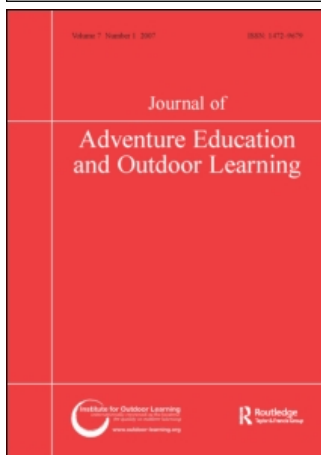


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Outdoor education: Research topic or universal value? Part three

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Outdoor Education: Research Topic or Universal Value?

Part Three

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Preface

This paper is the third of a three part series. Parts one and two looked at aspects of the historical development of outdoor education in the United Kingdom with particular regard to Scotland. Part three builds on this historical platform and explores the importance of environmental education and its relationship with outdoor education.

Abstract

From the discussion in parts one and two there are two main points that emerge. The first is that it is difficult to identify from outdoor education literature a philosophical framework on which practice is based. Secondly, the body of outdoor education literature attaches more importance to learning outcomes relating to personal and social education than environmental education. The purpose of part three is to offer a philosophical framework and use it to consider the relationship between outdoor education, environmental education and the related concept of sustainability education. The paper starts out by looking at the development of western thought and how it has promoted the concept of epistemological dualism's. The paper then presents an alternative framework of epistemological diversity including experiential, presentational, propositional and practical ways of knowing that has particular relevance for environmental education and sustainability education. Although the prime focus of this paper is environmental education it also deals explicitly with a philosophical framework which includes experiential learning. Consequently, it has relevance to other claims made of outdoor education in particular personal and social education.

Introduction

In theory the connection between outdoor education and sustainability is quite straightforward. Sustainability is an objective of environmental education (Smyth, 1999) and environmental education is an objective of outdoor education (Higgins & Loynes, 1997). There is a wealth of literature that deals with the definition of these terms and can be followed up in the following references (Advisory Group on Education for Sustainable Development, 1999; Agenda 21, The United Nations Conference on Environment and Development, 1992; Barr, 1998; Brennan, 1994; Capra, 1996; Clayton & Radcliffe, 1996; Cooper, 1997; Council for Environmental Education, 1996; *Environmental Education Research*, 1999; Fien, 1993; Gore, 1992; Gurevitz, 1997; Hart, Jickling & Kool, 1999; Huckle & Sterling, 1996; International Union for the Conservation of Nature, United Nations Environment Programme & World Wildlife Fund, 1980; International Union for the Conservation of Nature, United Nations Environment Programme & the World Wide Fund For Nature, 1991; Jickling & Spork 1998; Palmer, 1998; Parry & Scott, 1997; Reid, 1995; Scottish CCC, 1999; Scottish Environmental Education Council, 1998; Secretary of State for Scotland's Advisory Group on Education for Sustainable Development, 1999; Smyth, 1995; Smyth, 1999; Smyth, Blackmore & Harvey, 1997; Sustainable Development Education Panel, 1998).

I have provided this large list of secondary sources specifically to avoid getting into the debate about definitions. This is not to say that definitions are unimportant. However, there is so much hot air surrounding these terms that it is often the case that debate founders at a conceptual level in the attempt to arrive at general principles. I will leave readers to consult these and their own sources in order to make up their own minds about definitions. For the moment it is sufficient to say that when summarised these texts suggest that the terms “sustainability”, “environmental education” and “sustainable living” remain contested and are to some degree context specific. The challenge of this paper is to consider these terms not from a general perspective (i.e. a deductive approach whereby theory guides practice) but where the specific context in question is outdoor education (i.e. more of an inductive approach where practice guides theory). In so doing I can integrate the deductive theories relating to sustainability, environmental education and sustainable living with the inductive practices of outdoor education and pose the question “what is the relationship between outdoor education and environmental education”?

Philosophy

Philosophy has been described as “the attempt to make clear, and if possible to answer, a range of fundamental and puzzling questions which arise when...we try to understand ourselves and the universe we inhabit” (Grayling, 1988, p. 13). It is said to consist of “a range of central and linked questions, especially questions about the general nature of knowledge, language and concepts, which recur...in all special fields of investigation and reflection” (Jary & Jary, 1991, p. 468). Traditionally, much of this debate has focussed on the nature of reality and how that reality can be understood. On this basis various philosophers have developed or aligned themselves with particular schools of thought where each school provides their own constitutive version of reality. However, the question remains “what would a philosophy of outdoor education look like”? I would like to explore this firstly by way of a personal anecdote.

The following narrative begins to show the sorts of questions about “knowledge, language and concepts” (op. cit.) that have particular relevance to outdoor education as a body of thought. It begins with a direct quote (Nicol, 2001).

Overlooking Loch Avon from Coire Raibeirt near the summit of Cairn Gorm in the Grampian mountain range a group of outdoor education teachers sat enjoying each other’s company on a warm, sunny, late summers day. Beinn Mheadhoin filled the middle distance with its large rocky stacks dwarfing the antlike hikers walking past them. The deep glacial trench of Loch Avon stretched north westwards where it narrowed to form the headwaters of the River Avon and its embryonic meander towards the confluence with the River Spey. To the south, the rocky crags above the Shelter Stone provided an impressive foreground to Loch Etchachan. The vegetation around us seemed mature although not yet changing to autumnal colours, whilst two ptarmigan displayed their own sensitivity to the changing seasons being now a mixture of summer and winter plumage. Amongst this sublime setting one of the teachers said, “if you ever want to explain to people what outdoor education is all about then all you have to do is take them up here and they will see for themselves”. A sense of agreement pervaded those gathered.

If someone asked any of the group at that time to describe the essence of those shared moments they would probably have struggled to give voice to their experiences. It seemed to be more of an intuitive understanding that *this* is what it is all about, a feeling of oneness with self, others and the environment. Nobody disagreed with the statement probably

because no-one wanted to. If any disagreement had been felt then there were sufficient critical thinkers to suggest that, “no, this is not what outdoor education is all about”. What remained then was a consensus that something special happened that day indicating that places such as those in the Cairngorms can create moments of clarity that have a worthwhile place in the educational process. It served as a form of legitimacy, reinforcing those shared values which professionals in any field must be reminded of now and again in recognition of their work being worthwhile. (pp. 1-2)

However, something seems amiss here. A critical observer could ask, “does outdoor education depend simply on intuition and moments of clarity”? If the response is in the affirmative, is there no case for a reasoned or rational understanding? The same observer could also ask if a group of inner city pupils would understand this form of education, sitting in the same place in the same conditions but without any input from their teacher. The observer might finally become extremely sceptical about the value of outdoor education if they imagined the inner city group sitting in the same place with the wind howling, rain hammering down and mist reducing visibility to the end of their toecaps. Recognising that the pupils may well be miserable the observer might well conclude that no positive process could possibly accrue from an un-interpreted aesthetic experience of the high mountains, particularly in adverse conditions.

Therefore, what does constitute outdoor education? The preceding passage provides a series of prompts to begin looking for the assumptions (explicit and implicit) underpinning outdoor education as understood within the United Kingdom. It poses questions such as, to what extent does philosophy serve as a legitimating basis of knowledge? Is there any connection between philosophy and methodology and, if so, is it conscious or assumed? What is the relationship between methodology and practice? Are learning outcomes best achieved through sensory approaches or cognitive? Only when these questions have been addressed will it be possible to critically examine the above passage to determine whether or not it constitutes outdoor education. In short the debate surrounding philosophy, methodology and the relative merits of adopting a rational (cognitive) or aesthetic (sensory) teaching approach is far from resolved, nor are there signs that answers are forthcoming. In order to understand philosophy in a contemporary context it is important first to look at the history of ideas in order to see how these have shaped dominant thought patterns today. The history of western philosophy is based on dualistic thinking (Capra, 1996; Orr, 1992; Pirsig, 1974; Whitehead, 1950) This means that concepts tend to be portrayed in terms of polarities such as good or bad, right or wrong, qualitative or quantitative, subjective or objective and so on. Because this way of thinking is an historically inherited epistemological position it exists as a deeply embedded cultural construct which acts as an invisible mediator of knowledge. This philosophical position has been termed “Cartesian dualism” (Pepper, 1986 & 1996; Capra 1996) and is responsible for separating the knower from the known, the thinking subject from the non-thinking object, people from place, and ultimately, the human from the non-human. It is this separation which is partly responsible for the cultural orientation that human beings are isolated from, and independent of the natural world (Naess, 1988 & 1989; Sessions, 1995). It is its invisibility, which allows people to live in ignorance, or denial, of the belief that there is a planetary emergency.

The educational challenge therefore is to make the invisible visible in order to provide the understanding necessary to reconnect the separation. In this manner human beings may better recognise their utter dependence on the natural world for their own survival and take action towards sustainable living. However, before this can happen any thought of a single, wholly determinable, objective reality needs to be taken to task.

Very often the knowledge which comes to us is a second order expression of reality, something found by someone else and presented as a source of truth for general consumption. This type of knowledge abounds in our society and includes the books and newspapers we read, the television we watch and the conversations we have. It is also possible to see this type of knowledge in our schools and universities where knowledge is something conveyed from one person (the teacher/lecturer) to another (the pupil/student). I do not intend to refute this type of knowledge so much as explore its limitations. What I am concerned with here is to distinguish between different forms of knowledge in order that the outdoor educator can consciously adopt an appropriate epistemological strategy for the learning outcomes they are trying to achieve. Take for example two different ways of pursuing the same educational objective of understanding the formation of u-shaped valleys. It is quite possible that this could be pursued in the classroom using text books as aids. Alternatively it could be pursued in a u-shaped valley where the teacher could use a real valley as the aid. Again, I do not want to imply that one is better than the other so much as to say that they are simply different. The point here is that it is possible to know a u-shaped valley one way and not in another. The point I wish to pursue is that knowledge can act as a barrier between the individual subject and that which is to be known. This is what is happening in the case in the former example where the learner has no direct experience of the u-shaped valley. This can have important consequences when society favours one form of knowing over another. For example, what happens when what society favours is not in keeping with the way that learners learn best?

In some cases it is quite appropriate that knowledge comes from secondary sources, those which are disconnected from the reality they represent. Language is a good example of this. The words we use are merely an abstraction of the things they represent. Take for example the word "bird". I recall sitting by my tent on a 2000m col in the Pyrennese mountains enjoying the close of the day and the gathering dusk. All of a sudden a group of over 100 swifts flew over just above my head. For me this was a magical occurrence. I had never seen so many swifts together and never seen a group flying together in a single direction. However, it was the noise that struck me as they passed only feet above my head. Similar to the noise a hand held kite makes when twisting and turning through the air the noise of these passing birds seemed disproportionate to their seemingly small individual bodies. I wondered at their purpose. I also wondered at their amazing ability to fly. There remains many elements of this experience that I cannot explain to myself. I do not fully understand why this experience was magical for me yet it was at the time and remains so. Certainly I could rationalise the experience and attempt to explain it but I know I could never do this fully. The sum of the parts of the explanation would not be the same as the experience as a whole (as I experienced it). However, this inability to explain should not be seen as a weakness. It is more to show how abstractions of reality (in this case language) are one step removed from that which it is supposed to represent. From an educational point of view it can provide inspiration to learn more. From that single experience I came home and read about swifts and learnt how to distinguish between swifts, swallows, house martins and sand martins. This in turn led me to investigate how the sighting of birds indicate seasonal change. From my home I now listen for the first mistle thrushes singing from their treetop perches in February. In March I see flocks of lapwings, oystercatchers and black-headed gulls use the river Spey as a navigation handrail to find their way from their wintering grounds on the coast to the Speyside farmlands where they will spend their summer. In April I know that the Ospreys begin to arrive from Africa to nest in the Caledonian pinewoods all around my home and so it goes on (Dennis, 1995).

Indeed this was precisely the type of education that Dewey (1963) believed in where one experience was used as a basis for new experiences. From Dewey's perspective an experience was not a stand alone event it was the basis for other experiences. In this way one learning episode is linked to another in a way that unites theory and practice

Six years later and back at home I still look for swifts on summer evenings. The incident sparked a lifelong interest in swifts for me. I do not expect this story to be magical for anyone else in the way that it was for me. However, no doubt readers will have their own such instances to recollect and this is the point. This anecdote started out by exploring the word "bird" as a word in a language where language is an abstract concept. The point I am pursuing is that abstract knowledge is a legitimate but incomplete form of knowledge. This can be seen from the personal experiences described which can create the inspiration for individuals to pursue learning of their own accord. Providing the opportunities for such experiences is one of the major roles of outdoor education (Cooper, 1994; 1997; 1998). However, our inherited educational system does not always provide such opportunities. Where this is the case new ways need to be found to legitimate subjectivity and the nature of experience. This requires an epistemology which recognises the individual's inner experience in relation to their perception of external stimulus. This is not to deny objectivity so much as to redefine it "as a striving to achieve greater consensus, greater agreement or consonance among a plurality of subjects" (Abram, 1997, p. 38). This opens the door to ways of knowing where peoples' ordinary and everyday lives can be associated with issues of sustainability and environmental education. It is achieved through an epistemological pluralism which embraces different ways of knowing. In this manner people can come to know the world not only through the type of cognition apparent in Cartesian rationality but through feelings of respect, curiosity, wonder and awe for the planet which sustains them. The philosophical challenge for educators is to provide a framework of understanding where the world of ideas is rooted in the same world in which people carry out their multi-sensory everyday lives.

In response to these issues Smyth (1995, p. 18) has commented "it is difficult to avoid the conclusion that many have reached, that education should be largely recast". For the moment, however, the potential of education to address issues of sustainability and environmental education is not known. Ideas relating to these are not a set of coherent propositions which can be easily added on to existing practices. In recasting education one of the challenges would appear to be overcoming the tendency to educate indoors. This is in keeping with the view that an emphasis on indoor learning can lead to the suppression of the feelings from which respect, curiosity, wonder and awe for the world beyond the class or lecture room grows (Orr, 1992; 1993; 1994a). I would point out again that this is not a wholesale attack on school and university education so much as an appraisal of what might be better taught out-of-doors.

Allied to this is the assumption that the divisions which compartmentalise subject based curricula lead to divisions in the way pupils and students understand the world, which, it is argued, reinforces Cartesian rationality. There is a tendency, perhaps for institutional convenience rather than philosophical preference, to separate and compartmentalise strands of knowledge which are related. Brennan (1994, p. 3) calls this "framework thinking" and its limits are identified as preventing learners from seeing beyond the subject they are studying (e.g. physics or biology), nor do they see that the framework itself exists. There is a concern that this reductionist way of presenting knowledge operates at the expense of an integrated understanding of the world. As Sterling (1996, p. 36) observes "the relation between areas (is) more important than decontextualised studies". In short

there is a call for a holistic understanding which deals with interconnectedness and interdisciplinarity drawing on both the social and natural sciences, to take place indoors and out. The purpose is to engender understandings which sees the environment not simply as an ecosystem independent of human beings but a social ecosystem in which human beings are clearly located. In this manner the area of study becomes one indivisible and interactive system focussing on the political and socio-economic influences that affect ecological processes. The need for this, as Sterling (1996, p. 20–21) observes, is because “all education takes place within a dominant cultural, social and political context, any discussion of EFS (education for sustainability) —which by implication seeks to influence society—must first recognise the greater influence of the dominant social paradigm upon education”. Because of these tensions education is seen as both part of the problem and part of the solution. As Sterling (1996, p. 18) observes “if it is to fulfil its potential as an *agent of change* towards a more sustainable society, sufficient attention must be given to education as the *subject of change* itself”.

What I have presented so far is the view of the globalist. These are the people whose visions provide an overview of the current situation and ways of looking to the future. As globalists, their views are necessarily generalist tending perhaps towards overstatement. However, this is the way of theory. I do not present these theoretical insights as if they were monolithic nor written in tablets of stone. Given the lack of theoretical underpinning of outdoor education allied to developing ideas relating to sustainable living and environmental education there is a real potential for outdoor education to adopt an important role in this area. Outdoor education, *potentially*, represents an alternative pedagogic endeavour to the body of theory known as Cartesian rationality. As an “exception” to the rule it represents a distinct opportunity to develop education in relation to sustainability which could well lead to further theoretical development.

What is required therefore is an epistemological position which rejects the traditional dualism’s of mind and world, subject and object, emotional and intellectual and inductive and deductive. As Whitehead wrote “it is a moot point whether the human hand created the human brain, or the brain created the hand. Certainly the connection is intimate and reciprocal” (Whitehead, 1950, p. 78). Instead these dualism’s are seen as two parts of the same whole where the world is comprised of multiple realities which need to be understood in pluralistic terms and where knowledge is socially constructed. The challenge now is to determine a role for outdoor education in this.

I would like to explore the dualistic paradigm by reframing it within an epistemological position more sensitive to an environmental philosophy known as “deep ecology”. Deep ecology strives to “relate philosophical and valuative premises with the concrete aspects of ecological problems” (Naess, 1989, p. 65). Current exemplars of global ecological problems would include climate change, species extinction, human population growth and the loss of topsoil. Contemporary issues within the UK media show that the growing of genetically modified crops, the transmission of viruses from salmon farms to native stocks, and radioactive leaks from nuclear reprocessing plants are causing concern. In short deep ecology is bound up in the values associated with how people live their lives. The source of deep ecology is based on Naess’ ecological ontology which has at its core the following two assumptions:

Assumption 1

Humanity is inseparable from nature.

Assumption 2

If humanity is deemed to be in some way dependent on nature then it would appear that there is a degree of self-interest in protecting nature.

A key concept of deep ecology is “self-realization” (Naess, 1989). This should not be confused with the narrow definition of self and ego, but more an extension of self (Harding, 1997). Self-realization is a unity of the ontological and psychological. This is expressed in Naess’s (1989) differentiation between acts where,

one may speak of “beautiful” and of “moral” action. Moral actions are motivated by acceptance of a moral law, and manifest themselves clearly when acting against inclination. A person acts beautifully when acting benevolently from inclination. Environment is then not felt to be something strange or hostile which we must unfortunately adapt ourselves to, but something valuable which we are inclined to treat with joy and respect, and the overwhelming richness of which we are inclined to use to satisfy our vital needs. (p. 85)

Whilst readers may well recollect experiences in the outdoors where they felt the environment as strange and hostile (e.g. storms, being lost, being cold) this was not what Naess had in mind. In fact Naess himself is an experienced mountaineer with Himalayan as well as Norwegian experience who no doubt encountered his own moments of angst. So there is a recognition that the environment can appear hostile and a challenge to overcome but not just that. It is within this framework I would like to move towards translating the philosophical principles of deep ecology into a framework suitable for understanding and evaluating the pedagogical process germane to outdoor education. This particular endeavour is of vital importance since as Horwood (1991, p. 24) states, “deep ecology literature is strong in philosophical development...it lacks a matching educational framework...”. Consequently, one must look outside the deep ecology literature to find workable educational principles.

Heron (1996) and Reason (1998) offer a four-point epistemology comprising experiential knowing, presentational knowing, propositional knowing and practical knowing. This work has developed out of their interests in transpersonal psychology and co-operative enquiry. Although their interests are not specifically to do with environmental education I have drawn on their work because it is a challenge to the view that philosophy is a theoretical issue only. This follows Wittgenstein’s view (in Silverman 1997, p. 208) “that philosophy, properly understood, is not a set of propositions, but an activity, the clarification of non-philosophical problems about the world”. The strength of this form of reasoning is that it recognises multiple forms of knowing which makes for “an integrated (but not singular) theory of truth as the congruent articulation of reality” (Heron, 1996, p. 168).

Experiential Knowing

Experiential knowing is “through direct face-to-face encounters with person, place or thing; it is knowing through empathy and resonance...” (Reason, 1998, p. 44). Orr (1993, p. 18) argues that “(environmental) education will, first, require the re-integration of experience into education”. In another paper Orr (1994b, p. 6) suggests that “we experience nature mostly through sight, sound, smell touch and taste—through a medley of sensations that play upon us in complex ways”.

Experiential knowing is based on the assumption that “there is no way to separate feeling from knowledge, or object from subject; there is no good way to separate mind and body from its ecological and emotional context” (Orr, 1993, p. 17). Consequently, the separation of mind from body is more abstract than real. This point is taken up by Bloom, Krathwohl and Masia (1964, p. 45) who assert, “the fact that we attempt to analyse the affective area separately from the cognitive is not intended to suggest that there is a fundamental separation. There is none”. This epistemological way of knowing (experiential knowing) is integrative where “thought is taken to include feelings” (Horwood, 1991, p. 23) and provides legitimacy for a subjective reality (Capra, 1996). Experiential knowing represents an epistemological position which addresses concerns which rationalism alone does not. For example, logic may lead us to recognise our integral part within the natural world but Capra (1996, p. 12) maintains that it is direct “experience” of it that leads to a deep ecological understanding. The question now arises as to the manner in which this happens.

By adopting an epistemological position which unifies the subject and object (mind and world) cognition is not “a representation of an independently existing world, but rather a continual bringing forth of a world through the process of living” (Capra, 1996, p. 260). Donaldson (1978) shares this view suggesting that,

we do not just sit and wait for the world to impinge upon us. We try actively to interpret it, to make sense of it. We grapple with it, we construe it intellectually, *we represent it to ourselves*. (p. 68)

These statements correspond with another epistemological position known as constructivist theory where “participants work to make meaning out of their experience” (DeLay, 1996, p. 77). This has applications for educators who must recognise that they do not have ultimate control over learning outcomes. As DeLay (1996, p. 80) points out “the learner is actively engaged in his or her knowledge construction”. In this way learning becomes an interactive relationship between the educator, the learner and the natural environment.

Direct experience is foundational to experiential knowing because concentrating solely on bringing forth an *inner* world of concepts, objects and images of ourselves maintains a rationalist epistemology and allows us to remain alienated from the natural world (Capra, 1996). This has been compounded with the type of learning where pupils spend most of their educational career in classrooms. This is not a wholesale criticism of class-based education. However, whilst the classroom may be suitable, or even desirable, for some study, it is not useful for integrated study of the natural environment (Orr, 1992) nor should such study be confined to formal institutions (Smyth, 1995). Furthermore, as Orr (1994a, p. 6) suggests, “we’ve organised education like mailbox pigeonholes, by disciplines which are abstractions organised for intellectual convenience”. Consequently, outdoor education represents a pedagogical endeavour with potential for overcoming these abstractions. Without the physical confines of the classroom, and without its subject disciplines, outdoor education offers a way to counteract Orr’s (1994a, p. 7) concern that “there is a connection between knowledge organised in boxes, minds that stay in those boxes, and the inability of those minds to perceive the causes of degraded ecologies...”. Experiential knowing counters this tendency and educational psychology experiments with young children show that they benefit when experience is direct, compelling and relevant; and further, when the experience is lessened so too is its educational potential (Donaldson, 1978).

Presentational Knowing

If experiential knowing relies on direct experience of the natural environment then there needs to exist a means of identifying quality experience. As Dewey (1963, p. 25) warned “the belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative. Experience and education cannot be directly equated to each other”.

Having established that direct experience is only the beginning of a learning process (Donaldson, 1978), Orr (1994a, p. 7) maintains that it is foundational “before introducing students to more advanced levels of disciplinary knowledge”. The advanced form to which he refers is the second aspect of this epistemological framework called “presentational knowing (which)...emerges from experiential knowing, and provides its first expression through forms of imagery such as poetry and story, drawing, sculpture, movement, dance and...sharing of the experience” (Reason, 1998, p. 44).

This form of knowing allows learners to reflect on their experiences. In this way the experience becomes a unification of the mind and world as the individual endeavours to internalise the experience and then bring it forth as either talk, text or image. This interaction implies a conscious effort on behalf of the learner. At this point the role of the teacher becomes apparent. It is to help learners explore representations of their experience and what that experience means in a wider social and natural context. This is in keeping with Illich’s (1996) position that education should be a balance between personal choice and mentoring.

The role of the teacher is essential because one of the problems with experiential knowing is that it has “no clear intrinsic moral value” (Horwood, 1991, p. 23). This means that experiential knowing is a process which gives no guidance as to what is a quality experience. Capra (1996, p. 289–290) directly addresses this vacuum by suggesting that the non-human world is something to be experienced and since it has “no language, no consciousness, and no culture; and therefore no justice, nor democracy...We cannot learn anything about those human values from ecosystems”.

Presentational knowing, arising out of experiential knowing, is the basis from which the teacher can use the learners’ own experiences to talk of the way in which the non-human world is valued. This interactive relationship between the learner and teacher is the starting point of concrete experience. Note that the representation of the experience (talk, text or image) is not solely rational. This is in keeping with various theories that learning is multi-modal (Rogers, 1983). For example Geddes promoted the concept of education relating the heart, hand and head. As his biographer, Boardman (1978, p. 224), states, “these terms and their sequence simply meant that priority must be given first to the child’s emotional development, thereafter to physical growth, and finally to strictly intellectual training”.

Similarly the tripartite model which holds that education is “in, about and for” the environment (the development of which Jickling & Spork (1998) attribute to Arthur Lucas in the late 1970s) can only be effective in relation to *affective* education (Shallcross, 1996). It is of interest to note that the literature sources which quote these models do so without reference to any empirical foundation. However it would appear that they do indeed have empirical, if retrospective, validity. For example, drawing on interdisciplinary research involving neuroscience, endocrinology and immunology, research has identified a group of molecules known as peptides (a group of molecules which exist

in all cells of the body) which “are the biochemical manifestation of emotions” (Capra, 1996, p. 275). Because peptides are found throughout the body it becomes less relevant to think of a separation between mind and body. Indeed Capra (1996, p. 277) states “this is why we have “gut feelings”. We literally feel our emotions in our gut”. From these scientific claims it is interesting to speculate about what they mean for education.

Whereas before emotions were associated with certain parts of the brain this new evidence points to a form of cognition which expands throughout the human body (Capra, 1996). Despite this appearing to challenge received wisdom, Gardner’s (1993) enquiry into multiple intelligence’s shows that the received wisdom regarding cognition and intelligence has come about through *a priori* forms of knowledge. These are understandings based on the thoughts of reflective individuals. However, Gardner (1993) calls for empirically based models of understanding so that cognition and intelligence may be investigated whereby the authority lays more on inductive forms of knowledge than deductive. Thus, Gardner (1993) and Capra (1996) believe the present forms of understanding are far from complete. In light of these findings, there are clear implications for education beyond the scope of this paper involving the structure and balance of education generally and the way it is thought about.

Propositional Knowing

Children must learn to control their own thinking but they cannot do so unless they are aware of it (Donaldson, 1978). Furthermore, in order to develop control they must project their thinking beyond the context of their immediate world. This introduces the third part of the four point epistemology which involves knowing “about something through ideas and theories, and is expressed in abstract language or mathematics” (Reason, 1998, p. 44). Propositional knowing allows pupils to explore the world beyond that of their experiential and presentational knowing. They can critically evaluate text, propositions and theories, looking for strengths and inadequacies and develop their own theories. Donaldson (1978) suggests this way of thinking about theories also serves as recognition that discovery learning is not always possible nor desirable.

For example, direct experience alone cannot convey an understanding of the abstract and symbolic world in which we live. Through propositional knowing pupils can learn about the societal structures, which prevent or support a deep ecological understanding of the world. Reid (1995) provides an example of these structures suggesting that the industrial world is consuming natural resources at a rate beyond which they can be replenished. Similarly, Porritt (1984) suggests that the industrial technologies which exploit natural sources cause pollution. Bowers (1993) argues that the industrial world maintains this exploitation because industrial wealth is equated with human progress, which he argues is a cultural myth. This myth is maintained, O’Riordan (1981) suggests, through a technocentric paradigm (rational and exploitative) which dominates the ecocentric paradigm (where nature has value not necessarily defined by human utility). Further readings show that writers and researchers have become concerned about the extent to which technocentric thinking has resulted in psychological alienation. So much so that a new body of literature, called “ecopsychology”, has developed to redefine sanity and mental health by reviewing the relationship between humanity with the non-human world (Roszak, Gomes & Kanner, 1995). Propositional knowing, therefore, provides the pupil with another form of knowing not accessible by direct experience alone.

I have not attempted to be definitive in the environmental issues expressed here. Instead the examples were used to demonstrate the type of knowledge necessary from a deep ecology perspective. In terms of propositional knowing this would consist of understanding ecosystems, the principles of organisation of ecological communities and the social and economic impacts on them from human communities. This type of knowledge has been summarised by Orr (1992, p. 85) as “ecological literacy”. This multi-modal epistemology helps learners to develop constructs to make sense of meaning by organising their experience into categories. This process works in two directions; first where the direct experience needs to be codified (induction); and second, where theoretical knowledge has to be ordered so as to accommodate new experiences (deduction).

Consequently, a deep ecological understanding of the natural world depends on theoretical (deductive) as well as experiential (inductive) knowledge. The strength of propositional knowing is that it seeks to unite what Kant (1933) and Dewey (1963) saw as the perennial differentiation between theory and practice, where practice without theory is blind. Freire (1972, p. 68) had the same to say which I have paraphrased as, “action without reflection is activism, reflection without action is verbalism”. In a similar way Mackenzie (1989, p. 45) states “the dissociation between theory and practice of knowledge has bedevilled learning”.

However, accepting the worldview of ecocentrism brings with it certain challenges. This becomes apparent when considering other writers who have been interested in the relationship between education and worldviews. For example, in the foreword to Freire’s *Pedagogy of the Oppressed* (1972, p. 16) Schaull introduces these challenges by suggesting that “there is no such thing as a neutral educational process”. When this view is combined with the definition of experiential knowing above (whereby the world is brought forth), then knowledge becomes pluralistic, socially constructed and consisting of “multiple realities” (DeLay, 1996, p. 79). This introduces a very distinct epistemological position summarised by Capra (1996, p. 40) who suggests “what we see is not nature itself, but nature exposed to our method of questioning”.

Practical Knowing

This is the fourth form of knowing which involves “how to do something and is expressed as a skill, knack or competence” (Reason, 1998, p. 44). At first glance this practical knowing may very well appear to be the epitome of outdoor education with its focus on outdoor activities. However, I must distinguish between an activity pursued for outcomes inherent in the activity as opposed to one where the activity is pursued for outcomes more directly related to this epistemological position. Developing a “skill, knack or competence” in, for example, kayaking is a biomechanical function related to skill acquisition where pupils improve their ability to perform skills necessary to manoeuvre the craft. Consequently, becoming competent at an outdoor activity does not in itself lead to “self-realization” in the way that deep ecology intends. Action should therefore not be confused with being physically active in outdoor activities. For an alternative view the *5-14 Environmental Studies* (SOED, 1993, p. 28–29) document suggests that in developing informed attitudes pupils need to “think through the various consequences for living things and for the environment of different choices, decisions and courses of *action*” (my emphasis). In this sense action is an outcome of a conscious decision by someone to act, as opposed to simply a willingness to participate in an activity.

For outdoor activities to have deep ecological worth learners would need to demonstrate competence in relation to deep ecology as opposed to competence in outdoor activities. The type of action to which practical knowing refers is that practised by Freire (1972) where the purpose of education is to improve the social condition. Action is borne out of the belief that the truth is not absolute and “out there”, but accessible to the individual who can enter into it and transform it (Freire, 1972). From a deep ecology perspective this action is mediated by, and becomes known through, its ontological principle that human beings are part of and not apart from the natural world (Naess, 1989). In this situation the individual’s actions are inextricably linked to their values and their knowing. They are a practical expression of attitudes which are emotional and intellectual (Dewey, 1963). Suzuki (1997, p. 214) takes this a stage further suggesting that “action invariably precedes a profound shift in values”. Values therefore are at the heart of this educational endeavour. Thus a deep ecological awareness can be realised through this four–point epistemology where valid action (practical knowing) “must be grounded in our experiential, presentational and propositional knowing” (Reason, 1998, p. 44).

In concluding part three it is important to recognise that there is a great deal of uncertainty about what sustainability education is and what it is supposed to achieve. This is largely because there is no clear and agreed picture about the extent of environmental degradation and how best humanity can respond to it. It is a logical inconsistency from a deep ecology point of view for society to provide forms of education which assume a predictable future. This is what mainstream education does through examination, quality controls and target setting. This is inconsistent with the evidence that suggests that the stability of the environment and predictability of the future is far from certain. There may well be something alarming in this message to policy makers i.e. what forms of education are appropriate when considering an uncertain future? In this I don’t profess to have significant answers but logic might suggest that if there is no clear understanding of the response of education to environmental issues then it may be concluded that some form of experimentation is necessary to explore what is necessary. Again this may sound radical to some members of the educational establishment. Indeed I recall a conversation I had with someone who said that “education was too important to experiment with”. My reply was that “education is so important that it must be experimented with”.

It is in this experimental vein that I offer the four–point epistemology. From the sources I have presented it would appear that the sort of education that might begin to address the present relationship between ourselves and the world we inhabit might involve an aesthetic response, a critical and cognitive response and an action response. This is why I was interested in epistemological pluralism as it seemed to incorporate these. I will return to the example I used earlier of the swifts on the Pyrenese col by way of explanation. The example was used to show how the direct experience of swifts inspired in me a desire to learn more. In this sense I learnt about part of the environment simply by observing it. This has sometimes been called “learning by osmosis” where the stimulus around you is sufficient for learning to take place. This is an experiential way of knowing. From this experience I can strengthen what I already know from observation by sharing this knowledge with another. To do so I have to outline all that I learnt from my observations in order that the others can respond to my questions. Through this sharing I enhance my learning through recall and can learn what other people know and so build up my own understanding from theirs. This is an example of presentational knowledge.

However, experiential and presentational knowledge is not enough in this case. If I want to understand the migration of swifts between their homes in Africa and Europe I can't do this easily in an experiential way. I could however extend the presentational knowledge by asking more people questions or by reading about them or looking up the internet. This is more associated with propositional knowledge. However, propositional knowledge has a further dimension in that it allows us to think conceptually. This would be important if there was a decline in swift numbers and the reasons were not known. In order to understand why numbers were decreasing would need some understanding of ecology in terms of food sources and feeding patterns, habitats and climatic conditions etc. This form of knowing would also be important to understand if human practices were threatening the swift population (e.g. nest clearing on a large scale).

These tasks are largely achieved through the accumulation of second hand data in the form of research reports and other writings about swifts. In this case it doesn't make sense to go out and collect data in an experiential way when the data may well exist already. Another important point is that propositional knowledge can be seen to include not just the understanding of wildlife (swifts in this case) but also allows a critique of society in relation to the wider environment (e.g. economics, globalisation). Consequently the most time efficient way of becoming knowledgeable is sometimes through propositional knowledge and not experiential. This has important implications for learners as they then have to decide the most appropriate way of finding out about something as there are times when one form of knowledge is more appropriate than another. This is where the way I am using this model departs from other experiential models of learning where learning is assumed to be cyclical. In this model learners are engaged in active choice. In other words direct experience of a phenomena need not be the best way to learn. This also has important implications for educators who work in this area because it means there are choices to be made about how best to facilitate learning episodes. This is not to imply that the four ways of knowing are wholly separate, they are not. Instead they compliment one another allowing the learner and educator to make choices about the most effective epistemological strategy for learning.

The fourth way of knowing is practical. If I wanted to do something about declining swift numbers then, having identified the reason(s) for the decline, I could set about trying to redress this. The range of actions, depending on the type of problem, might include lobbying politicians and environmental agencies, habitat restoration, joining an organisation which already lobbies for this issue and so on. In short the prime focus of practical knowing is that you take actions in line with your beliefs and based on your knowledge of a given situation.

Summary

The purpose of this series of papers has been to explore whether outdoor education serves to integrate people into established social norms or alternatively offers a form of education which embraces, or is capable of embracing, diversity of theory and practice. The reason for doing this relates to the question I set myself namely, "what is the relationship between outdoor education and environmental education". Because environmental education calls for a new way of thinking about the relationship between people and the world they live in it was important to identify if outdoor education itself fell into the category of "prescribed conservatism" in which case it was part of the problem. On the other hand if outdoor education represented a challenge to established social norms then it could legitimately claim to be working towards environmental education goals.

To explore this potential I turned first to historical aspects of outdoor education. As such I did not attempt to provide a complete historical analysis. Instead I was looking for trends that might indicate that the potential lay in the roots of outdoor education. In so doing I discovered authors that are paid little attention in contemporary literature. Some of these (Loader, 1952; Mackenzie, 1970; 1989) had great ambitions for the development of environmental education out-of-doors. In sourcing this information it became apparent that much literature is largely unrecorded in contemporary outdoor education literature (i.e. not just that relating to outdoor education). This leaves many missing voices that have yet to be heard. I look forward to the time when a fuller account of these sources are brought to the public attention in the form of a historical account of outdoor education.

My readings show the post second world war period to be a rich seedbed for sowing new ideas about education. This was plainly seen, for example, in the exploratory and experimental approaches to education developed at Glenmore Lodge. However it was also during the 1950s and 60s that the dominant theme within outdoor education became the pursuit of personal and social education with less importance attached to environmental education. This trend can be traced to the present.

It is because the philosophy of outdoor education was developing into personal and social education I decided to explore an appropriate alternative. This is why in part two I posed the question “what would a philosophy of outdoor education look like”? (Nicol, 2002, p. 97). However, throughout this process I discovered that the framework has direct relevance to outdoor education as a whole. The framework was based first on identifying an ontological position which provides an understanding about the nature of reality and then an epistemological position in order to understand that reality.

One environmental philosophy which seems suited to outdoor education is deep ecology which is based on the assumption that humanity is part of, but not apart from, nature. It is suited to outdoor education because it depends to a large extent on direct experience of the environment in order for self-realization to occur. However because deep ecology has a strong philosophical standpoint but less well developed educational framework I have used Heron’s (1996) and Reason’s (1998) work on epistemology to bridge the gap between an ontological position through an epistemological position to the potential of outdoor education to deliver outdoor education.

This epistemological position is an important bridge as it recognises 4 ways of knowing, all of which are necessary for holistic learning to occur. In summary through experiential, presentational, propositional and practical ways of knowing outdoor education can take its place in delivering outcomes relating to sustainability education, sustainable living or environmental education. I propose that this form of education be called “outdoor environmental education”.

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