

# Thinking the Environment: The Written Epistemology of Enquiry

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## Abstract

A written “continuing conversation” is presented by researcher and pre-service teacher, now co-authors, about the meaning of the term “environment” as it appeared in a newly-released environmental education policy statement. This conversation responds primarily to Paul Hart’s (1996) interests in the “politic of method,” in particular how the writing of one’s thinking is an invaluable, but often an overlooked form of professional development.

As an indicator for more comprehensive studies, this study highlights how writing plays an important role in, first, getting at the core assumptions and values of reflective teachers and researchers and, second, representing such thinking to the reader. This study concludes with a discussion of how the writing as thinking process can assist enquiries into teacher, learner, and researcher thinking.

## Résumé

Une “conversation continue” est présentée par un chercheur et un enseignant en formation préalable, maintenant coauteurs, sur la signification du mot “environnement” dans un nouvel énoncé de politique sur l’éducation relative à l’environnement. Cette conversation répond principalement aux intérêts de Paul Hart, de 1996, dans la “politique de la méthode”, notamment, comment l’écriture de la pensée n’a pas de prix, mais constitue souvent une forme oubliée du perfectionnement professionnel.

À titre d’indicateur pour des études exhaustives, cette étude met en lumière comment l’écriture jexerce un rôle important d’abord pour mettre en lumière les représentations et les valeurs fondamentales des enseignants et des chercheurs réfléchis et, ensuite, pour présenter une telle pensée aux lecteurs. L’étude

conclut avec une discussion sur comment l'écriture comme processus de réflexion peut seconder la recherche sur la pensée de l'enseignant, de l'apprenant et du chercheur.

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Paul Hart (1996) draws on a considerable body of research into teacher thinking to establish his interest in the "politic of method" in environmental education enquiry. His basic concern is that particular modes of enquiry into teacher thinking and action should converge with certain paradigmatic underpinnings or beliefs about the field. Hart, critically disposed, welcomes the rise of qualitative methods. Action Research, for example, is seen as consistent, in-principle, with a participatory, praxis orientation in environmental education. As with any discussion of the politics of method, different views can be expected. Menter (1996), for example, qualifies the applicability of Action Research to "all" situations.

Hart (1996) steers the reader into an examination of how "voice, language and relationships" might provide the most appropriate means of gaining insights into the "essences" of how teachers and researchers reflect on their respective practices. Hart wants researchers and teachers to work from the "inside-out." First, we need to get into our own heads. Then we must find the best way of presenting that thinking to the reader. Hart opens up for further research and debate the practical need for researchers to establish a process of communication, to talk in the language of teachers, to listen sensitively, and to acknowledge that humans are natural storytellers. While these considerations are argued as basic to the politics of method, Hart declares that narrative knowing fostered through teacher stories remains insufficient for researchers to get at the fundamental values and assumptions that drive teachers' story-telling. Researchers need also to develop certain means of interaction with teachers and a caring environment through which teachers can not only talk about their theories, but reflect upon them critically.

Hart's ultimate challenge for research into teacher thinking concludes with the need for teachers to write about their practice, allow more time for an authentic "voice" to develop in a practical language that incorporates expressions of the reality of their teaching, situatedness, history and context. With regard to the eventual representation of this critical thinking, Hart suggests researchers and teachers should distinguish their respective stories. This study responds in part to a number of Hart's concerns about thinking, essences of thought, language-use, means of interaction, meaning, caring, authenticity, and representation.

This study is concerned with how “democratic and dialogical” writing provides a means for mutually advancing teacher and researcher thinking. Since Hart’s (1996) study, Rickinson and Robinson (1999) have reported some very important insights into the shared methodological reflections of teacher and researcher. They only partially succeed in extracting particular lessons for teachers and researchers about writing as a form of dialogical and reconstructive thinking. Beyond this question about writing as reconstructing thinking, our substantive focus is on the problematic concept of “environment.”

In this study of teacher and researcher thinking, there is one other peculiar twist that responds to the equally pressing question of: From where, in fact, do teachers develop their thinking? And, beyond researchers’ interests in it, for what purposes do those teachers see their thinking as actually serving? To shed some light on these questions, Hart (1996) identifies four major approaches to research into teacher thought and its relation to action. These are the use of teachers’ collaborative autobiography, personal practical knowledge, teacher lore and, teachers’ lives. While all hold promise, it is the latter, studying teachers’ lives, that occupies our immediate attention here. Practically, teachers’ thinking is shaped by a wide variety of sources, over time and according to many different life experiences, educational circumstances and social conditions. None of these can be examined in detail here given our preoccupation with how the writing process can be used to develop thinking. Instead, we offer small doses of background information about our lives, experiences and interests so that there is some real-world context to this text.

This study of teacher thinking focuses on one small phase of one teacher’s life. We look into a short period in Kate’s pre-service teacher training year where she elected to examine a policy document in environmental education that, possibly, she might need to teach “to” or “from” in her future career. This pre-service phase of professional thinking has rarely been studied, least of all in relation to environmentally-related fields of curriculum (Boyes, Chambers & Stanisstreet, 1995; Brinkman & Scott, 1996; Dillon & Gayford, 1997; Dove, 1996; Lugg, 1996). What does the budding teacher, topped up with new skills, understandings, competencies and theories from her undergraduate degree in outdoor education actually think about with respect to her “discipline,” its major assumptions and concepts, like the environment and its presumed practices?

## Problem

Of initial interest to Kate was the way in which the term “environment” was used in a newly released, State-driven environmental education curriculum policy document. In selecting this problem to think about and write-up as an assignment required in Phil’s class, Kate was concerned about whose “knowledge interests” she might have to serve as a teacher when enacting the centralized policy construction of the environment. At a more general level of concern for Phil is how novice teachers with a critical disposition like Kate’s were able to conceptually challenge those conventional logics of curriculum and policy they are “professionally destined” for. Phil’s concern was exacerbated by an educational climate in Victoria, and Australia generally, that is increasingly hostile to critical insights and practices. He also viewed the policy in question as one that typically says all the right things, but whose implications for practice were fairly “pedestrian.”

So, contextually, outside the primary concern of how writing can respectively clarify and mutually advance teacher and researcher thinking, Kate’s political and educational thinking was concerned with the potential “trickle down” logic of State developed policy (Gayford & Dillon, 1995). Hart (1996) identifies the need for research to examine “the various forms of discourse that make up the social text of particular groups.” Centralized policies, or texts, such as the one critiqued by Kate often have imperatives or objectives that are developed for instrumental purposes by hidden curriculum specialists and unknown academic researchers. What they say, mean and imply about the environment is not always clear. Epistemologically, the texts of these policies and curricula tend, at worst, to be prescriptive and regulative leaving little room for teachers to prove their professionalism. “Environment,” for example, can be fixed to any one or two of its wide variety of meanings. Policies also endorse the abstract authority and legitimacy of the decontextualized thinking of the non-present academic or curriculum specialist who wrote the policy/curriculum. At best, these centralized policies are descriptive, leaving some room for the thinking of the teacher “charged” with the local and practical responsibility for teaching and learning. Either way, teachers, or prospective ones like Kate, do receive a set of curriculum objectives that must eventually be thought about in relation to the adoption of certain curriculum understandings and implied pedagogical practices. While not yet available to Kate, curriculum support materials in Victoria usually accompany and elaborate the policy objectives. Often, these materials systematically develop certain assumptions about the subject matter under study.

The circumstances and context of this study into Kate's thinking about the environment are, therefore, quite different from Hart's (1996) Canadian study of the "complex relationship of thought and action." Curriculum guidelines in environmental education for teachers apparently did not exist in Canada at the time of his study; teachers seemed intuitively interested in, or concerned about, the environment. They had willingly taken on a variety of programs and issues. It is reasonable to assume that teacher thinking and teacher discourse of his Canadian sample might have been more open-ended, personally motivated, professionally creative or, possibly (as a problem?) in blissful ignorance. Nevertheless, an equally environmentally-concerned Kate, not quite yet a teacher with no educational setting or students immediately in mind, had the less urgent and somewhat detached luxury of adopting a distant view of the key environmental concepts and educational practices implied in the policy.

### **Epistemological and Methodological Considerations**

The original written piece of Kate's thinking was a final assignment required for an "Issues in Education" subject taught in the second-semester of Kate's Graduate Diploma of Education. This year is a training year for graduates admitted from a wide variety of undergraduate programs who intend teaching in secondary schools (yrs. 7-12). Kate elected to analyse the "knowledge assumptions" of a slice of a curriculum document most relevant to her personal interests and/or professional aspirations. While concerned about the environment, Kate lacked passion and commitment for doing the assignment, probably because it was the final assignment in a year-long program she disliked.

The subsequent development of teacher and researcher thinking is presented as a "continuing conversation" between the two authors (Phil and Kate), previously lecturer and student. That is, following Guba (1990), this written conversation reflects a constructivist epistemology. Hence, in extending Kate's written assignment into a continuing conversation with Phil this study might better be described as a critical, dialogical version of social (re)constructivism, a sharper specification of the critical interpretive methodology described by Hart (1996). Since Kate's original thinking on the matter of the environment, five reconstructed versions of thinking have been drafted over an interrupted five month period. Part of the thinking represented in this final version includes face-to-face discussions about the comments of three anonymous reviewers. Much of the thinking and writing has been exchanged electronically due to the changed living and

professional circumstances of both authors. Our reliance on technologically-mediated forms of communication for writing purposes does introduce a major variable. We make some observations in the conclusion about the use of e-mail as a form of intellectual exchange.

Finally, it is important that some background information be given about how Kate, in particular, came to think about the knowledge interests presumed in the policy. To that end, the conversation between the two authors starts with some details about Kate's interests and Phil's particular concerns. In a more complete study, this background information would be of relevance to that literature on the formative use in environmental education of oral type histories including, for example, contrived experiences (Emmons, 1997; Ferreira, 1998), lived experiences (Kahn & Friedman, 1998), significant life experiences (Chawla, 1998; Palmer, 1998; Tanner, 1980) and autobiographical reflexivity (Wilson, 1995).

### Context

*Investing in the Future—Environmental Education for Victoria's Schools* was released by Education Victoria in May, 1998. Kate's analysis focussed on "the philosophical underpinnings of the fifth strategy that supports the development of an informed sense of responsibility for the environment."

According to Kate much of her childhood was spent camping with her family, either on the coast, by rivers, or in the mountains. Formal school learning robbed her of contact with those places and she missed the "unselfconsciousness, the freedom, the contentedness" that contact enabled. To reclaim this loss and pursue her interest in outdoor activities she completed a degree course in Outdoor Education. Through this she investigated relationships with/between herself, others and the environment and took an interest in "environmental thinking, action and education." Thoreau, Leopold and Van Matre have been influential in her desire to challenge her own views and beliefs. Kate is concerned about the viability of her profession which relies heavily on natural settings. To that end, she has participated in and organized conservation/restoration projects and became involved in environmental action/activism. In 1998 Kate completed her Graduate Diploma of Education and a Graduate Diploma of Social Ecology, which she will extend into a Masters degree in 1999.

At the time of writing her original thinking, Kate was dabbling in various philosophical and practical aspects of environmental education. Of particular interest to her is/was the role of place in young people's lives, the theory-practice gap and the future of school-based environmental educa-

tion. An article by Bonnet (1997) provided a starting point for Kate from which she located herself intellectually in relation to the analysis of environmental concepts in the policy document. Loosely paraphrased, Kate's adaptation of Bonnet emphasized the need to problematize the knowledge educators are given. This strategy was consistent with the assignment required by Phil. Of particular importance for Kate was Bonnett's assertion "many of the issues invite a profound reappraisal of conceptions of knowledge, human consciousness and what counts as an adequate relationship with the world, upon which any conception of education must be premised" (p. 263). Following Bonnett, Kate felt the need to adopt a stance for which she "framed" (Hart, 1996) three questions she felt worked within the limitations of the assignment.

Kate's three questions were:

- *What does the document assume in its use of the word "environment"?*
- *What is education for the environment?*
- *What is meant by "informed responsibility"?*

For the specific purposes of this enquiry, Phil's peculiar interest was the issue of subjectivity in research. While also welcoming the addition of "voice" in qualitative research efforts in environmental education and related fields, even environmental ethics (Payne, 1994), Phil was keenly interested in the question of to what extent voice, and subjectivity, can legitimately account for the historical, material, social and political realities in which those very same subjects find themselves. Phil is interested in some form of social, participatory intelligence. He is not persuaded by the radical and aesthetically-pleasing hyper-individualism that underpins what he sees as a postmodern valorization of unbridled subjectivism and difference, celebrated increasingly as ends-in-themselves, rather than as a means towards greater equity and social reconstruction. Voice does need to be held accountable to and responsible for its material situatedness and positioning of the narrator. Most of Phil's (Payne) research work has moved beyond the either/or subjectivism/objectivism stand-off by treating them dynamically as a duality and mutually re-constitutive. Thus, despite the inclusion of doses of background information, the marginallizing of practical contexts in this published representation of thinking is a source of uneasiness for Phil. But, like any trade-off in enquiry and representation some of the core assumptions and values Hart (1996) calls for should be evident.



## The Continuing Conversation

We deal only with the first of Kate's two questions because of word limitations.

*Kate:* For many, "the environment" conjures images of vast tracts of treed wilderness, wild rivers or snowcapped mountains, remote and exotic places far removed from everyday life. For others, the environment has come to mean non-human, non-built, natural settings.

*Phil:* Are they sufficient?

*Kate:* No, but time prevents me from exploring terms like natural, wild, and their connections to the term environment. Maybe another time!

*Phil:* So, are we discussing "images"?

*Kate:* Yes, Gilbert (1996) calls the aforementioned images "old" and says:

The 'environment' still has its old connotations but, on top of these, the environment is made up of at least four distinct, but interrelated systems: the biophysical system, which provides the life support system for all life, human and non-human; the social system, which encompasses the ways in which people live together; the economic system, which provides a means of livelihood for people and; the political system, through which social power is exercised in making policies and decisions about the way social and economic systems use the biophysical environment. (p. 199)

*Phil:* Why are you calling on someone else to explain your thoughts?

*Kate:* The nature of (environmental) education is that your own story/opinion is discouraged, or rather, the expert's opinion is encouraged. I have been conditioned to say what I want through others' words. This is an example of that.

*Phil:* So, you are not persuaded by old images of "the" environment?

*Kate:* Yes, I am influenced by old images but ask where other interpretations of "the environment" fit in. For example, the home environment, the school environment, the local environment, and those environments pictured in the policy document (like vegetable gardens, beaches, parklands and suburban streets). These are just as much a part of the environment as other older interpretations and images. Already, the troubling nature of the word is evident. Not only is it necessary to acknowledge that there are many



versions or interpretations of “the environment,” but also that we have a tendency to teach to a minority of them, as evidenced in the policy.

*Phil:* Can you jump to that conclusion?

*Kate:* I can, based on my experience as both a student and a pre-service teacher. Despite an array of interpretations at hand, environmental education in schools remains predominantly the domain of old connotations, exotic or far off places removed from students’ immediate lives.

It is vitally important, for a number of reasons, to discuss the consequences of choosing just one interpretation to teach to. Firstly, the definition of environment chosen effects the type of environmental knowledge passed on. We must make the assumption that if there are different interpretations of the word environment then different types of environmental knowledge must also exist.

If this is the case then there must be different ways of knowing the environment and different sources of this knowledge. Let me offer an example. I spent much of my childhood at the “Sorrento back beach.” I knew it as an infant explorer where, with bucket and spade, I waded through, dug up and splashed in every rockpool and sand dune. I knew it as a child, where with the assistance of the ranger, learnt to name the animals and plants. I knew it as a secondary student, where on a fieldtrip I observed, researched, and drew coastal processes. As a sun-baking, boy-kissing, parent-eluding teenager I found private, sometimes special places on that beach, that I can remember in a way different from others. My point is that you can come to “know” a place by visiting it, living in it, reading about it, researching it, being taught about it, being affected by it and in many other ways. The source can be internal or external, private or public, general or specific, scientific, artistic, geographic, recreational, spiritual, and so on.

*Phil:* But each of these experiences underlying your claims to different ways of knowing the environment are fairly short. I’m wondering how durable each of those ways of knowing might be. Do you really know the place experienced, as you claim, or did you learn more about yourself?

*Kate:* We have acknowledged that there are many areas which need greater attention and this is one of them. However, briefly I’ll say the following. Sometimes it is difficult to separate what learning pertains to the “self” and the “not-self.” In experiencing the beach in different ways at different times I am bound to know both the place and my self (affective responses,

my relationships with self and others). This, more than just knowing in one domain, has enabled me to identify and be open to different versions of the one place.

This document gives only one, preferred version of how we come to know the environment with a very specific set of underlying assumptions. For instance, of the twenty-one images in the document, thirteen involve scientific methodology (measuring, testing) or modern technology (laptop computers, solar powered vehicles, circuit boards and the like). Another example lays in what the document implies to be environmental issues—"atmospheric modification," "decreased biodiversity," "wise use and management of resources"—all asking students to see the environment as something for their use, something to place material worth upon. This kind of representation has to narrow students' and teachers' perspectives, effect the way students interpret the environment and in turn how they experience it.

*Phil:* I take it that you are concerned the document has more to do with a particular way of knowing that is reduced to a meaning about using the environment.

*Kate:* I'm concerned that the interpretation of the environment we teach to determines the effectiveness of the message we convey. Let me offer an example: When the "way of knowing" the educator chooses is at odds with the way the learner knows an environment, messages can be accepted, lost, misunderstood, or ignored; the outcome isn't predictable. You have said so yourself.

*Phil:* Yes, I have. We seem preoccupied by a theory or particular meaning of environment or nature and wish to apply that meaning to specific educational practices. If so, and we forget about the learners' experiences of the environment, or environments, there is a significant opportunity to reproduce what is called a theory-practice gap in environmental education. Your point, however, is well taken. I think discussion of that gap has not extended into how key terms like environment, nature, wilderness, and so on are deployed by academics and teachers with specific interests or particular agendas.

*Kate:* When students are taught primarily about environments that are irrelevant to their everyday lives, which is what seems to be occurring, they are less likely to act upon issues in local environments that effect their daily

existence. Why teach about acid rain in Europe when the local swimming hole has been closed by a blue-green algae spread and everybody has asthma aggravated by pollutants spewing out of the nearby industrial estate? When learning about the environment is relevant and contextual to the student's concept of the environment there is a higher likelihood of action occurring. This policy supports this idea theoretically where it openly states, "The nature and extent of Environmental Education should be determined locally" (Education Victoria, 1998). But I am doubtful, due to the lack of strategies or support offered, that it will occur.

*Phil:* Maybe these strategies are forthcoming, or are left for you to devise.

*Kate:* No strategies were referred to, or suggested, in the document. Ignorance can be a problem, as can a total lack of direction in implementing prescribed aims and objectives. Leaving teachers entirely to their own devices is fraught with inconsistency and danger. At this stage I'm more interested in identifying what assumptions are embedded in the policy's mentioning of education for the environment. I am aware there are three primary classes of Environmental Education—education about, in, and for the environment. The development of an informed sense of responsibility for the environment has its foundations in education for the environment. Although it is difficult to educate for the environment when we are unsure of what interpretation of environment we are pursuing, let's look at what it might mean.

Much has been written about education for the environment. In short, it is borne out of a socially-critical approach which values procedural knowledge and emphasises problem-solving, decision-making, and values-clarification, derives awareness largely from tacit learnings (appreciations, feelings, sensitivities), and relies heavily upon a person-oriented learning milieu. Gilbert (1996) had the following to say about "education for the environment":

(it) aims to promote a willingness and ability to adopt lifestyles that are compatible with the wise use of environmental resources. In doing so, it builds on education in and about the environment to help develop an environmental ethic and the motivation and skills necessary to participate in environmental improvement. (p. 205)

Stevenson (1987) said:

Education for the environment is a process of inquiry and action on real environmental issues. Such an inquiry process demands that students

actively engage in critical or complex thinking about real problems. The development of knowledge, skills and values is not only directed towards action, but emerges in the context of preparing for and taking action. (p. 75)

*Phil:* But again you are calling on other people who you don't know and who live in other places, and probably in different circumstances. If "for" the environment is part of the socially-critical approach then my understanding of the term "critical" is that all those qualities you just mentioned must, or should, relate to broader issues of historical human concern such as equity, fairness, and justice. Hence, an environmental ethic also needs to be socially-just, fair, or caring. "Critical" can be a form of analysis and commentary but within the critical discourse of education its meaning is more political and social, or ideological—perhaps a bigger way of analysis and knowing that has some view about the "good" or "right" life. Do you think this document is critical and if so what about the use of education "for the environment"?

*Kate:* Superficially, the document appears critical in nature and supportive of education for the environment. However, without forthcoming strategies or some elucidation as to what the document means by "for" the environment I think it falls short.

#### *For the environment*

*Kate:* I think there has been a fundamental misinterpretation of the term "for the environment." If it is about educating for the environment, then what's in it for the environment? It is all well and good to develop knowledge, skills, values and motivation, but why is the desired outcome improving and managing the environment?

*Phil:* To the latter part of your question I can think of many possibilities. But there is also an ongoing debate in environmental education research circles about the pluses and negatives of educators educating actively "for" the environment (Jickling & Spork, 1998). But can we leave that to another time?

*Kate:* If we can go back to "improving and managing the environment" I'd like to draw on Stevenson (1987) and Bonnet (1997). They make an important point which is education for the environment demands "critical and complex thinking about real problems" and "a true understanding of our situation" (p. 263). In approaching the situation in a way that assumes it is the environment that has the problem, we are externalising the issue and

missing the point. If we really wanted to do what's best for the environment then we'd be looking at developing knowledge, skills, values, and motivation to manage and improve ourselves as well as internalise our behaviour (our lifestyle, our thinking, and our approach to the non-human world). For instance, in a tree planting exercise, the real problem is not that the area has too few trees, it is that humans have not valued those trees and have cut them down. By replanting alone, the problem has not been solved. Replanting in conjunction with re-educating (changing the knowledge, values and motivation of those who cut the trees down) is what is needed.

*Phil:* Don't we also need to think about who cut down the trees and for whose, and what, benefit and cost?

*Kate:* Yes! But let's stick to the policy. Before making any grand statements about the nature of knowledge presumed in the whole document, I would need to repeat this process for each of the strategies and goals and like Bonnet (1997) said, "develop a true understanding of the situation" (p. 263).

I am hesitant to pass judgment about the effectiveness or usefulness of the document, but I will say this: Material needs to be written for the educators which, unlike this document, states clearly the nature of knowledge presumed, equips teachers with the skills to turn theory into practice, offers direction and support, and addresses likely obstacles. These ideas are just a few of the many that could be considered for further investigation.

### Reflections of Researchers

It is tempting to conclude with both a conversational and discourse analysis of the above continuing conversation. Our interest, however, is how the dialogical writing process develops our respective and collective thinking. Nonetheless, some general observations about the content of the conversation are offered before we consider the merits or otherwise of writing as thinking.

Borne out of her own experiences that clearly have been added to by her intellectual training, Kate is convinced there should be no singular or fixed definition of the environment, let alone the utilitarian view of it as implied in the policy. Kate's self-evident "new" thinking departs from older, traditional views of the environment where it is typically privileged as external and wilderness-like. Kate highlights self-environments. Obviously Kate believes students should have different experiences in the environment so as to have many ways of knowing it/them. Like most

of us, Kate struggles in her account of “for” the environment. Kate admits to having adopted some of Phil’s views about how particular teacher conceptions of the environment should not be imposed on learners. Kate’s critique of the utilitarian stance in the policy is suggestive of deep ecologist’s non-utilitarian interest in the intrinsic value of nature.

Kate and Phil do not have a common understanding of the term “critical.” Kate’s tends to align itself with a style of personal thinking, while Phil relates it to broader ideological concerns. Phil tends to play the self-appointed sceptic, or critic, so as to better get at some of Kate’s core assumptions and convictions, namely what he thinks is her preference for multiple meanings of the environment and how that position is potentially threatened by a singular meaning implied in the document under analysis. Little is revealed about his own views about a number of the issues Kate touches on. He tends to maintain the role of the somewhat neutral or detached lecturer/teacher and interviewer/researcher, perhaps not to commit himself or avoid comment/critique but also because of an interest in learning from Kate through active listening.

Conversational and discourse analyses might extend to the types of interaction, language-use, power relations, ideological assumptions/critique and so on, all of which are beyond the immediate scope of this study. We conclude with individual and collective reflections on the writing process undertaken here.

*Kate:* After not being very interested in writing the original assignment, the process of conversing forced me to think critically about what others ask me to teach, reflect on how my experiences have led me to think in a particular way and articulate some of my own opinions rather than purely regurgitate the opinions of others.

*Phil:* Would or could you say your thinking is “authentic”?

*Kate:* I’d question whether anybody’s thinking is authentic. Don’t we all have a tendency to glean bits and pieces from other people’s thinking in order to strengthen or clarify ideas of our own?

I know I made several references to various author’s thinking throughout this article and I have a sense that by analysing and responding to other aspects of the document before making meaningful conclusions or statements, I might be able to find more of my own responses rather than relying heavily on others’.

*Phil:* What would you suggest as a different method and why do you think short answers became the norm?

*Kate:* I think the article might have been slightly different in content and structure had we spent more time face-to-face instead of corresponding over an extended time by e-mail. Our interaction was interrupted by overseas holidays, changes of address, and work constraints. E-mail isn't conducive to lengthy responses and lacks an emotive aspect present in face-to-face interaction. However, had we not employed this method, the article may never have reached this point!

*Phil:* For me, this continuing conversation addresses many of the methodological issues in teacher thinking identified by Hart. It also adds a bit more to my own intrigue in questions about subjectivity and authenticity. Kate and I have known each other for a couple of years, essentially as student and teacher/lecturer. We commonly share an interest in environmental education. There is a level of mutual trust and support in relation to the educational matters in which we are involved.

We've written our respective voices and thinking, even if somewhat academic and not story-like (Hicks, 1998). This formal language is probably a consequence of the original assignment and the time we had to rewrite and reconstruct the thinking. The thinking represented here systematically develops Kate's original written assignment, but within some limitations that Kate has touched upon. Critical reflection has occurred. Our views do diverge on some matters. But I think I've succeeded in not allowing Kate's thinking to become a reflection of mine, though there are some minor glimpses of it which were probably not a part of this actual writing process.

I'm reasonably satisfied that I have some good insights into Kate's thinking about the term "environment" in relation to the document she is rightly concerned about. Representation of Kate's and my thinking has presented some difficulties but, for the most part, is passable. Our thinking was often abstract, but maybe the lack of a real teaching context for Kate determined this. It would be interesting to do another round of writing on this topic now that Kate is working in a real school setting. But many new constraints prevent this. It would also be very interesting to compare and contrast Kate's original written assignment and this final version. Such a comparison would reveal how thinking and conceptualization was clarified or even changed as a result of the continued re-writing of the conversation.

As to Kate's core assumptions and convictions, much more could undoubtedly be said by Kate and myself. Glimpses appear. Time, oppor-



tunities and even word limits for publication have actively hindered the sorts of detail from which more systematic judgements or assessments of core assumptions and values might proceed. On that score, we are very uneasy with the use of e-mail to continue the conversation. While it might provide some time and space to think and reflect on what Kate wrote, those responses are probably limited to the abbreviated sentences Kate has already expressed concern about. We would prefer to have talked more, and written our thoughts immediately. Pragmatically, the conversation could not have proceeded without e-mail. However, as an inauthentic medium and means of interaction, unlike the face-to-face discussions we had, e-mail can not be caring or friendly (downloading was a continual problem). Nor is it conducive to conversants caring for each other, as Hart recommends. Overall, I have a fair sense, I think, of where Kate is coming from. If I put my researcher hat on, I would be hesitant about making strong conclusions at this stage.

Finally, despite the limitations just expressed about the electronic medium, I feel somewhat more comfortable with some of my own worries about subjectivism in enquiry and representation. In this instance, our context of a newly-released policy document was quite precise. Any social or educational context beyond that would only be speculative at the moment. Another study of Kate's thinking would be interesting when she has been in the workforce for a few years. For now, I respect the convictions Kate has about a number of shortcomings in the policy document. She has obviously given them a considerable amount of thought, reflecting on her own and others' experiences. Despite some negative reservations about adopting others' viewpoints, she capably synthesizes them when needed.

Despite what we think is the making of some practical progress here with regard to representing (pre-service) teacher and researcher thinking, this short, but illustrative study of the "writing as thinking" method has a more general limitation. Getting at thinking might be one thing. What that thinking is about is another question. Kate has demonstrated a concern with the possible implications for different learners in different contexts of a policy's narrow definition of the environment. What other teachers (and researchers!) think (and often practise) might not necessarily be in the best interests of learners.

To be sure, researchers do need to pay more attention to the ways in which teachers think, in particular about the professionally problematic circumstances in which they find themselves (Payne & Hickey, 1997). But, there is an equally compelling case to assert that teachers (and therefore, researchers) should also pay more attention to the ways in which learners think. Learner's thinking about the environment also points to the

importance of better understanding the (collective) ways we are in the world. For example, Payne (in press) used a wide variety of methods including children's talk, philosophical problem-solving, drawings, homework, contemplative reminiscing and outdoor observational experiences so as to "read" and visualize each child's thinking, or conceptions of nature and the environment.

How teachers should change their thinking after they "get into the heads of their children" is an interesting thought for better curriculum and pedagogical practices! Thus, a related concern for research is to what extent teacher thinking relates to what is in the heads of the children they already teach? (Boyes & Stanisstreet, 1997; Hillcoat, Forge, Fien & Baker, 1995; Hutchinson, 1997; Mason & Santi, 1998; Palmer, 1995; Pozarnik, 1995; Wylie, Sheehy, McGuinness & Orchard, 1998)

Today, as researchers and teachers, we deal with postmodern youth who, arguably, live fragmented lives, and experience place and space in different ways (Payne, 1997, 1999). With regard to the environment concept that has attracted our attention, we are interested in how postmodern learners learn and think. Some experience and know more about ecology and those environments that Suzuki and Bellamy choose to represent on our television screens. As teachers we need to offer them a pedagogy that allows for multiple truths, multiple readings, contradiction, complexity, disorder and difference. Like Bonnet (1997) said, we need to: "ascertain what our stance towards Environmental Education should be," "become aware of the attitudes towards the environment that the whole experience of schooling communicates to children," and "consider seriously whether we should remain content." To achieve this, there needs to be a "profound reappraisal of conceptions of knowledge, human consciousness and what counts as an adequate relationship with the world" (p. 263).

Finally, the different backgrounds and life experiences of the two authors point to the impossibility in this particular study of making too many generalizations about individual thinking, or attempting to establish any cause and effect relationship of why the two authors think in the way they do. In particular, this limitation applies mainly to Kate's thinking which, for the purposes here, is the prime focus of this limited study into the value of writing for ongoing professional development. Nevertheless, the study of writing as a form of thinking, even electronically-mediated, does illustrate the epistemological possibilities and political need for the ongoing methodological development of continuing conversations between researcher and teacher. Teachers and lecturers have a great deal to learn from each other, even if confined as it has been here to critical thinking about a particular policy and its implied practices.

## Notes on Contributors

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