

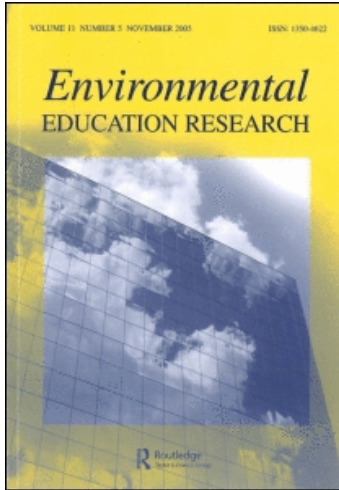
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Postmodern Challenges and Modern Horizons: education 'for being for the environment'

PHILLIP PAYNE *La Trobe University, Australia*

SUMMARY This article argues that a 'humanly-constructive' critical theory of environmental education called 'a critical ecological ontology for educational inquiry' provides a necessary complement to the 'socially-critical' perspective. This humanly-constructive curriculum theory focuses on our individual and collective 'being-in-the-world'. It invites learners, teachers and researchers to study how their 'lived experience' of socio-environmentally problematic circumstances is shaped and stretched globally by various economic and technological imperatives. In so doing, 'a critical ecological ontology' highlights the personal politic required for a socio-ecological praxis. Of particular relevance to the socio-ecological politic 'for being' are interpretations of postmodern agency that emerge from three practical applications of 'a critical ecological ontology'. This dialogue of theory and practice is necessary in the critical curriculum project of environmental education.

Introduction

This article advances a socially 'scientific, critical, practical and non-idealistic' (Fay, 1987) curriculum theory of environmental education called 'a critical ecological ontology for educational inquiry' (Payne, 1993, 1995). Its 'humanly-constructive' imperative can be characterized educationally as *for being for the environment* (Payne, 1997). John Fien (1993a, p. 97) identified one fundamental challenge for critical curriculum theorizing when he stated '... critical environmental educators have tended not to consider the role that personal transformation plays in motivating and guiding people to work towards structural transformation'. Figure 1, therefore, depicts the proposed relationship between the 'humanly-constructive' and 'socially-critical' perspectives. More specifically, the social, moral, political and technological bases of the idea of *for being* are

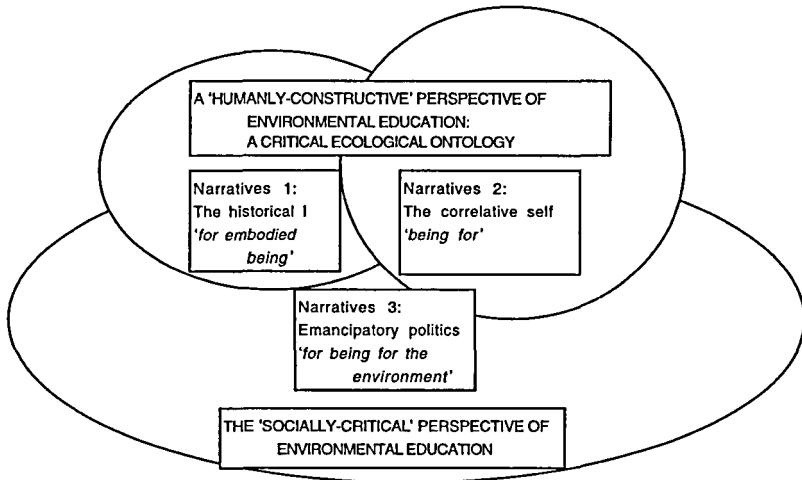


FIG. 1. Critical curriculum theorizing and environmental education.

outlined in Appendix 1a, as are its humanly-constructive connections to socially-critical curriculum theorizing *for the environment* in Appendix 1b.

Practical insights into *for being for the environment* have been discussed earlier in this journal (Payne, 1997). The findings of that and two other studies (Payne, in press; Payne & Wattchow, in preparation) provide an initial opportunity to elaborate certain parts of 'a critical ecological ontology'. That is, the 'self-narratives' constructed by learners in two of the studies just mentioned and teachers in the third provide important resources for responding to the recent call for environmental educators to explain their theories of agency and action (Fien, 1993a; Scott, 1997). After all, what learners and teachers do and say is an appropriate measure of the value (or not) of a curriculum theory for *being!* In effect, this article takes seriously Fien's (1993a, p. 95) 'challenge' *for environmental education* to create a genuine dialogue of theory and practice.

The initial formulation of 'a critical ecological ontology' struggled with the need for a curriculum theory of a critical nature to be sufficiently comprehensive, socially just and practically useful to a wide range of people in different settings in diverse cultural contexts. Underlying this struggle is the view that the relations of theory and practice have preoccupied critical theorists of environmental education (Robottom, 1987; Spork, 1992; Fien, 1993a,b; Stevenson, 1993). Yet, in rapidly changing individual, social, economic and 'cultural' conditions, now popularized as 'postmodernity', doubts remain about the assumptions and outcomes of that 'modern' critical theorizing. For example, some question the 'fit' of socially-critical theories to teachers' 'situated' theories (Walker, 1997); questions are asked about whether a curriculum developed abstractly by 'experts' in one cultural setting is appropriate for learners in different, context-specific settings (Bak, 1995); some are uneasy about the way in which important concepts like 'for the environment' and 'sustainability' might wittingly or unwittingly be co-opted by various ideological interests (for example, Jickling, 1992). Notwithstanding the need for responses to these legitimate concerns (and others), the relations of practices and theories are further confounded when other theorists (for example, Gough, 1994; Firth, 1995a,b) have grappled

with elements of an intellectual condition of postmodernism known as post-structuralism.

To be sure, postmodern-inspired thinking can contribute to refining those more established but somewhat contentious critical perspectives and practices of environmental education. Hence 'a critical ecological ontology'. However, barriers exist to reconciling critical, modern and postmodern perspectives given that these 'views of the world' are often represented as a 'collision' of competing 'ways of thinking'. The 'collusion' of postmodern 'challenges' and modern 'horizons' (or aspirations) proceeded in 'a critical ecological ontology' only on the presumption that existing curriculum theorizing in environmental education could be enhanced. In a nutshell, these two ways of thinking have much to learn from each other. Both critical and postmodern educators share a common interest in the question of active, capable learners who should be informed and concerned about the socio-environmental 'consequences' of their actions. Both are concerned about the authority of 'applied science' perspectives of environmental education. Furthermore, these shared interests also depart from many 'standard' approaches to education and environmental education which often have set views about the 'right' propositional knowledge, 'appropriate' learning experiences, 'foolproof' curriculum prescriptions and expert disciplinary role of teachers. They give lip-service to actively educating for 'agency', least of all in 'localized' inquiries that acknowledge the rapidly changing social conditions in which individuals now live (for example, Dewey, [1938] 1991a,b; Cherryholmes, 1988).

A related challenge for a critically inspired but pragmatic curriculum theory of environmental education is to make clearer its moral, social, political and ecological assumptions and imperatives. Herein lies a major tension between much critical and postmodern thinking, a point taken up below in more detail about certain ideological differences within the discourses of environmental education. But, in general terms, critical theory is aligned with 'reconstruction' of both ideas and practices while much postmodern thinking is concerned with their 'deconstruction'. Moreover, reconstructive critical theory has historically emphasized justice, equity and emancipatory concerns, or 'metanarratives' that the postmodern Lyotard (1984) calls for an 'incredulity' towards because of the 'terror' and 'violence' such 'totalizing' views have created in the ethico-political world. Such gross 'generalizations' or 'big stories' about life and history are, it is argued, internally flawed and often contradictory, requiring dismantling at the local or situated 'levels' of experience. Conversely, of this deconstructive impulse, McCarthy (1991), for example, is critical of the consequences of the 'aesthetic individualism' he alleges of postmodernists, it being a poor replacement for modernity's 'possessive individualism'. This alleged postmodern aesthetic arguably has strong links with the 'anything goes' 'morality' that Bauman (1993, 1995, 1997), for example, associates with the postmodern 'tourist' and 'vagabond', beings he asserts are co-opted by the rampant 'shopping mall'-like consumerism of postmodern 'society'.

Thus, with this indicator of moral, social and political 'tension' between modern and postmodern perspectives now squarely in mind, a practical challenge for 'a critical ecological ontology' is that it 'work' morally, socially and politically in a democratic fashion. This work must be realistic and achievable in a limited fashion given the personal, local, historical and environmental

constraints on the agency of students and teachers. Curriculum theories cannot be shy or pretend neutrality about the types of morality and ethics they aim to invoke. Nor can the preferred type of morality, sociability and politic be so abstract that a praxis cannot be anticipated.

From the point of view of 'a critical ecological ontology' much can be learned, at least philosophically if not educationally, from Bauman's acknowledgement that 'before anything' we are 'already for the other'. Bauman's being for the other provides a significant point of departure from the traditionally dominant liberal maxim of the autonomous self—an unencumbered being whom we are led to believe chooses freely amongst various options to which he or she has been exposed, usually by disciplinary experts in education, according to a life plan that maximizes the potential for self-determination. To the contrary for 'a critical ecological ontology', Bauman's concerns about *being for*, or how we are connected inextricably to others, including the environment, is elaborated in my later discussion of how the questions making up 'a critical ecological ontology' can draw practical inspiration from Alisdair MacIntyre's 'virtue' notion of a 'narrative concept of selfhood'. The use of curriculum questions to develop the 'narratives in narratives' required for a narrative concept of selfhood aims to avoid the tendency in curriculum documents to ethico-political ambiguity, abstraction and irrelevance or, more generally, the slide into either possessive liberal or aesthetic postmodern individualisms. Both are rejected because their 'social contract' of maximizing 'my' freedom by leaving 'you' to yours amounts to little more than the loneliness of 'being for myself', a solipsism that is a self-defeating view of moral, social and ecological agency for those who take seriously the reconstructive 'nature' of the human condition. Hence, for educators the epistemological importance of constructing a narrative concept of selfhood to 'a critical ecological ontology's' characterization *as for being for the environment*.

So, for environmental educators and researchers the 'theory' of a critical ecological ontology is presented simply as a sequence of nine 'layered' questions. The questions serve only as a guiding probe for curriculum development or research activities in environmental education. Readers only interested in the questions for curriculum development should refer to that section below which discusses them. For others inclined to the processes of the re-theorizing of the substantive, normative and epistemological possibilities of 'a critical ecological ontology' a significant proportion of this essay is devoted to explaining that important task.

Dilemmas and Tensions in Environmental Education

To 'set up' this latter task some key issues driving the formulation of 'a critical ecological ontology' require re-visiting. First and historically, there are unresolved 'tensions' in environmental education, namely the persistent commentary about the practical failures of the field to 'live up' to its own aspirations and expectations (Payne, 1995). Second, in the wake of this problem a range of disputes between red and green and critical and postmodern 'solutions' is imminent if Ian Robottom's 'pink progressivism' and Chet Bowers' 'deep green conservatism' provide one litmus test (Payne, 1993). In dealing with this thorny issue, help is available from those theorists who at a more general level have

attempted to move beyond the impasses of modern and postmodern thinking. In particular, Anthony Giddens' 'ontological turn' is useful, most of all because it is part of a theory of action but also because it departs from the 'linguistic turn', now so prominent in much theory. Giddens' version of social inquiry and explanation reminds us of the adage 'actions speak louder than words'. This is not to say that Giddens' theorizing does not highlight the importance of language in action. In fact Giddens' 'discursive consciousness' retains a prominent role in social inquiry and, therefore, educational inquiries. Generally speaking, Giddens' (1979, 1984) 'social ontology' proposes that action (for example, littering) and its real-world consequences (pollution) arise from the 'meeting' of agency (what individuals/groups are capable of doing, knowingly and unknowingly) and the social/institutional/historical structures in which actions occur and re-occur. Giddens' social ontology is explained by the duality of structure and agency. That is, littering might be tacitly accepted as an informal rule or convention in the schoolyard because of a lack of institutional supervision. Hence, Giddens' 'duality of structure and agency' provides a methodological understanding required for the empirical task of social explanation (i.e. in education what learners might eventually describe about themselves, their agency and actions but overlaid within other non-subjective interpretations of the habitual, cultural, structural or institutional 'organizers' of agency and action). According to Giddens a convention often becomes a 'resource' through which individuals act and interact in particular ways with certain socio-environmental consequences—such as a badly littered school yard. The deliberate connecting of social structures, agency as both individual and collective actions and their reconstitution in the real world of socio-environmental concerns (a littered playground), translates Giddens' 'social ontology' into Payne's 'a critical ecological ontology for educational inquiry'.

Another dilemma is how best to present a 'curriculum theory' in a socially scientific, critical, practical and non-idealistic manner. For practical purposes I lay out, or present, a series of nine layered curriculum or research questions that summarize the theory of 'a critical ecological ontology' for environmental education. The questions provide a manageable 'intellectual resource' (Carr, 1995a) for environmental educators, be they teachers, researchers or students. Environmental educators are invited to use the questions as a tool of analytical and critical reflection about current practices, or as a focus for curriculum development. Either way, this way of presenting 'theory' remains true to the critical project of assisting environmental educators to 'empower' themselves, rather than rely on centralized curriculum prescriptions. For purposes of clarification and elaboration of 'a critical ecological ontology' I incorporate relevant findings from three 'testings' of certain questions (Payne, 1997, in press; Payne & Wattachow, in preparation). Clearly, any rethinking of 'a critical ecological ontology' and attempts to 'theorize' agency should draw on further 'field testing' of the questions in a range of settings.

Finally, in view of the above tensions and dilemmas the latter part of the essay is devoted to restating the case for connecting 'a critical ecological ontology' to the development of theories of agency and action that seriously examine how postmodernity, first, shapes the learner, what I refer to as the 'educative postmodern subject' and, second, the teacher. Of particular interest is the perennial question educators ask about the ways in which learners 'best' learn.

While I am less concerned about searching for the 'holy grail' of teaching and learning, I do discuss how learners from two of the three studies were able to construct critical narratives about themselves, non-trivial 'stories' (if you like) that interpretively 'bridge' the 'ontological' inquiries probed by the layered questions making up 'a critical ecological ontology'. Of particular interest to these self-narratives are some of the moral, social, political and ecological dimensions of agency and action. These narratives might assist other environmental educators to contemplate where their learners are now 'coming from' and 'headed for' in the postmodern condition. These considerations are introduced on the presumption that critical versions of environmental education are oriented to 'change', hence the importance of better understanding both the learners and teachers of those curriculum theories that take seriously the changing circumstances in which we all live—a political undertaking implicit to critically theorizing agency, action and its consequences.

Ideological Differences: some deeper considerations

In view of reckoning partially but practically with the current tensions of modern thought (rational, foundational, critical, universal, progressive with ends of enlightenment, empowerment and emancipation and, perhaps, possessive individualism) and postmodern thinking (contingent, uncertainty, indeterminacy, difference, otherness and, perhaps, aesthetic individualism), the curriculum substance or content of 'a critical ecological ontology' sought conceptual 'affinities' (Dallmayr, 1991) in a comparative case study of the respective contributions to environmental education of Ian Robottom and Chet Bowers (Payne, 1993).

Much can be learned from 'competing' lines of theoretical abstraction which, when applied to the 'real world' of, say, educational practices, raise crucial questions about the assumptions, or ideological underpinnings, of different curriculum theories. More to the point, curriculum theories usually pay scant attention to the (ontological) question of what it is to be a human 'being' or learner in rapidly changing social conditions. More interest is usually shown in the paradigmatic status of knowledge, society and the 'good' or 'right' life which can or should be educated 'for'. With regard to (environmental) education different ideological underpinnings invariably assert a particular epistemology, or preferred version of teaching, learning and resources, that also reflect an implicit belief in or about the 'school', 'university', 'community' and 'place', or view of 'sustainability' and so on. A confrontation with some of the deeper assumptions and differences between 'modern' and 'postmodern' perspectives of environmental education, therefore, says a great deal about particular 'visions' of what it is to be an educated human being, agent, identity, self, citizen or 'ecological' member of society. What follows then is only a glimpse of how fundamental ideological differences in critical and postmodern perspectives of environmental education are underpinned by certain assumptions about what it is to be an agent and actor 'in', 'for' or 'with' the socio-environment.

Notwithstanding the important contributions of John Huckle and Stephen Sterling (in Fien, 1993b) to laying out the theoretical/philosophical bases of 'red' and 'green' perspectives, Ian Robottom's (1987) 'pink' contributions to environmental education can be viewed as reflecting the 'empowering' and

'emancipatory' praxis of critical theory of education (for example, Kneller, 1984; Kemmis, 1986; Young, 1990). For the most part the socially-critical perspective of education presumes a 'rational self clarity' and moral autonomy of individuals who are inextricably connected to a social conscience and form of political action that betters the social good through just and equitable means. The social good can be qualified as the 'socio-ecological good', noting this is open to interpretation and different emphases. What is less negotiable in critical versions of environmental education is the 'strong' democracy through which agents, as capable learners, are educated 'in', 'about', 'with' or 'for' the environment. Thus, a social-ecology. On the other hand, Chet Bowers' (1987, 1993) 'deep green' explanations of the so-called 'ecological crisis' and education's role in reproducing it are essentially hostile to modernity and its institutions, including technology. Notions of individual and collective agency are relatively scarce in Bowers' largely negative commentary about (western enlightenment) liberalism and critical perspectives and the relationship of their educational myths to the 'ecological crisis'. Bowers seeks to reclaim 'good' traditions of 'sustainability', promote 'ecological' thinking analogous to a revised sense of community as interdependent and restore the place of folk, poetic and tacit 'ways of knowing' in the production of knowledge consistent with 'bioregional' sensibilities and 'ecological sustainability'.

To reveal some of the ideological differences of pink and green perspectives it is worth noting that critical theories of education are not without a strong historical lineage and, therefore, have a view of the history that Bowers, for example, seeks to reclaim, albeit selectively. Critical education theory is derived largely from the Frankfurt School of Western European neo-marxist thought. Its most prominent contemporary spokesperson is Jurgen Habermas. His work on ideology and knowledge interests has been influential in educational theory and research methodology and persuasive in environmental education, as evidenced in Robottom's contributions to the field. In the absence of any sustained critique of Bowers' logic a return to Habermas shows he is a staunch advocate of the 'yet-unfinished' modern enlightenment project and a trenchant critic of the postmodern subversion of it. Bowers is arguably what Habermas would refer to as a 'young conservative', a postmodern type educational theorist with a 'courage for the past' which is invoked 'selectively' at the same time 'other pasts' that would be 'rejected' are 'morally neutralized' (Habermas, 1989, p. 43). This point requires brief elaboration. The 'culturalist' logic in 'deep ecological' appeals, like Bowers', to re-enchant the world and reinvent nature is rejected in some quarters of social theory and political philosophy for its romanticized or fundamentalist veneration of the past, appeal to a version of 'nature determinism', a reactionary 'longing' for tradition and community, evidence of ecofascist tendencies and invocation of both an 'authentic' nature and subsequently an 'authentic' human nature (Giddens, 1994; Biehl & Staudenmaier, 1995; Ferry, 1995; Soper, 1995; Noddings, 1996; van Wyck, 1997).

Conversely, as already indicated, commentary critical of the critically-progressive project in environmental education has focused on its alleged lack of contextual, cultural and human sensitivities, of which the roles of tradition, community and 'nature' are often viewed as important. Nevertheless, these important counterpoints and subsequent tensions are played out mostly in the realm of philosophy and social theory. Robottom, for example, has said little

about tradition, noting that critical progressivism is committed to change and is invariably depicted as antagonistic to the 'shackles' of tradition. Bowers is dismissive of the progressive change he sees as fuelling the ecological crisis, noting his biocentrist views determine that social and educational reforms must be subsumed by cultural/ecological 'sustainability'. So, despite the shared problems of the technical imperative of much environmental education and the correlation of educational and ecological 'crises', Robottom arguably represents a modern 'radical progressivism' that emphasizes rational agency, collective action and democratic procedures for agents while Bowers' postmodern 'radical conservatism' primarily subordinates agency to the continuity of selective, ecologically sustainable traditions and extends rational knowledge to the possibility of spiritual, aesthetic and bodily epistemologies (Payne, 1993).

Unfortunately, debates in environmental education about the progressive/conservative tendencies of modern/postmodern differences and red/green tensions are barely discernible, least of all about matters to do with agency. Equally, the critical project should be suspicious of the 'cyborgs', techno-virtual 'frontiers' and sci-fi 'scenarios' that 'futurists', presumably committed to some version of progressivism, selectively invoke outside any attempt to explain the moral, social and democratic basis of their attempts to, in effect, instrumentalize education. Furthermore, both the critical and postmodern projects in environmental education must remain alert to the underlying assumptions of those relatively standard versions of educational liberalism from which the now enlightened individual can knowingly choose their own destinies in the apparent 'absence' of others who also are freely choosing a different destiny.

The task, therefore, for a critical curriculum theorizing that pays attention to the concerns of postmodern thinking but does not capitulate to either reactionary or futurist impulses for the agent, or 'educative postmodern subject', is for a theory that 'localizes' its praxis within a heightened sense of how 'traditional' and 'globalizing' imperatives intersect morally, socially, politically and ecologically in the current 'lived experiences' of educators and learners. Put optimistically, are teachers, learners and curriculum theorists capable of democratically conceiving and enacting an environmental education curriculum 'in', 'about', 'with' and 'for' the 'environment' within an acknowledgement of their own historical embeddedness and globalizing embodiment, contemporary constraints and ecological limits? Or pessimistically *for being for the environment*, is environmental education destined to versions of nature determinism, ecological utilitarianism, pseudo sci-fi-futurism, aesthetic individualism or standard liberal autotelic, possessive self-determinations, all within the consumptive currency of economic rationalism and its environmental imperative?

The Pragmatic Intellectual Resource of a Critical Ecological Ontology for Educational Inquiry

To invite 'practicality', 'a critical ecological ontology' is presented simply in the form of a series of questions. The questions, individually or collectively, can be used selectively to thematize existing curriculum, pedagogical, policy and research activities or sequentially for purposes of curriculum or research development. Thus, given where environmental educators/learners/researchers 'are at',

the questions can be studied from a range of perspectives—scientifically, socially, experientially, kinaesthetically, relationally, philosophically and so on.

This 'open-ended' questioning strategy of 'a critical ecological ontology' proposes that academically-driven theories that do not help educators see a way beyond the hold of curriculum, organizational and institutional constraint are risky and complicit in reproducing the theory–practice problem mentioned earlier. Conversely, in defence of the qualified way in which theory is offered here, the now popularized notion of 'reflective practice' is judged as hollow unless educators have something like a series of questions to reflect on, be it in relation to existing curriculum practices or for curriculum design and research planning. Otherwise, as Carr (1995a, p. 36) asserts, 'reflection' might amount to little more than a dependence on 'precedent, habit and tradition' or, worse still, a compliance with the curriculum dictates of the forever absent curriculum experts.

The questions making up 'a critical ecological ontology' only partially reflect theory because individually or aggregated the questions cannot remain 'true' to the theorizing from which they are derived (Appendix 1a and 1b). The questions serve only as 'sensitizers' (Giddens, 1984, p. 281) for inquiry, be it by researcher, teacher or student. For example, in Payne (1997), third-year undergraduate students responded primarily to the first and second questions with their own self-directed inquiries, later 'bringing in' other questions. The questions can be used selectively, noting there is a developmental sequence to them that deals ultimately with the moral, social and political judgements that might need to be made about what individual and collective inquiries reveal.

By way of further explaining the sequential manner in which the questions are presented, there is an attempt to 'delineate' the layering of personal, local and global phenomena on the body in action, as lived experience. I will have more to say about the 'body' and the layers of influence on it noting Marjorie O'Loughlin's (1997, p. 22) confirming of the educational premises of 'a critical ecological ontology' when she asserts:

... we need at the same time to examine the embodied subject's 'first-hand' involvements with the place in which they live and the intimate connection of this sense of 'place' with other dimensions of living which each experiences; that is, with socio-economic positioning, intersubjective and social dimensions, as well as the temporal context which situates them in a personal and communal history.

The 'intelligent embodiment' O'Loughlin calls for is teased out in the questioning approach of 'a critical ecological ontology' which emphasizes inquiries into the corporeality of human action and interaction with their social and environmental antecedents and consequences. 'Corporeality'? In philosophical and practical terms, the ontological/phenomenological perspective developed here *for being for the environment* aims to avoid reproducing the mind–body dualism, where the abstracted activities of the mind and consciousness are typically privileged above the localized 'doing' or praxis of body(ies). This dualism of mind–body is a necessary and unfortunate ingredient of the theory–practice problem already mentioned. Put another way, in the tradition of John Dewey's ([1938] 1991a) pragmatism, this curriculum theory is concerned with a 'logic' of inquiry into the actions and interactions of the organism (or body) and its

environment and their 'real' world, material consequences. Notwithstanding this strong orientation to a pragmatic curriculum theory of action and consequence, the layering of questions in 'a critical ecological ontology' is emphatic that the body(ies) corporeality include inquiries into those more abstract, globalizing, 'invisible' influences on human agency and social action. There can be no doubt that minds and bodies are increasingly 'managed', 'disciplined' or 'surveilled' by a range of factors, mainly technological and economic. Any theory of agency and action must also take into account the 'invisible', often virtual, features of postmodernity that are structuring agency and action in outdoor/environmental education (Payne, 1994, 1996). More specifically, the 'corporeality' of the body is brought into focus by questions that connect the material and abstract dimensions of human experience. For example, the organic 'purity' or 'naturalness' of the body is rendered relatively meaningless by the culturally marketed ingestion of chemicalized fast foods, social display of fashion or individual 'correction' by the diet and pharmaceutical industries (Featherstone *et al.*, 1991), all of which were conclusions arrived at independently by third-year undergraduate students (Payne, 1997).

To a large extent, as shown by the respective testings with third-year undergraduate and sixth-grade students, the questions aim to be useful to environmental educators in a variable and selective manner, irrespective of year level taught or background in the applied sciences, social sciences, humanities or arts. The use of questions as a mode of presenting theory is strategic. First, as already mentioned, this approach acknowledges and accepts the different backgrounds and curriculum/pedagogical interests of environmental educators. But the questions also offer 'themes' that might be deployed in current educational practices. Second, the questioning strategy is consistent with the critical aim of foregrounding for inquiry those immediate contexts of learners' lives and actions that can be scrutinized individually and collectively for their environmental influences and consequences. Most importantly, the intent of the questions is to positively assist agents to understand and act on the conditions of their own existence but within a framework that extends individual interests to broader social concerns, responsibilities and actions. These three reasons, it seems to me, are at the heart of a radical, inclusive, and democratic theory and practice of environmental education. Brief explanations for each question can be found in Payne (1995); here, in responding to Fien's challenge for subsequent theoretical elaboration, I include insights gleaned generally from the two testings.

A general starting point for inquiry is to ask environmental educators to what extent existing practices deal with or respond to the following sensitizing questions.

1. In what ways do environmental concerns exist in a person's body?

This question seeks to establish the corporeality of the human body(ies)—that is the 'lived' interface of the individual and his/her environments. In so doing, the purpose of the question is to establish how the body is a living indicator, or litmus test, of environmental conditions and circumstances. In Payne (1997), third-year undergraduate students readily understood the purpose of this question. Their responses identify three forms of 'embodiment'—ingestion (milk, tobacco, spa water, chocolate, rum, cereal, canned fruit, potatoes), hygiene (hair shampoo, food wrap, toilet tissue) and protection (jacket, workboots, jeans).

Dave, for example, calculated he had used 2.6 hectares of Cling Wrap for lunches during his school life.

2. *What pathways into and out of the body do environmental problems and issues take?*

The use of the term 'pathways' signals the layering processes of embodiment. 'Into' focuses on the 'sedimentation', 'colonization' or 'surveillancing' of the corporeal body by external forces, while 'out of' highlights how agents in their actions reconstitute the environmentally problematic conditions. Dave extrapolated his own use-embodied usage of Sorbent to 20,000 tonnes of toilet paper being flushed 'down the dunny' annually in Australia, in addition to the huge amount of water accompanying it, with Sorbent being only one amongst a number of brands. Undergraduate students devoted a considerable part of their inquiries to 'tracking down' information about the products they ingested, used and wore while examining the production, manufacturing and distribution processes.

3. *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?*

The 'bush adventure ethos' of the course Alan was studying included the 'need' and 'rule' that fibrepile jackets be worn for reasons of safety. Noting that some of his peers owned five jackets and that there were 40 students in his year and 130 in the course he concluded that the 'ethos' could 'keep one outdoor store in business'. Sixth-grade children's conceptions of 'nature' (Payne, in press) were constructed largely from ongoing personal and social experiences of prominent play sites/places (at school, home) while, for example, historically altered (due to the gold rushes of the 1850s) and recently modified local environments (due to development, rubbish disposal) were valued as 'natural' by many children (my guess is natural in the relative sense, within a preoccupation for play and social engagement/association).

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?*

Sixth-grade children invariably excluded humans from their conceptions of nature, possibly as a consequence of the prevalence of nature documentaries which many watched where they and the narrator tend to be spectators. The earlier example of an adventure ethos amongst undergraduates demonstrates peer interactions and expectations about what it is 'to be an outdoor adventurer'. An analysis of any glossy outdoor magazine would reveal particular fashions, depictions of masculinity, and personifications of 'exotic' wilderness adventures and environments that 'socially construct' the aforementioned ethos (Payne, 1994). While the preceding question foregrounds the role of the individual, this question stresses the social, historical and symbolic influences on agency, thus 'presencing' 'culture' in the individual/personal experience of the lifeworld. Numerous opportunities are available in this question to further establish the 'corporeality' of the agent.

5. *How do the above habits and routines vary among individuals when there are different environmental problems and issues entering and exiting respective bodies?*

This question implies the need to recognize the differences between individuals,

while providing the grounds for the common exploration of those differences and their contexts (pathways, habits etc.). It is at this point that the findings of Payne (1997, in press) provide an opportunity to elaborate this element of 'a critical ecological ontology'. This qualification is best summarized by reiterating commentary from Payne (1997, p. 147). I concluded that 'an extremely complex set of circumstances influencing agency, praxis intentionality and praxis' seemed to confound any straightforward conclusions about the relationship between stated intentions, deliberated actions and socio-environmental consequences. Put simply, 'doing' something is often 'held' or checked by internal factors unknown or undecipherable to the agent. Contradictions might and do exist between the ability to knowingly represent and articulate/express/represent something in a meaningful manner and practically-habituated behaviours where actions and interactions unknowingly occur and are repetitive. This question, therefore, invites inquirers to interrogate their own and others' habits, routines, pathways, conventions and so on and share that information with others with the intention of better understanding the connections of habits, for example, and how they reproduce environmentally-problematic situations.

Both third-year and sixth-grade students found that by talking about and sharing information about their habits they could see more clearly what it was that lay below the surface of their own 'lived experiences'. As a consequence of her own inquiries and what she learned from others' inquiries Lorraine concluded she had developed a tendency to examine things more closely, ask where they come from, how they were made and so on. Cath felt that she had to 'share knowledge' so as to help empower others.

6. What influence on the pathways of the problems do historical, geographical, social, political, technological, material, and symbolic conditions have?

The 'natural' nature children believed they had experienced in fact was the revegetated remnants of gold-mining activities about 150 years earlier that had led to the place's name of 'One Tree Hill'. More mature undergraduate inquirers were able to identify a range of complex forces that led to their embodiment processes. Alan's conclusions are fairly typical. He felt most people prefer not to know or consider where products come from, such a consciousness being 'too troubling'. He felt that his own apathy was ingrained in his culture making it difficult to 'change' while Kim argued against the cop out of 'blaming others', 'leave it to the authorities' and 'plead ignorance' so that I can pretend I'm 'not involved'.

This question aims to make more explicit the competing sources for agency and of action that might be loosely encapsulated in what is popularly accepted as the increasing fragmentation (moral, social, political) of the subject and his/her postmodern 'identity'. The conditions listed in this question are often competing in postmodernity where, for example, there is a constant clash of concrete/material realities and abstract, virtual realities. The clashes of conditions in the corporeality of the body, I contend, leads to confusion and uncertainty about one's sense of agency, commitments, identity, place and space. But the question aims to make clearer what the clashes and their sources are.

7. What aspects of daily life might be changed so that the problems entering and exiting the body might be reduced?

Mixed results about students' willingness to change confuse any straightforward

conclusion about the efficacy or 'action-competence' or orientation of learners. The ongoing theorizing of 'a critical ecological ontology' accepts the contingency of agency and action, as indicated in elaborating the two preceding questions. Many third-year students had significant investments in both a personal and outdoor 'identity' which made it very difficult to change those actions that might compromise a self-valued identity. 'Sacrifice' for some was not possible. On the other hand, a number of students used the information from their inquiries to change certain patterns of consumption that they concluded were environmentally problematic. This question, therefore, opens up the dialogue of the problematic connections between the humanly-constructive approach to environmental education indicated by 'a critical ecological ontology' and the more established versions of the socially-critical perspective.

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?

Again, mixed results were evident. On one hand Kate concluded that caring for yourself was the way to care about nature; Jean felt we must look at ourselves because we are led to believe the 'crisis' is not yet in our backyard or on the doorstep.

The purpose of this question is to illuminate what might be at stake ethically for various 'others' as part of deliberating about a 'praxis intentionality' (Payne & Hickey, 1997) or developing 'action-competence' (Jensen & Schnack, 1997). Invariably in the literature of environmental education, including the socially-critical perspective, little mention apart from 'success' stories is made of the broader social contexts and political implications of learners acting on 'solving' educationally-focused environmental problems. Moral and political agency and social action are increasingly problematic in the postmodern ethical condition. No guarantees can be made that this and the following question translate a theory of agency and action into a principled practice for the environment. Nevertheless, the notion of 'praxis intentionality' connoted here by these questions was added to 'a critical ecological ontology' because of the normative lack alleged of Giddens' theoretical work by various critics (Dallmayr, 1991; Bernstein, 1992; Joas, 1993).

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 or redeem the environmentally—problematic situation/circumstance/condition?

Rationality, even if partial and limited, will always figure prominently in any 'grounded' attempts to justifiably develop communicative and discourse ethics that are compatible with interests in, and change for, those environments that cannot verbally represent themselves (Vogel, 1996).

The Call for a 'Glimpse' of a Theory of Agency: epistemological strategies for learners

Given that teachers are often concerned about the effectiveness of teaching and learning the following discussion focuses on the narrative manner in which the above learners from two studies explained their findings. That is, I wish to

explore epistemological considerations of ontologically-focused inquiries. So, how learners represented the findings of their inquiries sheds some light on how they view their own agency and action—a real need if researchers and teachers are to better understand the capabilities of learners to understand, act, interact and communicate.

Before elaborating the epistemological relevance of MacIntyre's 'narrative concept of selfhood' to the humanly-constructive imperative of 'a critical ecological ontology' some preliminary comments again are needed to identify where postmodern-type environmental discourses are 'at' in relation to the question of capable learners/agents in postmodern conditions. So far in environmental education, theoretical perspectives of agency have varied considerably. They may appear to be irrelevant or confusing, particularly for those educators holding the view that environmental education, by and large, is primarily a form of propositional knowledge to be delivered/read; outdoor laboratory, gymnasium or church to be experimented with or experienced; or environmental/nature programme to be immersed in. Mindful of these differences and the long interest of environmental educators of various ideological persuasions, Bill Scott (1997, p. 97) asks environmental educators for a theory of agency that moves beyond 'the [emphasis mine] inevitable rhetoric' and which may 'provide a glimpse of a strategy ... even if only a few tentative steps'. For example, Firth (1995b) proposes that the term 'subject' allows us to see ourselves and our realities as 'constructions' that are 'fragmented, multiplied and decentred'. Wilson (1995) proposes that understanding the 'self' and 'human-earth' relations are made clearer through 'ecological autobiographies'. Fien (1993a, p. 87) identifies Giddens 'theory of structuration' as a likely candidate for providing an appropriate theory of action. Jensen and Schnack's (1997) work on 'action-competence' considers the characteristics of practical capability and consequence. My own work centres on examining the mundane realities of 'lived experience' for possible change, a social ontology requiring educational inquiry that employs Giddens' 'duality of structure and agency' to 'interpret' and actively reconstruct the embodied corporeality of human agency, action, interaction and lifeworld consequence.

Despite these advances teachers are primarily concerned with how learners learn and/or how they should teach or develop a curriculum. Although teachers are not likely to use the term 'agency' they are interested in the ways knowledge, beliefs, concepts, attitudes and values are learned, how such meanings are represented verbally or in writing, and about the efficacy of subsequent behaviour or actions (or skills and competencies). Thus, the preceding discussions of learners' responses to the questions constituting 'a critical ecological ontology' provides the needed empirical basis for glimpsing the question of agency. This glimpse rests on the idea of an 'embodied intelligence' and how such somatic understandings are fostered by the questions and developed through appropriate pedagogical means, in this instance through relatively open-ended inquiries by students into one self-selected routine experience. In developing better understandings of 'embodied intelligence' my aim is to 'bridge' the social ontology of lived experience and the epistemological means through which agents/learners come to understand their 'selves', 'identities', 'subjectivities' and social/cultural 'structures' organizing and modifying 'lived experience'.

In general terms, third-year undergraduates examined the socially-lived

patterns of 'ingestion', 'hygiene' and 'protection'. Their inquiries related primarily to questions 1 and 2, those concerning the actual 'embodiment' of environmental concerns and their 'pathways'. Sixth-grade children's inquiries dealt with question 3 where the more immediate 'places' of environmental experience were encountered both positively and negatively. As might be expected the inquiries of third-year undergraduate students into their 'embodied' 'conventions', 'habits', 'routines' or 'needs' were relatively sophisticated in both academic and practical terms. Labels were examined, product standards and information were obtained from manufacturers and distributors, site visits were arranged, interviews were conducted. Despite the range of 'scientific', 'lay' and practical sources of information, the way in which the findings of their inquiries were then represented took the form of an extended descriptive essay, as required by the teacher. Sixth-grade students talked a great deal, drew pictures, visited important local places, imagined or wrote responses to various guiding probes that reflected the intent of question 3. The 'stories' they told were serious ones, as powerful in many respects as the prosaic narratives submitted by third-year undergraduate students.

Student 'findings' were represented discursively as a 'narrative', a term which lends itself to Alisdair MacIntyre's (1984) notion of a 'narrative concept of selfhood' through which a more systematic and coherent account of pressing or intellectual matters can be developed (Payne, 1994, 1996, 1997). Furthermore, the 'narratives in narratives' MacIntyre (1984) urges us to examine in making sense of our own lives is indicated in the series of questions making up the 'layering effect' of 'a critical ecological ontology'. In effect, each question provides a different focus for inquiry from which another narrative about oneself can be told, starting in question 1 with embodiment concerns and subsequently extending to cultural sources of embodiment in question 6. Questions 7-9 deal with how 'my' narratives cut across and intermingle with the 'narratives' of others. Here, narratives are shared and discussed, bringing to practical fruition Bauman's *being for the other* while emphasizing deliberations about the moral, social and political consequences of taking action in environmental education. Notably, within the field of postmodern environmental ethics, Gare's (1998) qualified acknowledgement of MacIntyre's relevance is long overdue.

The significance of MacIntyre's 'narrative concept of selfhood' to the task of theorizing agency is that he informs learners and researchers of a way of bridging their lived experience (ontology) with how he/she might socially and critically engage his/her inquiries in a democratic manner. More precisely, MacIntyre's self comprises two distinguishable senses which are noted in Figure 1. First is the 'historical I', where according to MacIntyre my history '... is my own and no-one else's'. The historical I is the subject of inquiries in the ontological mode of practically embodied intelligence outlined earlier and '... is accountable for the actions and experiences which compose a narratable life'. Questions 1-3 of 'a critical ecological ontology' deal emphatically with the embodied subject of a 'historical I'. MacIntyre's other notion of narrative selfhood is 'correlative' where 'the narrative of any one life is part of an interlocking set of narratives' or 'narratives in narratives'. Questions 4-6 ask that the 'historical I' narratives be shared in inquiry, thus pointing to the realization that the 'historical I' is also a 'correlative self', or *being for*. How teachers or researchers might pedagogically achieve this 'narratives in narratives' is a task

requiring further elaboration in a range of educational contexts. To be sure, 'conventional' critical approaches to group work discussions, localized 'community' interactions and action research processes are likely candidates. Finally, in keeping with need for 'a critical ecological ontology' to remain alert to the demand for a moral, social and political demands of a critical curriculum theory, questions 7–9 focus squarely on an examination of the praxis consequences of the (re)constructed narrative concept of selfhood. Seeing the educative postmodern subject in this narrative manner, as a narrative 'product' of 'layered' questions that inquire emphatically into the individual learner in social context, or how personal agency is now stretched through local contexts into global structures contrasts markedly, for example, with the important but highly subjectivist 'ecological autobiographies' recommended by Wilson (1995). They risk a more objective, critical account and democratic appraisal of the social and cultural contexts into which the subjective aestheticism of some constructivist approaches to postmodern learning and environmental ethics can slide (Payne, 1994).

Reviewing the Educator in 'a Critical Ecological Ontology'

The preceding discussion glimpsed the learner or educative postmodern subject in two practical testings of 'a critical ecological ontology'. The teacher as another agent should not be overlooked. The *in-situ* lived experience, or social ontology, of the environmental educator has not been a focus of research. However, tentative insights into the agency of the environmental educator can be gleaned by examining the structural, or organizational/institutional, factors those teachers practically believe enable or constrain their 'ideals' in environmental education (Payne & Wattchow, in preparation).

An important point is made by Kim Walker (1997) about the 'theories' teachers (or researchers) have prior to various curriculums they might have to teach on behalf of the State or the school. Like Walker, I take it that environmental educators as agents are capable thinkers and committed practitioners of their chosen vocation. There is no doubt that environmental educators do 'hold' to a professional theory of environmental education, often resolutely. This hold may be construed as a form of resistance to centrally-devised or academically-driven theories, including the socially-critical project as Walker points out, whose 'uptake' by teachers often takes the form of intensive professional development exercises or imposition of action research projects. Invariably, however, the resistance of teachers to curriculum theories not of their own making or choosing is a consequence not only of their own ideological interests (or disinterest) but also because of the organizational constraints teachers feel, or believe, are imposed on them, both professionally and institutionally. Professional ideals and, therefore, teacher agency in environmental education are often squashed by centralized curriculum prescriptions, the inconvenience and disruption to timetables due to field trips (often extended), the financial and human resources required for excursions, and the bureaucratic/legal safeguards that need to be negotiated. In addition, for many teachers trained primarily in a knowledge-based discipline the interdisciplinary nature of environmental education creates a sense of inadequacy (Payne & Wattchow, in preparation). With regard to the 'humanly-constructive' imperative of 'a critical ecological

ontology' and, for that matter various other curriculum theories, what must be shown or made self-evident to teachers, researchers and students is how practical constraints on professional practice can be reworked according to the 'ideals' that many environmental educators, in fact, do possess and to which they still aspire.

A critical theory that bypasses some or many of these impediments, or forms of 'professionally-based' resistance, should assist environmental educators and empower a sense of agency. Hence, 'a critical ecological ontology' stresses inquiries by teachers, students and researchers into the body, the mundane experiential fodder of everyday life and other immediately accessible sites of study. A fundamental proposition of 'a critical ecological ontology' is that it eliminates many constraints on professional practices because of its focus on the ordinary, day-in day-out 'lived experience' 'in-here'. It does not contrive studies 'out-there' which usually entail significant human, financial and temporal resources and in so doing act as barriers to what teachers are led to believe, often theoretically but also institutionally via various curriculum intentions, is 'effective' environmental education. In itself, 'a critical ecological ontology' embodies an environmental ethic—buses are not needed; equipment, activities and 'experience' are 'already-there'; while those who might phenomenologically be involved in the ontologically-focused inquiries are 'already doing' what will be studied. Thus, as a sensitizing intellectual resource for teachers, researchers or learners, 'a critical ecological ontology' attends to three fundamental problems of environmental education, namely:

- the questions are relatively simple to understand, thus providing an accessible form of curriculum theory;
- its focus on 'lived experiences' provides for a very high degree of access to immediate sites of inquiry, irrespective of age, physicality, gender, socio-economic and ethnic differences. In providing immediate access to bodily and highly localized inquiries this; and
- 'humanly-constructive' theory embodies practically a low consumption environmental ethic where there are minimal resources required, thus eliminating structural or self-imposed 'barriers' and therefore reducing or negating the contradictions of rhetoric and reality, theory and practice!

Thus, the theorizing underpinning the questions of 'a critical ecological ontology' anticipates many of the professional, logistical financial and ethical barriers environmental educators experience in their work, often culminating in pragmatic professional theories and forms of resistance to alternative ideas and practices. If this anticipation is correct, it is humanly-constructive and socially-critical at the same time bordering also, perhaps, on the 'deschooling of environmental education' asserted by Weston (1996).

Refining 'a Critical Ecological Ontology'

On the empirical basis of shedding some critical light on how ontological and epistemological issues are constructively bridged by learners and might be by teachers in 'a critical ecological ontology' further conceptual clarification of this humanly-constructive curriculum theory *for being for the environment* is required.

Figure 1 reflects the broad relationship between the 'humanly-constructive' and 'socially-critical' perspectives of environmental education. Narratives 1 and 2 highlight one epistemological approach, the democratic development of a narrative concept of selfhood for the educative postmodern subject, to revealing the ontologically-focused inquiries constituted by 'a critical ecological ontology'. Narrative 3 is suggestive of the various strategies employed in the socially-critical perspective over the past 20 years. As already explained the three narratives are interrelated and operationalized within the questions making up 'a critical ecological ontology'.

It is worth spelling out the individual and collective meanings of the terms 'critical', 'ecological' and 'ontology'. This humanly-constructive theory of environmental education is *critical* in that it still aims to enlighten and empower teachers and students to develop a transformative 'life politic' through, for example, constructing a narrative concept of selfhood. A life-politic developed democratically in an educational setting contributes to making a socially-just difference to the environmentally problematic circumstances and conditions in which agents find themselves. As an environmental ethic in itself 'a critical ecological ontology' aims strongly for greater access of both teachers and learners to the moral and political concerns of environmental education.

Four concerns are central to furthering the critical intent of curriculum theorizing while maintaining its own reflexivity. First and obviously, a 'critical ecological ontology' aims to be genuinely practical and highly local in its focus on the 'mundane fodder' of daily life—those everyday, routine personal actions and experiences that 'enable' or 'disable' environmentally-problematic conditions like the previously mentioned 'convention' of school yard littering. Excluded from educational inquiries are 'contrived' educational experiences such as laboratories, camps, excursions and expeditions that, while educationally valuable, have little or no relevance to the immediacy of socio-environmentally problematic living circumstances. Second, the humanly-constructive perspective promotes personal embodied intelligence *for being* as a form of eco-political agency and praxis; downplayed are the debilitating 'politics of negativity' and 'loss' often associated with the so-called 'ecological crisis' (Beck, 1995) and education's social or cultural role in reproducing it (Robottom, 1987 1991; Bowers, 1987, 1993). Third, this orientation to an embodied life-politic complements but reworks those critical perspectives of curriculum that encourage environmental problem-solving and the collective taking of political action. In effect, herein lies the prerequisite of a humanly-constructive approach to the conventional emancipatory-politic of the socially-critical perspective. Fourth, in so doing, the significance of 'a critical ecological ontology' is that it phenomenologically foregrounds the connections between 'inner' human nature and 'outer' nature, a distinction made primarily for analytical purposes, but negated by the characterization of it as an education *for being for the environment*.

Put simply, an assumption of 'a critical ecological ontology' is that environmental problems 'out there, somewhere' might best be tackled with a higher degree of confidence and likely success if agents, individually and collectively, better understand their own complicity, ambivalence or resistance to the importing and production 'in-here' of such problems (from various societal 'structures'). 'In-here', for the purposes of *for being* is my 'body'—a primary mode of praxis and 'carrier' of agency and consequence of action that is in constant

interactions with others and the environment 'out there' that it shapes and is shaped by.

The duality of inner and outer social 'natures', *for being for the environment*, I am now proposing flatly rejects the traditional distinction of mind and body and related separation of the self and the environment, or 'I' and 'world', that persists within the various discourses of environmentalism and assumptions of environmental education—often epitomized as 'saving-the-wilderness' or 'fixing-up-the-environmental problem'—but not in my backyard. It also rejects the 'deep' propensity to collapse the self and the environment into one 'holistic', homogenous and amorphous ecological entity or organism. Thus, in promoting a duality of inner and outer natures 'a critical ecological ontology' asks that we re-examine our assumptions, for example, about educating non self-consciously only 'for the environment' or only 'for self-realization and biocentric egalitarianism'. The self, as a potentially responsible agent and accountable actor for one's 'own backyard', *for one's being*, might well be displaced by a preoccupation 'for' more exotic and aestheticized environments, or politicized versions of outer natures idealized.

In asserting the educational need for 'humanly-constructive', phenomenologically-based inquiries that precede or complement the socially-critical perspective, 'a critical ecological ontology' reclaims the body as an 'action' site for understanding human agency and its lifeworld consequences. This, I believe, fills a serious gap in much curriculum theorizing and practice. Rather than relying on contrived educational experiences, the shifting of the locus of explanation and action to the site of the body(ies) highlights the significance of personal space, place and time—all issues of considerable importance in coming to educational grips with the thing called postmodernity. This concern is notable in recent attempts to bridge the disciplines of sociology and geography (Werlen, 1993; Harvey, 1996) and is a conceptual and analytical thrust for research well established by Giddens (1984).

The term *ecological* represents, therefore, the duality but not sameness of 'inner' and 'outer' natures as they are influenced differently by a range of historical, personal, social and environmental circumstances. As already hinted at, there is some truth in 'a critical ecological ontology' to the commonsense about 'getting your own house in order', as *oikos*, before criticizing others. People living in glass houses should not throw stones, so we have been told time after time. It is difficult to reconcile those approaches to environmental education that have students 'fixing up' the environmental problems/'crises' of unknown, non-present but accountable 'others', while the socio-environmental relationship of their own personal practices to the externalized problem remain unscrutinized. In effect, given the postmodern preoccupation with identity politics a curriculum that promotes learners to 'self-define' primarily on the basis of what they are told educationally to be opposed to is a moral and political lack—an ingredient of the politics of negativity mentioned earlier. The conjunction of the terms 'critical' and 'ecology' theoretically fosters a 'human' or 'social ecology' for educational inquiry, necessitating a shift in the locus of responsibility and accountability for environmentally problematic conditions, circumstances or predicaments (the conjunction of inner and outer natures) to 'in-here, with me and you'. Hence, the 'humanly-constructive' complement to the 'socially-critical' project. This desirable shift of locus

again foregrounds the moral and political problematic in curriculum work of theorizing agency.

Third, the term *ontology* can be used in a variety of ways, to which I have alluded in introducing 'a critical ecological ontology'. Ontology, classically the metaphysical study of the nature of being, is used here non-foundationally in a sociological manner to realistically and practically 'ground' the theoretical aspirations of the terms critical and ecological. In plain terms, my aim is to promote a version of environmental education that has researchers, teachers and learners delve phenomenologically into the 'lived experience' and basic patterns of one's own day-to-day existence. Real phenomena, as lived by actors, such as the cleaning of teeth for reasons of personal hygiene, are underpinned by patterns of action, interaction, association and communication that often exist as 'conventions' and expectations, or rules and resources, indicative of the structures in which we live. These real, but obviously complex phenomena provide the experiential, embodied and embedded 'fodder' of educational inquiry in 'a critical ecological ontology'. Inquiries should point to how our actions and interactions occur, are informed by and reconstitute certain social conditions that are environmentally enabling or problematic. Put simply, my regular teeth-cleaning and mouth-gargling has socio-environmental implications for the supply and waste of water. By way of contrast, 'a critical ecological ontology' is less concerned about lobbying the local council about salination problems farmers are having unless the human and social sources of that despoliation are examined first.

'A critical ecological ontology', therefore, is a socio-environmental ontology that, by educational necessity, requires inquiry into 'slices' of that ontology—thus certain environmentally-problematic activities/experiences such as littering, teeth-cleaning and so on provide the phenomenological component of educational inquiry by individuals and groups. Recognizing the duality of inner and outer natures is viewed as essential to educating constructively for a heightened sense of responsibility and accountability for environmentally enabling and problematic conditions of existence. The phenomenological/ontological approach to environmental education indicated by focusing on the body(ies) is seen as one practical way of creating this duality. This shift in the locus of understanding and explanation to the body and lived experience, as agency enacted knowingly and unknowingly, contributes to redeeming the theory-practice problem of environmental education.

Conclusions

Together the preceding explanations of the terms 'critical', 'ecological' and 'ontology' shed needed light on the undertheorization of the term 'ontology' in the debate about research in environmental education. While researchers have acknowledged the place of ontology in the 'politics of method' (for example, Robottom & Hart, 1993; Connell 1997) and teachers continue to search for the best teaching/learning strategies there has been no concerted effort in the field to explicate the 'realities' that are the postmodern 'fodder' of inquiry. Too many environmental education learning 'experiences' rest on the 'artificiality' of excursions, texts, laboratories, camps and so on that, while epistemologically 'good' according to the disciplinary background of the teacher/researcher, effectively

side-track learners from understanding and acting on what are, in fact, the immediate and materially-grounded sources and consequences of environmentally-problematic situations. The approach taken here argues that 'ontology' is a social phenomena about the underlying, often hidden, patterns and conventions of individually and socially-lived experience. As has been explained, the elaboration of an ontological basis for educational inquiry lends itself to particular epistemological and methodological questions. Methodologically, those ontologies might be inquired into scientifically, practically or social-scientifically. In this instance, the notion of a 'narrative concept of selfhood', provides a likely candidate for developing the epistemological and methodological basis of ontologically focused inquiries. In so doing, the 'narrative concept of selfhood' responds keenly to the call for environmental educators to explain their theories of agency and action! Thus, curriculum and pedagogical theory might respond more definitively and flexibly to the 'needs', 'interests' and socially self-understandings of the 'educative postmodern subject'.

Irrespective of the commonsense that first and foremost we should examine the 'fodder' of our own lived experience for its individual and collective contribution to the socio-environmental problematic, a most potent theoretical advocacy for ontology in theorizing environmental education in relation to its subjects is made by Brian Fay's reconstruction of critical social science. Fay (1987, p. 1) declares that any social theory ought not contradict the (ontological) presuppositions it makes about the individuals and groups who are to enact the theory. In other words, the practical consequences of an educational theory can only expect to be as good as the assumptions and conceptions of the human subjects depicted in the theory. Fay, therefore, amends the basic metatheoretical platform of critical social science that, according to his assessment, includes critical theories of false consciousness, crisis, education and transformative action. He supplements the 'basic' metatheory with the additional 'postmodern' theories of body, tradition, force and reflexivity. This reconstructed metatheory of critical social science does not recant the progressive trajectory of critical theory, nor renege on its normative commitments to empowerment, enlightenment and emancipation. Rather, Fay concludes the need for a 'limits' to rationality and change and seeks, like some postmoderns, to constructively temper the hubris often associated with the critical project. Giddens (1994), too, has outlined a version of 'utopian realism' within the 'life' and 'generative' politics he sees as now desirable in moving towards the conventional emancipatory politic of established versions of critical theory.

To reinforce Fay's edict of 'getting right' the ontological presuppositions of theory and metatheory for practices, loose parallels can be drawn in critical educational theory and philosophy with the concessions of Jean Anyon (1994) to poststructuralism and Wilf Carr (1995b) to postmodernism. Anyon maintains that if theory and practice in education are to be integrated then, like Carr, practice itself should be a primary resource. 'Socially-useful theory', says Anyon, should not be produced primarily by reference to other theories. It should result from a dialogue between one's vision and people's current activities and problems. It would acknowledge, following Giddens' 'duality of structure and agency' and MacIntyre's 'narrative concept of selfhood', the complex arrangements that connect larger social structures and daily life, thus relate local activity to widespread societal constraints (and enablements). These are depicted in the

multi-layered questioning strategy of 'a critical ecological ontology'. Anyon's socially-useful theory, like Fay's reconstruction of metatheory, must be capable of enactment, hence the integration of theory and practice must develop types of praxis that exemplify the sought-after nexus of agency and action. Finally and importantly, adds Anyon in a vein similar to Giddens' and Fay's views about the reflexivity of 'new' knowledge in social life, a socially-useful theory ought to be read out of existing social activity and feed back into and direct future activity.

In summary, urgently needed for environmental education is the contextually-based theorizing of agency and action. If circumstantially sensitive pedagogical practices are to be developed 'a critical ecological ontology' provides one curriculum means of doing so. In a technologically-replete postmodern world the theorizing of environmental education must pay strong attention to the presuppositions it makes about the embodied, corporeal 'subjects' who are supposed to enact the theory, critically, practically and non-idealistically. These urgently needed presuppositions lie in examining the relativist ontologies underpinning and patterning the phenomenology of 'lived experience', noting the pervasiveness on those relativities of the postmodern condition (Payne, 1996). The absence of theories of agency and action, or assumption only of them in relation to the various aims of environmental education, culminates unfortunately in education in the instrumental prescription of (human) subjects as part of 'preferred' teaching outcomes. Critical agency (as learning) may be denied.

Notes on Contributor

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Appendix 1

(a) Theoretical matrices of a critical ecological ontology (from Payne, 1993, 1995).

Giddens (various)			Fay (1987)	Ihde (various)
Concept	Principle/dimension	Theory/proposition	Metatheory criteria/ regulative and normative values	Phenomenological technics
Sequestration of experience Commonsense	Existential anxiety Disembedding mechanisms reflective modernity	Manufactured uncertainty Risk society	<i>False consciousness</i> Self-estrangement	Technological mediation
Multilayered democratic participation Post-scarcity system Demilitarization Humanization of technology	Growth of totalitarian power Collapse of economic growth mechanisms Nuclear warfare of large- scale war Ecological decay/disaster	Self Risk Society	<i>Crisis</i> Humanist or social self-estrangement, activism	Techno-world
New knowledge Politicization of local/ global	Ontological security Social movements	Action Social change	<i>Education</i> Rational self-clarity, collective autonomy, enlightenment	Phenomenology of technics, cultural hermeneutics, lifeworld shapes
Free speech/democratic movements Labour movements Peace movements Ecological movements	Social integration Social movements Generative politics	Life politics Emancipatory politics Action Social change	<i>Transformative action</i> Dyadic power, empowerment, emancipation, freedom as happiness	Stewardship/ conservation, reconceiving technological science
Unconsciousness/practical consciousness Mutual knowledge	Ontological security	Action Self	<i>Body</i> Embodiment, opacity	Embodied relations— technics, hermeneutic technics, alterity relations, background relations, horizontal relations

(a) Theoretical matrices of a critical ecological ontology (from Payne, 1993, 1995)—*continued*.

Giddens (various)			Fay (1987)	Ihde (various)
Concept	Principle dimension	Theory/proposition	Metatheory criteria/ regulative and normative values	Phenomenological technics
Practical consciousness/ unconsciousness Mutual knowledge Contextualization Societal totalities Allocative resources	Ontological security	Self Time-space	<i>Tradition</i> Embeddedness, historicity	Technology as science
Recursivity Structure(s) Authoritative resources Dialectic of control	Existential anxiety Time-space distancing	Action Society	<i>Force</i> Monadical power, historicity/ embeddedness	Technics as autonomous technology; non- neutrality, intentionality, ambivalence
Recursivity Diachrony Structure(s)	Existential anxiety Disembedding mechanisms	Self Society and social change Double hermeneutic	<i>Reflexivity</i> Contingent/ecological opacity, rational disagreement and contradiction, limits	Phenomenological inquiry

(b) Conceptual contours for phenomenological inquiry in 'a critical ecological ontology' (using Fay as a substantive/conceptual constant between various theories).

Fay (1987)	Fien (1993a)	Payne (1993, 1994, 1995, 1996, 1997)
Theory and sub-theories	Critical theory education for sustainability	A critical ecological ontology
<p>1. A theory of false consciousness which</p> <ul style="list-style-type: none"> (i) demonstrates the ways in which the self-understanding of a group of people are false (in the sense of failing to account for the life experiences of the members of the group), or incoherent (because internally contradictory), or both ideology critique; (ii) explains how the members of this group came to have these self-misunderstandings, and how they are maintained; (iii) contrasts them with an alternative self-understanding, showing how this alternative is superior. 	<p>Demonstrates</p> <ul style="list-style-type: none"> (i) the ways in which the social and self-understanding of a society fails to account for root causes of environmental problems or provide for the social and environmental needs and interests of all its members (the skill of ideology critique) <p>Explains</p> <ul style="list-style-type: none"> (ii) how the members of a society came to have these misunderstandings and how they are maintained through the process of 'hegemony'; and provides (iii) a vision of an alternative world view and a new set of social and self-understandings. 	<p>Accepts interpretively and engages reflexively</p> <ul style="list-style-type: none"> (i) the fallibility of subjective, objective and discursive knowledge and hence problematizes reification. <p>Scrutinizes</p> <ul style="list-style-type: none"> (ii) the conventions, or rules and resources, of mundane actions, social interactions and relations which learners act through, draw upon and reconstitute knowingly and unknowingly; and reveals (iii) how educative postmodern subjects as capable agents can theorize self as a mode of praxis with environmental antecedents and consequences, while being engaged in conducting a unifying narrative concept of selfhood.
<p>2. A theory of crisis which</p> <ul style="list-style-type: none"> (iv) spells out what a social crisis is; (v) indicates how a particular society is in such a crisis. This would require examination of the felt dissatisfactions of a group of people and showing both that they threaten social cohesion and that they cannot be alleviated given the basic organization of the society and the self-understandings of its members (vi) provides a historical account of the development of this crisis partly in terms of the false consciousness of the members of the group and partly in terms of the structural bases of the society. 	<p>Understanding</p> <ul style="list-style-type: none"> (i) the scope of the environmental crisis; (ii) the root causes of the environmental crisis and how they cannot be alleviated effectively given the basic organizational structures of our society; and (iii) the historical development of the environmental crisis in terms of the structural bases of society and of individual and group false consciousness. 	<p>Acknowledges</p> <ul style="list-style-type: none"> (i) historically-lived individual, social, and environmental experience is increasingly fragmented and mediated internally in body(ies), primarily because of the individuating, flattening effect of external, abstracted, and often contradictory codes of postmodernity. (ii) relocates the reification of various crises, ecological, cultural and educational to reconciling and unifying the self as an educative postmodern subject.

(b) Conceptual contours for phenomenological inquiry in 'a critical ecological ontology' (using Fay as a substantive/conceptual constant between various theories)—*continued*.

Fay (1987)	Fien (1993a)	Payne (1993, 1994, 1995, 1996, 1997)
Theory and sub-theories	Critical theory education for sustainability	A critical ecological ontology
<p>3. A theory of education which</p> <p>(vii) offers an account of the conditions necessary and sufficient for the sort of enlightenment envisioned by the theory;</p> <p>(viii) shows that given the current social situation these conditions are satisfied.</p>	<p>Offers</p> <p>(i) an account of the forms of environmental education necessary for the sort of enlightenment envisioned by the theory; and shows</p> <p>(ii) how the pedagogical practices in these forms of environmental education can be implemented.</p>	<p>Problematizes with new knowledge</p> <p>(i) the technological and intellectual extension of the embodied and culturally embedded self;</p> <p>(ii) accepts the importance of language and communicative action in the construction of personal and social realities; but</p> <p>(iii) seeks a somatic understanding of embodied actions and their individual and collective socio-environmental antecedents and consequences.</p>
<p>4. A theory of transformative action which</p> <p>(ix) isolates those aspects of society which must be altered if the social crisis is to be resolved and the dissatisfactions of its members lessened;</p> <p>(x) details a plan of action indicating the people who are to be the 'carriers' of the anticipated social transformation and at least some general idea of how they might do this.</p>	<p>Outlines</p> <p>(i) a strategy for altering those aspects of social structure which causes the environmental crisis and trapped society's members in self-defeating patterns of belief and behaviour; and details</p> <p>(ii) a strategic plan through which society's members can become agents of self- and social transformation.</p>	<p>Highlights and assesses</p> <p>(i) agency and action as necessary conditions of subjects being a potential social, political, and environment ethic—a 'life-politic'.</p> <p>(ii) the moral, social, and political implications of individual, social and environmental actions and their consequences—an 'emancipatory politic'.</p> <p>Justifies socially</p> <p>(iii) the individual and collective course(s) of actions assessed; and accepts</p> <p>(iv) responsibility and accountability for individual and collective actions taken, or not taken.</p>

5. A theory of the body which

- (xi) develops an explicit account of the nature and role of inherited dispositions and somatic knowledge;
- (xii) formulates a theory of body therapy;
- (xiii) spells out the limits which inherited dispositions and somatic knowledge place on liberation.

6. A theory of tradition which

- (xiv) identifies which parts of a particular tradition are, at any given time, changeable;
- (xv) identifies which parts of a particular tradition are, at any given time, not changeable or worthy of change.

7. A theory of force which

- (xvi) develops an account of the conditions and use of force in particular socio-political settings;
- (xvii) explicitly recognizes the limits to the effectiveness of a critical theory in the face of certain kinds of force.

Renders

- (i) the enframed body as a site of qualitatively different understanding and explanation in that its mode of being is organic, habituated, and techno-corporeally penetrated and extended.

Appreciates

- (ii) that as a mode of praxis with socio-environmental antecedents and consequences somatic knowledge is partial and incomplete; yet acknowledges
- (iii) that as a positioned and localized site of praxis and disclosure a body's enframed being and sharing-in-the-world is organically, habitually, and corporeally dynamic, and hence, as a form of agency is both capable and changeable in action, but confined intentionally.

Accepts

- (i) the dispositional inheritance, bonds, and legacies of previous patterns, community, and cultural life; while acknowledging
- (ii) their hold on action is not always apparent or immutable but dynamically selective, and hence
- (iii) accessible to critique and modification.

Appreciates, understands, or accepts the duality of

- (i) the weight of intellectual, bodily, social, political, technological, cultural, and ecological influences; while accommodating
- (ii) the individual and collective capability of 'life politics' and 'emancipatory politics' to make a difference or exert influence, even if it is partial, limited, or constrained.

(b) Conceptual contours for phenomenological inquiry in 'a critical ecological ontology' (using Fay as a substantive/conceptual constant between various theories)—*continued*.

Fay (1987)	Fien (1993a)	Payne (1993, 1994, 1995, 1996, 1997)
Theory and sub-theories	Critical theory education for sustainability	A critical ecological ontology
<p>8. A theory of reflexivity which</p> <p>(xviii) gives an explanation of its own historical emergence, and in this portrays itself as a necessarily one-sided construction in a particular historical setting;</p> <p>(xix) explicitly eschews transcendental aspirations regarding the experience of all humans (those who might be oppressed), and gives up any pretensions to capture the 'essence' of liberation;</p> <p>(xx) offers an account of the ways in which it is inherently and essentially contextual, partial, local, and hypothetical.</p>		<p>Engenders</p> <p>(i) a personal reflexivity of the historical I that dialogically engages 'inner' and 'outer' natures within the duality of agency and structure and</p> <p>(ii) a collective reflexivity that for the correlative self morally, politically and ecologically, engages with others a dialectic of the two preceding dualities;</p> <p>(iii) a unifying narrative concept of selfhood where the above narratives in narratives provide for a critical and democratic reflexivity that is 'humanly-constructive'.</p>