What Price Interdisciplinarity?: crossing the curriculum in environmental higher education

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ABSTRACT  The received understanding of interdisciplinarity in environmental higher education depends on constructions of the environmental agenda which tacitly privilege positivistic assumptions associated with the physical and biological sciences. If, however, we take seriously the heuristic force of the key humanities disciplines in regard to our environmental situation, precisely this privileging will be at issue. This suggests that collaboration across the full range of intellectual disciplines is needed not just to solve but to frame environmental problems. This requirement, however, may have to be met at the institutional level rather than at that of individual teachers and learners.

KEYWORDS  Education, environment, heuristic, interdisciplinarity, positivistic, university.

A New Shibboleth?

Interdisciplinarity is a constant theme, possibly the single most constant theme, in the attention now being given to environmental higher education. The aims of the project on Teaching and Learning at the Environment–Science–Society Interface (TALESSI) give it pride of place; they are to promote interdisciplinarity, values awareness and critical thinking in environmental higher education. Nor is this at all surprising. The concept of ‘the environment’ itself grew out of a sense of how the subject-matters of (at least)
geography and biological science must increasingly overlap in modern conditions. The traditional divisions between subjects forming the university curriculum were established long before this key contemporary idea came to prominence, and there is no obvious reason why they should all survive into the new era. Major shiftings and blendings in the curriculum have happened before—witness what happened to the classic liberal education in the face of the rise of science in the nineteenth century—so maybe the new stress on interdisciplinarity in environmental studies is the contemporary equivalent?

Maybe. But sometimes it does seem as though the interdisciplinary idea has become something of a shibboleth, a sort of intellectual password, in this context. Certainly it is easy to take its totemistic value for granted—easy for all three of those project aims, for instance, to seem just obviously valid. On reflection, however, while no one is going to want to promote unawareness of relevant values, or uncritical thinking, in any education at any level, interdisciplinarity is by contrast not self-evidently an educational good at the university. It cannot hurt, therefore, to ask explicitly both what we mean by it, and why and how it matters, in the particular context of environmental higher education.

Nor can it really hurt to put these questions provocatively, if only to freshen our attention to the issues. What I want to suggest, in fact, is that there is a conventional, official account of these matters which may actually be inhibiting creative developments in environmental higher education as a whole (that is to say, in the educational processes of which environmental studies and geography, the specific emphases of the TALESSI project, form a part)—and which thus, in due course, may impair the full exercise of our environmental responsibility. I shall outline and criticise this conventional account and point to an alternative conception of plural disciplinary endeavour. This alternative is both wider than, and configured differently from, the ruling view, and has implications for those possibilities of integration on which TALESSI lays such stress.

Interdisciplinary Environmental Higher Education: the received view

The locus classicus for what I am going to call the conventional account is the Toyne Report Environmental Responsibility: an agenda for further and higher education, and the work which has flowed from it. This report defines an interdisciplinary course as one which:

... makes integrated use of its constituent disciplines in problem-solving and aims to develop its students’ understanding of the nature of each discipline, in terms of its methodological assumptions and limitations. (Toyne, 1993, p. 99)

This is in contrast to treating each discipline as a resource to be drawn on ad hoc, which is claimed to be characteristic of a multidisciplinary approach. The definitions occur in a discussion of environmental science and environmental studies courses, and lead on to the idea of a more generalised comprehensiveness, whereby:

... students on social science-based courses achieve a specified level of ‘literacy’ in the natural sciences while natural science-based courses include some socio-economic consideration of the underlying human causes of environmental degradation. (Toyne, 1993, p. 40)

There are two interconnected leading notions here: integrated use of disciplines in problem solving, and a recognition of the scope and limits, the proper contribution and field of authority of each discipline so integrated. It is like being able to use the whole box of tools more effectively because one knows just what each one is good for and capable of—and the different advantages, say, of a nail and a screw in different
situations. Interdisciplinarity so conceived is important for environmental education because, pursuing the analogy, it goes with the different grains and consistencies, reflects the nature of the different interconnected media, in terms of which the problems to be solved arise—and the kind of engagement that this demands of us. The natural environment is an intricately unified whole comprising innumerable complex living systems with multiple feedback loops magnified by human impacts and interactions. Modelling such complexity, and recognising the effects of contested values across the domain, is an extremely difficult task, in which interdisciplinarity of the kind indicated seems inevitable.

This conception of what is involved then yields educational objectives of the following order:

... every learner, on completion of their higher education course, should be able to:
(i) understand the principles of sustainability relating to: biodiversity, environmental values and ethics, natural cycles, people as part of nature, quality of human life (as opposed to standard of living), the depletion of finite resources and the earth’s carrying capacity;
(ii) recognise the environmental impact of personal choices and decisions …
(iv) appreciate the relationship between human activity and global environmental problems, such as: acid rain, desertification, ozone depletion, global warming and toxic waste; … (Ali Khan, 1995, pp. 11–12)

And plainly enough, if every learner has to grasp even just the principles underlying biodiversity, environmental ethics, ‘people as part of nature’, carrying capacity and the rest, then any learner’s environmental education will have to be pretty demandingly interdisciplinary.

The Environmental Agenda?

There is a particular conception of the environmental agenda itself lying behind this conception of higher educational responsibility. That agenda is conceived as reflecting ‘our dependence on a global complex of environmental systems which are far more delicately balanced, and require far closer care and maintenance, than centuries of human activity have tacitly assumed’ (Toyne, 1993, p. 20). Correspondingly, the detail of the agenda includes global problems, biodiversity, the depletion of finite resources and the need to adjust personal and institutional values in response. Nor is there any wonder that this is the conventional wisdom shaping higher educational responses at the official level, for it expresses a conception of the environmental problematic and what is called for in dealing with it, which has been highly congenial to the UK policy culture since environmental issues began to be taken seriously within that culture in the 1980s. This official conception is continuous with the approaches established earlier in the contexts of technological risk controversies, the nuclear power debate, anti-motorway campaigns and similar; the environment presents a class of problems specifiable in physically reductionist terms, tractable in principle to scientific, managerial and economistic methods of control, and to be addressed through more or less existing power structures and relationships.

It should, however, be noted that this now conventional version has been challenged recently with the recognition that the received environmental agenda has only ever been
one construction of what was at stake. As Robin Grove-White points out (Grove-White, 1997, p. 109)

... environmental issues are more than simply physical. They are also inescapably philosophical, ethical, political and cultural. The particular ‘objective’ environmental problems and issues which society recognises at any one moment are shaped and determined by processes of human judgement and social negotiation, even in their very definitions …

This is a claim backed up not only by its author's long experience of the environmental NGO movement in the 1970s and 1980s, but also by the steadily growing body of empirical qualitative research on public engagement with environmental issues which he cites. This research shows clearly the striking lack of resonance of the dominant mode of environmentalism for ordinary people's lived experience (see for instance Macnaghten et al., 1995). It is worth quoting Grove-White further at some length on this point:

As a phenomenon [popular environmentalism] has reflected mounting recognition of, and concern about, the accumulating physical ‘externalities’ of advanced industrial societies. But that is far from having been the whole story. Quite as significantly, if less obviously, environmentalism has also reflected a groping and often barely articulate reaction by many people against embedded patterns of thought and value … which appear to have been underpinning such problems … Issues have emerged into the public domain as particular physical problems. But frequently, behind this, they have been expressive of … inchoate unease at the hubris of industrial society’s technological rollercoaster, doubts about the adequacy of our present patterns of knowledge and regulation, and concern at industrialism’s apparent insensitivity towards many deeper human values and concerns. (Grove-White, 1997, pp. 109–110)

Evidently, doubts this deep about the adequacy of ‘present patterns of knowledge’ will be likely to extend to the model of interdisciplinary higher education conventionally built upon them.

Taking Interdisciplinarity Seriously

What I want to advance is a version of this critique, though one with specifically educational rather than Grove-White’s broader sociocultural premises. My point is that the conventional model of interdisciplinarity in environmental higher education is wide open to challenge for the way it mislocates the intellectual centre of gravity and the environmental relevance of key intellectual disciplines at the humane end of the spectrum, disciplines which demand to be taken seriously on their own terms in any meaningful cross-disciplinary engagement.

Consider how the Toyn Report represents the contribution to be expected from some of these disciplines:

–man’s relationship with—and impact upon—the natural environment can be studied historically as well as scientifically;
–philosophy can help to elucidate the ethical dimensions of the environmental agenda; …
–the study of literature and drama will normally involve consideration of its author’s explicit and implicit values, which may include their responses to nature and the environment. The same can be said of the other creative arts
(which can be a very powerful vehicle for the expression of environmental values). (Toyne, 1993, p. 78)

But this constructs all of these disciplines in ‘cultural studies’ mode—as ways of studying the forms of interaction between humans and a natural world conceived as separate from and essentially preceding them. The model is: there are humans, evolved conscious creatures in a natural environment, and there are the multiple and complex ways in which humans affect and experience that environment; history studies how these interactions have changed over time, philosophy looks at the logical structure and literary study at the imaginative record of the values which have informed these interactions.

This, however, grossly misrepresents the position of these disciplines on what we might call the spectrum between positivistic and heuristic. While I do not want to make too much of this image, it helps with the point I am intent on to see the major academic disciplines ranged along such a spectrum, in terms of the ways in which they characteristically bring experience, value and knowledge into relation. At the positivistic end of this spectrum, experience tracks reality and is ideally transparent to it, values are sets of attitudes towards the world of experience, and knowledge the set of justified true beliefs about it. At the other, heuristic end, experience is the given, on the basis of which the field of reality is constructed, value is the necessary habitation of experience, and knowledge an active process of exploring for what stands firm. The range of intermediary positions might be seen as nodes in the tension between Nagel’s ‘view from nowhere’ and ‘view from the subject’ (Nagel, 1986). Simplifying for argument’s sake, we can say that the equilibrium points of the natural science disciplines are recognisably towards the positivistic, while those of history and literary study are towards the heuristic ends. What the conventional view of interdisciplinary environmental higher education does is to take the arts and humanities subjects as environmentally relevant only in so far as they can be understood in terms of the positivistic end of this spectrum—and so it denatures them.

Perhaps I can make this idea of the heuristic force of the major humanities disciplines clearer with an example. Consider the following quite well-known poem by the late Ted Hughes:

Hawk Roosting

I sit in the top of the wood, my eyes closed.
Inaction, no falsifying dream
Between my hooked head and hooked feet:
Or in sleep rehearse perfect kills and eat.

The convenience of the high trees!
The air’s buoyancy and the sun’s ray
Are of advantage to me;
And the earth’s face upward for my inspection.

My feet are locked upon the rough bark.
It took the whole of Creation
To produce my foot, my each feather:
Now I hold Creation in my foot

Or fly up, and revolve it all slowly—
I kill where I please because it is all mine.
There is no sophistry in my body:
My manners are tearing off heads—

The allotment of death.
For the one path of my flight is direct
Through the bones of the living.
No arguments assert my right:

The sun is behind me.
Nothing has changed since I began.
My eye has permitted no change.
I am going to keep things like this.

(Hughes, 1960, p. 26)

This poem is, *prima facie* at any rate, an attempt to get inside the consciousness of a hawk, a predator symbolic of the brutal uncomplicatedness of the natural world. The taut energy comes from the tension between the *appeal* of this imagined perspective (the hawk’s intentness, its ferocious, unimpeded single-mindedness), and the horrified recognition of what that would represent in human terms: not just violently self-centred, but grossly deceived as to one’s own supposed centrality. This duality of feeling and understanding is most brilliantly caught in the central, pivotal lines of the poem:

... fly up, and revolve it all slowly—
I kill where I please, because it is all mine.

I have not space to pursue the analysis in detail now; the point I want to make is that pondering the poem is certainly a way of thinking hard about the relation between the world as it is for human experience—the world of value—and the natural world. Studied as part of a programme looking at different kinds of ‘nature-writing’, say, Hughes’s poem could contribute illuminatingly to our understanding—our ongoing living sense—of that relation. But neither the poem nor our re-creative pondering of it is in any sense to be taken as the expression of a ‘response to nature’, of feelings towards or thought about a natural creature conceived of as existing outside and beyond the human world of value, of significant action. The questions of whether there is such a beyond, and if so how we could think it or realise it in imagination—whether all we can grasp of the non-human natural reflects back to us different facets of our humanity, or whether there is any genuine autonomy out there which we can acknowledge and respect, or fear—are precisely what the poem offers us as open questions, precisely the terrain of its imaginative exploration of lived experience. Such thought-engagement with the natural is not just to be added on to a model of the world in which the hawk is *really* the object it is for biology, or zoology or ecology, with humans as authors or readers then responding to it out of, or in shaping, their ‘environmental values’. Any serious poetry, taken seriously (which is what the discipline of literary criticism is for) problematises that paradigm irretrievably.

The general point being made here is that the conventional view, as I have characterised it, tacitly privileges some disciplines above others; it assumes that the world in which we encounter environmental problems is fundamentally the world accessible to natural science. But while environmental causes and consequences may be said to subsist in that world, environmental *problems* subsist in the ‘lifeworld’—the human world of value and significance. And how far natural science can help us as in our necessary wrestle
with such problems is a matter for that continuous rediscovery of what being human involves, to which the humane disciplines (taken seriously on their own terms) so essentially contribute. The assumption that the world with humans in it is radically the world for the natural sciences (plus, no doubt, sociobiology) is not a genuinely interdisciplinary basis for proceeding in making our dispositions for environmental higher education. It begs too many questions against those disciplines whose characteristic strength is precisely their commitment to constituting and exploring the human world (the lifeworld) from within, from an essentially phenomenological perspective.

Proper respect for those disciplines means allowing them to contribute to the environmental conversation on their own proper terms; and that would certainly make it a significantly different kind of conversation from that typified by Toyne. This has implications for the place and significance within environmental higher education of history and social theory (and also, I suspect, cultural geography) as well as the critical study of the imaginative and plastic arts. These disciplines are not just relevant to the feelings and attitudes with which we have to reckon in implementing solutions to environmental problems specified in natural-scientific terms; they are crucial contributors to the framing process which establishes what environmental problems are to be taken to be. The real interdisciplinarity which environmental higher education needs to recognise and incorporate is that which opens up the issue of human–natural relationships across the full range of our intellectual and imaginative powers. The idea of reality, of the ‘world we live in’, has been specialised for too long by the scientific cast of mind and spirit; environment is now the terrain on which this idea is being repossessed by full human consciousness.

But is this not, someone might ask, just a way of changing the subject—and rather irresponsibly, too? ‘The environment’ means, and is widely understood to mean, something with which it does make perfectly good sense to engage by combining the disciplinary perspectives of physical, biological and social science. If we try to broaden the scope of what we are dealing with under the head of ‘environmental education’ to embrace the whole experienced and imagined context of human–natural relations, do we not risk making an essential concept unusable, at any rate in policy and regulatory practice where it matters vitally?

This, however, misses the point that it is the environmental crisis with which environmental higher education has to engage; and this certainly is not just given us naturally; it does not, as Ulrich Beck noted about the meanings of the term ‘nature’, grow on trees (Beck, 1995, p. 39). Both the crisis itself and any possible ways of averting it depend on what we make of our interactions with the non-human—on what kinds and levels of systemic variation we can accommodate, what we find just too drastic, which sorts of anthropogenic change we are prepared to pursue responsibly, and which sorts we want to avoid. There are no guidelines for this other than the more or less sensitive value judgements, and value intuitions, through which we ongoingly locate ourselves as a distinctive form of being within the natural realm. Of course, we need to know what actions will generate what changes, and how these will interconnect—we need to understand the causal stories that environmental science can tell us, in so far as it genuinely deals in causality; but these cannot be the whole story. The disciplines that educate perception and imagination for their essential exploratory-constructive role have, indeed, an ineliminable place.
Towards Paradisciplinarity

In the light of these reflections, it begins to seem that interdisciplinarity—in Toyne's sense of the integration within specific courses and problem-solving contexts of different disciplines governed by an appreciation of the methodological assumptions and limitations of each—may not, after all, be the concept we need. Certainly, when one recognises the full range both of disciplines relevant to environmental higher education, and of the kinds of relevance which they deploy, it becomes much harder to persuade oneself that individual students ('every learner') can readily, with suitable help and guidance, span that range. One might wonder, indeed, whether the expectations thus placed on those supposed to be supplying the guidance were actually realistic. But just confining oneself, tactfully, to the students, the doubts that were always at the back of one's mind come crowding forward. Can one really hope for appreciation of the methodological assumptions and limitations of disciplines right across the spectrum I have suggested? (How many committed specialists appreciate the limitations of their disciplines?) Is any genuine integration possible? Will not all but the most exceptional student on an interdisciplinary environmental course acquire little more than bits and pieces of knowledge about cultural history, ethics or the life sciences, articulated in a drearily familiar quasi-sociological rhetoric? It cannot be stated too vehemently that leaving them with this is not empowering students but letting them down; the student who takes away such a mish-mash believing it to constitute a qualification for environmental understanding will in fact be disabled for mature judgement about some of the key issues of contemporary life.

Perhaps, therefore, what we should be aiming for in environmental higher education is something better thought of as paradisciplinarity [1]—a 'besideness' or creative co-presence of mutually respecting real disciplines; its characteristics would be dialogue, provisionality and incompleteness, the awareness of incomprehension and of the necessity of commitment and trust, mediated by institutional continuity and goodwill. This model of working would embody the recognition that it is only in the ongoing shared endeavour of dialogue between individuals struggling with genuine intellectual commitments within their own disciplinary frameworks of understanding that the burden of environmental intelligence in modern conditions can be borne. That means that paradisciplinarity cannot be understood as an educational objective for individual students at all. Rather it is a matter of institutional dynamics. Where the TALESSI project talks about enhancing students' abilities to integrate knowledge from different disciplinary bases, and to integrate ethics and science, perhaps the subject of these verbs should rather be the collective enterprise of environmental higher education, or the environmentally educated public as a whole. Of course the processes involved must be thought of as taking place between, and through the interaction of, individuals, but the possibilities of fruitful exchange which they create represent a crucial form of social intelligence—the reach of society's powers of mind and the strength of its intellectual conscience in response to the environmental challenge.

An actual course structured by this notion of paradisciplinarity might combine rigorous study in one or more relevant disciplines with study of a core course relating these disciplines intelligibly to the broad terrain of environmental responsibility and its implications: foregrounding the tensions between realist and constructivist understandings of the environmental agenda; pointing the students towards environmental understanding as something achievable only through a reflexive inwardness with a living intellectual discipline. To the best of my knowledge, there are no such courses around
at present. Having been involved in trying to construct one at undergraduate level, I have
good reason to know how daunting the difficulties (both intellectual and institutional)
can be. But these difficulties might grow less, the clearer we can be about the genuinely
possible relations between disciplines in this field.

To sum up: what I have been suggesting is not a return to some traditional pattern of
blinded disciplinary exclusiveness, nor that any single mode of intellectual engagement
can supply what a responsible environmental higher education needs; still less have I
encouraged any way of thinking that ignores the crucial contribution of the environmen-
tal and life sciences. What I have been arguing is that the necessary intellectual
inclusiveness has to be wider than, and differently configured from, what we have
perhaps been used to supposing. And if it is, then we need to think quite hard about what
we can legitimately expect from university students, and what we should be offering
them, in the environmental age.

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NOTE
[1] I owe the term paradisciplinarity to my former Lancaster colleague Mike Michael.

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