

Ignorance in Environmental Education Research

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Research as the reduction of ignorance

Jon Wagner (1993) argues that 'ignorance is a better starting place than truth for assessing the usefulness of educational research' (p. 15) and I argue here that ignorance is an equally useful point of departure for making sense of environmental education research. However, before I extend and apply Wagner's argument to environmental education research, I will briefly clarify my own interpretation of his position with respect to two points.

First, in a time of paradigm proliferation in social science research, we need to ask if Wagner is referring to all forms of educational research or only to those that explicitly seek 'truth writ large', such as the empiricist sciences that attempt to induce propositional knowledge that is durable and extensive in its trustworthiness. My view is that Wagner's argument applies to any form or aspect of research in which we find claims to truth, even if these are contingent and/or contextual. Interpretive researchers claim 'truths writ small' when they produce grounded theory or generate phenomenological accounts that attempt to understand and describe people's worlds as they see them. Critical social scientists make somewhat larger truth claims when they purport to demonstrate the 'reality' of structural mechanisms such as 'work' or 'hegemony' in neo-Marxist accounts. Wagner might have intended his argument to apply chiefly to forms of research that explicitly aim to identify the truth or falsity of generalisable propositions, but I believe it has wider purchase and, in any case, such propositions are not restricted to positivist science.

For those of us who are suspicious of binary logic, a second point of interpretation concerns Wagner's juxtaposition of 'truth' and 'ignorance'. I do not interpret Wagner as suggesting that truth and ignorance are opposites but, rather, that they are two possible standpoints from which to begin performing research activities (such as 'assessing the usefulness of educational research').

Wagner contrasts an understanding of research as the reduction of ignorance with more conventional understandings of

A B S T R A C T

In this essay I suggest that the practice of environmental education research might be improved by efforts to identify what Jon Wagner (1993, p. 16) calls the 'blank spots' and 'blind spots' that configure the collective ignorance of environmental education researchers. In Wagner's terms, what we know enough to question but not answer are our blank spots; what we do not know well enough to even ask about or care about are our blind spots—areas in which existing theories, methods, and perceptions actually keep us from seeing phenomena as clearly as we might. By way of example, I argue that much research on significant life experiences does little to reduce ignorance in environmental education. I conclude by briefly appraising some strategies that might help environmental education researchers to recognise ways in which the field's dominant research traditions and models produce partialities and distortions.

research as the pursuit of truthful propositions (and as the performance of methods and techniques designed to produce evidence in support of such propositions). He argues that understanding research from a standpoint of ignorance has implications for 'how we think about educational research, how we teach it, and how we frame and support relationships between researchers and their subjects' (p. 15).

Many educational researchers invoke truth and truthfulness—and related concepts such as validity and reliability—as criteria for judging research, but Wagner suggests that over-valuing the pursuit of truth might entail a privileging of means in relation to ends:

some research projects are of little use to researchers or practitioners even though they reflect our highest ideals of truthfulness in data collection and analysis... When we judge a research project solely on the apparent truthfulness of its parts, we neglect its larger purpose: generating new knowledge about education... To understand when research is likely to achieve this purpose, educational researchers must begin with ignorance, not truth (Wagner 1993, p. 15).

Ignorance can be a useful criterion for evaluating research because it focuses our attention on users. As already noted, many truth claims tend to be framed in terms of their generalisability and their independence from historical contingency and context ('the truth is out there'). However, statements about ignorance necessarily refer to people, and usually refer to particular people in particular locations, times and contexts.

By way of example, Wagner points to the 'extraordinary interest in the social context of learning' that developed among US educational researchers during the mid- to late-1980s. Wagner's explanation for how and why this occurred raises the question of *whose* ignorance these researchers were reducing:

Why is it news that social contexts influence the conduct and outcomes of instruction? Would any lay per-

son consider this to be news? Perhaps some, but not many. It certainly wasn't news to the sociologist Willard Waller, writing in 1932.¹ But it has become news to psychologists—at least some of them—and by far the largest number of [US] educational researchers have psychology as their home discipline (Wagner 1993, p. 18).

With respect to environmental education research we can ask similar questions about the 'extraordinary interest' in significant life experiences and formative influences on the development of environmental awareness. For example, between November 1998 and May 1999, the journal *Environmental Education Research (EER)* published nine articles (plus an Introduction and two Prefaces) on significant life experience research in environmental education (Chawla 1998a, 1998b, Corcoran 1999, Palmer *et al.* 1998a, Palmer *et al.* 1998b, Palmer, Suggate, Robottom & Hart 1999, Sward 1999, Tanner, 1998a, 1998b, 1998c, 1998d, 1998e). In November 1999 *EER* published five critical commentaries (plus an Editorial) on significant life experience research in environmental education (Dillon, Kelsey & Duque-Aristizábal 1999, Annette Gough 1999, Noel Gough 1999b, Stephen Gough 1999, Payne 1999, Scott 1999) to which Chawla (2001) responded two years later.

Tanner (1998b) characterises research on significant life experiences in environmental education as 'studies which aim to identify formative influences' in the lives of 'adults committed to environmental quality' (p. 365). Elsewhere he writes:

The rationale for such research is simple: if we find that certain kinds of early experience were important in shaping such adults, perhaps environmental educators can, to the degree feasible, replicate those experiences in the education of the young (Tanner 1998a, p. 399).

The significant life experience researchers writing in *EER* emphatically assert the truth and trustworthiness of their research processes. For example, Louise Chawla (1998a) is 'pledged to the many rules of reliable, valid data collection and analysis that justify all scientific work' and she judges the quality of significant life experiences research by the extent to which it accords with 'the canons of best scientific practice' (p. 384). Joy Palmer justifies recruiting 'some 30 researchers in 12 countries' to her 'ongoing major international study of significant life experiences' (Palmer *et al.* 1998a, p. 445) by reference to the need to make 'valid international comparisons' of autobiographical accounts of influences and experiences (Palmer *et al.* 1998b, p. 432).

To paraphrase Wagner, why is it news that, for example, 'providing the young with opportunities for positive experiences of nature and the countryside' is important for developing environmental awareness? Would any lay person—or any environmental educator—consider this to be news? Perhaps some, but not many. As Peter Corcoran (1999)

points out, it certainly was not news to Rachel Carson writing in 1965 or to Walt Whitman writing in 1855 (p. 219). So why has it become news to at least some environmental educational researchers? Why have so many significant life experience researchers invested so much time and effort in replicating a largely uncontested 'truth'? Whose 'ignorance' are they reducing?

Corcoran (1999) does not convince me that we need more demonstrations of the 'truth' of significant life experience research. However, his conclusions do point to certain areas of ignorance to which useful environmental education research might be directed. For example, Corcoran (1999) writes:

If Carson and years of significant life experiences research are correct in identifying... experience in natural places as a profound influence in adult recollection, we must worry, it seems to me, as access to natural places diminishes. Once so taken for granted, even in rapidly industrializing and urbanizing spaces, these 'wild' places of childhood are being lost, like so many other habitats...

It is an unsettling time, I believe, for American youth, with the death of nature as we have known it and the loss of places and forces beyond human influence. If Whitman was right—that we become what we behold—we must also worry about what most young people are beholding in video games, computers, and televisions with such violent and warped views of nature and human nature.

My worry is for the young, who in the brief span of time of this new field of research, have already been limited in the ways of life and the kinds of places so many, across cultures, have previously found so lasting and significant. I am concerned that such landscapes and such environmental education might become increasingly available primarily to the economically privileged (p. 219).

Will endless demonstrations and replications of the 'truth' of significant life experiences research among environmental education researchers reduce the ignorance of anyone who is actually responsible for habitat loss? I do not believe so. However, I share Corcoran's concern that environmental education 'in natural places' might become increasingly available primarily to the economically privileged, and therefore wonder who is doing the research that might reduce our ignorance about how to deliver all modes of environmental education in socially just and equitable ways to all learners? I am also less worried than Corcoran about what most young people are beholding in video games, computers, and televisions. I am more worried by the ignorance of teachers and other adults who cannot imagine the socially and environmentally educative potential of video games, computers, and television programs—even those that at first sight might appear to present 'violent and warped views of nature and human nature'.

For example, what might be the implications for environmental education of the spatial organization of video and computer games? Mary Fuller & Henry Jenkins (1995) compare Nintendo® games such as Super Mario Brothers with sixteenth and seventeenth century New World voyage of discovery documents such as Walter Raleigh's (1596) *Discoverie of the Large, Rich and Beautiful Empire of Guiana* and John Smith's (1608) *True Relation of Such Occurrences and Accidents of Noate as Hath Hapned in Virginia*. They demonstrate parallels between the narrative logics of these print and digital texts with respect to navigation, mapping and mastery of physical space and cyberspace. They argue that computer games represent a shift from narrativity to geography, and that the pleasures of playing lie not so much in narrative action, which tends to be inconclusive and/or deferred, as in the continual opening up of new spaces and screens. Fuller and Jenkins (1995) suggest that playing a Nintendo® game reinforces a particular ideology almost by virtue of its structure, regardless of its 'content', as this might conventionally be conceived. That is, playing Nintendo® games in an overly familiar, oversettled, overly regulated and overpopulated USA allows the recreation of the Renaissance encounter with America without guilt. As Fuller and Jenkins put it, 'virtual reality opens up new spaces for exploration, colonization and exploitation, returning to a mythic time when there were worlds without limits and resources beyond imagining' (p. 58). That is, Nintendo® games can be read as appealing both to the deeply rooted urge to create new worlds, and to an outlook whereby exploration and expansion are coterminous with achieving 'mastery'—which amounts for the most part to colonisation in the non-virtual world (see also Gough 2002).

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Interpreting the virtual spaces produced by computer games as territories to explore/colonise is much more than an academic exercise for environmental educators. The meanings of digital texts that we choose to privilege in our conversations with students are, at least potentially, intertextual resources that might be mobilised in their own readings of such texts. Mark Poster (1990) characterises the production of subjectivity in cultures saturated by electronic media as follows:

For the subject in electronically mediated communication, the object tends to become not the material world as represented in language but the flow of signifiers itself. In the mode of information it becomes increasingly difficult, or even pointless, for the subject to distinguish a 'real' existing 'behind' the flow of signifiers, and as a consequence social life in part becomes a practice of positioning subjects to receive and interpret messages (p. 14).

Educators are complicit in this practice but also have a moral obligation to critique it—and dispose students to do likewise. This is not only a matter of reading or decoding the 'flow of signifiers' that might be accessed by playing computer games (or, for that matter, by bushwalking) but also entails developing learners' self-conscious understandings and agency as both readers and authors of digital and 'natural' worlds. In other words, I believe that environmental educators' ignorance about what young people are beholding in computer games is a starting point for much more useful environmental education research than the 'truth' that many adults recall positive experiences of nature as significant influences in developing their environmental awareness.

Blank spots and blind spots

Wagner provides a particularly useful heuristic for making sense of educational research by differentiating between two types of ignorance, namely, 'blind spots and blank spots' (p. 16). These are configured by two functions of what Wagner calls the 'materials' of educational research:

In constructing knowledge about education and schooling, educational researchers use a variety of different 'materials.' These include data of various forms and types, direct experience, concepts and theories of their own or those developed by others, and so on. Some of these materials may help educational researchers answer questions that they have already posed. Others may stimulate them to ask questions they haven't asked before (p. 16).

In Wagner's schema, 'materials relevant to questions already posed can be seen as filling in blank spots in emerging social theories and conceptions of knowledge'; in other words, what we 'know enough to question but not answer' are our blank spots. Materials that provoke researchers 'to ask new questions illuminate blind spots, areas in which existing theories, methods, and perceptions actually keep us from seeing phenomena as clearly as we might'. What we 'don't know well enough to even ask about or care about' are our blind spots (p. 16).

Wagner's example of US educational psychologists beginning to ask questions about the social context of learning during the 1980s shows how blank spots and blind spots are configured by the collective ignorance of disciplinary communities. The social context of learning has long been an explicit theme of analysis in the sociology of education and thus pointed to various blank spots—aspects of educational practice that sociologists knew enough to question. But social context only became 'visible' to educational psychologists when they realised 'that the categories guiding their research kept them blind to important aspects of the phenomena they were trying to investigate' (p. 18).

Much of the repetition and replication that characterises significant life experience research in environmental education

can be understood as a rather relentless (and perhaps even obsessive) filling in of blank spots. For example, once Palmer and her colleagues had answered (to their satisfaction) questions about the significant influences and formative experiences on the development of adults' environmental awareness in the UK and the USA, they were faced with further blank spots, because now they knew enough to ask but not answer questions such as: what are the significant influences and formative experiences on the development of adults' environmental awareness in Australia and Canada and Greece and Hong Kong and Slovenia and South Africa and Sri Lanka and Uganda and...

One of Wagner's conclusions makes a particularly important point about the relationship of research to the other work we do in education:

Research itself is a form of learning, and research reporting a form of teaching. By helping to define what people don't know and might learn next, ignorance is a central concern in both of these processes (p. 21).

In appraising reports of research, we need to ask whether the authors are implicitly defining what we do not know and what we might learn next (and how we might learn it) in ways that are useful (and ethically acceptable) to us. For example, when I began working with environmental educators in South Africa in 1998 I was strongly motivated to reduce my ignorance of the influences on the development of environmental awareness among adults of their generation and the life experiences that may have been significant to them. I cannot say that Palmer *et al's* (1998a) article reduced my ignorance in any meaningful way, even though South Africa was one of the nations they studied. Indeed, I was astonished to find that South Africa's history of apartheid was not mentioned by the researchers or by any of the respondents as quoted. By way of contrast, my ignorance was reduced substantially by reading autobiographies (Kuzwayo 1985, Magona 1991, Ntantala 1992, Ramphela 1995, Slovo 1997), memoirs (Breytenbach 1999, Coetzee 1997) and fictions (Brink 1996, Coetzee 1999, see also Gough 2001). These narratives provide compelling evidence for the view that the environmental awareness of every South African was shaped not only by the determinisms of apartheid, but also by those systems and structures which, in addition to racism, were implicated in and supported the ideological machinery of apartheid: patriarchy, sexism, homophobia, class and language bias, ethnic nationalism, and so on. If the influence of apartheid on South Africans' environmental awareness was in Palmer *et al's* (1998a) 'blind spot' we can only ask what else might have been occluded by their theories, methods and perceptions.

The point of this anecdote is, in part, to draw attention to the distinction between appraising the value of research to users and the value of research to the person or persons conducting the research. Educational research is research *for* education—a claim that I think is much more defensible than the 'education *for* the environment' mantra recycled by many environmental educators. Authors of educational research reports have a

moral obligation to explain how their work might improve educational practices. But readers of educational research reports must also establish for themselves whether or not such reports inform their own work. That is, readers of educational research are responsible for their own interpretations and actions, a responsibility that I choose to exercise by writing essays like this one—a contribution to the collective critique of our collective work.

Blind spots in environmental education research

Until relatively recently, engaging in educational research usually has meant doing social science. However, during the past decade and more, increasing numbers of educational researchers have begun to explore arts-based approaches to inquiry. Annual Meetings of the American Educational Research Association now regularly include sessions in which artistic forms such as theatre, dance and visual arts/media are deployed to display and interpret data and to report research. Other noteworthy developments include the launch in 2000 of the *International Journal of Education & the Arts*³, and the publication of books that privilege artistic modes of expression in both their form and content, such as Ian Stronach and Maggie MacLure's (1997) *Educational Research Undone* and Janice Jipson and Nicholas Paley's (1997) edited volume, *Daredevil Research*.

However, as Robert Donmoyer (1997) notes, the arts are still used primarily as illustrative and even decorative features of educational research to illuminate, depict, and explain the ambiguities and complexities of educational practices. Environmental educators also deploy the arts and popular media to illustrate and celebrate environmental qualities. But environmental education research has for the most part persisted in being scientific in character.

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For example, Ian Robottom and Paul Hart (1995) assert that that the predominant approach to environmental education research over the two decades preceding their review can be characterised as 'applied science in nature' (p. 5). Perhaps because many environmental educators tend to identify with communities of environmental activists and scientists rather than with educational communities, they continue to subscribe to stereotypical conceptions of scientific research method.

Pursuing environmental education research as a 'science' produces blind spots that might be illuminated by deliberately deploying strategies and perspectives drawn from contemporary art and popular media. Following Thomas Fox and Judith Geichman (2001), I suggest that we should attempt

to 'apply more rigorously the capacity of art to stop us in our tracks, to break the momentum of current themes in educational research, educational practices, and educational theory' (p. 34). An important function of art is estrangement, defamiliarisation or 'making strange' (*ostranenie*), that is, reviewing and renewing our understandings of everyday things and events which are so familiar that our perception of them has become routinised. Defamiliarisation is based on the assumption that the tactic of surprise might serve to diminish distortions and help us to recognize our own preconceptions.

The inductive methods of science are very appropriate for filling in blank spots. In his classic paper on 'the practical' as a language for curriculum, Joseph Schwab (1969) pointed out that 'theoretic problems arise from areas of subject-matter marked out by what we already know as areas which we do not know'. But methods for illuminating blind spots are more elusive. Much of my own work has been concerned with identifying blind spots in environmental education research from a poststructuralist (literary critical and theoretical) perspective (see, for example, Gough 1991, 1993, 1998b, 1999a, 1999c, 2000). As Patti Lather (1991) writes, 'poststructuralism helps us ask questions about what we have not thought to think, about what is most densely invested in our discourse/practices, about what has been muted, repressed, unheard' (p. 156). Art has similar aspirations. In the words of novelist James Baldwin (1962), 'The purpose of art is to lay bare the questions which have been hidden by the answers' (p. 17).

Barone and Eisner (1997) identify a number of design elements and aesthetic qualities as features of arts-based educational inquiry. These include the creation of an alternative (or virtual) reality, the presence of ambiguity, the use of expressive modes and media, the use of contextualised and vernacular languages, the promotion of empathy, the personal signature/voice of the author/researcher, and the presence of aesthetic form. These features are rarely found in environmental education research. Exceptions include Peter Cole's (1998) vernacular poetics, David Jardine's (1998, 2000) expressive prose and, perhaps, my own attempts to inflect cultural analyses of environmental education discourses/practices with tropes appropriated from popular media and 'green' literary criticism (see, for example, Gough 1997, 1998c).

Fox and Geichman (2001) identify a number of other strategies and perspectives, such as: a focus on liminal and 'in-between' states in which the edges of experience are blurred; a capacity to shock, break-through, and bombard the senses; mixing (up) media; using kitsch (playing on the ordinary); attending to animation, energy, speed and angles; playing with bizarre (or simply 'goofy') images; and being 'fresh, alive, juicy'. It is beyond the scope of this paper to explore these strategies further, but they seem to me to be richly suggestive and generative in rethinking the conventional 'wisdom' of environmental education research.

For those of us who work in universities, I suggest that an

important symbolic step is to periodically remind ourselves that a university does not have to live down to the limitations of its etymology. Historically the university descended from the monastery: one way of knowing God became one way of knowing—a *uni*[one]versity. Can we imagine working in a diversity, a polyversity, a multiversity, or even a subversity? As Charlotte Bunch (1983) explains, 'the emphasis here is no longer on *uni* (oneness) but on turning (versus, *vetere*): polyversity would promote an even greater, less controlled proliferation of inventiveness than that implied by diversity, while multiversity would be built around exchanges of well-formed differences' (p. 255).⁴

I have already suggested that stories—autobiographies, memoirs, novels—can reduce ignorance. Story telling is an under-used method of environmental education research in the West, although it is no longer marginal in Western social and educational inquiry (see Casey 1995-1996, Reason & Hawkins 1988, on the functions of fiction in educational inquiry see also Eisner *et al.* 1996, Gough 1998a, Kilbourn 1999). Studies of indigenous knowledge systems⁵ reveal the extent to which 'story' is dialectically equivalent to 'theory' (see Berlin 1990, Goonatilake 1998). Moreover, Margaret Wertheim's (1999) social history of space demonstrates that in Western knowledge systems too the paradigms that underlie theories are dialectically counterpoised with the archetypes that underlie mythology.

But stories and theories (like the products of artistic expression) are human inventions and, like all things of our own making, are likely to be most useful—and least harmful—if we understand their complex social histories and their possibilities for determining particular trajectories of social change. As I have argued elsewhere (Gough 1998b), rather than trying to determine which stories and theories are 'true' we need to tell stories *about* stories/theories. In Kim Le Roux's (1997) apt words, we need to encourage 'sustainable conversation' about the myths, metaphors and meanings we exchange and the effects of privileging some and diminishing others.

Wagner concludes that, in practice, 'we know much more about ignorance than we do about truth. That's part of what makes truth so problematic as a criterion for assessing the usefulness of knowledge generated through educational research' (p. 22). But by sustaining the conversations through which we illuminate each other's blind spots and blank spots, we might be able to learn enough about our ignorance in/of environmental education research for particular people in particular situations to use its products sensibly. 🧠

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Notes

- 1 Nor was it news to John Dewey writing several decades earlier than Waller.
- 2 In the 1960s, many artists moved from painting from life to painting from image. For example, Andy Warhol did not need a can of Campbell's soup; he needed the image of a can of Campbell's soup. Now we do not even need the image, because we can create electronic worlds that will never exist except in virtual space. Thus, both designers and users of computer games now enjoy forms of agency and modes of expression beyond those enjoyed by artists and audiences in the 1960s, and this seems to me to be worth appreciating and celebrating rather than condemning.
- 3 <http://ijea.asu.edu/>
- 4 Bunch's multiversity is different from that defined by *The American Heritage Dictionary of the English Language* (Fourth Edition, 2000) as 'a university that has numerous constituent and affiliated institutions, such as separate colleges, campuses, and research centers' <http://www.bartleby.com/61/8/M0480800.html> <1 April 2001>
- 5 I do not intend my use of the phrase 'indigenous knowledge systems' to signify a codification of the complex ways in which indigenous peoples produce, represent and circulate knowings/knowledges. I prefer to read such phrases *sous rature* (under erasure), following Jacques Derrida's approach to reading deconstructed signifiers as if their meanings were clear and undeconstructable, but with the understanding that this is only a strategy (see, for example, Derrida 1985). Reading signs under erasure might help us to recognise the extent to which using familiar terms for subjects/objects of knowledge that lie beyond the limits of our understanding merely domesticates our ignorance of the Other.

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