

Teaching Literacy in a Time of Environmental Crisis

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In times like these

To have you listen at all, it's necessary
to talk about trees

—Adrienne Rich, *In Times like These*

Abstract

In Aotearoa New Zealand we need an informed educational response to the environmental crisis within and across all learning areas in the curriculum. One way of organising that response is through the concept of eco-literacy. This paper explains the concept of eco-literacy developed within the TLRI project *Tuhia ki te Ao—Write to the Natural World* and introduces the collection of four papers from the project published in this issue of *set*. This introductory paper outlines how the model of eco-literacy has been enacted within the learning areas of English, the Arts and Social Sciences and indicates how eco-literacy is connected to Māori and Pasifika cultural perspectives within the full papers.

Key Points

- The research argues for a model of “3D Literacy” which purposefully includes environmental as well as cultural perspectives;
- 3D Eco-Literacy clarifies attention to dimensions of literacy and identity for all the learning areas in the curriculum;
- This paper gives an overview of the collection of papers from the TLRI project *Tuhia ki te Ao—Write to the Natural World*.

In times like these we need to teach as if place and planet matter. New Zealand is feted as a place of “pristine” natural beauty but at the same time the pace of urban development and intensification of rural agriculture is threatening the waters and the soils. Bigger issues loom on a global scale with the threats of sea level rise, flooding and landslides associated with climate change (IPCC, 2014; Morton, 2017). At the same time children’s contact with nature is diminishing and the language to name and speak for nature is being eroded (see Louv, 2005; Macfarlane, 2015 and the English paper in this issue). Rather than responding with despairing pessimism or blithe optimism, the educational response needs to be positive, active, informed and hopeful.

In our TLRI¹ project team, *Tuhia ki te Ao—Write to the Natural World*, we believe that it is ethically and intellectually important to explore the potential of literacy to “speak for” and represent the natural world within *all* the learning areas of the school curriculum. We already know that literacy is not just a technical fix and that it involves learning attitudes, values and knowledge and culture (Ferdman, 1990). Literacy connects to identity, and this is well established in relation to children’s cultural and digital identities (see Gee, 2003). But what about children’s emergent environmental identities? How can learning literacy connect with this set of values, beliefs, attitudes and knowledge? How does each learning area in the curriculum help students to relate to the environment?

This short paper is an introduction to the thinking about literacy that underpins the project, while the papers in the collection grapple with more culturally located and subject-specific questions of eco-literacy in teaching and learning within three learning areas: English, the Arts and Social Sciences.

There are a variety of synonyms for eco-literacy, such as environmental literacy, sustainability literacy and ecological literacy. Eco-literacy in this sense refers to developing *knowledge* about the environment, nature and ecology, including issues of sustainability (Orr, 2004). In our team we recognise the importance of ecological knowledge but we define eco-literacy in relation to practices of literacy. We are interested in how learning areas use texts (spoken, visual, written and performed) and subject specific practices of meaning making to communicate ecological values (see Kalantzis & Cope, 2012, for a framework of different

¹The Teaching Learning and Research Initiative (TLRI) funds research collaborations between researchers and teacher-researchers in Aotearoa New Zealand.

modes of making meaning). Literacy is already firmly established as being about culture (Ferdman, 1990; Hirsch, 1987) but we argue that a more holistic understanding of literacy is about nature and environment too. The work of Australian educator Bill Green has been helpful in conceptualising a holistic and ecological vision of “3D Literacy” which we have adapted and developed alongside teacher-researchers in the project (Green, 1988. Green & Beavis, 2012).

Introducing 3D Literacy and 3D Eco-Literacy

Bill Green’s influential model of 3D Literacy proposes that there are three essential dimensions to literacy pedagogy: operational, cultural and critical.

1. The *operational* dimension focuses on competence in technical naming, technical skills and technical production in a range of contexts. This dimension connects with ideas about basic literacy skills and functional literacy.
2. The *cultural* dimension refers to competence in relation to real situations with a focus on knowing how to apply and to select from the different cultural forms and practices available to communicate effectively and powerfully in any given situation. This dimension connects with ideas about cultural literacy (Hirsch, 1987) but is intended to be open and inclusive rather than elitist.
3. The *critical* dimension involves learning how these cultural forms and practices are themselves selective, value-laden, ideological and constrained. Following from an analysis of powerful interests in meaning making, students critique and transform texts according to alternative interests. This dimension connects with the concept of critical literacy that originates from critical pedagogy and the work of Paulo Freire on education for social justice (Freire, 1995). The relationship of critical literacy to valuing places and recognising environmental justice and actions is an emerging literacy agenda (see Comber, 2015; Green & Beavis; 2012; Nixon, Comber & Cormack, 2007).

Educators might choose to start with any of these dimensions as they are all interlinked and permeable. The value of separating the dimensions is that this draws attention to how literacy pedagogy privileges particular activities and processes (see the Social

Sciences paper). Green's 3D model also raises important questions for literacy in the 21st century: What do we think of as valuable cultural and environmental texts worth sharing as part of a common heritage? Whose cultural and environmental heritage and place dominates? How can we move discussion of literacy pedagogy in schools beyond a narrow focus on the operational dimension of literacy, which can be just as limiting on screen as on paper? How can students have the confidence to experiment with changing and challenging the literacy forms, models and practices that they are given?

We adapted Green's 3D model to explicitly reference *environment* and *ecology* as well as culture so that the model becomes “operational, *enviro-cultural* and *eco-critical*”. Green's model originally aimed at clarifying literacy in different learning areas and we have found it especially flexible in this respect (Green, 1988). Inevitably, the model is inflected differently in relation to particular contexts and learning areas as indicated below:

1. The operational dimension in English refers to the technical features of writing and design such as punctuation or the use of font. An example from Social Sciences would be the naming of geographical features while in Arts an aspect of operational literacy is an understanding of the colour wheel.
2. The enviro-cultural dimension in English refers to learning about how significant enviro-cultural texts represent nature, environments and places such as “Nui Tireni” by Hone Tuwhare (1997, p.88). In Arts this enviro-cultural literacy might be shown in understanding playwright Bruce Mason's representation of environmental change, whereas in Social Sciences enviro-cultural literacy might focus on knowledge about the environmental issues of a particular place, such as Kiribati.
3. The eco-critical dimension for English could involve the critique of the contradictions of a car advert or researching and writing an eco-poem. In Arts it might mean directing a play from an environmental perspective and in Social Sciences it could mean analysis and response to the political interests invested in environmental policies or places.

We hope that teachers in other learning areas will see the potential to develop their own approaches to the 3D Eco-Literacy Model. Some further provisional connections to the English, Arts and Social Sciences learning areas are outlined in the table below.

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Table: Comparing 3D Eco-Literacy in English, the Arts and Social Sciences

Introducing the Project

The project *Tuhia ki te Ao—Write to the Natural World* aims to support teachers to develop eco-literacy within their learning areas through attending to the distinctive lenses on the environment offered through different subjects. Six teacher-researchers (three from James Cook High School in Manurewa and three from Hobsonville Point Secondary School in Hobsonville Point) have worked together with researchers to develop ecological themes within six week units of work in their learning areas in English, Social Sciences and The Arts.

In our team we have shared impressions from lesson observations followed up by detailed written notes, which include the post-lesson evaluative discussion. We have analysed these observations and discussions in relation to the 3D Eco-Literacy dimensions—operational, enviro-cultural and eco-critical. Together we have discussed examples of students' work in each learning area and from two Year 9 classes (ages 13-14) in the two schools. Researchers have then selected from lesson observations, students' work and interview data to write “vignettes of practice” and student profiles. These have become important artefacts that we have discussed openly together in order to reflect on the successes and challenges of the lessons within the units of work and to consider ways of moving the teaching and learning forward. This year we are refining the unit plans and working with two new classes of Year 9 students. We are building more detailed profiles of students' environmental identities and analysing how these are shaped by the work in the three learning areas.

Introducing the papers

This volume of *set* discusses work from the exploratory first year of the project. We think it is important to show the initial challenges of reconceptualising literacy from an ecological perspective within the “messiness” of real classrooms. The papers examine the relationship of literacy to learning areas, ecological knowledge, meaning making and the shaping of environmental identities in two culturally diverse schools. Two of the papers involve sustained reflection on Māori and Pasifika perspectives on cultural and environmental literacy. We hope that the four papers provide insights into how eco-literacy is applied differently and flexibly in relation to each learning area (see also Sue McDowall's review of New Zealand literacy research in disciplinary contexts, 2015):

In English the focus has been on language and developing a language to speak for nature. In the paper this is discussed in relation to work in the two schools on reading and writing eco-poetry.

In visual Arts one teacher worked on connecting cultural and environmental identities developing connections to place and nature through the concept of whakapapa. In the paper this is discussed with particular reference to Pasifika identities in relation to the environment and the connections to a culture of the sea and the islands.

In Social Sciences, students at James Cook have connected their local and global identities in a powerful project on the problem of sea level rise in Kiribati.

Māori literacies have been raised within our team discussions, and in the paper “Māori Literacies-Ecological perspectives” we have tried to reflect together on points of connection with the units so far, across both schools.

Throughout these papers we note the strong focus on cultural identity in New Zealand but suggest that the ecological dimension of this identity could be strengthened through teaching and learning practices that connect students to their environment and places. As David Gruenewald (2008) states “environmental education in schools is rare and rarely intersects with culturally responsive teaching” (p.144). He suggests that the failure to know about the unique places in our lives is to remain in “a disturbing sort of ignorance” (p.143). More poetically Wendell Berry writes: “Not knowing where you are, you can lose your soul or your soil, your life or your way home.” (Berry, 1983, p. 103 in Buell, 2001, p.75). This paper is in many ways a stepping stone for us in thinking through how literacy connects to our spiritual souls, our sense of “being”.

The following collection of papers demonstrate that literacy can serve a powerful role in shaping a sense of place and positive environmental attitudes to the world. We want students to be critical readers and producers of powerful texts for, and about, the environment and the natural world. In short, we seek to develop *eco-critical* literacy practices.

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