. *Australian Journal of Outdoor Education*, 8(1), 20–28.
- Martin, S., & Jucker, R. (2003). Educating earth literate leaders. Keynote speech for the International Conference on Education for a Sustainable Future, Prague 1011, 21 September 2004. Retrieved 19 June 2006, from <http://www.unesco.org/iau/pdf/Jucker-Martins.pdf>
- Murray, P. E., Brown, N., & Murray, S. (2007). Deconstructing sustainability literacy. *The International Journal of Environmental, Cultural, Economic & Social Sustainability*, 2(7), 83–92.
- Neill, J. T., & Richards, G. E. (1998). Does outdoor education really work? A summary of recent meta-analyses. *Australian Journal of Outdoor Education*, 3(1), 2–9.
- Nicol, R. (2002). Outdoor environmental education in the United Kingdom: A conceptual framework of epistemological diversity and its educational implications. *Canadian Journal of Environmental Education*, 7(2), 207–223.
- Nicol, R. (2004). Creating sustainable communities through education. *Report of International Forum of Experiential Environmental Educators. Based on activities of World School Network, Japan*: Ecoplus, 14–22.
- Nordic Council of Ministers (2003). *Education for sustainable development: The Karslkroner Report*. Copenhagen: Nordic Council & Ministry of Education and Science, Sweden.
- O'Connell, T., Potter, T., & Curthoys, L. (2005). A call for sustainability education in post-secondary outdoor recreation programs. *International Journal of Sustainability in Higher Education*, 6(1), 81–94.
- Odgers, B. (2007). Teaching and learning about environmental sustainability. *The International Journal of Environmental, Cultural, Economic & Social Sustainability*, 2(6), 103–112.
- Office for Standards in Education (2004). Outdoor education: Aspects of good practice (HMI 2151). Retrieved 4 October 2006, from <http://www.ofsted.gov.uk/publication/index.cfm?fuseaction=pubs.summary&id=3719>.
- Orr, D. W. (1992). *Ecological literacy: Education and the transition to a postmodern world*. Albany, NY: State University of New York.
- Orr, D. W. (2004). *Earth in mind: On education, environment and the human prospect*. Washington, DC: Island Press.

- Palmberg, I. E., & Kuru, J. (2000). Outdoor activities as a basis for environmental responsibility. *Journal of Environmental Education*, 31(4), 32–37.
- Palmer, J., Suggate, J., Robottom, I., & Hart, P. (1999). Significant life experiences and formative influences on the development of adults' environmental awareness in the UK, Australia and Canada. *Environmental Education Research*, 5(2), 181–200.
- Parkin, S., Johnston, A., Buckland, H., Brookes, F., & White, E. (2004a). *Learning and skills for sustainable development: Developing a sustainability literate society. Guidance for higher education institutions*. London: Forum for the Future.
- Parkin, S., Johnston, A., Buckland, H., Brookes, F. & White, E. (2004b). *On course for sustainability: Report of the Higher Education Partnership for Sustainability 2000–2003*. London: Forum for the Future.
- Payne, P. (1999). The significance of experience in SLE research. *Environmental Education Research*, 5(4), 365–381.
- Preston, L., & Griffiths, A. (2004). Pedagogy of connections: Findings of a collaborative action research project in outdoor and environmental education. *Australian Journal of Outdoor Education*, 8(2), 36–45.
- Redclift, M. (2005). Sustainable development (1987–2005): An oxymoron comes of age. *Sustainable Development*, 13, 212–227. John Wiley & Sons. Retrieved 15 August 2006, from www.interscience.wiley.com
- Rickinson, M. (2006). Researching and understanding environmental learning: Hopes for the next 10 years. *Environmental Education Research*, 12(3–4), 445–457.
- Rickinson, M., Dillon, J., Teamey, K., Morris, M., Mee Young, C., Sanders, D., & Benefield, P. (2004). *A review of research on outdoor learning*. London: National Foundation for Educational Research and Kings College.
- Sankey, K. (2006). UN Decade for education for sustainable development: Higher Education on or off course? *ESCalate*, 4, 1–3. Retrieved 4 October 2006, from <http://escalate.ac.uk/2242>
- Scottish Executive (2006). *Learning for our future: Scotland's first action plan for the UN decade of education for sustainable development*. Edinburgh: Scottish Executive.
- Shallcross, A. (1996). Caring for the environment: Can we be effective without the affective? *Environmental Education and Research*, 15(2), 121–134.
- Stables, A., & Bishop, K. (2001). Weak and strong conceptions of environmental literacy: Implications for environmental education. *Environmental Education Research*, 7(1), 89–97.
- Sterling, S. (2004). Higher education, sustainability and the role of systemic learning. In P. B. Corcoran, & A. E. J. Wals (Eds.), *Higher education and the challenge of sustainability* (pp. 47–70). Dordrecht, Netherlands: Kluwer Academic.
- Stewart, A. (2004). Decolonising encounters with the Murray River: Building place-responsive outdoor education. *Australian Journal of Outdoor Education*, 8(2), 46–55.
- Tanner, T. (1980). Significant life experience research: A new research area in environmental education. *Journal of Environmental Education*, 11(4), 20–24.
- The Higher Education Academy (2006). *Sustainable development in higher education: Current practice and future developments. A progress report for senior managers in higher education*. Retrieved 20 June 2006, from <http://www.heacademy.ac.uk/misc/executivesummary.pdf>
- Thomas, G. (2005). Traditional adventure activities in outdoor environmental education. *Australian Journal of Outdoor Education*, 9(1), 31–39.
- Tilbury, D., Podger, D., & Reid, A. (2004). *Change in curricula and graduate skills towards sustainability: Final Report*. Australian Government, Department of Environment and Heritage & Macquarie University. Retrieved 10 December 2006, from http://www.schule.at/dl/ACTS_Report_Final2.pdf
- Tilbury, D., Keogh, A., Leighton, A., & Kent, J. (2005). *A national review of environmental education and its contribution to sustainability in Australia: Further and higher education*. Canberra: Australian Government Department of the Environment and Heritage and Australian Research Institute in Education for Sustainability (ARIES).

- UK Government (2005). *Securing the future: The UK Government sustainable development strategy*. London: Department of Environment, Food and Rural Affairs. Retrieved September 24, 2007, from <http://www.sustainable-development.gov.uk/publications/uk-strategy/index.htm>
- UNESCO (2004). *United Nations Decade of Education for Sustainable Development: International Implementation Scheme*. Paris: UNESCO. Retrieved 3 August 2006, from http://portal.unesco.org/education/en/ev.phpURL_DO=DO_TOPIC&URL_SECTION=201.html
- Wals, A. E. J., & Jickling, B. (2002). Sustainability in higher education: from doublethink and newspeak to critical thinking and meaningful learning. *International Journal of Sustainability in Higher Education*, 3(3), 221–232.