

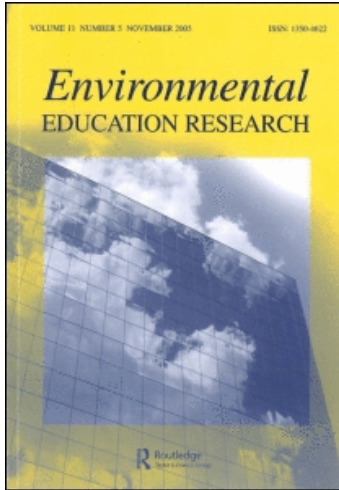
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Publisher Routledge

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Environmental Education Research

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713416156>

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To cite this Article Payne, Phillip(1997) 'Embodiment and Environmental Education', Environmental Education Research, 3: 2, 133 – 153

To link to this Article: DOI: 10.1080/1350462970030203

URL: <http://dx.doi.org/10.1080/1350462970030203>

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Embodiment and Environmental Education

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SUMMARY *A nexus of theory and practice has occupied critical environmental educators for some time. The difficulties associated with creating a nexus that works justly 'for the environment' as well as the people living in it have been grappled with theoretically in the development of 'a critical ecological ontology for educational inquiry'. This curriculum theory is characterised as being for the environment, in which phenomenologically based inquiries focus on mundane, everyday actions and interactions as the sources and consequences of socio-environmental problems and issues. 'A critical ecological ontology' indicates that the locus of understanding, explanation and praxis 'for the environment' should be 'in here, with me and you' rather than 'out there, somewhere, to be found, identified, studied and solved'. The formulation of a critical ecological ontology responds largely to the persistent allegations of the 'failures' of environmental education and the juxtaposition of the triple-bind of post-modernity on the unfinished agenda of critical curriculum theorising. Empirical qualification of a critical ecological ontology is demanded if the sought after nexus is to be satisfied. This paper reveals third year undergraduate students' understandings of their embodiment in action and interaction with a socio-environmental problem. Of utmost significance, this paper deliberates about the actions taken by students 'for being' and 'for the environment' some eight weeks after their initial investigations of embodiment issues and their environmentally problematic connections. One finding suggests that the practical efficacy of a critical ecological ontology must accommodate a series of broader tensions impairing one's own sense of self and 'life politic'. The paper concludes with a brief discussion or re-theorizing of elements of a critical ecological ontology.*

Introduction

A critical ecological ontology (Payne, 1993, 1994, 1995a, 1996) has been developed for students, teachers and researchers to promote inquiry into practical, everyday actions and interactions and their socio-environmental sources and consequences. The 'experiential fodder' proposed for inquiries in environmental education are those mundane routines, habits and conventions of daily life that constitute 'lived' experience. The purpose of phenomenologically based inquiry

is to make self-evident one's own responsibility and accountability for environmental problems and issues. The initial formulation of a critical ecological ontology was predicated on the view that many approaches to environmental education appear to endorse a contrived view of educational experience and a static, reductive notion of nature, i.e. there is a propensity for 'lifting' learners out of the ordinary contexts of daily life in which they are situated and reinserting them in 'alien' environmental learning circumstances commensurate with the theoretical objectives of the environmental educator. For example, the so-called 'applied science' perspective demands students study 'about' the environment. In the practically interpretive/culturally hermeneutic approaches unencumbered learners are often organised and immersed in romantic 'natural' natures. The critical perspective in practice orients students to find, investigate, solve and act on problems not necessarily of their own making. These three major paradigm orientations appear to share, to differing extents, a Cartesian view of 'I' and 'world'. Nature, the environment and its 'crisis' is 'out there, somewhere' as immutable knowledge to be delivered expertly and received naively, native experience to be had unconditionally or a problem to be resolved with discerning social and political worldliness. While there is considerable value in each perspective a critical ecological ontology aims to redeem the problematic separation of I and world by invoking an approach to curriculum practices that 'creates' the desired nexus of self and lifeworld. Creating such a nexus by inquiring phenomenologically into the mundane fodder of ordinary 'lived' experience is driven by the imperative that responsibility and accountability 'for being' and 'for the environment' should be fostered 'in here'. Hence, a critical ecological ontology is an approach to curriculum practice that can be characterized as being for the environment.

Educationally, a critical ecological ontology has been formulated largely in response to the persistent problem of a theory-practice gap in environmental education. This gap has contributed to the alleged failure of the field to achieve its stated purposes, that is the development of responsible environmental behaviour and citizenship action skills (Payne, 1993, 1995a). This paper initially provides a comprehensive report on the practical utility and value of one component of the critical ecological ontology, of which the central question is how the (experiencing) body (in actions and interactions) might be used as a localised 'site' for understanding, explaining and acting on 'embodied' environmental problems, issues or matters. Students' 'voices' are used in this paper to best represent individual inquiries into and deliberations about the connections, or lack of, between embodiment, environment and praxis.

The Triple-bind of Post-modernity for Critical Curriculum Theorizing

This empirical qualification of one aspect of a critical ecological ontology will conclude with the further theorizing of some key assumptions of its formulation. This dialectic of theory and practice engaged in this paper will hopefully serve the political purpose of rekindling debate within the critical discourse of environmental education about the extent of its own complicity in reproducing a 'rhetoric-reality' divide. In particular, it seems to me that critical curriculum theorizing and associated practices must now accommodate a triple-bind presented to it by post-modernity and post-modernism. The triple-bind for

curriculum reckoned with in the formulation of a critical ecological ontology can be stated as follows.

(i) The 'embodiment', or saturation, by individuals and groups of post-modernity, understood in the first instance as a fundamental technological and economic development in personal, social, cultural and ecological life. Broadly speaking, there are two dynamically interconnected 'levels', or spheres of influence and outcome, in which this first-kind of concerns about embodiment should be understood. One level is that of agents, or learners. Recipients of environmental education and their contrived 'environments' are under-theorized in each of the paradigm orientations outlined above. Propositional ecological knowledge, untainted nature experience with unconditional 'personal' interpretation or doctrinaire ideological solutions are illusory. Whether we like it or not, agents, as moral, social, political and ecological actors, in the post-modern world are 'contingent' beings. They are less 'fixed' by tradition, circumstance or place. Once-secure institutions, like the family, school and religion and the 'local' community and its setting, exert less influence on the formation of agency and identity. Even very young agents now have to contend with a 'texturing' of social life by a range of abstracted and mediating forces that effectively 'disembed' once locally embedded life chances and 'lifestyles'. For example, dietary patterns and nutritional outcomes for individuals must now be seen from within the context of the global escalation of fast-food restaurants into localized settings.

In thinking seriously about the need for a more coherent account of the agent, or 'educative post-modern subject', in the discourse of environmental education, Brian Fay's (1987) views about the limitations of critical social science are important. If paraphrased Fay would assert that any curriculum theory should reveal and interrogate the presuppositions the theory makes about the subjects, or agents, of its inquiries. Put another way, the practical value and efficacy of an environmental education theory can only expect to be as 'good' as the assumptions in the curriculum made pedagogically about the learner.

Second, the needed theorization of the 'educative post-modern subject' should be accompanied by a sense of the structures in which agents, individually and collectively, are embedded, embodied, and disembedded. In the same vein as Fay's concerns about 'getting right' in theory the ontological assumptions of agents, Anthony Giddens (1979, p. 2) notes that any adequate account of human agency must, first, be connected to a theory of the acting subject and, second, must situate action in time and space as a continuous flow of conduct and not an aggregation of discrete purposes, motivations and reasons. Giddens believes that social science, and by implication critical curriculum theory, lacks a theory of action, a point concluded by Fien (1993a) in relation to environmental education. Hence, in this inquiry the importance of stressing the need for a theory of the educative post-modern subject consistent with the formulation of a critical theory of environmental education.

To variable extents, and often in contradiction, 'historical subjects' have had significant life experiences, reflect family values, act according to parochial sensitivities, sensibilities and regulative norms and interact or associate locally according to peculiar social conventions, arrangements, conditions and expectations. At the same time 'educative post-modern subjects' are differentially

immersed in regional and national 'traditions' of 'culture' that are now increasingly befuddled by broader structures of a globalising type and universalising trajectory. One structure, for example, is the 'townscape' or 'landscape' of most children in Australia which, in fact, is increasingly a 'technoscape' where individuals are constantly surrounded by, preoccupied with and engaged by an ever increasing range of technological artifacts, economic imperatives and necessities and other lifestyle complexities and demographic/geographic realities. Why 'technoscape'? Sixty five per cent of the Australian population lives in 0.1% of the land area; globally the proportion of the world's population living in cities is projected to increase from the one third it was in 1975 to two thirds in 2025. The built environment and its technologies, it can be said, is a feature of post-modern structuring that provides a 'natural' cocoon that 'enframes' or 'encodes' a great deal, if not all, human action, social interaction, modes of association and exchange and ecological 'interdependency'. Thus, while the term 'for the environment' (Fien, 1993a) is an important contribution to the critical discourse of environmental education, it must now be considered in the light of tensions between the 'modern' structures and post-modern structurings in which contingent agents are differentially embedded, embodied and enframed in time and space, as suggested by Giddens. In this changing temporal and spatial reality, be it the contingency of family diets or the urbanisation of lifestyle, children, for example, are increasingly likely to conceive, construct and value nature according to a combination of the technoscape they emerge from and are destined for and the (contradictory) images and information about nature delivered 'virtually' to them by its electronic media such as television documentaries, movies, CD ROMs and so on (Payne, 1995b, 1996).

(ii) The entrepreneurial role of academics in the emergence of education as a virtual social form of technologically mediated and abstracted information exchange. The production, circulation, dissemination and commodification of discourses about or for environmental education is already a globalising consequence of expert academic engagement with information superhighways (Sharp, 1993). This point is best illustrated with an example of recent experience. Having been invited to contribute to the resolution of an 'environmental problem' in Peru, I can attest to the inappropriateness of imposing 'western' versions of environmental 'ethics', 'education' and policy on particular social, political and cultural situations. Poverty-stricken shanty town dwellers in Lima, a city built on one of the driest stretches of coastal desert in the world, were blamed for the despoliation of a wetland area that was part of the migratory route of a particular bird species. A group of highly committed and politically astute middle class Lima residents wished to preserve the lagoon. It happened to be the only source of water for thousands of people who were also denied electricity and basic sanitation services. The paradox of social and environmental justice should be obvious, as is the self-evident inappropriateness of any 'expert' solution I might offer critically.

Environmental educators with a heightened cultural sensitivity to 'difference' and 'otherness' do not need to be involved in such 'exotic' issues to appreciate the post-modern, technologically driven potential for the insensitive 'download-ing' and/or non-problematic 'uptake' in various educational and cultural

settings of prescriptive, descriptive or critical curriculum approaches to environmental education. The next point further highlights this tension.

(iii) Post-modernism, in the second instance, may be seen as either an assemblage of post-structural discursive strategies aiming to deconstruct the critical reason that underpins modernity's enlightenment/emancipatory narrative or a cultural view of the world that is hostile to its progressive tendencies (Habermas, 1989). One specific, but highly relevant example should amplify this point. As a consequence of post-structural 'theory', critical social theorists are devoting attention to the constructions of 'nature', 'environment', 'bio-region', 'place' and related terms and how they might serve particular moral, social and political agendas (for example Enzensburger, 1974; Dickens, 1992, Pepper, 1993; Giddens, 1994; Beck, 1995; Soper, 1995, Soule & Lease, 1995). In the light of the contradiction of social and environmental 'justice' evidenced in the shanty town/wetland politic the term 'environment' in environmental education and its various paradigm pronouncements demands attention. 'Environment' has largely escaped scrutiny of the ideological interests it may represent or perpetuate. The problems of these terms and their interests have not been adequately incorporated into and debated in the discourses of environmental education, least of all in the critical discourse whose rhetoric of empowerment and emancipation suggests it should. Beck (1995, pp. 36–57), for example, is critical of the 'naturalistic misunderstanding of the green movement', an alleged construction of the middle classes in Germany that de-politicizes their complicity in the social factors despoiling nature while they 'escape' conspicuously to the solitude and vestiges of nature, further despoiling remnant wildernesses. The burden of a despoiled nature falls on the less privileged, like the shanty dwellers in Lima, whose means of defence against the hazards of nature despoiled or escape from its risks are limited. In a different vein, Giddens (1994, pp. 198–228) challenges the conservative tendency to equate nature and tradition, pointing to the ideological nostalgia for re-enchanting nature by reclaiming various 'good' traditions lost to the progressive dictates and voracious appetite of modernity. Soper (1995) opens up for debate the reactionary underpinnings and assumptions of certain elements of the discourses contributing to the politics of the idea of nature. For example, Soper (pp. 213–248) raises questions about how far the presumption of a common aesthetic of nature invoked in some discourses can be generalised to or imposed on 'others' when aesthetic assumptions or imperatives have been constructed historically by those typically occupying dominant positions in social life.

Seen within the post-modern context of a triple-bind for the critical discourse of environmental education the above commentaries judiciously alert us to the difficulties of developing a democratic discourse of the environment and an associated 'life' and 'generative' politics (Giddens, 1994) or praxis that might be engendered 'for the environment' in environmental education.

A non-universalising 'theory' of an educative post-modern subject, therefore, is needed if the triple-bind of post-modernity to critical practice is accepted as something teachers, researchers and students, in the inquiry reported below, should deal with. The educative post-modern subject implied in a critical ecological ontology might be referred to as a 'self globalising' who is

characterised as 'being-for-the-environment'. This 'theory' of the subject outlined in the preceding discussion is gleaned from:

- Anthony Giddens' (1979, 1984) dialogical notions of agency and structure. Giddens' contribution is consistent with recent developments in the critical discourse of environmental education (Fien, 1993a, b). Moreover, the notion of 'being-for-the-environment' illuminates some aspects of Giddens' (1990, 1991, 1994) notion of 'life politics'. Giddens' 'life politics' is an attempt to rescue agency and identity, both individual and collective, from post-structuralism's de-centring of it or orthodox sociology's deterministic negation of it. Life politics, therefore, provides a platform of possibility to the more established, but increasingly beleaguered, context of 'emancipatory politics'.
- Ulrich Beck's (1995) critique of the concept of nature, both 'inner' and 'outer' and, by implication, related terms unproblematically subscribed to or 'given' in environmental education, such as environment, place, bioregion and so on. As alluded to above, Beck's critique raises fundamental questions about the ideological assumptions and 'class' interests of environmental education.
- Don Ihde's (1979, 1983, 1986, 1990, 1991) 'phenomenology of technics' and Zygmunt Bauman's (1993, 1995) 'post-modern morality and ethics' are important considerations given the contention of the overlying and encoding authority of post-modernity, its technologically driven globalising imperatives and its cocooning and texturing of daily life.

A series of questions make up the critical ecological ontology for educational inquiry (Payne, 1993, 1995a) (see Table 1). They are offered as 'sensitizers', or as an 'intellectual resource' (Carr, 1995a, b), for reflexive inquiry by learners, teachers and researchers in diverse settings so that contextually sensitive practices will be maintained in the face of the triple-bind presented by post-modernity. Thus, a primary claim made about the intellectual resource of a critical ecological ontology is that it is an attempt to overturn the theory-practice problem of environmental education. The conceptual, theoretical and practical sources of the sensitising questions are detailed elsewhere (Payne, 1993, 1994, 1995a, 1997).

Embodiment and Environmental Education

Based on the early questions listed in Table 1, third year undergraduate students enrolled in a subject 'Readings in environmental studies' were asked to consider the question 'Can my body be used as a "site" for describing how the "ecological crisis" is remade or challenged by my actions and interactions?' Students were asked to select one 'conventional' action typical of their own daily routines and explain how the embodiment of that action over time and space effects 'nature'.

'Readings in environmental studies' is a compulsory subject in a course that purports rhetorically to develop some form of positive outcome for the environment. The semester-long subject offered to third year undergraduate students was developed by the author. The development of the subject assumed that students had engaged positively and regularly in various outdoor activities and hermeneutic experiences 'of' nature as a consequence of the rhetorical claims made about the course. But these claims and experiences were treated with a certain degree of scepticism by the author because of a counterfactual position

TABLE 1.

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1. In what ways are environmental problems seen as existing in a person's body?
 2. What local pathways into and out of the body do environmental problems and issues take?
 3. For example, what habits and routines at home, school, classroom, neighbourhood and work and play sites allow or deny an environmental problem to exist in the body of each student?
 4. How do certain local conventions, social interactions and expectations (use of language and presence of print and electronic images) and community traditions or expectations permit or deny the embodiment of the environmental problem or issue?
 5. How do the above habits and routines vary among individuals when there are different environmental problems and issues entering and exiting respective bodies?
 6. What influence on the local pathways of the problems do historical, geographical, social, political, technological, material and symbolic conditions have?
 7. What aspects of daily life might be changed so that the problems entering and exiting the body might be reduced?
 8. What are the consequences for self, others and the environment and for the pathways of environmental problems if the routines of individuals, the group and the community are changed knowingly?
 9. What is the justification for a knowledgeable response to each of the above questions and how would that justification be presented to those people and environments potentially effected by any course of action proposed to alleviate the environmental problem?
-

Questions are sensitisers for inquiry by students, teachers and researchers and, I believe, can be used selectively irrespective of year level, disciplinary background and, perhaps, ideological persuasion.

about the ethical and political efficacy of outdoor experience (Payne, 1994). Readings included a number of articles designed to:

- problematize the term 'nature';
- introduce the body(ies) as both 'a way of knowing' and a version of (inner) 'nature';
- reflexively relocate the problems of 'nature' and 'body' in the practical and professional purposes of the training they undertake;
- examine the underlying sources, assumptions and principles of four of the major movements of thought in the discourses of environmentalism.

Students were required to complete two assignments and a short take-home 'examination'. This paper reports on students' thinking as it was gleaned from the central question described earlier. It was addressed in the first assignment that was completed mid-way through the semester as a conclusion to class discussions of the readings about 'nature' and the 'body'. The first part of this report only reveals 'a way of knowing' about a phenomenon each student embodied individually, but, as it turned out, often shared collectively. In a sense, the effect of the first assignment was to engender a theoretical reflexivity about a conventional practice. Action, or lack of it, was not an issue until later in the subject. The take-home examination was distributed eight weeks later following the 'interruption' of the second unit that examined the discourses of environmentalism. The take-home aimed to elicit understandings of what praxis, if any,

emerged from the 'way of knowing' invoked in the first assignment. Actions and beliefs about it are reported because of their absolute importance to the 'test' of the practical consequences of understanding and explanation established in the first assignment.

A sampling from the first assignment of the conventional actions of students illuminates the diversity of experiential fodder self-selected for phenomenological inquiry. A number of students considered something they regularly ingested, for example milk, tobacco, town or natural spa water, chocolate, rum, organic cereal, canned fruit and potatoes. Others selected items of personal use such as hair shampoo, vegetable oil for cooking, toilet tissue, sunscreen lotion, air conditioner, cling wrap, writing paper and a student diary. A third group selected clothing, for example an outdoor adventure jacket, gold necklace, workboots, jeans and cotton skirt.

Embodiment

How the 'body' in action and interaction can be used as a qualitative site of and for inquiry is best illustrated by 'sampling' students' 'voices,

... if I used Cling Wrap to wrap my lunches for approximately five days per week, 35 weeks per year for the entire time I have spent at school, I alone would have used approximately 25,987 square metres, or if you prefer 2.6 hectares of Cling Wrap.

While Dave's calculations have not been checked for accuracy, Lees determined that 20,000 tonnes of Sorbent tissue are flushed annually in Australia, adding '... this is astounding when you consider that Sorbent is only one of countless toilet brands on our supermarket shelves'.

Alan noted,

Being in the outdoors can at times be a harrowing yet exhilarating experience. Infrequently there are times when I am required to place, often unconsciously, a substantial amount of faith in my clothing to protect my life.

Alan indicated that some in his year cohort owned up to five similar jackets concluding,

... it is amazing to think in this small group there are at least 40 and overall in the course roughly 130 in number, the amount of money they spend on equipment would probably be enough to keep one store in business.

Touching on Beck's (1995) concerns about the ideological interests of nature escapism, he observed candidly,

This leads me to ask about the socio-economic background from which these people come. I am inclined to believe that this group is not a very accurate representation of the wider community. I therefore come to the question 'What does wearing a Polartec garment say about the wearer?'

Jan's surprise is also evident,

All summer long I wear my ever faithful designer skirt that I bought for forty dollars at Country Road. Even during winter I wear cotton

clothes; T-shirts, socks, underpants, shirts, jeans and so on. The natural fibre that mother nature has provided our earth with has become a common member of my attire. However, is cotton as natural as I would like to think?

Embodiment and Information

Invariably students' requests for information about the sources of products, processes and practices of production, distribution and retailing were hampered. Jean noted,

What was very time consuming was finding out who to talk to about what, and because of the increasing specialisation within our society, which separates people from entire processes, I had to speak to 15 people (about the labels on spa water bottles).

Joy adds,

Little did I know how much I as a consumer was not allowed to know. ... Until now I trusted that the manufacturers were following all regulations and helping me to protect myself from the sun's harmful rays. Now I have to wonder if these manufacturers have been as truthful as I believed ... I came across many answers as being confidential or simply not available to me. ... I came across ambiguous and contradictory work. I found many gaps in the information and wondered why these gaps existed ... basically after being given the run around I still ended up with an unanswered question. No one could or would tell me where these chemicals came from.

Not all students were frustrated. Anne noted,

I had no trouble at all acquiring information from the Thomas Cook company, and after only one letter to head office I received a letter back from Sue Cook (Thomas Cook's daughter) which answered all my questions and gave me a general run-down on the boot making process.

She cautions, however,

... the information given to me was very brief and limited in the area of environmental effects. This is understandable, I guess, when the sales of the boots is your only income and telling people about all the environmental effects caused by the product could end in disastrous results.

A number of students noted the willingness of a company to provide information about an environmental policy that often included how various materials were recycled during production. Steve construed the assignment as '... the challenge has been set, to clear the good name of Bundaberg Rum' whose brochure he cited non-problematically.

All the by-products of the milling process are used. Energy for all parts of the rum manufacturing process is supplied by steam. This is generated in furnaces which burn the sugar cane fibre, 'biogases' as fuel (BDC, pamphlet, p. 1). Molasses is the thick black viscous liquid left after sugar crystals are separated from the syrup. (BDC, pamphlet, p. 1)

'Dunder', a waste material from the distillation process, also used as a fertiliser for cane fields, and hot water dilute the molasses (BDC, pamphlet, p. 1). After settling, a sludge separates from the molasses. This sludge is trucked away and used as soil conditioner, similar in composition to gypsum. (BDC, pamphlet, p. 1)

Embodiment and Nature

A defining characteristic of a critical ecological ontology is the connection of the self and 'nature', as encapsulated in the notions of 'being-for-the-environment', the 'self globalising', and in sketching of the educative post-modern subject. There is no attempt in a critical ecological ontology to biocentrically or ecocentrically collapse the self and environment into one, as 'deep ecologists' are prone to do with their reductionist proposals for 'indistinguishable', 'expanded', or 'transpersonal' selves (Plumwood, 1991; Slicer, 1995). In setting the scene for her investigation into the ingestion of fluoridated water Cath initially commented, 'As I understand humans to be an extension of nature, I shall comment on its benefits to society, and ultimately, me'. Her conceptualisation of the phenomena is intriguing for both its simplicity and sophistication,

Access to water is simple. We must look further into the action and the consequences of that action in terms of the environment. ... Whilst it is difficult to address the actual and direct source of the water from each households' tap, the concept is the same. Rivers have been redirected and dammed to address its mass consumption that city folk require. ... So, in my need to live an existence that relies on water, and in living in the city, I am directly contributing to the upheaval that an ecosystem faces in the damming of a major waterway. In other ways, I am supplementing my intake of fluoride to help prevent further dental caries, however, now as an adult, its effectiveness is contestable, in comparison to when my teeth were in stages of development.

Terry's portrayal of the connection of body and environment took a different, albeit exaggerated, tack,

The smoker takes a box of (wood) matches from her pocket.
 The bulldozer takes wood (a rainforest) from the countryside.
 The smoker ignites her match.
 The peasant ignites his rainforest wood to cure tobacco.
 The smoker inhales, damaging her lungs.
 The peasant has destroyed his land; hurting himself, his fellow humans and other forms of natural life.
 The smoker exhales, poisoning the air, the air others breathe.
 The forest grows even smaller. The now arid land spews its own chemicals, poisoning the rivers.

A few, like Terry, seemed intent on establishing the 'globalised self' with less conviction about the 'self-globalising' invoked, perhaps optimistically, in a critical ecological ontology. Says Viv, somewhat dispirited in her realism, after a long explanation of the production of cocoa in various equatorial countries,

The confectionary industry is a growing market. Even if I abstained from consuming chocolate, it has an established place in everyday

society and would continue to prosper ... society continues to function, and it is this functioning which all adds up to create the bigger problems.

After some earlier verbal prompting to localise his inquiries about a gold necklace Ned shifted his focus,

In the case of this particular jeweller, the consumer would come and place an order for what they want ... This jeweller makes to finest detail possible what the consumer wants, unlike a 'supermarket jewellery shop' ... it is sentiment that runs the hand made jewellery trade.

Ned's assessment of the local was followed promptly by a 'cultural' explanation, no doubt as a consequence of a strong cultural studies component many students felt was 'imposed' on them in other parts of the course,

The type of person, their culture, their religious beliefs and so on reflect greatly on how, and what sort of jewellery that person wears. Take for example some reasons for wearing jewellery; endearing the body with beautiful things, a sign of marriage (belonging to somebody else), a sign of wealth, religion, tradition (my mother/father wears it), gender/tradition (I am female, therefore I should wear earrings, a necklace, rings ...) and the list goes on.

After discussing the environmental problems associated with factory emissions and burning of fossil fuels Dirk explained ironically,

... we have developed a product capable of transforming 'unhealthy' air into air that corresponds with the wants or needs of an individual. I'm not saying that we are totally ignoring the factors that are causing the sickening of the atmosphere, however I am saying that air conditioners hide the true extent of the problem and 'pull shades down over peoples' eyes when they are in an air conditioned room. ... This is a danger in itself, as more people are spending more time indoors.

Embodiment, Nature and Reflection

Cath's conclusions are noteworthy for her acknowledgement of the complexity of embodied ecological politics,

... I have also noted the limitations of being able to challenge that action, due to government control, in a supposedly democratic society. It has been interesting to learn of the deeper health issues that surround water fluoridation ... investigating water fluoridation has enabled me to learn of associated environmental health risks, and realise that sometimes we are not even made aware of public health issues, and nor can we exercise many rights if we object to mainstream thought and beliefs ... it is clear that as individuals, our convictions are often overridden by bigger and more established bodies that have more power.

Erin's questioning of the debate about milk packaging revealed intrigue with the historical and symbolic nature of an embodied action such as 'imbibing' milk,

... debates about appropriate milk packaging have arisen in correlation with the changes in milk distribution. The transition from milk being something that was delivered personally to each household, or alternatively bought from a local milk bar ('corner' shop) to the purchase of milk in supermarkets has altered people's associations with milk. Receiving milk was traditionally a personalised routine—collecting milk, leaving money out with the returnable milk bottles. Supermarkets have de-personalised the process of purchasing milk, and furthermore, exemplify the idea of mass consumption of a product. If these associations described depict people's ideas about milk, then it would be safe to say that this has contributed to the milk packaging debate.

Kim's reflections highlight the pervasiveness of images created about products and the consequent difficulties of formulating an action plan, or 'life politic'.

In the aftermath, I detect that this is not just about eating chocolate, but about recognising how the embodying or symbolic internalisation of certain practices is paramount to taking responsibility for my actions and their effect on the so called 'ecological crisis' ... blaming someone else, namely the experts, is not the solution, but the very root of the problem. It is all too easy to leave it to the authorities, to blame someone else, to plead ignorance or think that I am not involved in all of this, but the reality is I am a part of the cause, my actions have effected the 'ecological crisis, and hence I can make a difference'.

Alan was more severe,

What I wasn't prepared for, was the scale of the implications of owning and wearing such a garment ... I dare say in fact that the results I would compile would further deepen my disappointment and disgust. In truth, I believe that most people prefer not to know, nor even consider, where a product comes from so they can live their lives without troubling their consciousness.

To which Lorraine adds,

People are too busy to worry about where that pea came from which I am eating for tea tonight, and that other pea ...

Les grappled with the ideological consequences of his acknowledgement that 'we don't consider how our embodiment of a consumer product exacerbates or alleviates ecological problems'.

Depending on how you view our society the embodiment of a consumer product can mean one of two things. If you view consumerism as an inevitable, unavoidable, irremovable aspect of modern society the embodiment of a responsible consumer product actively reducing its impact on the environment is essentially a step in the right direction. However, if you view consumerism within society as an avoidable, displaceable ideology, any embodiment of a consumer product will essentially be destroying our natural resources and be viewed as a step in the wrong direction.

The dialectic of the body, the local and the global was not lost from Geoff's dilemma,

My decision to smoke also stands against the actions of many organisations who are trying to oppose the tobacco industry and its effect on both personal and environmental health around the world, from the 'Quit Campaign' here in Australia to the World Bank on a more international scale.

Les reflected on his localised inquiry '... tracing a consumer product from your own consumption back to its origins is a very enlightening process', concluding 'It alerted me to the fact that I am essentially wiping my bum with the environment and flushing it down the toilet'.

Of the complex local and global 'web' revealed in her inquiries about an organic breakfast food Kerry concluded, in contrast to Les,

So, I eat the product, now aware of some of the interactions that have occurred in order for me to eat this. But this is not the end of the chain. The energy I am getting from the Vita Brits in the form of calories enables me to live and function. I am a student. ... I am also an educator, a philosopher and giver of life, love and compassion. I like to think all the energy that has gone into the growth, production and distribution of the organic Vita Brits that I eat is not wasted, and that it is actually directed towards the healing of the planet.

Elle provides an appropriate and representative conclusion of students' reflections on the value of the assignment, 'It took this research to realise that everything has connections and each pathway leads to another consequence to our fragile environment.

Embodiment, Nature and Praxis

Preoccupied as environmental educators are with a praxis 'for the environment', student reporting of their actions confounds any straightforward evaluation of the efficacy of a reflexivity connecting embodiment, the environment and praxis. Eight weeks after their initial inquiries, a small number had acted decisively in changing their actions, a larger group had taken no direct action but intellectually sought alternative practices. Some rationalised their lack of action as being due to a range of personal circumstances. Most felt they were more aware and critical of a whole gamut of personal practices that might be changed when individual, social or economic circumstances permitted. A small number felt their initial action was not worth changing as it was already environmentally appropriate or, alternatively, deliberated change would amount to nothing, either for his or her self or for the environment. Each type of praxis is discussed below.

Before doing so, the reader should be alerted to a more general finding that tempers the mainly positive responses emerging from the findings outlined above. What will be discussed in the following sections 'Theorising embodiment, nature and praxis' and 'Reflections on being for the environment: limitations and conclusions' is a pervasive sense of resignation, anxiety or despair that students felt about their life chances and politics. This was unexpected. A foreboding sense of cultural determinism appeared to have a major influence on their conceptions of self and praxis. For example, 'making a difference' individually,

let alone collectively, was jeopardised by anguish about the enormity of the 'ecological crisis' and 'problems'. Questions are raised about the extent of optimism about the 'life politic' that might be engendered in a critical ecological ontology that intentionally shifts the locus of inquiry, accountability and responsibility for environmental concerns to 'in here'.

Nevertheless, Jean, Jock and Cary best exemplify a direct praxis counterfactual to the original behaviour each selected for phenomenological inquiry. Jean stopped purchasing bottled water because she believed it was 'symbolic of opening a can of worms'. Jock extended his backyard vegetable growing activities to include a range of foodstuffs that would offset the need to purchase from supermarkets. Money saved in this way could be used to purchase other organic or bio-dynamic foods. Jock was disillusioned with the 'munching machine society has become'. Jock's sense of a 'life politic' is evidenced when he concluded, 'I suspect that my ego believes that it can make a difference if my body makes a difference to the world around it'.

Cary reduced the frequency of hair washing from five to three times per week. His environmental actions extended to draining shower water into the garden. When that proved unsuccessful he shortened the length of his shower and eased the pressure to a gentle trickle, thus using less mains water. Like many of his peers, Cary needed to feel satisfied with personal appearance and hygiene while maintaining certain comforts, lifestyle and degree of social acceptability. Yet, unlike most of his peers he developed a range of practices that sacrificed some of these 'advantages' to various extents. He noted that his modifications of actions had little financial reward.

On the other hand, Lorraine was not 'persuaded' to change her use of pure imported olive oil concluding 'it may have something to do with quality of life' which '... I will continue to enjoy as much as I can in the future'. Nevertheless, like most of her peers, Lorraine felt she had changed her 'way of thinking', it being a prominent theme students were directed to in other parts of the course. Her 'consciousness' is indicated below,

I now have a tendency to examine everything closely and my mind begins to click over as to where things come from, how they were made, and many other related questions.

Modifications of actions were construed in various ways. Quite a few felt they were unable to change a habituated behaviour like smoking or didn't want to change the behaviour they had initially selected, but sought alternatives for their praxis. Gerry acknowledged his chemical and psychological addiction to tobacco, knowing full well the contribution of tobacco industries in the 'third world' to the ecological crisis. Gerry changed to a brand that was grown and cured by an Australian producer he believed was not involved in deforestation practices. After experimenting with the absolute minimums of toilet paper and hygienic risk, Les also changed brands to a company that used 100% recycled wood pulp. Cath provided three explanations for continuing to drink artificially fluoridated water. She felt alternatives were impractical and probably more environmentally exploitative, her dental health was well served and that the issue of water fluoridation was politically insignificant for her unless there was collective action. She rationalised her praxis as one of 'sharing knowledge' so as to empower people with her knowledge that 'questions the status quo'. Viv

changed her chocolate eating habits for health reasons rather than environmental reasons which she felt made her 'helpless' when looking at the 'big picture'.

Jeffrey felt somewhat trapped by trying to change his actions. His diary had already been purchased. Not using it would make little difference. Instead, he used it less and less concluding that the real question is whether or not to get one in the first place. Dave continued to use 'cling wrap' because he wanted fresh food, didn't use a great deal anyway and felt any change would have little effect. He acknowledged a form of denial and admitted to waiting for others to develop the solutions he was unable or unwilling to act on.

Alan did not change his wearing of a polartec jacket but admitted to being confused. For many in the group there was a contradiction of a heightened awareness of a behaviour that was not environmentally benign and inability or unwillingness to act directly on it. Alan's dissonance is plain to see,

... because I don't see or feel any direct affect on myself I am quite ambivalent, or even apathetic, about changing my behaviour to be more sensitive to the supporting systems around me. There is no comfort in knowing that I am not alone.

Alan provided a 'cultural' explanation, like so many others in the group who were heavily influenced by reading Bowers (1993) in another subject studied in their course. He concluded

Knowing and understanding where my apathy comes from doesn't make it any easier to change my behaviour. To some extent, knowing makes it more frustrating. The problem I have is not mine alone, it is ingrained in my culture, and through my culture it has been instilled in me.

Alan's apparent de-centring, or intellectual dilution of practical agency, ironically needs to be seen in the context of his earlier citing of the 'cartesian' separation of nature and culture with its mainly pejorative assessment of 'individualism'. This inquiry revealed that many created another *de facto* form of intellectual cartesianism, that of explaining 'culture out there' while marginalising self and agency.

The reverse of solace in cultural explanations can be found in Kate's and Jean's views. Jean maintained,

What I believe needs immediate attention is the state of our internal world ... we need to look further into ourselves ... the question is, is it because the crisis is not in my backyard, or on my doorstep yet?

Kate asked,

'What makes you want to care about the natural world? I think this comes down to caring about yourself'.

These selected reportings of student's actions and responses to them point to an extremely complex set of circumstances influencing agency, praxis intentionality and praxis. In addition to a range of enabling and constraining personal circumstances influencing action, what is abundantly clear is that the educational context in which students are situated exerts significant pressure on the way students conceive self, environment, culture and nature. 'Interventions', such as environmental education, need to be seen in the context of a range of competing and contradictory circumstances and histories. How students then

'position' themselves in relation to various priorities is an emerging question that is touched upon conceptually in the conclusion when Alistair MacIntyre's (1984) 'narrative concept of self-hood' is introduced. What MacIntyre alerts us to is the difficulty in identifying and acting as a coherent self when there are so many historical and contemporary dissonant 'stories' inscribing and fragmenting one's own identity and sense of appropriate action. In this phenomenological inquiry, for example, students were concerned about immediate comforts, their conditioning and the acceptability of an ideal self and others—a 'lifestyle' preoccupation in uncertain moral, social and political times. Educationally, rationalizations and actions that might disrupt that lifestyle appear to be 'held' by theoretical currents projected onto the educative post-modern subject. At a more abstract level, and possibly related to the preceding observation, the findings reported above suggest a further dilution of agency by the intellectual burden of discourses about global, cultural and ecological crises. These three 'stories' and their layering of meanings for individuals indicate a 'tug of war' for student identities in the way they think about and act on a perplexing matter. But before developing this idea it is worth returning to students 'voice.'

Theorising Embodiment, Nature and Praxis

A number of students elected to 'theorise' their own praxis or lack of. Some are selectively included here for the insights they provide. Some intriguing student exemplifiers set the scene for my own conclusions.

Kim's chocolate consumption 'remained steady' and 'chocolate production is something very removed from my existence and too far out there to impact on my life'. She noted, 'on a broader scale',

Some of my inaction can be attributed to a sense of helplessness and lost efficacy exacerbated firstly by the way in which the 'environmental crisis' is nearly always presented as a series of disasters, negative occurrences and technical problems rather than solutions, ways to modify behaviour and success stories. And secondly, the way in which I am made to feel part of the problem but not part of the solution.

She alerts us to some of the 'conditions' that assist our understanding of the competence to act deliberately and enact a 'life politic',

The general message is that the solution lies in other people's hands ... I must have a positive attitude to the action, a sense of responsibility, an understanding of what is at stake—both locally and globally, a feeling of empowerment, internal and external motivation and a feeling that my plans were achievable, positive and beneficial to myself, others and the environment.

Erin did not change her milk consumption, but her reflections included,

... it seems clear now that the debate enabled me to negate a position. That is it worked to hide the larger issue of product consumption. Arguing over which packaging caused least environmental hazard steered well clear from asking the question: are the consumption of products in themselves a modern day environmental hazard?

Erin then drew on Marx's concept of 'social and alienated labour, the objectification of the product that alienates people from material pathways'. She added,

... the process dissolves environmental responsibility and at its most base level denies connections because pathways are hidden and all that exists is the end product.

Her conclusion included a desire to 'deconstruct' the term 'ecological crisis'. With reference to Beck's (1995) critique of the notion of nature, not as pure but as 'natural blend', she added,

Nature can be likened to the productive forces, where objectification has led to the alienation of nature from humankind. It is a denial that nature is now blended that gives rise to seeing nature in 'crisis'.

Reflecting on Being for the Environment: limitations and conclusions

Crucial to a critical ecological ontology is the sensibility to be invoked in phenomenological inquiry of 'being-for-the-environment'. To varying extents, as indicated above, this critical and ecological sensibility was evident. Most students intellectually developed a connection of self and lifeworld, most could clearly conceptualize how their actions and praxis were part of the 'ecological crisis'. At the same time the sensibility of 'being-for-the-environment' was contradicted or confused by various factors, be it the comfort of a particular lifestyle or the 'weight' of stories about 'crisis' and 'problems' whose problems were manifested as a form of dissonance and source of learned helplessness. Despite attempts in this inquiry to retrieve agency by stressing embodiment as a site of inquiry, explanation and praxis, the 'politics of negativity' Beck (1995) attaches to ecological politics is evident here and appears to have a debilitating effect on students' preparedness for a life politic. Here, the practical manifestation of the conceptual understanding of the duality of structure and agency aimed for in encouraging a 'life politic' is threatened by the abstractness that might be attached to the meaning of 'structure'. The negativity of a discourse of environmentalism that focusses on grand ideas like 'ecological', 'educational' and 'cultural' crisis or problem, and not on the day-to-day practical conventions and conditions of agency contributing to the 'crisis' reified ameliorates attempts to reconstruct or deconstruct that discourse practically in educational inquiries. Beyond that, concern about the role of education in the life of the post-modern subject begs the question of the significance attached to lifestyle, reflexivity, 'sacrifice' and change 'for the environment'.

For the most part it would be fair to say that 'being-for-the-environment' emerged primarily in the form of a heightened critical consciousness and a critical praxis for some. A host of indirect actions remain a possibility for most students. Further research will clarify the emergence of a life politic. Most found this form of phenomenological inquiry to be interesting and practical, unlike much of their other studies. A critical ecological ontology provides a successful medium for developing the notion of 'being-for-the-environment'. But this success cannot be viewed outside the constraints of student situatedness and the presence of other intellectual, vocational and ideological trajectories grappled with by individuals from within the context of their course.

Such a conclusion should be accompanied by a range of cautions and explanations, lest the relative 'success' of a critical ecological ontology be seen as a self-fulfilling prophecy. Those cautions, however, will not be listed. Rather, the practical efficacy and value of a critical ecological ontology needs to be seen in the real world light of discernible problems and barriers to the ideal of a critical praxis, or the fullest sense of a life politic, anticipated in 'being-for-the-environment'. The final part of this paper is an attempt to make additional theoretical sense of the continuities, contradictions and dissonances experienced by students in this inquiry.

Two matters are discussed by way of general conclusion, noting that 'success' is a relative term and that, in all probability, some of the complexities and circumstances mentioned above suggest the improbability of ever finding a 'solution' to the problems of environmental education, that is its efficacy and its ability to create the tightest nexus of theory and practice.

The preceding comments and conclusions confirm the need identified in the introduction for theorising the post-modern subject in environmental education in relation to the triple-bind of post-modernity. In this inquiry, and another with 11–12 year olds about nature concepts and constructions (Payne, 1996), what is apparent is that students' understandings of themselves and their lifeworld is heavily influenced by a number of given 'truths' or 'messages'. These meaning-rich messages and their highly symbolic values are derived from discourses and images that are abstract, cultural or global in focus and intent and are highly seductive because of our 'need to know' and 'make sense' of ourselves and our world in an increasingly uncertain period, often with negative overtones. The 'disembedding' characteristics of such a reflexivity beg the question of where and what 're-embedding' will subsequently occur and how education might contribute.

On a practical note for curriculum theory it is worth reiterating Anthony Giddens' (1979, 1984) and Brian Fay's (1987) concern about getting right the ontological presuppositions upon which any social theory should be developed if it is to work, scientifically, critically, practically and non-idealistically. This reiteration only highlights for educators the need to pay a great deal of attention to the educative post-modern subject and his or her multiple contexts of living, both locally and globally. Once considered, but with no guarantees, environmental educators might proceed more confidently but cautiously with their formulations of curriculum. But in paying more attention to the educative post-modern subject the discussion of findings returns consistently to the author's concerns about the multiple stories and fragmenting consequences of post-modern life that reconstitute students' identities and subsequent actions. This common denominator in the findings reveals that consideration be given to what Alistair MacIntyre (1984) refers to as a 'narrative concept of self-hood'. MacIntyre is introduced for the purpose of suggesting how a story about the self might be constructed through the idea of 'narratives in narratives'. Some narratives, like a view about a preferred lifestyle, may be internally consistent, while others, such as the spectre of an ecological crisis and the 'admonishment' to do something about it are an external source of dissonance, confusion, uncertainty and, hence, contradiction. Demystifying the contradictions in the various 'narratives in narratives' would appear to be a major challenge for education in

general, as well as environmental education in particular. MacIntyre's interpretation of a unified narrative concept of self-hood is helpful, bearing in mind that the educational challenge suggests that the use of 'unified' should be replaced with the aim of 'unifying'.

In broad terms, MacIntyre's (1984) narrative concept of self-hood posits two 'I's', one historical the other correlative. The historical 'I' is where the educative post-modern subject has a history that is 'my own and no-one else's.' In a critical ecological ontology the emphasis on the body is one way of manifesting the historical I. Students' preoccupation with lifestyle is an example. According to MacIntyre the historical 'I' is accountable for the actions and experiences which compose a narratable life', this being an outcome of the aim of unifying 'being-for-the-environment'. The correlative 'I' is where the 'narrative of any one life is an interlocking set of narratives'. With regard to the educative post-modern subject it is the interlocking narratives that appear to pose the biggest challenges to developing a curriculum theory that 'works'. In this instance, evidence suggests that the discourses of culture, crisis and environmental problems increasingly prominent in environmental education, in addition to the realities of (post)modern lifestyles and personal circumstances, do little to unify a 'narrative concept of self-hood'. Nevertheless, MacIntyre's idea of 'narratives in narratives' is a way forward in initially conceptualising the educative post-modern subject and subsequent curriculum theorising 'for the environment'.

By way of conclusion, Ned captures the complexities alluded to above, in particular the tensions of a 'unifying' narrative concept of self-hood. Reference to Ned highlights the need to develop practically the educative post-modern subject in any critical curriculum theory of environmental education.

I still wear with pride my gold chain, and since I undertook the research I have felt more justified in wearing it knowing, firstly the production that took place and, secondly, that I have chosen to continue wearing it considering the production process. The decision of continuing to wear the chain was not as simple as feeling that 'I don't agree with the implications of the production process, therefore I am not wearing it', I also needed to consider the sentimental value and its symbolic meaning. Because of this I find it hard not to wear or return the chain, only to say 'thanks, but no thanks, I cannot wear it because of the environmental implications of its production'. I have also asked myself questions such as: are the symbolic meanings held with the chain any more important than the environment?, am I supporting consumerism and simultaneously ignoring 'the cries' of reform to save our world from the worsening so-called 'ecological crisis'? and, now that the chain is made, what is the problem with wearing it, is this really supporting the processes of production that are ecologically unsound. Further, if I was to refuse to wear the chain on these grounds, what, if any objects of our gold rimmed western culture of today could I consume without taking on and accepting the implications to our wider ecological position. Where do I draw the line?

Notes on Contributor

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