

*Australian Journal of  
Environmental Education*

**Special Issue:**  
The “*ness*” of  
Environmental  
Education

ISSN number 0814-0626

Volume 27 (1) 2011

# Australian Journal of Environmental Education

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## Contributions

The Journal welcomes contributions about all aspects of environmental education and seeks balanced and integrative accounts of practice, theory and research presented in written or graphic forms appropriate to the matters considered, the wide range of the journal's readership and the journal's intentions. Intending contributors are asked to adhere to "Guidelines to Authors" set out on the inside back cover.

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## Reviewers

Contributions to the Feature articles section are reviewed anonymously by two invited reviewers. Our thanks are given to the following reviewers for Volume 27(1):

Sylvia Almeida; Elisabeth Barratt Hacking; Sally Birdsall; Jane Bone; Nicola Chisnall; Kiran Chhokar; John Fien; Annette Gough; Noel Gough; Robbie Guevara; Xia Ji; Julie Kennelly; Josephine Lang; John Lidstone; Marcia McKenzie; Phillip Payne; Alan Reid; Lisa Ryan; Syd Smith; Margaret Somerville; Libby Tudball; Brian Watchow; Jean Webb; and Sandra Wooltorton.

## Acknowledgements

From the next issue of the journal, the Australian Journal of Environmental Education will be published by the Australian Academic Press (AAP). It will have a close affiliation with AAEE and as such will continue to be provided to AAEE members and AJEE subscribers.

The CD version of this Special Issue (SI) has been funded by *Dr Amy Cutter-Mackenzie*, Faculty of Education, Monash University. A complimentary copy is provided to WEEC delegates, contributors and members of the editorial board. Following the World Environmental Education Congress, the SI will appear on the AAP website. Associate Professor Phillip Payne is acknowledged for his early contribution in conceptualising the original Special Issue Call for Proposals.

Typesetting, layout and desk editing by *Donna Bennett & Stephanie Hodgson*, Office Logistics, Brisbane.

Cover Design by *Viv Wilson*, Queensland University of Technology, Brisbane.

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## The nautilus

The Association logo is the nautilus. It is used by the Association to symbolize the "wisdom of the planet", from which environmental educators draw inspiration and direction.



# Australian Journal of Environmental Education

Volume 27(1) 2011

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## EDITORIAL

### Special Issue: The “ness” of Environmental Education

*I came from the dream-time, from the dusty red soil plains  
I am the ancient heart, the keeper of the flame.  
I stood upon the rocky shore, I watched the tall ships come.  
For forty thousand years I've been the first Australian.*

*We are one, but we are many  
And from all the lands on earth we come  
We share a dream and sing with one voice:  
I am, you are, we are Australian*

*I came upon the prison ship, bowed down by iron chains.  
I cleared the land, endured the lash and waited for the rains.  
I'm a settler, I'm a farmer's wife on a dry and barren run  
A convict then a free man, I became Australian.*

*We are one, but we are many  
And from all the lands on earth we come  
We share a dream and sing with one voice:  
I am, you are, we are Australian*

*I'm the daughter of a digger who sought the mother lode  
The girl became a woman on the long and dusty road  
I'm a child of the depression, I saw the good times come  
I'm a bushy, I'm a battler, I am Australian*

*We are one, but we are many  
And from all the lands on earth we come  
We share a dream and sing with one voice:  
I am, you are, we are Australian*

*I'm a teller of stories, I'm a singer of songs  
I am Albert Namatjira, I paint the ghostly gums  
I am Clancy on his horse, I'm Ned Kelly on the run  
I'm the one who waltzed Matilda, I am Australian*

*We are one, but we are many  
And from all the lands on earth we come  
We share a dream and sing with one voice:  
I am, you are, we are Australian*

*There are no words of comfort that can hope to ease the pain  
Of losing homes and loved ones the memories will remain  
Within the silent tears you'll find the strength to carry on*

*You're not alone, we are with you. We are Australian!*

*We are one, but we are many  
And from all the lands on earth we come  
We share a dream and sing with one voice:  
I am, you are, we are Australian*

*There are so many heroes whose stories must be told  
They fought the raging fires of hell and saved so many souls  
From the ashes of despair our towns will rise again!  
We mourn your loss, we will rebuild. We are Australian!*

*We are one, but we are many  
And from all the lands on earth we come  
We share a dream and sing with one voice:  
I am, you are, we are Australian*

*I'm the hot wind from the desert, I'm the black soil of the plains  
I'm the mountains and the valleys, I'm the drought and flooding rains  
I am the rock, I am the sky, the rivers when they run  
The spirit of this great land, I am Australian*

*We are one, but we are many  
And from all the lands on earth we come  
We share a dream and sing with one voice:  
I am, you are, we are Australian  
I am, you are, we are Australian.*

*We are one ..... We are many ..... We are Australian!*

(Bruce Woodley and Dobe Newton, 1987)

In celebration of the 6th World Environmental Education Congress, this Special Issue (SI) of the Australian Journal of Environmental Education (AJEE) is dedicated to the “ness” of Environmental Education. The original title of the Special Issue was the “Australian-ness of Environmental Education”, but including the word “Australian” seemed somewhat Australian-centric at the completion of the Special Issue given the diversity of contributions that indeed speak to the “ness” of environmental education within, inside, outside and beyond the geographical confines of Australia. At the onset, the aim of this Special Issue was to highlight what makes environmental education distinctive. While this edited collection has achieved its purpose, it has also exceeded those expectations by revealing not only the compelling stories that research has to offer in 2011, but also provided openings and insights about the parallels and transferability of the “ness” of environmental education as it develops within place, space and time. This Special Issue, therefore, serves a local yet global interest in celebrating, valuing and understanding the “ness” of environmental education and its research.

The first four papers of this Special Issue speak directly to the Australian-ness of environmental education. They offer a rich historical perspective on policy, curriculum,

research (conceptualisation and contextualisation), place, language, colonisation and natureculture.

**Gough** (this issue), a founder and leader of environmental education within the Australian context, thoughtfully recounts and reflects on the past decade and the Australian Government's actions related to environmental education in the context of the broader Australian Curriculum. This analysis was inspired by Robottom's (1987) curriculum jigsaw puzzle metaphor, emphasising the triumphs and tribulations that environmental education has endured in the formal curriculum since the 70s; revealing the ongoing tensions and tussles between science education and environmental education.

**Stevenson and Evans** (this issue) follow Gough with a focus on how Australian environmental education research was conceptualised and contextualised in the 1990s. Stevenson and Evans begin with an important acknowledgement by stating that *"any story of the history of environmental education research depends on who is doing the telling"*. Taking a somewhat snapshot methodology, they analyse 67 articles published by Australian authors in the Australian Journal of Environmental Education (from 1990-2000). During this decade period, their analysis portrays Australian environmental education research as a provocateur in questioning and challenging prevailing environmental education conventions by critiquing and theorizing the social critical conceptual and curriculum framing of environmental education.

In **Stevenson's** second piece (this issue), he raises the question of whether a sense of place, or attachment to the Australian biophysical or cultural landscape, has shaped Australian environmental education research. Applying the same snapshot methodology as the latter paper, an analysis of the same 67 papers is undertaken which represents a time proceeding what some refer to as the *"(re)emergence of place-based education"*. Of those 67 articles only four addressed the author's or other Australian's sense of place. Stevenson offers several pertinent explanations for this finding, alongside discernibly calling for extended research on the current presence of place or sense of place in Australian environmental education research (2001-2011).

**Whitehouse** (this issue) argues that *"due to many tens of thousands of years of human settlement, the continent of Australia can be considered as a natureculture, a continuously inhabited country, owned, known, taught, farmed, fished, loved and feared"*. In accordance with the introduction of English as the dominant language of education with European colonisation, Whitehouse (this issue) astutely asserts that *"so arrived an ontological premise that linguistically divides a categorised nature from culture and human from 'the' environment"*. Drawing on published work from the Australian tropics, she employs a socionature method in making a philosophical argument for a more nuanced interpretation of language and culture (interface and interculture) in environmental education practice (and indeed pedagogy).

Whitehouse's paper notably gestures to the important issue of practice or pedagogy. Whilst Stevenson and Evans (this issue) identified pedagogy as an area lacking research focus not only in Australia but internationally (particularly during the decade from 1990-2000), the subsequent three articles speak directly to environmental education pedagogy offering unique insight about the pedagogy of environmental education in Australia, but also speak to the pedagogy of environmental education more broadly (transcending geographical borders).

**Stewart** (this issue) (re)emphasises the silence of pedagogy in Australian environmental education research (Stewart, 2006). He perceptively identifies that among such silences is the natural history of Australia (as a continent) in environmental education pedagogy. This is consignment with the current predicament that faces the speckled warbler. He adapts Deleuze and Guattari's (1987) philosophy *"becoming-*



animal” to reconnoitre “ways that the life and circumstances of the speckled warbler might inform natural history focused Australian environmental education research” and unquestionably pedagogy.

Following Stewart, **Bradley** (this issue) aptly utilises Johann Wolfgang von Goethe’s unique approach of “*delicate empiricism*” as an origin for rethinking and reimagining the practice of environmental education particularly as it applies to Australian ecologists. The context of Bradley’s research is an ecologically-degraded agricultural landscape in the Brigalow Belt of Queensland. She adopts “*delicate empiricism*” as a creative and sensitive process to landscape management which some could argue is more “*in sync with the environment*”.

**Nakagawa** and **Payne** (this issue) turn focus to place-responsive pedagogy in the context of the Australian beach. They do so in the broader framing of a semester-long undergraduate subject, Experiencing the Australian Landscape (EAL), as part of the Bachelor of Sport and Outdoor Recreation. Employing an interpretive combined method ethnographic and phenomenological methodology, the authors focus on study abroad students’ beach (as place) experience revealing their “*fluid sense of non-belonging, despite the EAL intention of fostering a place-responsive pedagogy*”. Nakagawa and Payne pointedly identify a disorientation or displacement which critically speak beyond the geographical boundaries of Australia to environmental education pedagogy applicable across/between place/s.

The final three articles of this section consider the “*ness*” of environmental education in other places: China, India and Taiwan. Interesting parallels are revealed (re) emphasising the importance of historical voices in environmental education pedagogy and curriculum which transfer across/between place/context.

**Ji** (this issue) explores Chinese educators’ environmental consciousness. She specifically focuses on their significant life experiences illuminating “*the Chinese-ness of environmental education from the angle of life experiences and reflections of environmental educators in mainland China*”. She identifies serendipity, 既来之则安之, and a strong sense of responsibility as critical elements in environmental educators’ consciousness.

**Almeida** and **Cutter-Mackenzie** (this issue) focus on the “*ness*” of environmental education in India. They consider the historical, present and future directions of environmental education in India through a close examination of practice, policy and research developments. Throughout and between these developments lies a historical voice about the “*ness*” of environmental education in India: “*live simply so that others may simply live*” (Gandhi). It is timely for environmental educators to remember that voice and as Gandhi predicted many decades ago: “*A time is coming when those who are in a mad rush today of multiplying their wants, will retrace their steps and say: what have we done*” (cited in Khoshoo & Moolakattu, 2009, p. 144).

**Yueh** and **Barker** (this issue) end this section by reflecting on the 1998 Taiwanese national curriculum revision where environmental education was identified as one of six new “*Important Issues*”. However, the authors’ study reveals that “*a pervasive nation-wide exam-driven, subject-dominated educational climate resulted in a somewhat truncated ‘Taiwan-ness’ in the environmental education that emerged*”. The latter developments resulted in environmental education being conceived as a minor priority which in some respects resonates with Gough’s (this issue) opening article as environmental education fights to survive (among the traditional disciplines) in the Taiwanese curriculum context.

The ensuing four articles of this new section of the Australian Journal of Environmental Education specifically report on practice initiatives and/or provide



commentaries attempting to cross or bridge the research-practice gap in environmental education.

**Salter, Venville and Longnecker** (this issue) present an Australian story divulging the journey of one Australian (Perth) primary school and their plight to embrace and embody sustainability. The school worked in partnership with Millennium Kids' Inc (community not-for-profit organisation) applying a collaborative approach connecting school, community and family as a means of engaging and empowering student voice. In doing so the authors reveal the tensions experienced in this journey which offer important insights for teachers-researchers as they "*plan and navigate their own sustainability journeys*".

**Wooltorton, Palmer and Steele** (this issue) report on the outcomes of the second action cycle of an ongoing project at Edith Cowan University (ECU) called *Transition to Sustainability: ECU South West* which is located in a small, single faculty regional university campus. Their study reflects an emerging movement in Australia to create social frameworks for embedding sustainability education initiatives in higher education.

**Smith, Collier and Storey** (this issue) report on the development of the Australian National Professional Development Initiative for Sustainability Educators (NPDISE) and how it was influenced by the Australian context. Using Vegemite as a metaphor, this paper re-tells the story of how four professional associations – Australian Association for Environmental Education, Waste Management Association Australia, Australian Water Association, and the Marine Education Society of Australasia – are working together to further and advance the field of environmental education.

**Eames and Barker** (this issue) in the final paper of this Special Issue provide a commentary (as invited by the Editor of AJEE) about the "*ness*" of environmental education in Aotearoa New Zealand (Australia's Trans-Tasman neighbour). They illustrate how environmental, sociocultural and political imperatives have shaped the development of environmental education in New Zealand. These imperatives reveal "*the natural history of the country, the connectedness within the worldviews of the indigenous Māori people, the pioneering views of some enlightened European settlers, and tensions between development and conservation*". They turn focus specifically to research on student learning as an apt example of the "*ness*" of environmental education in New Zealand.

The final section of this AJEE Issue presents three challenging book reviews (by **Ferguson, Oakley and Mair**) of recent publications highly relevant to the field of environmental education. These publications inadvertently speak to the "*ness*" of environmental education by identifying issues (topics) which have tended to remain silent or only discussed on the fringes in environmental education research, including animal well being and rights, sustainable production and consumption and slow travel/tourism. Perhaps this is a "*clarion call*" to environmental educators as Oakley (this issue) appropriately suggests.

Whilst in some respects it may appear at odds that this Editorial commences with the poem/song "*I am Australian*" (Woodley and Newton, 1987) given the revised title of the Special Issue. However, this is quite deliberate as whilst this song (often referred to as Australia's second national anthem and frequently played at citizenship and national ceremonies) is uniquely Australian it also evokes a poignant characteristic of the Australian spirit where all are embraced and celebrated as Australian. To that end, welcome to Australia and the 6th World Environmental Education Congress; *may it be an inspiring continuance in our learning of the "ness" of environmental education.*

## **Reference**

Woodley, B., & Newton, D. (1987). **I Am Australian**. Retrieved from <http://alldownunder.com/australian-music-songs/i-am-australian.htm>

## **Editor**

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## The Australian-ness of Curriculum Jigsaws: Where Does Environmental Education Fit?

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**Abstract** This paper reviews Australian Government actions related to environmental education, particularly in the past decade, and examines the actions forthcoming from two national action plans (Environment Australia, 2000 and DEWHA, 2009), the implementation strategy for the Decade of ESD (DEWHA, 2006) and developments related to the Australian Curriculum. This analysis is inspired by the Australian-ness of the metaphor of the curriculum as a jigsaw puzzle suggested by Robottom (1987), the seemingly constant battle for survival in the formal curriculum that environmental education has faced since the 1970s (Fensham, 1990; Gough, 1997), and the ongoing tensions between science education and environmental education in Australia's formal school curriculum.

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### Introduction

In recent years there has been growing recognition that action is needed *now* if Australian society, and global society, is to have a sustainable future. Numerous reports<sup>1</sup> over the past two decades from international and Australian government bodies have agreed that a holistic approach towards sustainable development – *development that meets the needs of the present without compromising the ability of future generations to meet their own needs* (World Commission on Environment and Development, 1987, p. 8.) – is needed. Such sustainable development encompasses the interconnectedness of social, economic and environmental issues, rather than just focusing on environmental protection.

These reports have also acknowledged the importance of education at all levels in achieving a sustainable future:

Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues... It is also critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development, and for effective public participation in decision-making. (United Nations, 1993, *Agenda 21*, paragraph 36.3)

This education for sustainability (or sustainable development) is the means by which Australian schools and communities can (and should) work towards creating a sustainable future.

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In this paper I review how the Australian government has responded to these developments, with a particular emphasis on the past seven years – that is, since the announcement of the implementation plan for the United Nations Decade of Education for Sustainable Development (UNESCO, 2004) – and with particular reference to the governmental structures to support the development of environmental education and specific developments in formal education sectors.

I also highlight a key tension in the implementation of environmental education in school curriculum over the past three decades. This tension continues as the National Curriculum proposes “Earth and Environmental Science” as a separate subject at Year 11 and 12 levels (National Curriculum Board, 2009), while also incorporating sustainability across the curriculum, consistent with the *Melbourne Declaration on Educational Goals for Young Australians* (MCEETYA, 2008, p. 9). That this tension remains unresolved is part of the Australian-ness of environmental education.

Over two decades ago Ian Robottom (1987, p. 95) postulated that “if the conventional curriculum is a jigsaw puzzle made up of subject ‘pieces’, then environmental education may be a piece of a different puzzle altogether”. As I discuss in this paper, it may be that environmental education is more than just part of a different jigsaw puzzle. As Fensham (1987, p. 22) noted with respect to the characteristics of Australian environmental education as he saw them in 1977, “we were not to see ourselves as apart from but integrally part of the Australian environment(s)” and “action and learning were seen as being symbiotic aspects of environmental education in all its stages – a very different pedagogical view from that which prevails in much of substantial learning”. Thus not only does environmental education imply a non-conventional curriculum for Australian environmental educators, it also implies a different pedagogical view, and different worldviews – and, more than two decades on, government actions in environmental education curriculum in Australia indicate that the question as to which jigsaw puzzle(s) environmental education belongs remains unresolved.

The jigsaw is a powerful metaphor for environmental education in that it “is at once a force of nature, a natural phenomenon, and the by-product of some supernatural plan. Nature creates its own puzzles and we imitate them” (Drabble, 2009, p. 273). However, the jigsaw puzzle(s) of which environmental education is/are a part is/are not confined by the safety of a frame, “of knowing that all the pieces will fit together in the end. But where is the frame of the evolving city? Or of an expanding universe? Where are the boundaries?” (Drabble, 2009, p. 169). The answers are not simple.

## **Background**

The first national conference specifically focused on environmental education was convened in April 1970 under the auspices of the Australian Academy of Science. Here the chair of National Committee for the International Biological Program, Sir Otto Frankel, noted that the deterioration of the environment threatened to engulf the whole world and concluded that this “is now perhaps the most pressing and most important aspect of education for the coming decades” (Frankel, 1970, p. 8).

At this time, environmental problems were often seen as scientific problems which science and technology could solve, but increasingly even the scientists themselves were arguing that science and technology were not enough. For example, at the Academy conference Stephen Boyden (1970) saw educational institutions as being at the top of the list of key groups to be involved in environmental education, and charged them with providing students with an awareness of the threats to the human species and stimulating thinking and discussion on the social and biological problems of mankind while avoiding “the implication in teaching that all the answers to any problems that

man may have lie simply in further intensification of scientific and technological effort” (1970, p. 19).

In the years following the Academy of Science conference the Australian Government responded to the calls for action on environmental education by designating it as a priority area for curriculum materials development by the national Curriculum Development Centre and through participation in the UNESCO and UNEP conferences and workshops on environmental education (such as those held in Belgrade in 1975 and Tbilisi in 1977) which helped shape the movement (Gough, 1997).

The Curriculum Development Centre published Australia’s first national statement on environmental education for schools (Greenall, 1980), which all state and territory education authorities endorsed. This attempted to move environmental education from being a piece in a conventional curriculum jigsaw puzzle into a new “orientation in the curriculum” puzzle. Developments were then low key at many levels for several years, although the school curriculum became an area of focus for a period (Greenall, 1987; Gough, 1997).

The Department of the Environment and Heritage published the second national statement on environmental education in 2005. This suggested a different, “whole school approach”, jigsaw for environmental education, consistent with that of the Australian Sustainable Schools Initiative, which sees a curriculum only focus as inadequate: successful implementation of environmental education requires action across the whole school: “whole-school approaches are advocated as best supporting the implementation of Environmental Education in a way that reflects the goals, aims, and purposes of this area... Whole school approaches also appear to be most successful when they build on the existing culture, priorities, and values of schools and their communities” (Bolstad, Baker, Barker, & Keown, 2004, p. 95). This is a different jigsaw puzzle from either a conventional curriculum or an orientation in the curriculum.

The first national action plan for environmental education was released in 2000 by Environment Australia and the second in 2009 by the Department of the Environment, Water, Heritage and the Arts. These developments are discussed later in this paper. That these significant documents about environmental education were developed for environment rather than education agencies is part of the *Australian-ness* of Australian Government action in environmental education

## **National Actions for the Development of Environmental Education in Australia**

In Australia, both education and environmental management are the responsibility of the states according to the Constitution. However, over past decades, the national government has assumed responsibility for various aspects of both education and environmental management using a range of external affairs powers and budgetary measures.

With respect to environmental education, both national and state governments undertake a range of activities, but I will generally confine discussion to the national level.

The federal environment ministry; currently known as the Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) manages education for sustainability (EFS) activities at the national level. This Department’s responsibilities include implementation of the UN Decade of Education for Sustainable Development in Australia (see [www.environment.gov.au/education/decade/index.html#strategy](http://www.environment.gov.au/education/decade/index.html#strategy)), which was launched in July 2005 and encapsulated in the Decade Implementation Plan (Department of the Environment and Heritage, 2006). Since this time there has been a continuation of existing or already intended activities – such

as the Australian Sustainable Schools Initiative (AuSSI) – and the release of a new National Action Plan (DEWHA, 2009) and the National Sustainability Curriculum Framework (DEWHA, 2010) as significant contributions to Australia’s participation in the Decade. According to the Department’s Decade Implementation Strategy website ([www.environment.gov.au/education/decade/strategy.html](http://www.environment.gov.au/education/decade/strategy.html)):

In line with the UNESCO Implementation Scheme, the Australian Government will be looking to opportunities for building capacity and the mainstreaming of Education for Sustainability considerations through strategies such as:

- developing and expanding existing Australian Government policies and programs in education for sustainability;
- promoting and sharing successful Australian initiatives and expertise in education for sustainability<sup>2</sup>;
- inviting national and international partnerships to strengthen and re-orientate policies and programs; and
- undertaking a gap analysis and evaluation of work to date.

Government initiatives specifically mentioned on this webpage are the Australian Sustainable Schools Initiative (AuSSI) and the National Environmental Education Council (NEEC) – however the latter, re-named the National Council on Education for Sustainability in 2009, seems to have last met on 17 July 2007 (according to a non-current page on the DSEWPC website) but there was a first meeting under the new name in April 2009 (Rose, 2009). This now seems to be a lost jigsaw piece.

Other initiatives mentioned on the Sustainability Education webpage ([www.environment.gov.au/education/index.html](http://www.environment.gov.au/education/index.html)) are:

- ARIES - Australian Research Institute in Education for Sustainability;
- Education for Sustainability Grants Program;
- National Action Plan;
- National Education for Sustainability Network (previously National Environmental Education Network (NEEN)); and
- Sustainability Curriculum Framework – a guide for curriculum developers and policy makers.

Key elements of these Government initiatives are discussed below.

Although it has previously supported environmental education activities – particularly through the Curriculum Development Centre in the 1970s and early 1980s – the current national education ministry, the Department of Education, Employment and Workplace Relations (DEEWR), has no obvious involvement with education for sustainability. This may be a surprise to some, but a recent search of their website ([www.deewr.gov.au](http://www.deewr.gov.au)) for “environmental education”, “education for sustainability” or “sustainability” elicits the error message “Error displaying site content. Please contact site administrator to notify regarding the issue.”; the main educational responsibility for environmental/sustainability education rests with the Australian Curriculum, Assessment and Reporting Authority (ACARA) which is an independent authority responsible for the national curriculum.

### **National Action Plan**

In July 2000 the Australian Government released its statement *Environmental Education for a Sustainable Future: National Action Plan* (Environment Australia, 2000). This document established the need to link Australia’s overall environmental education effort with the nation’s environmental priorities and that environmental education (or education for sustainable development, an alternative which was implied



but not discussed in this statement) was a political (environmental) priority rather than an educational one. The National Action Plan outlines some fundamental principles of sound environmental education and establishes a number of mechanisms aimed at improving the national approach.

A key element in the National Action Plan is a move from an emphasis on awareness raising to an emphasis on providing people with the knowledge, values and skills to actually make a difference to the protection and conservation of Australia's environment. (Environment Australia, 2000, p. 5)

The Australian Government moved quickly to implement many of the initiatives contained in this National Action Plan.

- The National Environmental Education Council (NEEC) was established in July 2000. Its purpose is to raise the profile of environmental education and provide expert advice to the Australian Government on environmental education issues, in particular on how Australians can move beyond environmental awareness to informed action.
- The National Environmental Education Network (NEEN) was established in May 2001. It comprises of representatives from Commonwealth, State and Territory environment and education agencies. Its purpose is to promote better coordination of education activities.
- The Australian Environmental Education Foundation, renamed the Australian Research Institute in Education for Sustainability (ARIES), was established at Macquarie University in December 2003 to undertake an applied environmental education research program.

Two additional activities were funded and associated with the National Action Plan:

- A pilot Sustainable Schools program was implemented in Victoria and New South Wales in 2002 and 2003, followed by the national Australian Sustainable Schools Initiative in 2004.
- The development of *Educating for a Sustainable Future: A National Statement on Environmental Education for Australian Schools* (Department of the Environment and Heritage, 2005) was agreed to by the Directors-General of Education in all States and Territories in May 2004.

The latter was the only curriculum related initiative in the National Action Plan and its development was undertaken through the Curriculum Corporation. As it required the agreement of all States and Territories its wording was cautious to allow for liberal interpretations across jurisdictions.

The Australian Sustainable Schools Initiative (AuSSI) has been one of the longest lasting and most impressive actions from the first National Action Plan. It was given a central role in the Australian implementation strategy for the UN Decade (DEH, 2006) and in the second National Action Plan (DEWHA, 2009, p. 11) where its effectiveness is highlighted:

This is a successful example of how a partnership between the Australian Government, the states and territories can lead to systemic change. The initiative entails a whole-of-school, action learning approach to sustainability which is generating measurable social, educational, financial and environmental outcomes.

Primary schools across Australia are involved in AuSSI which has been a vanguard in the previously mentioned shift to a whole-school approach to environmental education.



In April 2009, the Department of the Environment, Water, Heritage and the Arts published its new National Action Plan, *Living Sustainably: The Australian Government's National Action Plan for Education for Sustainability*. This Plan builds on the foundation of the earlier plan and is a significant contribution to Australia's participation in the UN Decade. It includes a review of actions to date on education for sustainability and the issues to be addressed in the future. It also sets out the Plan's "vision and mission, with strategies and actions to achieve the plan's objectives" (2009, p. 2).

The actions are designed to support four strategies:

- Demonstrating Australian Government leadership;
- Reorienting education systems to education for sustainability;
- Fostering sustainability in business and industry; and
- Harnessing community spirit to act.

The categories of actions contained in the Plan under these four strategies are summarised in Appendix A.

For example, schools are one of the action areas under "Strategy 2: Reorienting education systems to education for sustainability" of this Plan (DEWHA, 2009, p. 24). Here the specific areas for action are:

- Growing the Australian Sustainable Schools Initiative – whole-of-school approaches to education for sustainability;
- Improving systems support for sustainability in schools;
- Coordination of school-based programs;
- Professional development for teachers;
- Embedding sustainability in curricula; and
- Early childhood education.

Specific actions include a research project to look at the role of education for sustainability in the early childhood sector and embedding sustainability in the national curriculum. The recognition of the importance of early childhood education changed the dimensions of the curriculum jigsaw puzzle – or creates a new one. The *Sustainability Curriculum Framework* (DEWHA, 2010) attempts to put sustainability education into a cross-disciplinary curriculum jigsaw puzzle for Years K-10, while at the same time the Australian Curriculum proposes a separate subject/jigsaw puzzle on "Earth and Environmental Science" for Years 11 and 12. This tension is discussed below.

In regard to early childhood education there have been some significant developments. The *National Quality Framework for Early Childhood Education and Care and School Age Care* (COAG, 2009) and *Belonging, Being & Becoming: The Early Years Learning Framework for Australia* (DEEWR, 2009) are currently being implemented in early childhood settings around Australia, and the latter includes in Outcome 2: "children are connected with and contribute to their world" that "Children become socially responsible and show respect for the environment" (DEEWR, 2009, p. 29). If early childhood educators implement these actions then there will be a sound basis for further environmental education occurring in primary schools, but the linking of the early childhood curriculum jigsaw to the primary one will be a challenge. Will they be seen as part of the same puzzle, or will children be required to move to a different curriculum jigsaw?

In addition, in 2010 DEWHA published a *Sustainability Curriculum Framework: A guide for curriculum developers* to provide information and guidance to curriculum developers and policy makers on how education for sustainability may be effectively

incorporated into curriculum. The document is not intended to specify how education for sustainability will be taught across the curriculum, and to date there is little evidence of it having been considered in the development of the National Curriculum. However, it is a useful reference document for teacher educators and others.

Both National Action Plans have included curriculum actions – the National Statement (DEH, 2005) and the Curriculum Framework (DEWHA, 2010) – which have proposed environmental education to be part of a different jigsaw puzzle from the conventional curriculum one.

### **National Goals and National Curriculum**

At a different, “super”, level of government, the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) – the meeting place for all Education Ministers from the states, territories and national government – in December 2008, released the *Melbourne Declaration on Educational Goals for Young Australians*. This Declaration includes, as one of its goals, one that relates to environmental sustainability as well as others that relate to social and economic sustainable development (MCEETYA, 2008, p. 9).

**Goal 2: All young Australians become successful learners, confident and creative individuals, and active and informed citizens**

- act with moral and ethical integrity
- appreciate Australia’s social, cultural, linguistic and religious diversity, and have an understanding of Australia’s system of government, history and culture
- understand and acknowledge the value of Indigenous cultures and possess the knowledge, skills and understanding to contribute to, and benefit from, reconciliation between Indigenous and non-Indigenous Australians
- are committed to national values of democracy, equity and justice, and participate in Australia’s civic life
- are able to relate to and communicate across cultures, especially the cultures and countries of Asia
- work for the common good, in particular sustaining and improving natural and social environments
- are responsible global and local citizens.

This goal is particularly relevant as it opens up new opportunities for curriculum development to support environmental education in classrooms – a task that has been taken up as part of the development of the Australian Curriculum as both a cross-curriculum priority and as a separate subject.

The Australian Curriculum is currently being developed and schools have been invited to register their initial interest in participating in a pilot program in 2011 that would focus, in particular, on the validation of the Australian Curriculum achievement standards. This new curriculum will eventually cover all school years from Foundation to Year 12. Curriculum for the first four subjects – English, mathematics, the sciences and history – for Foundation to Year 10 is currently being validated. There have been proposals for the Years 11 and 12 versions of these subjects. The areas of Geography, Languages Other Than English and The Arts are currently under development, and there have been no announcements about the inclusion of other subjects in the national

curriculum, although there are submissions from areas such as Home Economics (Home Economics Victoria, 2009) and Outdoor Education (Martin & Hewison, 2010).

Ecological sustainability is referred to in the paper which helped guide the writing of the Australian science curriculum K-12, where the key term “contemporary science” includes many aspects of what we would call environmental education (National Curriculum Board, 2009, p. 5):

Contemporary science involves new and emerging science research and issues of current relevance such as energy resources and technology, climate change and adaptation, mining and minerals, biodiversity and ecological sustainability, materials science and engineering, health and prevention and treatment of disease.

However, the Rationale for the Australian Curriculum for Science from Foundation to Year 10 (ACARA, 2011) has moved away from specifically mentioning these issues and instead refers to “scientific literacy” in these terms:

Students can experience the joy of scientific discovery and nurture their natural curiosity about the world around them. In doing this, they develop critical and creative thinking skills and challenge themselves to identify questions and draw evidence-based conclusions using scientific methods. The wider benefits of this “scientific literacy” are well established, including giving students the capability to investigate the natural world and changes made to it through human activity.

The curriculum statement has the “Science Understanding” strand broken down into the traditional science areas of biological sciences, chemical sciences, earth and space sciences and physical sciences – even though there is a proposal for “Earth and Environmental Science” at Years 11 and 12. Applying the cross-curriculum priority of “sustainability” elicits some very questionable associations of these traditional sciences in “Science Understanding”, and in “Science as Human Endeavour”, with sustainability supposedly being developed through content such as:

- Objects are made of materials that have observable properties;
- Science involves asking questions about, and describing changes in, objects and events;
- The theory of evolution by natural selection explains the diversity of living things and is supported by a range of scientific evidence; and
- Sudden geological changes or extreme weather conditions can affect Earth’s surface.

It would seem that the National Curriculum for science has returned us to the conventional curriculum where the jigsaw puzzle does not readily fit with environmental/sustainability education and the new puzzle promised in the Science framing paper (National Education Board, 2009) was but a dream. Rather than seizing the challenge and developing a new contemporary science jigsaw puzzle which was relevant to students, the authors of this National Curriculum have stuck to an old puzzle and not embraced the Australian-ness of environmental education curriculum. As Margaret Drabble (2009, p. 169) writes, “The pieces of the jigsaw scatter and are recombined in a new pattern that does not always strive to work from a lost template. (Is that because there is no fixed state, no frame, no archetype? The model may be evolution, not rediscovery).”

The elaboration of sustainability as a cross-curriculum priority in the National Curriculum has also been a concern for the Australian Association for Environmental Education (AAEE). In their submissions to ACARA on each of the draft curriculum

statements, AAEE has drawn attention to the deficiencies in encompassing sustainability. For example, in the draft Mathematics curriculum the only reference is “The cross-curriculum dimension of commitment to sustainable living... provides an engaging and rich context for mathematics learning” (Smith, 2010a, p. 1). Similarly, the draft History curriculum only makes limited reference to “human use of the environment” rather than the broader context of “how humans see the environment, how human societies have shaped or impacted on the environment, and how the quality of the extant or resulting environment has impact on the shape of societies” (Smith, 2010b, p. 1). AAEE also criticised the draft English curriculum for not linking “the transformative practices of literacy to sustainable futures” (Smith, 2010c, p. 2). AAEE’s response to the draft Science curriculum was the most detailed, and concluded that “AAEE recommends that ‘science, citizenship and policy making’ be included as content descriptor for all Year levels of the Science as Human Endeavour strand and as a key element of scientific inquiry” (Smith, 2010d, p. 7). This recommendation has not been heeded in the current version of the National Curriculum: Science (ACARA, 2011) and it would seem that AAEE has a different curriculum jigsaw in mind from that being developed by ACARA.

Unfortunately AAEE has not published its submission to ACARA on the proposed Year 11 and 12 “Earth and Environmental Science” curriculum, so the Association’s position on this separate subject approach is unknown.

### **Curriculum Tensions: A Separate Subject or a Cross-Curriculum Perspective?**

The tension that is evident in the National Curriculum around environmental education as a cross-curriculum perspective (Foundation to year 10) or separate subject (Earth and Environmental Science in Years 11 and 12) has been played out in Victoria for decades.

Environmental education has a long (but not necessarily successful) history at the senior secondary level in Victoria (Gough, 2007). It was introduced as a separate subject in the curriculum at the senior secondary level in 1975. Initially entitled *Agricultural and Environmental Science* it became *Environmental Science* in 1977. In 1991 it moved from the “Science” to the “Earth Studies” field of study (and subsequently to the SOSE key learning area) and was re-titled *Environmental Studies* (Board of Studies, 1994). Around the same time, the State’s Ministerial Policy on Environmental Education (1990) promoted environmental education across the curriculum.

In 1997 the Board of Studies reviewed the VCE and recommended changes in the environmental education offerings. *Environmental Science* was to replace the low enrolment subject Science in the Science Key Learning Area, taking a similar multidisciplinary approach to science and complementing government environmental priorities (Mitchell, personal communication). The merging of *Environmental Studies* with *Outdoor Education* was intended to give an academic orientation to complement the perceived skills basis of the *Outdoor Education* study design (Gervasoni, personal communication; Gough, 2007).

Since 2001 there have been two environmental education subjects at the senior secondary level – *Environmental Science* (a science subject, Board of Studies, 2000a; VCAA, 2004) and *Outdoor and Environmental Studies* (a health and physical education subject, Board of Studies, 2000b; VCAA, 2005a).

The course outlines of *Environmental Science*, and its predecessor *Environmental Studies*, are multidisciplinary in their approaches. *Environmental Studies* drew on both natural and social sciences to develop an understanding of different environments and to provide a context for investigating strategies for conservation management

(Board of Studies, 1994; Mitchell, 1999). *Environmental Science* is a broadly based science subject that draws on the traditional disciplines of biology, chemistry and physics and applies their concepts in environmental contexts. It focuses on developing an understanding of natural ecosystems and human impact upon them as well as the application of environmental science to ecologically sustainable development and environmental management (Board of Studies, 2000a; VCAA, 2004). The discourses of the *Environmental Science* document have been regulated so that there is a greater likelihood that the subject will be acceptable to scientists and science teachers whereas the study design for *Outdoor and Environmental Studies* (Board of Studies, 2000b; VCAA, 2005) has been allowed to be more holistic in its approach, while aiming to be acceptable to outdoor educators.

Since its inception, *Environmental Science* has been a marginalised subject within the senior curriculum. Although accepted for entry purposes as a science subject by the major universities in Victoria in the 1980s (such status was removed when the subject changed to *Environmental Studies* in 1991), the subject never reached anywhere near the level of enrolments of any of the traditional senior science subjects and, indeed, declined in enrolments during the 1990s (Gough, 2008).

Fensham (1990) and Mitchell (1999) have documented various aspects of the seemingly constant battle for survival that environmental education as a separate subject in the senior secondary curriculum has faced in Victoria since the late 1980s. The arguments for abolishing it have had two main themes. Firstly, there have been attempts “to hoist environmental education on its own petard... there is a weakness in a sectional and optional subject approach” (Fensham, 1990, p. 18). Instead of Environmental Science/Studies being a separate subject others have argued that the environment should be included as a dimension of other subject areas. Supporters of a separate subject have countered that, until the ideal of an environmental ethic over-arches “the whole curriculum and indeed the life and practice of the school and educational system... environmental subjects need to exist to exemplify what environmental education is” (Fensham, 1990, p. 18). If this is the path chosen, then the challenge is to raise the level of acceptability of separate environmental subjects and bring them in from the margins.

The second argument focused on the overlap of subject matter between Environmental Science and other subjects such as Geography and Biology and some of the other sciences. As Fensham (1990, p. 23) notes, “except for Psychology which at this point is very individually oriented”, Physics, Chemistry and Biology “quite explicitly refer both to the importance of the sciences for solving social and environmental problems and to the problems that the application of science in the form of various technologies have caused”. However, the focus in these subjects is on education *about* the environment rather than *for* the environment, i.e. on facts and concepts rather than the values, cognitive tasks and social skills that characterise environmental education.

These tussles around the place of environmental education as a separate subject in the curriculum have continued into the National Curriculum where the proposed “Earth and Environmental Science” subject was more geology and biology than environmental science, with a closer resemblance to the New South Wales HSC subject *Earth and Environmental Science* (Board of Studies, 2009) than the VCE *Environmental Science* (VCAA, 2004).

## Conclusion

This short review of government action in environmental education illustrates some of the Australian-ness of the approaches being adopted. Australian environmental educators see themselves as “integrally part of the Australian environment” (Fensham,



1987, p. 2) but the government actions often struggle to realise this and create tensions across the actions proposed as a result. Yet these tensions are uniquely Australian as is the separation of responsibilities for environment and education across the Commonwealth and states under the Constitution.

In this review I have used the metaphor of a jigsaw puzzle to analyse the various government actions, particularly around environmental education curriculum, but, like Margaret Drabble (2009, p. 337), “I ask myself: do I believe in a jigsaw model of the universe, or do I believe in the open ending, the ever evolving and ever undetermined future, the future with pieces that even the physicists cannot number, although the physicists say they cannot be infinite?”. Environmental education cannot and should not be confined by a conventional curriculum jigsaw frame – the jigsaw needs to evolve as the field continues to evolve and our understandings about the environment and sustainability evolve. Keeping an open ending is what is needed, and that there are still Australian environmental educators doing this is part of what makes the Australian-ness of our practices.

### **Acknowledgement**

An earlier version of this paper was presented to the Australia-Korea Foundation in June 2009. I would like to thank Amy Cutter-Mackenzie and the AJEE reviewers for their encouragement and useful comments on that paper and I hope I have done their suggestions justice. The responsibility for the final article nevertheless remains mine.

*Keywords:* curriculum; policy; environmental education; education for sustainability; action plan; national goals.

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1. See, for example, in chronological order,  
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2. This statement is particularly revealing: that there was a belief in the Australian-ness of Australian initiatives and expertise in education for sustainability.

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Annette Gough is Professor of Science and Environmental Education and Head of the School of Education at RMIT University in Melbourne, Australia. She has been working in the fields of science and environmental education for over three decades. In 1984 she was the first female president of the Australian Association for Environmental Education and in 1992 was awarded a life fellowship of the Association for her contribution to the field of environmental education. She is currently working with the UNESCO Jakarta Office on science and sustainability education in higher education and teacher education. Annette has written over 120 books, reports, chapters, articles and curriculum materials in science and environmental education and related areas.

APPENDIX A: Categories of actions under the strategies of Living Sustainably: The Australian Government's National Action Plan for Education for Sustainability (DEWHA, 2009)

<b>STRATEGY</b>	<b>OBJECTIVES</b>	<b>ACTION AREAS</b>
<p>1. Demonstrating Australian Government leadership</p>	<p>1.1 The Australian Government provides national leadership on education for sustainability                      1.2 Sustainability outcomes are taken into consideration in developing and implementing Australian Government policies, programs and operations.                      1.3 Australia is acknowledged as a constructive contributor to the education for sustainability activities of other countries, particularly in the Asia-Pacific region.</p>	<p>1.1 Australian Government leadership (7 actions)                      1.2 Integration with Australian Government policies, programs and operations (3 actions)                      1.3 International cooperation (2 actions)</p>
<p>2. Reorienting education systems to education for sustainability</p>	<p>2.1 The vocational education and training sector incorporates sustainability in all national training packages; and implements sustainable campus management.                      2.2 Education for sustainability is integrated into all university courses/subject areas and campuses are managed in a sustainable way.                      2.3 Whole-of-school and whole-of-system approaches to education for sustainability, including campus management, are adopted through widespread uptake of the National Environmental Education Statement for Australian Schools<sup>1</sup> and implementation of the Australian Sustainable Schools Initiative.</p>	<p>2.1 Vocational education and training (6 actions)                      2.2 Universities (4 actions)                      2.3 Schools (6 actions)</p>
<p>3. Fostering sustainability in business and industry</p>	<p>3. Australian business and industry are acknowledged leaders in moving towards sustainability through innovation and improvement to management and operations.</p>	<p>3. Business and industry (5 actions)</p>
<p>4. Harnessing community spirit to act</p>	<p>4.1 Communities around Australia are empowered to work effectively towards sustainability by having the information and resources to enable them to act.                      4.2 Community education for sustainability practitioners are supported in their work by having access to the appropriate knowledge and tools to enable them to operate effectively.                      4.3 The role that education plays in promoting sustainability is widely acknowledged.                      4.4 There is a better understanding of the drivers and issues that need to be considered in implementing effective community education for sustainability.</p>	<p>4.1 Tools and resources (2 actions)                      4.2 Capacity building for practitioners (2 actions)                      4.3 Raising the profile (2 actions)                      4.4 Understanding the issues through research (3 actions)</p>

<sup>1</sup>Educating for a Sustainable Future: A National Statement on Environmental Education for Schools (DEH, 2005)

# **The Distinctive Characteristics of Environmental Education Research in Australia: An Historical and Comparative Analysis**

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**Abstract** This paper addresses the question of how Australian environmental education (EE) research was conceptualised and contextualised in the decade of the 1990s. Sixty seven articles published by Australian authors in this journal from 1990-2000 were analysed to examine the conceptualisation of this research using an inductive emergent categorisation approach and a five frames model (Reid, in press) of key arguments and debates in the field. Contextualisation was explored in relation to specialist areas, scale and environmental dimensions of focus. A search for a coherent and distinct meaning of of this research was explored by making comparisons with international environmental education research during a similar time period that was the subject of two reviews. These analyses revealed that Australian environmental education research can be characterised as questioning and challenging prevailing (at the time) environmental education orthodoxies by critiquing and theorising the conceptual and curriculum framing of environmental education, most commonly from a socially critical and global perspective. Specialist areas and educational sectors that received little attention are also discussed.

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Any story of the history of environmental education research depends on who is doing the telling. Histories are grounded in particular people and places and times, and so not only will a history of environmental education research in Australia have different touchstones than in, say, Canada (Russell & Fawcett, forthcoming) or South Africa, but the history we present here will differ from that of other Australian authors or from one written for a different temporal space. Efforts to identify the touchstones or any uniqueness of a country's research, which invariably demands some kind of historical analysis, are similarly individual and socio-cultural constructions. Thus, our attempt to identify or construct an identity, unique or otherwise, for Australian environmental education research is confined to taking a snapshot of one of its potentially many histories.

There is also the challenge of deciding how to approach an inquiry into a history of a country's research and specifically, what might shape its identity in the field of environmental education research. Our first entry point into examining the

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characteristics or touchstones of Australian environmental education research was the premise that a uniquely Australian environmental education research identity might be grounded in a distinctive sense of place. The rationale, inquiry and explanation of the outcome of this first effort to identify such an identity are documented in an accompanying article in this special issue (Stevenson, this issue). Given that place was not a dominant characteristic of this first analysis of Australian environmental education research we turned to other approaches to interrogating Australian environmental education research. The approach, on which we settled, is to examine first, the specialist areas of focus (e.g., philosophies of environment, education or environmental education; discourses, policies, curriculum, teaching and learning) and second, the focus of debates within the Australian environmental education research community.

Areas of focus are reflected in the purposes and kinds of research questions that are seen as important. Scholarly debates also centre on a number of other issues. These include: the theoretical orientations and methodological approaches that illuminate our understanding of, for example, the historical, philosophical and pedagogical development of the field, the nature and interpretation of policies and discourses, the goals and effectiveness of different approaches to teaching and learning, the understandings and ideologies of teachers and learners, and the quality of outcomes of programs and activities. The field of environmental education has been a ferment of debate on many of these issues since the 1970s when the term came into vogue.

In an entry in the Sage Encyclopedia of Green Education, Alan Reid (in press) identifies five research frame(work)s that can be differentiated by the way in which they engage with debates in the field of environmental/sustainability education and focus research questions. These frames are summarised as follows:

- 1) Propositional frame that draws distinctions between theories or practices of education *about, in, through, with, for* the environment and, more recently, sustainability. Research is “framed in terms of its priority and usefulness to focusing, broadening or advancing environmental education approaches and methodological innovation” (Reid, in press).
- 2) Currents frame that includes both those traditions historically significant in the development and shaping of environmental education (e.g., nature study, conservation education) and more recent emerging currents (e.g., bioregionalism, eco-feminist, sustainable development or sustainability). Research is “framed in terms of their [currents] fit with and support for invigorating local and wider approaches to framing and practicing environmental education” (ibid).
- 3) Reconceptualisation frame that explores and examines possible (re) conceptualisations of environmental education based on: (i) a philosophy, (ii) a context for intervention, or (iii) an inspiration or category of interest. This research is “framed in terms of what is expected in the ‘rhetoric and reality’ of a diversity of approaches to environmental education – such as what should be reproduced, contested, rejected, transformed or introduced” (ibid)
- 4) Paradigms frame that is characterised as positivist, interpretative and socially critical, or more recently, as post-paradigm approaches. Research is “framed in terms of the field’s capacity to elaborate and articulate simple, complex and critical ways of understanding and reworking environmental education” (ibid).
- 5) Intersectional frame which focuses perspectives on the links between environmental education and other fields (e.g., with ESD). Research is “debated in terms of the frameworks within which environmental education is directed, imagined, developed and challenged” (ibid).

These frames can provide a way of understanding how research is conceptualised and contested or debated. For example, they can reveal how environmental education scholars view “how human-environment relationships are appropriately construed” and “environmental learning and teaching can usefully be conceived and practiced in and across a variety of settings, contexts, interests, and tensions” (Reid, in press). This last point about diverse settings and contexts also suggests the importance of exploring how research is contextualised, which is the second of four dimensions described by Reid in arguing that these debates illuminate how goals, programs/activities and teaching and learning approaches are “conceptualized, contextualized, developed and contested” (ibid).

The concern here is less with debates about developing goals, programs and approaches, and more with approaches to inquiry into such activities. Initially, therefore, our intent was to interpret the “developed” dimension in terms of how methodological inquiries are constructed. However, this dimension concerning the methodological framing - the research genres, paradigms or characteristics (methodological, ontological, epistemological) that inform approaches to research (e.g., positivistic, naturalistic & phenomenological, critical, feminist, poststructuralist) – overlapped with conceptualisations, especially in the case of critical, feminist, and poststructuralist orientations.

Finally, the “contested” dimension involves expressions of disagreement by critiquing or challenging existing, often traditional or dominant, theories, discourses, policies or practices. The central question here is: What are the disagreements (and agreements) over language and discourse (including EE, ESD, EfS); practices and activities; ideas about relationships and structures; research paradigms and approaches. These include: (i) critiques of existing (dominant/institutionalised) practices, theories, traditions, and (ii) alternative theories, positions/perspectives, policies, practices. Again, we found that in identifying authors’ conceptualisations, articles that critiqued existing positions also usually offered alternatives or reconceptualisations of the issue of interest. So we included reconceptualisations in examining this first dimension. For example, based on a survey of Australians’ water saving understandings and practices, Murphy, Watson and Moore (1991) question learning models that assume knowledge leads to attitude and behaviour change. They then reconceptualise the relationship between knowledge and behaviour by drawing on a rational action model (Ajzen, 1988) which incorporates social factors in predicting behaviour.

Therefore, it seemed the nature of the debates could be sufficiently captured by the two dimensions of conceptualisation and contextualisation, while recognising that the methodological construction and contested dimensions of research would be illuminated within them. Thus, our research questions became: How is Australian environmental education research conceptualised and contextualised? To what extent does the conceptualisation and contextualisation of Australian environmental education research represent unique or distinctive approaches?

### **Conceptualisation and Contextualisation Defined**

The two dimensions of this framework were defined as follows. In terms of conceptualisation, the area of focus and purpose of the reported research was identified as the first important element to be considered. Then two additional aspects were included under the umbrella of conceptualisation: (a) the theoretical positioning/orientation or conceptual framework (explicit or implicit) that informs the research; and (b) any re-conceptualisation or way in which research offers a new or different way of thinking about environmental and/or educational philosophy, programs, curriculum, pedagogical and learning approaches or of the framing of research itself.



Contextualisation was defined to encompass whether the research is situated or grounded in: (i) a particular educational sector and level (formal – primary, secondary, tertiary; community/informal/non-formal); (ii) a local, regional, state, national or global context; and (iii) the biophysical, social/cultural, economic, and/or political dimensions of the environment.

This framework, in conjunction with other reviews of environmental education research (Reid & Scott, 2006; Hart & Nolan, 1999), enabled an exploration of such secondary questions as: What, if any, were the distinctive purposes, theoretical or methodological approaches evident in Australian environmental education research in the 1990s? Was there a distinctively Australian perspective on viewing or framing the human-environment relationship or conceptualising environmental education? What educational and social contexts and sectors were privileged? Other broader questions also could be asked, such as: What did Australian environmental education researchers see as important to research? What does an understanding of the above questions suggest for what Australian environmental education scholars were not researching?

### **Methods: Taking a Snapshot for Tentatively Categorising Australian Environmental Education Research**

Journals provide a forum for intellectual debate and therefore the Australian Journal of Environmental Education (AJEE) offers a window into the foci and features of environmental education scholarly debate in this country. In order to address whether there are distinctive conceptualisations and contextualisations that define the characteristics of Australian environmental education research, we conducted an analysis of articles published in AJEE by Australian authors, for the decade of the 1990s. Owing to a double issue for 1999/2000 this represented an 11 year (rather than intended 10 year) period from 1990-2000. This period was selected to avoid the initial period of establishment and positioning of the journal (1984-89), and to provide an overlap for comparative purposes with an analysis of a sample of articles (from volumes 1, 4, 7 and 10) published in the journal *Environmental Education Research* (EER) over the 10 year period of 1995-2004 (Reid & Scott, 2006). It also coincided with a period of emerging new discourses internationally (e.g., ESD, EfS), and allowed for a comparison with a subsequent planned analysis of articles in the last 10 years of AJEE. Andrew and Malone (1995) conducted a review of the first 10 years of articles (1984-1994) published in AJEE, but essentially provided a synopsis rather than an analysis of the articles within four categories: (1) community participation and education, (2) conservation education, (3) literature/book reviews, and (4) philosophy/policy.

There were 67 articles identified out of 89 (excluding special sections such as *Millenium Visions* in the 1999/2000 edition and *Stories from the Field* articles) by Australian or Australian-based authors over the 11 year period covering 10 issues of AJEE. That 75 percent of articles were by Australian authors indicates that AJEE is essentially an Australian rather than international journal in terms of contributors. In comparison, only 40% of the principal authors in the four volumes of the British-based EER were European (of which obviously only a percentage were British). In 62 cases the principal AJEE author, not surprisingly, was from an institution of higher education.

First, we carried out a somewhat simple tallying exercise that was intended to enable a concrete comparison with an analysis of the first 10 years (1995-2004) of EER on three aspects: specialist areas of focus (related to conceptualisation of area of environmental education given primary attention); nature of data collected (e.g., empirical – quantitative, qualitative, mixed or non-empirical) which is loosely related to methodological conceptualisation or orientation; and educational sector or setting



and level (related to contextualisation). The specialist areas and the distinctions among them used in the EER analysis (i.e., conceptually-related, specific programs or policies, general provision of EE/SDE, theoretical aspects/frameworks, and research-related) were not all clear to us and did not seem to capture all the areas of focus that we thought were important. So instead areas were identified inductively by coding them after reading each article rather than by any predetermined scheme.

As a result, the planned comparison with the EER 10 year analysis on specialist area of focus was no longer appropriate owing to the different categories that emerged from our analysis. Consequently, we sought an alternative review of environmental education research for comparison purposes. Hart and Nolan's (1999) extensive review of environmental education research from 1992 to 1999 was found to offer a more comprehensive and appropriate basis of comparison for illuminating the distinctiveness of Australian environmental education research in relation to specialist focus and paradigmatic orientation.

A second analysis was carried out by separately categorising the articles using Reid's five frames. Reid's short article explicating these frames, possibly intentionally, left significant space for interpretation. Two of the frames (prepositional and intersectional) seemed relatively straightforward as key words and explicit comparisons could be sought. A third (currents) was apparently based on Sauve's (2005) elaborated conception of "currents". The remaining two frames (paradigms and reconceptualisation), which turned out to be our most common categorisation for the AJEE articles, required the most reading, reflecting, discussing, re-reading and reflecting. As paradigms involve ontological, epistemological and methodological considerations, we approached the text by searching in order (following Payne, 1995) for worldviews (ontologies), assumptions about what and how knowledge claims are justified (epistemologies) and finally, how research questions and knowledge production are approached (methodologies). One particular issue that emerged was that ontological considerations overlapped with the philosophical dimension of the reconceptualisation frame. This was resolved in our minds by determining whether the article was predominantly concerned with philosophies or worldviews, often evidenced by a more explicit discussion, apart from a methodological concern. Another issue within the reconceptualisation frame was the sub-category of "an inspiration or category of interest". This could be broadly interpreted to apply to almost any research article as researchers are usually inspired by a particular interest, especially given the wide array of examples provided by Reid (e.g., place, decolonisation, stewardship, ecological citizenship, ecocritical literacy, consciousness). As a result, although there were some cases where (re)conceptualising a specific area of interest was clearly the dominant concern, this category sometimes virtually became the (albeit useful) default when an article did not seem to fit the other two sub-categories within reconceptualisation – or the other four frames. The biggest issue of categorisation, however, was making a judgment about the dominant frame when aspects of articles were concerned with dimensions fitting another frame. In a few cases, where more than one frame was judged to be a significant focus then the article was categorised in more than one frame.

Finally, in addition to educational sector/level (a dimension in the EER analysis) two other dimensions of contextualisation were identified – scale (local, regional, state, national or global) and dimensions of the environment (associated with sustainable development or sustainability) – and the articles categorised accordingly. These additional two dimensions seemed important in light of local versus global debates as well as the different scale of environmental issues, and criticisms of environmental education focusing too narrowly on the biophysical environment and paying too little attention to socio-cultural, economic and political factors.

Further comments need to be offered on the challenge of categorising the articles. Given that authors are not often explicit about the framing of their studies and the dominant frame(s) they employed, categorising their articles was often, not unexpectedly, a struggle. Our own subjectivities (e.g., experiences, ideologies, preferences) no doubt influenced our efforts, especially perhaps our own proclivity to qualitative approaches. The first author is also known for a socially critical orientation, and arising from a long academic career in the United States, also had a concern about environmental education research in that country being dominated by an applied science, positivistic, and individualistic orientation. We do not know of course if the authors would categorise their work in the same way we have. So tables are provided which indicate how specific articles were categorised so that readers – and authors – can make their own judgments. This categorising, or in Hart’s (2003) words “naming and framing,” exercise was intended as a synthetic search for a coherent meaning of Australian environmental education research in terms of its distinctiveness, if any, during the period of the 1990s. However, by treating the frames metaphorically as open doors with mirrors, we also hoped to open our categorical representations of Australian environmental education research to critical debate and for interrogating more recent research in the field (both in Australia and elsewhere), as well as enhancing the possibilities for future research (Hart, 2003). Therefore, we invite the reader to look “for new spaces that are not represented by [our] existing categories” (Hart, 2003, p. 246).

## **Conceptualisations of Australian Environmental Education Research**

### *Areas of Purpose and Focus*

The primary area of specialist focus of each article in AJEE by an Australian author was thematically coded. Seven major themes emerged with various subthemes identified within the two major or most common categories of philosophical or conceptual analyses and curriculum, teaching and learning (see Table 1). The seven themes that emerged were: philosophical/theoretical conceptions; language and discourse; social and policy contexts; relationships between theory and policy and/or practice; curriculum, teaching and learning; environmental knowledge, beliefs, values, attitudes and behaviours; and research.

### *Philosophical/Theoretical Analyses*

This comprised: (i) critiques of current or dominant worldviews or ideologies and/or new or reconceptualised worldviews of human-environment relationships; and (ii) critiques or reconceptualisations of EE/ESD/EfS. Critiques of worldviews of the *human-environment relationship* included: the dominant technological culture and the simplistic notion of information transfer in the context of the problem of climate change (Russell, 1992); Western industrial society’s “positivist, mechanistic and reductionist worldview” that has, at least in part, created the environmental crisis and has been reflected in a formal education system that teaches *about* the environment (Gunnell & Dyer, 1993); biocentric and anthropocentric worldviews inappropriately framed as dichotomous positions (Dyer & Gunnell, 1993); advocacy of more environmental regulation and better policies while pursuing the same goals of the growth of GNP (Trainer, 1994); and “pseudo-spiritualities in the form of non-legitimised indigenous wisdom” (Beringer, 1999/2000).

Reconceptualised human-environment worldviews that were argued by Australian environmental education authors were: the need for a “limits to growth” position which means altering lifestyles, values, patterns of settlement, resource use and environmental impact (Trainer, 1994); the concept of “malconsumption” as a means

TABLE 1: Specialist Areas of Focus by Australian authors in AJEE (1990-2000)

Philosophies/theoretical conceptions (n=21)		
- human-environment relationship	10	N. Gough, 1991; Skamp, 1991; Blaikie, 1993; Dyer & Gunnell, 1993; Trainer, 1994; Mahoney, 1995; Everett, 1997; Hillcoat & Van Rensburg, 1998; Payne, 1998; Beringer, 1999/2000
- EE/ESD/EfS	11	Hoffman, 1994; Lostroh, 1995; Payne, 1995; Dyer, 1997; Fien, 1997; Cuthill, 1998; Howard, 1998; Ferreira, 1999/2000; Jenkins, 1999/2000; Lang, 1999/2000; M. Thomas, 1999/2000
Language & discourses	7	N. Gough, 1991; Russell, 1992; Payne, 1995; Mazur, 1998; Barron, 1995; Ferreira, 1999/2000; Brookes, 1999/2000
Social & policy contexts of influence	4	Fien, 1992; A. Gough, 1992; Russell, 1992; Fien, 1997
Relationships between theory and policy and/or practice	7	Fensham, 1991; A. Gough, 1992; Robottom, 1992; Spork, 1992; Muhlebach, 1995; Walker, 1995; Maxwell & Metcalf, 1999/2000
Curriculum, teaching and learning (n=32)		
- curriculum/program content	17	Fien, 1991; Thomas, 1992; Thomas, 1993; White, 1992; Orams, 1994; Sonneborn, 1994; Stadler, 1995; Cosgrove & Thomas, 1996; Whitehouse & Taylor, 1996; Larritt, 1998; Sonneborn, 1998; Thomas & Olsson, 1998; Muhlebach, 1999/2000; Lenzen & Smith, 1999/2000; Maxwell & Metcalf, 1999/2000; Slattery, 1999/2000; Thomas, Kyle & Alvarez, 1999/2000
- teaching & learning approaches	10	Errington, 1991; Lindenmayer et al., 1991; Geake, 1992; Gunnell & Dyer, 1993; Orams, 1994; Kozak, 1995; Markwell, 1996; Dyer, 1997; Ballantyne et al., 1998; Bergman, 1999/2000
- teaching & learning outcomes	5	Clark & Harrison, 1997; Pfueller et al., 1997; Ballantyne et al., 1998; Cuthill, 1998; Slattery, 1999/2000
Environmental knowledge, beliefs, values, attitudes or behaviours	6	Murphy et al., 1991; Blaikie, 1993; Barron, 1995; Clark, 1996; Connell et al., 1998; Cuthill, 1998
Research	3	Hoffman, 1994; Harris & Robottom, 1997; Chenery & Beringer, 1998
Total*	80	

\*Note: The total in Table 1 is greater than 67 because some articles fit multiple categories.

of personal meaning-making and “countering ‘the empty self’ as a consequence of the advertising and other industries (Hillcoat & van Rensburg, 1998); and the concept of ecospirituality, a western tradition of reclaiming the soul, as an alternative for re-enchantment and ecological restoration (Beringer, 1999/2000).

Reconceptualisations of environmental education were argued as requiring: expanding the place of nature study (to the wider social and economic contexts), nature experience (to social and political engagement with the root causes of unsustainability) and developing responsible environmental behaviour (beyond its narrow individualistic focus to the individual and collective decisions and actions needed to create a sustainable world) (Fien, 1997); an exploration of the ways in which environmental education constructs and maintains particular ethical competencies and the need to be more concerned about the actual means used to encourage students to live in an environmentally sustainable manner (Ferreira); and “environmental progressivism” (after Dewey) as a potential ideological framework for sustainability in higher education (Thomas, 1999/2000). Teachers’ conceptions and perceptions of environmental education were investigated by two authors (Jenkins, 1999/2000; Lang, 1999/2000)

### Language and Discourses, and Social and Policy Contexts

Articles in these two categories involved analyses to develop an understanding of the nature and influence of discourses and macro-contexts respectively on environmental education or to reveal the extent of coherency of discourses or policies. Examples of discourse analysis were: differences in boys and girls’ self-positioning in relation to discourses regarding their relationship with the environment (Barron, 1995); the conservation messages conveyed to visitors by a zoo’s interpretive environments (Mazur, 1998); and the role of education in ecotourism discourse (Brookes, 1999/2000). Articles that focused on broader social contexts addressed the influence of the macro-context on environmental education policies, curriculum and teaching (Fien, 1992); explored the relationship between national economic and political priorities and environmental education policies and curriculum strategies (A. Gough, 1992); and critiqued the dominant technological culture and argued the need to debate “our relationship with technology” and to find “a new language and a new relationship with ecology” (Russell, 1992).

### Theory-Policy-Practice Relationships

Over 10 percent of the articles explicitly examined relationships between theories-policies-practices and identified a mismatch or dissonance between theories/purposes/goals of environmental education (or related fields such as sustainability education) and: school practices (Spork, 1992); teachers’ theories of teaching and learning (Walker, 1995); professional development (Robottom, 1992); and current ideologies underpinning higher education (Dyer, 1997). Content analysis of curriculum documents also revealed gaps or mismatches between environmental/sustainability concepts and values and: the International Baccalaureate’s environmental studies curriculum (Maxwell & Metcalf, 1999/2000); the Victorian high school curriculum in which concepts of environmental significance were not identified as such, and socio-disciplinary concepts were not generally present (Fensham, 1991); and curriculum and policy that neglected discussions of gender and focused on individual action in environmental education (A. Gough, 1992). Another author emphasised the mismatch between teachers’ circumstances and practices and the critically reflective demands of action research (Muhlebach, 1999/2000).

## Curriculum, Teaching and Learning

Table 1 indicates the most common category of specialist area of focus was curriculum, teaching and learning (approaches and outcomes), with curriculum/program the most popular sub-category. The curriculum-focused articles comprised conceptual or content analyses (of the concepts, ideas and values) of school and university curriculum and programs, including critiques of missing elements or gaps as described above, and surveys of curriculum for school, university or professional programs. A number of the studies using surveys were essentially descriptive with the purpose of simply identifying the current status (nature and extent) of environmental education in various courses or programs (e.g., Sonneborn, 1998; Thomas & Olsson, 1998; Thomas, 1999/2000; Cosgrove & Thomas, 1996; Larritt, 1998).

A number of articles described, analysed, and/or evaluated interventions, such as the design of new programs or approaches, through the development of specific curriculum or programmatic activities. These included: a Landcare professional development program for teachers (Stadler, 1995); an intensive field-based inquiry experience in a land management course for community interest groups (Slattery, 1999/2000); a school and community environmental education action research project linking students and landholders through coordinated state-wide water sampling (Pfueller et al., 1997); an innovative new tertiary program in social ecology (White, 1992); a collaborative program to educate consumers to purchase more energy efficient products and motivate industry to provide “green” products (Sonneborn, 1994); and environmental education for deaf students (Lostro, 1995). Three articles involved the development of curriculum guidelines: for schools (Fien, 1991), wildlife interpretation (Orams, 1994) and gender inclusion in senior secondary environmental studies (Whitehouse & Taylor, 1996).

Specific teaching and learning approaches or interventions that were investigated and reported were designed to use technology to develop environmental sensitivity (Geake, 1992), draw on the cognitive potential of photography and the visual mode for developing environmental thinking (Bergman, 1999/2000), engage the public in animal observation (Lindenmayer et al.) and use action research to improve a facilitator’s skills using a “Council of All Beings” program (Kozak, 1995). Other authors who focused on environmental teaching and learning processes critiqued current approaches to: environmental interpretation which was argued should be replaced by an andragogical approach (Markwell, 1996); and teaching in university environmental studies departments which the authors believed needed to create a process of learning that sets up and lives out alternative values for consideration and debate (Gunnell & Dyer, 1993). Two authors provided conceptual critiques of the linear model of learning and change that assumes new knowledge leads to a change in attitude which in turn results in changed behaviour (Markwell, 1996; Mahoney, 1995).

There were very few traditional evaluations (of programs, materials or technologies) and only five reported studies that sought to assess or examine the learning outcomes of a specific program, activity or approach. One study investigated four factors to identify the extent to which primary school environmental education programs can facilitate intergenerational learning in the home and wider community (Ballantyne et al., 1998); while another examined the impact of an intensive experience of field-based scientific inquiry on adult participations in a land management course (Slattery, 1999/2000).

## Other Categories of Focus

The surprisingly small number (6) of studies of environmental knowledge, beliefs, values, attitudes or behaviours was targeted to either students or teachers through surveys or

interviews. They included: Year 11 students' environmental attitudes and knowledge (Clark, 1996); high school students' attitudes, beliefs, knowledge and action regarding the environment which revealed that the majority displayed relatively low levels of knowledge of key environmental concepts, and were involved in little environmental action-taking outside of household activities (Connell et al., 1998); and the impact of ESD, specifically articulating broader social, economic and environmental concepts into the goals of environmental education, on tertiary students' environmental attitudes and behaviours (Cuthill, 1998). Two studies were concerned with the perceptions and understandings of environmental education of pre-service secondary teachers and in-service teachers respectively in order to understand how their perceptions could shape and limit their practice as potential or current environmental educators (Jenkins, 1999/2000; Lang, 1999/2000); while another study investigated reported learning outcomes receiving attention by primary schools (Clark & Harrison, 1997).

Finally, just three articles focused on and argued for particular methods or approaches to research. These were: community-based research that treats "research as participation in the critical appraisal of environmental situations" (Harris & Robotton, 1997); a phenomenological approach based on the ideas of the German nature philosopher, Johann von Goethe, as well as Nietzsche and Heidegger (Hoffman, 1994); and a dialogue between the two authors about the value of environmental life histories (Chenery & Beringer, 1998).

*Nature of Data*

The balance of conceptual and empirical methodological approaches to Australian research in AJEE is revealed by the nature of data reported in the 67 articles that were reviewed. Table 2 shows relatively similar proportions of empirical and non-empirical data. Empirical made up 48 percent of all research in AJEE and 55 percent in EER, while non-empirical comprised 52 percent in AJEE and 45 percent in EER. This suggests there are no distinctive characteristics in the balance of a conceptual-empirical basis for environmental education inquiry and debate by Australian researchers, at least in comparison to international researchers published in EER. More interesting are the types of empirical data collected. While in both journals mixed methods approaches - which began gaining popularity in environmental education in the later half of the 90s (Hart & Nolan, 1999) - are relatively low, AJEE has an approximately equal proportion of articles using quantitative and qualitative data, but EER shows over double the number of qualitative sources of data collected and analysed compared to quantitative.

TABLE 2: Nature of Data in Articles in AJEE 1990-2000 by Australian Authors (n=67) and Sample of Articles in EER 1995-2004 (n=102)

	AJEE				EER			
	No.	No.	%	%	No.	No.	%	%
Empirical	32		48		56		55	
- Quantitative		13		19		14		14
- Qualitative		11		16		35		34
- Mixed		8		12		7		7
Non-Empirical	35		52		46		45	
Total	67				102			



However, it should be noted that the vast majority of quantitative studies in AJEE used only descriptive statistics whereas bi- or multi-variate methods of analysis were used (mainly by researchers in the USA) in the majority of quantitative studies in EER. Thus, although not unique, the nature of data collected, analysed and reported in AJEE seems more akin to European than North American environmental education research.

### *Areas of Argument and Debate*

Drawing on Reid's five frames, the most common framing of inquiries and arguments represented in the selected snapshot of Australian environmental education research was through a paradigms lens (see Table 3). The most common paradigm or conceptual orientation for examining and developing arguments in relation to environmental education issues over the 11 year period was socially critical theory. A socially critical orientation has been defined by an Australian environmental education scholar as "founded on a belief in the need for education to play a role, along with other social institutions and agencies ... [by] promoting social justice, equality, and democracy through the 'thoughtful, ethically based, responsible and critical examination of social problems and active participation in developing a continually improving society' (Stanley & Nelson, 1986, p. 529)" (Fien, 1993, p. 22).

Given the dominance of socially critical conceptualisations of research, it was not surprising that critical questioning or critiques of existing environmental education practices and revelations of mismatches or disconnects between theories and practices emerged as a distinctive theme of the Australian research that was reviewed. In addition, critiques of prevailing orthodoxies offered by Australian researchers included theories or conceptualisations of environmental education. This is captured in the "reconceptualisation frame" being the second most common. All three of Reid's sub-categories within this frame were represented by multiple articles. Philosophies new to the field (at the time) that were introduced included: Goethean phenomenological approach to environmental education based on the ideas of the German nature philosopher, Johann von Goethe (as well as Nietzsche and Heidegger) (Hoffman, 1994); a constructivist and holistic approach to teaching, termed "environmentalism/green education" for which a set of characteristics are proposed, including a process of learning that engages students in debating values (Dyer, 1997); and the reframing of biocentric and anthropocentric worldviews as representing a continuum rather than a dichotomy (Dyer & Gunnell, 1993). "Contexts for intervention," as already implied by the previous discussion of specialist areas of focus, included such methods as public participation in animal observation (Lindenmayer et al., 1991) and using technology to develop environmental sensitivity (Geake, 1992), as well as activities such as a Landcare professional development program for teachers (Stadler, 1995), educating consumers to purchase more energy efficient products and motivating industry to provide "green" products (Sonneborn, 1998), and a land management course for community interest groups involving intensive field-based inquiries (Slattery, 1999/2000). Categories of interest included: ecological literacy, spirituality (Skamp, 1991; Beringer, 1999/2000), (mal)consumption lifestyles (Hillcoat & van Rensburg, 1998), and ethical competencies and commitments (Ferreira, 1999/2000; Slattery, 1999/2000). In sum, Australian research offered many reconceptualisations of environmental education based on an alternative philosophy, an intervention, or a category of interest.

Currents involved in the development and shaping of environmental education that were identified in the 67 articles included some associated with longer traditions in education and others of more recent or emerging currents from either the environmental or education field. Examples of the former were the progressive education of John Dewey



TABLE 3: Analysis of Australian Authored Articles in AJEE 1990-2000

<b>Paradigms Frame</b> (n=32)		
Socially Critical	18	Fensham, 1990; Errington, 1991; Fien, 1991; Fien, 1992; A. Gough, 1992; Robottom, 1992; Russell, 1992; White, 1992; Dyer & Gunnell, 1993; Gunnell & Dyer, 1993; Sonneborn, 1994; Trainer; 1994; Muhlebach, 1995; Payne, 1995; Dyer, 1997; Fien, 1997; Harris & Robottom, 1997; Maxwell & Metcalf, 1999/2000
Phenomenology	7	Hoffman, 1994; Mahoney, 1995; Chenery & Beringer, 1998; Connell et al., 1998; Mazur, 1998; Payne, 1998; Jenkins, 1999/2000
Feminist	3	A. Gough, 1992; Barron, 1995; Whitehouse & Taylor, 1996
Post-structuralist	3	N. Gough, 1991; Barron, 1995; Ferreira, 1999/2000
<b>Reconceptualisation frame</b> (n=23)		
- Philosophy	5	Dyer & Gunnell, 1993; Payne, 1995; Markwell, 1996; Dyer, 1997; Thomas, 1999/2000
- Context of Intervention	7	Lindenmayer et al, 1991; Geake, 1992; Kozac, 1995; Lostroh, 1995; Stadler, 1995; Pfueller et al., 1997; Slattery, 1999/2000
- Category of Interest	11	Murphy et al., 1991; Skamp, 1991; Blaikie, 1993; Walker, 1995; Everett, 1997; Ballantyne et al., 1998, Hillcoat & Van Rensburg, 1998; Beringer, 1999/2000; Ferreira, 1999/2000; Lenzen & Smith, 1999/2000; Thomas et al., 1999/2000
<b>Currents Frame</b> (n=7)	7	Errington, 1991; Gunnell & Dyer, 1993; Orams, 1994; Markwell, 1996; Clark & Harrison, 1997; Bergmann, 1999/2000; Brookes, 1999/2000
<b>Intersectional Frame</b> (n=3)	3	Fien, 1997; Cuthill, 1998; Howard, 1998
<b>Prepositional Frame</b> (n=1)	1	Spork, 1992
<i>Not categorised (descriptive)</i>	6	Thomas, 1993; Andrew & Malone, 1995; Clark, 1996; Cosgrove & Thomas, 1996; Larritt, 1998; Thomas & Olsson, 1998
<b>Total*</b>	71	

\*Note: Four articles fit more than one category.

and the social reconstructionist role of education. In the later case, environmental examples were ecospirituality, ecotourism and environmental photography, and education included experiential education through the use of dramatic role play and androgogical approaches to adult learning.

Examples of the intersectional frame, which involves an examination of the links between environmental education and related fields, included Fien's (1997) argument that a reconceptualisation of environmental education requires expanding the place of nature study (to the wider social and economic contexts), nature experience (to social and political engagement with the root causes of unsustainability) and developing responsible environmental behaviour (beyond its narrow individualistic focus to the individual and collective decisions and actions needed to create a sustainable world). Other intersectional studies sought "to explore whether education based on ESD concepts might form the basis for a practical and effective form of environmental education" (Cuthill, 1998, p. 54) and to examine differences between environmental interpretation and environmental education (Howard, 1998).

These analyses indicate that Australian environmental education research in the 1990s tended to focus on critically analysing what might be missing, misconstrued or misplaced in existing environmental education theories, discourses, policies or curriculum practices rather than on the outcomes (in terms of understanding, skills, beliefs, attitudes, values or behaviours) and effectiveness of current policies and practices. This reflects a sociological orientation to environmental education research rather than an interest in individual attitude or behaviour change, or psychological or cognitive processing phenomenon, thereby representing a clear contrast to research in the USA.

### **Contextualisation of Australian Environmental Education Research**

The contextualisation of research can be examined on a number of dimensions. Issues related to contextualisation are the extent to which environmental education is situated in: local, regional, national, or global environmental concerns; and the biophysical, socio-cultural, economic, or political dimensions of the environment. In addition to these two dimensions of scale and environment, we also chose to investigate the focus of articles in terms of educational sector or setting (either formal with its sub-sectors of primary, secondary, higher education; or non-formal/informal).

#### *Educational Sector Focus*

Based on the period of articles reviewed, there was a predominance of attention to the formal education context in Australian environmental education research with well over half of all articles (37 articles or 55 percent of the 67 articles) being specific to either school or higher education (in approximately equal numbers). In comparison only eight (12 percent) of articles focus on non-formal or informal education (see Table 4). This scarcity of attention to informal and non-formal contexts is similar (nine percent) to the major journal in the field, *EER*, as revealed by the comparison with a sample of volume articles published in *EER* analysed over a 10 year period (Table 4). The limited attention to informal and non-formal education in both journals suggests this is an area of need for future research in the field. Overall, the representation of the different educational sectors and sub-sectors is very similar. The slight exceptions are secondary education, which has received almost twice the attention by *EER* authors compared to Australian authors in *AJEE*, and higher education for which the reverse applied, with almost twice the percentage in this sector by Australian authors. Despite the higher incidence of articles on higher education, pre-service teacher education was conspicuous by its absence. In summary, this comparative analysis implies that there

TABLE 4: Comparison of Educational Sector/Setting in Articles in AJEE (1990-2000) and EER (1995-2004)

	AJEE				EER			
	No.	No.	%	%	No.	No.	%	%
General	22		31		35		29	
Formal education	40		57		67		55	
- Primary schools		10*		14		25		21
- Secondary schools		9*		13		29		24
- Special needs			1	1		N/A		0
- Higher education		16		23		15		12
- Professional dev		4		6		5		4
Informal/Non-formal	8		11		19		16	
Total	70				121			

\*Note: Three articles addressed both primary and secondary education. Numbers and percentages for EER on formal education sub-categories are greater than formal education category as several articles counted in multiple subcategories.

is little distinctiveness about Australian environmental education research in relation to educational sector focus.

### Scale

Table 5 shows the principal scale of focus for each article. Some articles were concerned with more than one scale, but for the purpose of the analysis we recorded the primary focus. More than half the articles (37 or 55 percent) published by Australian authors were primarily concerned with national or international issues, policies or practices in environmental education. Only approximately one quarter of articles (27 percent) focused on the local, a finding that is somewhat consistent with the lack of attention to sense of place or place-based research revealed by an analysis of the same set of articles (see Stevenson, this issue). It is also a reflection of the relatively high percentage of articles that were found to focus on general environmental education issues or those facing higher education which tend to be of national or global concern. The preponderance of articles on larger scale national and, particularly, global questions or issues suggests that environmental education research in Australia in the 1990s cannot be viewed as focused on parochial issues. On the contrary, an interesting finding is the low incidence (only six percent) of articles at the regional scale. This suggests that the emerging regionalism approach, for example to natural resource planning and management, had clearly not become a focus of Australian environmental education scholars in the 1990s.

### Dimensions of Environment

With regards to dimensions of environment, we began by searching whether authors situated their research within a natural, built, urban or rural environment. We soon found that this categorisation was not particularly informative, as it tended to only capture the setting of the research and was generally only applicable to case studies.

TABLE 5: Scale of research by Australian authors in AJEE (1990-2000)

	No.	%
Local	18	27
Regional	4	6
State	8	12
National	13	19
Global	24	36
Total	67	

Instead, by framing the dimensions in terms of a focus on the biophysical and/or socio-cultural environment we were able to categorise most articles, with only a couple of the latter also addressing the economic or political aspects of the environment. The analysis revealed that close to half of the publications in the 1990s were grounded in the biophysical (49 percent) closely followed by the social/cultural environment (44 percent). The total number of publications in Table 6 (88 instead of 67) indicates that many articles addressed more than one dimension of the environment. Cross-referencing indicated multiple entries between categories as we found many articles concerned with the biophysical environment also often included social/cultural dimensions. Less common were socio-cultural articles that also addressed the political or economic dimensions (only two and one respectively). While biophysical studies explore ecological issues, social/cultural orientations are concerned with relationships within and between societies, cultures and communities of people.

The similar numbers of articles that focus on the biophysical and the social/cultural dimensions of the environment (43 and 39 respectively) contradict a long standing critique by many that environmental education predominantly focuses on the biophysical. A less common dimension of the environment we identified is social/cultural articles that also give attention to political or economic dimensions (only two and one respectively). It is surprising that this is an area which Australian environmental education researchers have overlooked given the popularity of a critical theory perspective which draws attention to political relationships and issues of unequal power relations.

TABLE 6: Dimensions of environment addressed by Australian authors in AJEE (1990-2000)

	No.	%
Biophysical	43	49
Social/cultural	39	44
Economic	1	1
Political	2	2
No specific dimension	3	3
Total	88	

Note: Many articles addressed more than one dimension of the environment.

To summarise the contextualisation of Australian environmental education research in the 1990s, there was a propensity for adopting a global perspective, with over one third (36 percent) of articles having such a scale of focus. This was followed by one in four authors situating their work in a local context. Thus, the global and the local received the majority of attention rather than the regional, state or national scale. Another distinction is the almost equal research attention to the biophysical and social/cultural dimensions of the environment. This finding, however, is not surprising in light of the dominant framing of research through a socially critical lens. Whether or not this - and the other findings discussed above - holds for other time periods in Australia environmental education research is open to further investigation.

### **What are the Distinctive Features of Australian Environmental Education Research and Why?**

So what, if anything, appears to be distinctive or even unique about Australian environmental education research during the decade of the 1990s, as represented by publications in AJEE? Initially, based on an analysis of research published in EER during a partially overlapping time period, there appeared to be a lack of clear distinctions between environmental education research conducted by Australians and other nationalities when comparisons were made on the nature of data included and the educational sector focus. However, further examination (although devoid of similar direct comparisons) drawing on an inductive categorising process and Reid's (coincidentally, the current editor of EER) frames, uncovered some findings that suggested otherwise. First, there was a preference for philosophical or theoretical orientations to research, with over 30 percent of articles having this area of primary focus and 42 percent of articles concerned with the relationship between theories and policies and/or practices. The dominant theoretical argument was grounded (explicitly or implicitly) in a paradigms frame (represented by 48 percent or almost half the articles), especially socially critical theory which was employed (more than the other non-positivist paradigms combined) to frame critiques of current conceptions of human-environment relationships and of environmental/sustainability education. The second common framing involved going beyond critique to reconceptualisations. These involved either human-environment relationships or environmental/sustainability education from a philosophical or theoretical orientation, or more commonly from the perspective of particular categories of interest (e.g., ecoliteracy, spirituality) or specific curriculum interventions.

This pattern of socially critical being the most common orientation to environmental education research in Australia will not surprise those familiar with this scholarship. Significantly, this pattern would not be found in any other environmental education journal in the world. For example, a number of Australian and Canadian scholars (e.g., Gough, Hart, Jickling, Robottom) have argued that there has been a dominant applied science and positivistic approach to environmental education research in the United States that has focused on evaluating programs and activities to develop knowledge and skills and change individual attitudes and behaviours (see Hart & Nolan, 1999; A. Gough, 1997). A behaviourist and cognitive psychology orientation has dominated articles in the *Journal of Environmental Education* in the USA until relatively recently (with the appointment of a new set of editors, including Hart and the first author). In fact, the dominance of this singular approach to research, and rejection for publication of other research approaches, led to the founding of the *Canadian Journal of Environmental Education* and was one of the factors that contributed to the establishment of EER.

The representation of different theoretical (and methodological) conceptualisations in any journal publication is influenced, as implied above, by the editors who serve as gatekeepers of the kinds of approaches that are viewed as acceptable or worthy of publication. A significant influence on this pattern of a paradigmatic and, specifically socially critical, orientation to research can probably be attributed, at least in part, to the editors of AJEE during this particular period of analysis. Socially critical oriented scholars were editors for most of this period: Ian Robottom (1990-95) and Annette Gough as managing editor of a team of four (1997-2000).

Other influences are likely to be identified by tracing “the genealogical power or cascade of influence (Fortino, 1997) of centres of methodological inquiry” (Hart & Nolan, 1999, p. 11) which could reveal sources (e.g., doctoral supervisors, sabbatical and conference linkages, project and publication collaborations), both within and outside Australia, of the socially critical orientation. For example, the intellectual hub of critical action research in the 1990s (and earlier) was Deakin University which established a joint masters program in environmental education, with a socially critical orientation, with Griffith University. Collaborations by Robottom at Deakin with Hart in Canada (e.g., Robottom & Hart, 1993) and Fien with Huckle in the UK illustrate the international cross-fertilisation of intellectual ideas. In other words, identifying any orientation as uniquely distinctive to a particular country (or university or individual) is highly problematic.

### **The Uniqueness of Australian Environmental Education Research in the 1990s?**

The extent to which a nation’s environmental education research might be unique can be illuminated by drawing comparisons from the review of international environmental education research conducted by Hart and Nolan (1999) which covered a similar period (1992-1999). These authors also inductively constructed a framing typology which interestingly had close parallels with the inductive categories of specialist areas of focus developed for this study, comprising six groups: three of which had a methodological focus (quantitative, qualitative and descriptive) and one each of an issues-based, metamethodological, and theoretical focus. A major difference in our approaches was Hart and Nolan’s combining of methodology and substantive focus in their three methodological categories. On the other hand, their categories of quantitative and focused inquiries identified studies of environmental knowledge, attitudes and behaviour which corresponded with one of our inductively derived categories. Their qualitative category included two sub-categories within case studies of curriculum practice and reform, and political and economic context issues, and one of their descriptive approach sub-categories was school curriculum research: these approximated our curriculum, learning and teaching, and social and policy contexts categories. Another sub-category of descriptive research was policy-related studies which could be partly related to our categories of language and discourse (which included policy discourse) and relationships between theory and policy and/or practice. Finally, their last two categories of metamethodological and theoretical discussions about environmental education research overlapped with our broader category of philosophical/theoretical conceptions.

Although, unfortunately for comparative purposes, an analysis of paradigmatic orientations was not carried out for the first 10 years of EER, Hart and Nolan’s (1999) “paradigmatic analysis” did so as their last two categories listed above suggest. They concluded from their review of environmental education research in the 1990s that:



Since Posch's (1993) review, research in environmental education has expanded internationally and become more methodologically diverse and sophisticated. Perhaps this is an indicator of a degree of maturity within this field. Whatever the case, the controversial and changing nature of educational inquiry with interpretive, critical, and postmodern turns, as well as deeper discussions about methodological, epistemological, and ontological grounding, carries the debate to new philosophical and metatheoretical levels. (Hart & Nolan, 1999, p. 2)

Australian research can also be characterised by methodological diversity, especially a non-positivist methodological pluralism as multiple examples were found of interpretive/phenomenology/hermeneutics, post-structural, feminist, and participatory action research methodologies. However, as already mentioned, the dominance of a socially critical theoretical orientation of Australian researchers during the 1990s to interrogating environmental education theories, policies and practices appears to be unique.

In summary, Australian environmental education research in the 1990s (acknowledging the limitation of this analysis to its representation in AJEE) can be characterised as having a distinctive focus on critical analysis, framed most commonly in a larger social and global context, of current (at the time) environmental education theories, discourses, curriculum policies and practices, particularly in relation to formal education. This focus on critical analysis was manifested in a concern for problematising, theorising and reconceptualising the goals, purposes, and underlying assumptions about human-environment relationships and the role and conceptions of environmental education. Such a focus was intended to reveal contradictions within and between theories, policies and practices, and to offer, through reconceptualisations, alternative ways of thinking about and, through specific curriculum or programmatic interventions, approaching environmental education. This focus on (re)conceptualising environmental education is also reflected in the second most commonly studied area being environmental/sustainability curriculum. In addition to the interventions mentioned, curriculum included content analyses of school and university curriculum documents and programs to examine their coherence with theoretical conceptions and to identify any contradictions or missing elements deemed important. In this way, Australian research could be characterised as maintaining and extending the debate about underlying assumptions, purposes and conceptions of environmental education.

Critiquing and theorising was treated as a higher priority for scholarship than assuming that the purposes and the conceptual and curriculum framing of environmental education were set and that the role of research was to simply investigate and evaluate methods or techniques for accomplishing unquestioned goals and intentions of environmental education programs and activities. For example, little attention was given to understanding or evaluating the outcomes and effectiveness of environmental education programs and teaching and learning practices or investigating environmental knowledge, skills, beliefs, values, attitudes or behaviours (consequently, it was not surprising that inferential statistics were rarely employed for data analysis in Australian research). Similarly, few studies focused on teaching and learning processes which even combined with learning outcomes received less attention than curriculum matters. Yet this lack of attention to pedagogical practices and learning processes is not unique to Australian environmental education research having been identified by Hart and Nolan (1999) and Rickinson (2001) respectively as a gap in environmental education research internationally. Interestingly, early childhood environmental education with its distinct focus on pedagogy has emerged since the time of these reviews to partially begin to address this gap, at least at that level.

Put simply, this critical and theoretical orientation could be framed as a concern for questioning and challenging environmental education orthodoxies. There was evidence of consistent efforts to theoretically (re)ground environmental education research, drawing most predominantly on a socially critical paradigm, although a diverse range of other conceptual frames and methodological approaches were also employed. It must also be noted that challenging orthodoxies did not extend to what might be viewed as a new orthodoxy in the Australian environmental education research context of the 1990s of socially critical theory (with the exception perhaps of Payne, 1995) or, with a couple of exceptions, to approaches to research generally. On the other hand, other Australian scholars (e.g., Ferreira, 2009; Walker, 1997), including some of the authors included in this analysis (e.g., A. Gough, 1999; N. Gough, 1999; Payne, 1999) have published papers elsewhere challenging this orthodoxy and/or creating bridges from the socially critical to feminist and postmodern and poststructuralist perspectives.

### **Implications of this Analysis**

What are implications of this analysis for future research and reviews of research? First, it is important to note what was not being researched in environmental education in Australia in the decade of the 1990s. Several educational sectors that received little or no attention included informal and non-formal education, pre-service teacher education, special needs education, and vocational and technical education. Surprisingly, given the predominance of a socially critical theoretical orientation very few articles focused on the economic or political dimensions of environmental education, other than as a contextual influence on practice. Methodologically, rigorous theoretical analysis usually existed separate from empirical analysis and vice versa in the AJEE articles which may not reflect the absence of such research but be a function of the page limitations of this (and most other) journal. If these trends are evident in other publication outlets for Australian environmental education researchers (which were not included in this study) and have continued through the first decade of the 21<sup>st</sup> century (which is the subject of a planned future study), then these neglected substantive areas open possibilities for future research.

Second, efforts to interpret distinctive patterns of research agendas and trace the pathways (or genealogy) involved in the flow and exchange of theoretical and methodological ideas would be aided by extending the work on life histories of teachers (e.g., Goodson & Sikes 2001; Sikes, 1985) to that of researchers and research communities/networks. Drawing on such approaches as actor-network theory and revisiting Fortini's (1997) cascade of influence could make a potentially useful contribution to enhancing understanding of the production of knowledge in environmental education.

Finally, the challenges of interpreting and naming and framing environmental education research encountered in this work also have implications for reviewing research. After Alan Reid presented his frames at a seminar at our university, we were intrigued to explore and understand them further. This analysis provided an opportunity to put the frames to work in tackling the task of trying to make some sense of a corpus of environmental education scholarship. What then has been learned, especially in using (or perhaps misusing) Reid's frames for arguments and debates within the field as an *a priori* categorisation? What might be reworked in using Reid's frames for future reviews, such as comparative studies of arguments and debates represented in other environmental education journals?

We concur with Reid (in press) that attention should be given to examining the sources, construction, representation and priority of issues and arguments in environmental education research. As part of attention to the construction and representation of arguments, the need to identify ontological (or worldview) assumptions as distinct from,

but interrelated with, epistemological and methodological orientations (Hart & Nolan, 1999; Payne, 1995; Robottom & Hart, 1993) is reinforced by our experiences. Worldviews in environmental education extend to assumptions about education, the environment and (their intersection in) environmental education, as well as about research. Reid appropriately and insightfully identifies that environmental education debates drawing on the field of education involve (alternative and emerging) positions on: (a) purposes and histories of education; (b) how and where people learn; (c) role of local and wider contexts in shaping education and schooling; (d) links between education and the wider world; and (e) how education is researched and developed and how insights from research and practice contribute to the debate about education reform. Note that the first four concern positions on the substantive area of education, while the fifth relates to positioning research. His identification of areas of debate that draw on the environmental field focus on epistemological issues, including singling out the issue of climate change as collapsing epistemological differences. He then turns to substantive issues in the environmental field in stating that other aspects of environmental debate include: “modelling, impacts and experiences of threats to quality of air, land, water” and biodiversity; “carrying capacities, population levels, and globalization in relation to lifestyles, natural resources, and the biosphere”. Yet here the focus is on particular issues rather on broader worldviews concerning human-nonhuman relationships. A reflexive position from our analysis would be to review environmental education research by explicitly unpacking and deconstructing researchers’ ontological and ideological positions on education, environment (e.g., human-nonhuman relationships), environmental education and research (epistemological and methodological). Further, the addition of an axiological positioning to Reid’s frames might be considered in order to also engage in debate about “(re)searching for value” and “representation (e.g. locating political/moral agendas)” (Hart, 2003, p. 242).

As suggested by an anonymous reviewer, an interesting recommendation from this work for journals to consider - that would enhance the above kinds of research reviews - would be to ask submitting authors to not only supply descriptive key words (as currently often requested, including by AJEE) but also to nominate the dominant framing of their work. This would enable the author’s viewpoint to be transparent in the monitoring and interpretation of discursive trends. This notion could be extended to reviews of research offering reflexive accounts by authors sitting astride of reviewers’ analyses, or better yet weaving together mutually constructed accounts (Lotz-Sisitka, 2003).

### **Acknowledgements**

The authors would like to thank two anonymous AJEE reviewers for their insightful and helpful comments on an earlier draft of this paper.

*Keywords:* environmental education research; reviewing research; conceptualising research; contextualising research; Australian-international research comparisons.

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A list of the complete references for the 67 articles from Volumes 6-15/16 of the Australian Journal of Environmental Education that were reviewed is available from the authors.

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# **Sense of Place in Australian Environmental Education Research: Distinctive, Missing or Displaced?**

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## **Abstract**

Many environmental educators were motivated to enter the field by a concern for the loss of places to which they felt a strong sense of attachment and belonging. This raises the question of whether a sense of place, or attachment to the Australian biophysical or cultural landscape, has shaped Australian environmental education research. An analysis was conducted of articles by Australian authors published in the *AJEE* in the period from 1990-2000, a time that preceded the (re)emergence of attention to place-based education in academic circles. Only four of 67 articles addressed the author's or other Australian's sense of place. Several explanations for this finding are examined, drawing on some of the environmental psychology literature on place identity as well as the notion that sense of place involves multiple interrelated personal, cultural and professional identities. Finally, an argument is made as to why place attachments are important to environmental education research.

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## **Introduction**

In reflecting on the question of what might be unique or distinctive about Australian environment-related education research, the influence of the uniqueness of the Australian environment first came to mind. Perhaps this was because of the landscape I had missed during an extended residency overseas or because my extensive experience in another country's education system highlighted numerous commonalities rather than many distinctive features of Australian education. And my observations suggested that differences in educational research seem to be more related to factors associated with institutional (and department) cultures and identities rather than characteristics of nation states. So a potential source of any distinctive identity for environmental education research seemed at first to rest on connections Australian environmental educators might feel to place – to the biophysical and cultural landscape of this country. Here I refer not to the vernacular understanding or the pastoral view of landscape as separate and distanced but as linked to part of our identity as Australians.

Why might a distinctively Australian connection to the environment, or perspective on the human-environment relationship, be expected or even possible? The fact that

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there are many unique features of Australian landscapes, including its fauna and flora, obviously does not necessarily mean that its citizens in general or its environmental education researchers in particular have a unique perspective on or relationship with those landscapes or researching that relationship. Of course, indigenous Aboriginal Australians have a long history of a special relationship with country or the land, while an outdoor lifestyle, rather than livelihood, that frequently embraces recreational pursuits in natural areas for the non-indigenous population has long been viewed as a characteristic (mythical or otherwise?) of the country. Distinctively Australian social and cultural characteristics and values, many associated with its colonial history (e.g., egalitarianism) and others with its geography and demography (e.g., multicultural migration, urbanisation, highly concentrated coastal settlement) also have been put forward and subject to much debate.

On the other hand, as David Trigger (2008) argues, perhaps we over-emphasise the significance of “nativeness” in constructions of Australian identity. He cites Linn Miller’s argument that while our experiences and conceptions of place are culturally constructed, “emplacement is not something people choose – it is, ontologically speaking, a condition of human being” (Trigger, 2008, p. 301). This suggests a sense of place is an existential opportunity available to all – regardless of whether we are of indigenous ancestry, native-born, migrant, refugee or even a temporary resident or visitor to Australia (Trigger, 2008) or any country. The implication is that every individual is emplaced in some way but the particular meaning and contribution of that emplacement to one’s identity is a matter of individual biography, culture as well as personal agency.

Yet others argue that the emphasis on the social construction of sense of place neglects the significance of the attributes of landscape which are associated with characteristic experiences, with meanings in turn being constructed from these experiences (Stedman, 2003). This resonates with many Australian environmental educators, such as me, who were motivated to enter the field by a concern for the loss of places to which they feel a strong sense of attachment and belonging. Furthermore, many of us advocate connecting student learning to the local and the personal (Gruenewald, 2003; Stevenson, 1997). Do Australian environmental education scholars in general similarly connect their research and writing to the local and the personal? This issue of personal connections and identity with or sense of place in the Australian environment suggests one approach to exploring the question of the distinctiveness of Australian environmental education research.

### **Conceptions of Place**

The use of the term “place” can be found in a number of disciplines: architecture, philosophy, literary theory, environmental science, environmental psychology, health, geography, history, human ecology, cultural studies and education (Ardoin, 2006; Gruenewald, 2003; Casey, 1997). Not surprisingly then, there are multiple definitions and interpretations of the meaning of place. However, as already indicated, the construction of meaning, emerges as central to most definitions: for example, “a place is above all a territory of meanings ... created both by what one receives from and by what one gives to a particular environmental context” (Relph, 1993 cited in Ellis, 2005, p. 58); and spaces become places as they are “imbued with meaning through lived experience” (Tuan, 1977).

There is an extensive literature on place and place identity but here I confine references to that literature which seem to offer the potential for explaining how a sense of place might be manifested in an individual’s environmental work and identity. This criterion points to the sense of place in the environmental psychology literature which

embraces three narrower interrelated concepts of place attachment, place identity and place dependence. Place attachment has been defined as “the positive cognitive and affective bond that develops between individuals and their environment (Altman & Low, 1992)” (Chamlee-Wright & Storr, 2009, p. 617). Place identity is viewed as:

a part (sub-identity) of each individual’s self-identity and includes “those dimensions of self that define the individual’s personal identity in relation to the physical environment by means of a complex pattern of conscious and unconscious ideas, beliefs, preferences, feelings, values, goals and behavioral tendencies and skills relevant to this environment” (Proshansky, 1978, p. 155). Finally place dependence, on the other hand, refers to “an individual’s perceptions of whether or not he can satisfy his needs and desires in a particular place, compared to alternative places (Stokols & Shumaker, 1981). Certain places are simply better suited for certain activities. (Chamlee-Wright & Storr, 2009, p. 618).

Place attachment can be interpreted as triggering one’s interest in the field and beginning a linking of the personal to the professional. Place identity is a more complex and developmental entity in which the biophysical environment can be a source of ideas and values that shape one’s personal and/or professional aspirations and identity. Place dependence, on the other hand, more simply suggests sites that serve particular interests or activities. I have argued elsewhere (Stevenson, 2008) that place now must be thought of beyond the physical environment to include the virtual which has become a source of attachment, identity formation and dependence for many.

These distinctions concerning different kinds of relationships to place raise issues about the dynamic or fluid nature of these relationships and the extent to which individuals hold multiple place attachments, identities or dependencies. In these recent times of global flows of communication, ideas, symbols and people there would seem to be enhanced possibilities of having a wide range of connections to other places, ideas and symbols. Trigger points out that global migration has created trans-national identities and some sense of belonging even to places in which we have not lived. A similar phenomenon that could be attributed to global interconnections emerged in a recent small study of young children’s drawings and associated stories about their “special places” in which some children described places such as Paris that they had not even visited (Brooks, 2010).

An alternative perspective is provided by Gruenewald (2003) and Gruenewald and Smith (2008) who describe the impact of this globalisation on people as “placelessness”. They argue that people feel disconnected from places because they no longer inhabit them, but simply reside in them. This is similar to Hay’s (1998) belief that people are only developing temporary attachments to place because of the transitions occurring at different stages of their lives.

Rather than lacking a sense of place, however, Trigger reports that he has found much emplacement in his interview studies of non-indigenous Australians, although presumably the nature of the attachment to place(s) differs in important ways from that of indigenous Australians. He concludes by arguing the need for “a more adequate intellectual framework for engaging with the facts of cultural co-existence” (p. 308).

This raises some intriguing questions that are explored in this paper: Is there a sense of place or connection to the Australian cultural or biophysical environments or landscapes evident in Australian environmental education research? Or following Peter Fensham’s comments over 20 years ago about the implications of the meaning of the characteristics of environmental education, the question could be asked: To what extent do Australian environmental education scholars see themselves as an integral

part of their Australian environment (Gough, 1997)? If so, what aspects or dimensions of the local and place are important influences on Australian environmental education scholars?

### **Sense of Place as a Research Orientation as Reflected in AJEE**

As described in the preceding article in this issue, in order to investigate whether there is a unique or special place-based characteristic of Australian environmental education research, an analysis was conducted of articles published in the Australian Journal of Environmental Education (AJEE) by Australian authors, for the 11 year period from 1990-2000 (see Stevenson & Evans, this issue, for the rationale for this analysis). This period was selected to avoid the initial period of establishment and positioning of the journal, to coincide with a period of the emergence of new environmental education research journals (e.g., CJEE, EER) and new discourses internationally (e.g., ESD, EfS), and to enable a comparison with a subsequent planned analysis of articles in the last 10 years of AJEE. There were 67 articles identified out of 89 (excluding special sections such as Millenium Visions in the 1999/2000 edition and Stories from the Field articles) by Australian or Australian-based authors over the 11 year period covering 10 issues of AJEE. In 62 cases the principal author, not surprisingly, was from an institution of higher education. Essentially then the focus of this analysis became a search for evidence of a sense of place in the scholarly environmental education work in the 1990s of Australian academics in the main scholarly Australian journal in the field.

An initial analysis was conducted to determine whether each article examined environmental education in relation to a specific Australian context. Forty four articles, or approximately two-thirds, involved an Australian context, while 23 had no specific contextual focus. The 44 addressing or set in an Australian context were then analysed to first see whether they addressed a unique characteristic of the Australian biophysical or cultural environment. Nine were concerned with a cultural aspect of the Australian landscape (e.g., indigenous perspectives or cultural/historical heritage) and just two focused on education in relation to a unique biophysical feature of Australia's landscape, fauna or flora. The final and most important analysis for the purpose that has been explained focused on whether or not people's sense of place or the relationship between Australians and their environment was addressed in any way. The principle guiding this last analysis of the stories told in AJEE was actually articulated in an article published during this period and that was one of seven principles of school-level curriculum identified by John Fien (1991): "developing a sense of place and identity in the Australian environment". Only four articles captured this principle and explicitly addressed sense of place or identity (Beringer, 1999/2000; Everett, 1997; Mahoney, 1995; Skamp, 1991). In a fifth article, the author refers to place commitment as outcome in arguing that "the process of enabling people to extend their knowledge of natural systems and processes can also enhance their relationships with and commitment to these places" (Slattery, 1999/2000, p. 91). However, this was an isolated reference to sense of place and therefore not included in this group of articles. The focus and frameworks of this and the other 62 articles, and the extent to which they reveal distinctive characteristics of Australian environmental education research, are discussed in Stevenson & Evans (this issue).

Three of these four authors examine personal (e.g., spiritual) relationships or connections to environment. Almut Beringer (1999/2000), in focusing on indigenous (not just Australian but in general) spirituality, argues that most environmental educators focus on curriculum (i.e., the professional realm) but calls for more understanding of our own personal spiritual connections and theology. One such example is provided by Keith Skamp's (1991) article in which he poses the question: To what extent do

we reflect upon our how our spiritual life relates to the environment? Defining spirituality as “an awareness within individuals of a sense of connectedness that exists within their inner selves and to the world” (p. 80), he argues the need to be aware of spiritual connectedness within ourselves in order to be integrated spiritually with the environment. Skamp then draws on Michaela’s (1987) suggestion that our spiritual relationship with our environment is dependent upon our response to “Truth” as we see it, which is affected by external inputs such as “the determination of a ‘sense of place’” (p. 82). Everett (1997) also examines spirituality and environment but from an indigenous cultural (rather than individually personal) perspective. He argues for three themes or propositions of indigenous education: (1) learning about and putting in practice ecologically sensitive living is central to Aboriginal indigenous education; (2) indigenous Australians are deprived of landscapes that provide the base to their spirituality; and (iii) indigenous and non-indigenous Australians need to quickly address actions which will reinvigorate that landscape connection and independence.

In addition to these explorations of personal or cultural connections to environment, the fourth author examined ideological connections to environment - not of self but of others, specifically rural landholders (Mahoney, 1995). In this article the author’s research was concerned with “explicating the manner by which a person comes to understand and relate to his or her environment” (Mahoney, 1995, p. 15). He identified four special ways of knowing or distinct positions, which were termed “men of the land”, “earth people”, “other agenda people”, and “unaligned individuals”, each of which represented “an orientation of the total person, a way of being towards the land” (p. 22). The first two reflected different kinds of attachment to the land (maintaining its productivity versus conservation with limited kinds of low impact land use), while the third position was characterised by a detached view of the land, and the fourth by an identification only with its productive mode. The author concludes by arguing that these positions illuminate the ideological power of particular places or contexts.

### **Where’s Place? Missing or Displaced?**

These findings initially seemed surprising and generated a search for explanations of why a sense of place generally seemed to be missing from Australian environmental education research, at least as reflected in this 11 year snapshot of this research. What does the lack of attention to sense of place in environmental education research suggest? Are the concerns of Australian environmental education researchers displaced from the Australian environment? Is this merely a reflection of other research priorities in environmental education (or what is considered important in environmental education research)?

One explanation is that in the decade of the 1990s sense of place was not commonly connected or associated with environmental education and research on sense of place was published elsewhere in other fields, such as in environmental psychology, human geography, and architecture and planning. Attention to the idea and value of place-based education and pedagogy has only (re)emerged in recent years (Greenwood, 2008; Gruenewald & Smith, 2008; Gruenewald, 2003; Smith, 2002, 2008; McKenzie, 2008; Stevenson; 2008). Yet, if this was the case, it still suggests that place attachments or identities in relation to the Australian landscape were not treated as central to their work by environmental education scholars in this country - at least prior to place-based education becoming a popular topic.

Another explanation might be found in theories of place attachment. Trigger refers to our “primal landscapes” as places where we spent childhood, youth, working life, etc that are replete with memories and nostalgic experiences. This is the first of two components of Milligan’s (1998) interactionist-based theory of place attachment: “(a)

memories of an individual's past experiences at a particular place (its interactionist past), and (b) experiences that an individual believes are likely to occur at a particular site (interactionist potential)" (cited in Chamlee-Wright & Storr, 2009, p. 618). Emphasising that social interactions are imbued with some form of meaning, Milligan argues that "when the interaction involves a higher degree of meaning, whether or not that meaning is perceived at the time, the place becomes the site of place attachment" (cited on p. 618).

These two distinct components suggest that initially a place attachment could be a stimulus or part of a significant life experience that motivates an interest in environmental education. However, place attachment may not be seen as a site that drives a research agenda, especially if it does not serve to create "a higher degree of meaning" than what has already been processed in reaching a belief about the need for environmental education. This explanation is supported by a theory of affordances as well as the concepts of place identity and place dependence introduced earlier.

The idea of a relationship with place underlies Gibson's (1979) "theory of affordances" (Brooks, 2010), the premise of which is that in any place some aspect of the environment has functional significance for the individual. This functional significance suggests an instrumental view of place attachment and also invokes the concept of place dependence which has been described as "the instrumentality of a setting to serve one's needs" (among those scholars who argue for the distinct constructs of place identity and place attachment as component of place attachment) (see Stedman, 2003, p. 683). Both constructs may seem to capture the nature of the productive relationships to land found by Mahoney (1995) among his "men of the land" and "unaligned individuals". However, the argument that these constructs can be readily separated from place identity has been questioned as failing to recognise the complexity of the relationships among them (Stedman, 2003). This critique would seem to be supported by Mahoney's (1995) research which revealed that "men of the land" have a commitment to their view of correct landcare practices as well as "a respect for the power of nature". This suggests the inappropriateness or oversimplification of treating, for example, the "committed conservationists" as reflecting place identity in the relationship with the land while "the men of the land" represent place dependence:

each position represents an orientation of the total person, a way of being toward the land. While it is conceptually possible to analyse this in terms of particular forms of knowledge, beliefs, attitudes and behaviours, to equate the sum of these with the totality of each position would conflict with this fundamentally holistic existentiality. (Mahoney, 1995, p. 22)

The relationship among these dimensions of attachment, dependence and identity are important for understanding the significance of place in the work of environmental education researchers and consequently raising concerns when it is absent. Are there parallels to Mahoney's rural landholders for environmental education researchers? Do they have similar relationships to place?

While Trigger focused on multiple cultures arising from our genealogy, there are also multiple cultures associated with our professional identities and sense of belonging to professional communities or places. The strength of our attachments to these professional places depends on their meaningfulness for our intellectual interests, orientations, and ideologies, as well as our personal beliefs, values and relationships. As Scott and Gough (2003) identified from their observations of environmental education conferences in North America, there are many different interests that motive environmental educators and environmental education researchers (e.g., sharing the joy of wilderness, using the nonhuman and/or built environment to achieve conservation or sustainability goals,



promoting behaviour change, promoting a particular social order). These attachments have been shaped by personal, social, educational and intellectual histories, including the orientations of universities attended and the interests and ideologies of research supervisors. Our intellectual attachments or dependencies are as likely for most of us – maybe even more likely given academic specialisations - to be with colleagues across the world as ones across the corridor. These attachments can be similar to, different from or, most likely, connected in some way to those emanating from our familial and cultural roots. This suggests that our senses of place are multi-dimensional and multi-layered involving multiple interrelated personal, professional and political identities and cultures of belonging.

Place is dynamic and our significant places are constantly being changed by wider social, economic and political factors. People also have multiple identities and if circumstances change, or an opportunity for change arises, then different aspirations may be energised and new or other identities and desires may be activated. Wider contextual factors shape the professional landscape in which environmental education scholarship in Australia (or elsewhere) is carried out. This raises such questions as: Have cultural and accountability concerns for performativity (through national and global comparisons) and establishing an international reputation discouraged a focus on local place-based issues? Has globalisation and international exchanges and movement of academics reduced a concern for the local? Have place dependencies come to dominate our place identities?

Although not explicit about the role of place in their research, Australian environmental education researchers do show a concern for context. They recognise that context matters in educational research, from the socially critical scholarship (which was identified in the previous article in this issue as a distinctive characteristic of Australian environmental education research), with its concern for the macro context, to the micro concerns of specific programs and activities to foster environmental learning.

However, in intellectualising the role of context have environmental education researchers tended to depersonalise their connections and relationships to our landscape? In pursuing our professional interests and identities have we lost the personal place attachments we formed in our pre-scholar years that motivated many of us to become environmental educators or allowed our place identities to be displaced by different kinds of place dependencies? Although critical theorists argue the personal is political, could the concern for the political as well as the professional have deflected some attention from our personal relationships with the nonhuman world?

### **Why Might Sense of Place Matter in Australian Environmental Education Research?**

Finally, it is important to return to the question of why place attachments should matter to environmental education research. Although most literature emphasises the social constructions of sense of place rather than the characteristics of the physical environment, landscape attributes have been identified as contributing to the constructed meanings of sense of place (Stedman, 2003). Stedman argues that “specifiable mechanisms”, such as the characteristics of a place create parameters that give form to place meanings and attachments that have been “predominantly seen as products of shared behaviors and cultural processes” (p. 671). The perceived quality of a place is one influence on these meanings (Mesch & Manor, 1998). Clearly some landscapes are richer in their natural or cultural attributes than others and if attributes of the landscape are foundations of attachment (Stedman, 2003), then people’s place attachments can be enhanced or disrupted by their experiences of the quality of natural



or cultural amenities. An awareness of the influence of these amenities on their well-being and feelings of place connections is likely to increase the level of commitment to place and motivate individuals and communities to want to protect such assets. Mahoney (1995) revealed special ways of knowing about place, we also need to consider special places and what makes them special.

An interesting parallel between place meaning making and Kieran Egan's theory of imagination is drawn by Fettes and Judson (2011). These authors argue that "three features of place-making – emotional engagement, active cognition and a sense of possibility – are all hallmarks of the imagination" (p. 125) and thus the theory suggests the potential of connections to place to engage the imagination. They interpret sense of possibility to mean that "there is more to a place than meets the eye" and "a place could be other than it is" (p. 124). The ability to imagine the possibility of deeper connections to a place of familiarity and attachment, or of the degradation or loss of such a place (and of one's role in sustaining or recreating it), can create an understanding and sense of fragility that becomes part of one's relationship with other places (Fettes & Judson, 2011). Noting that Egan (2005) refers to imagination as a cognitive tool (for learning, literacy and theoretic thinking), these authors point out that we lose an important cognitive tool if this kind of imagination is not tapped. Engaging the affect and the imagination, as well as cognition, is critical not only in developing a sense of place - a bond between people and places – but also in turn in developing an understanding and sense of humanity as part of, rather than displaced from nature.

## **Conclusion**

How do personal and professional connections to multiple, but very different and geographically dispersed, landscapes shape the research and writing of Australian environmental education scholars? From the snapshot of publications in AJEE over the decade of the 1990s, it seems very little. Australian environmental education researchers, at least as measured by the articles published in AJEE in the decade of the 1990s, have generally not been concerned with sense of place, either their own or that of others. Only four of 67 articles were identified as addressing sense of place. Yet these four articles that do speak to place illuminate and contribute to, in different ways and to different degrees, our understanding of the significance of sense of place in the relationship of individuals to their biophysical and cultural environments.

The international environmental education literature on place, albeit most notably in the past decade rather than the 1990s, also makes clear that a place-based focus can be an emotionally and cognitively engaging context for learning and a source for stimulating and sustaining a concern for the nonhuman world. Given this more recent attention to place-based education it will be interesting to see, as recent articles in AJEE are analysed, if more Australian researchers have begun to address place attachments and identities. Will a clearer place for our personal, professional or political place attachments emerge over time among Australian environmental education scholars? Or will ambiguities of place – of personal and professional place identities – (continue to) be reflected in our environmental education scholarship?

If the unique characteristics and beauty of Australian landscapes are to be sustained for future generations, then environmental education research might draw more extensively and intensively on place attachments. The power of the nonhuman world to emotionally transport and spiritually transform us is captured in the landscape paintings of the Romantic movement of the late 18th and early 19th century. These artists filled their canvases with a free play of emotion and imagination. Maybe it is time for a similar inspiration to enable us to re-connect our scholarship to our passion for place that ignited many of us to originally enter the field of environmental education.

## Acknowledgements

I wish to acknowledge the contributions of Neus (Snowy) Evans for the content analysis of AJEE and Tamara Brooks for introducing me to the theory of affordances and several other useful references.

*Keywords:* sense of place; place identity; attachment to landscape; environmental education research; place-based research.

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### Author Biography

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# Talking Up Country: Language, Natureculture and Interculture in Australian Environmental Education Research

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## Abstract

Australia is an old continent with an immensely long history of human settlement. The argument made in this paper is that Australia is, and has always been, a *natureculture*. Just as English was introduced as the dominant language of education with European colonisation, so arrived an ontological premise that linguistically divides a categorised nature from culture and human from “the” environment. Drawing on published work from the Australian tropics, this paper employs a *socionature* approach to make a philosophical argument for a more nuanced understanding of language, the cultural interface and contemporary moves towards intercultural in Australian environmental education practice.

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Learner, teachers and educational researchers are often constrained – in a whole range of ways – by the dominant discourses ... [which] are often so powerful ... that it can be all but impossible to “step out of the box” ... We would do well to ask ourselves whose discourse we are enacting, whose “truth” we are both reflecting and perpetuating. (Atkinson in Atkinson & Swann, 2003, p. 137, quoted by Reid, 2009, p. 130)

## Rediscovering Natureculture

Australia is an island continent with an immensely long history of human settlement, much older than that of Europe and the Americas. Yet the nation of Australia (as a federation of individual states) was only established 110 years ago. In deliberating on the Australian-ness of environmental education research for this special issue, I decided to focus on the unique mix of the extremely old and the relatively new, the ancientness and the innovation that characterises what I know as “Australia”. I thought about the settlement history of this country. I read the literature, the works of writers who engaged in passionate analyses of the renegotiations of settlement histories. I drew on evidence that largely has its origins in the Australian tropics because that is where I live. And I came to write a paper that makes a philosophical argument for a more nuanced approach to the difficult task of understanding people and place in contemporary times. This is not a paper about Australian environmental education research. This is a work of scholarship that emerges from the reading I have done as an

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Australian environmental education researcher. In this paper, I present an argument that, due to many tens of thousands of years of human settlement, the continent of Australia can be considered as a *natureculture*, a continuously inhabited country, owned, known, taught, farmed, fished, loved and feared. The concept of *natureculture* is also highly relevant to researching the Anthropocenic complications of contemporary times.

Every person who engages in educational research in Australia is very much a product of collective history of this continent, whether they are an Indigenous or non-indigenous person, no matter where they live and no matter what their research interests. You may be very familiar with the current map of Australia, but if you wish to consider what Australian settlement looked like before European colonisation, a wonderfully illustrative map is published on the Australian Institute of Aboriginal and Torres Strait Islander Studies website (address is <http://www.aiatsis.gov.au/asp/map.html>). Sorted by language or tribal groupings, the map represents the facts of Indigenous settlement. I draw your attention to this map to emphasise the point that everything that is, or has been done, or not done, in Australian education is contextualised by the history of European colonisation. The preoccupations of formal, state sanctioned education are intimately tied up with the project of colonisation and of European political and economic expansionism. And while colonies are never replicas of their imperialist centres, they do tend to reproduce “a particular realisation of the imperialist imagination” (Tuhiwai Smith, 1999, p. 23). Those realisations can be quite different to the original imaginations of the colonised peoples. I begin from Tuhiwai Smith’s (1999, p. 21) argument that imperialism can manifest “as a discursive field of knowledge”. And then I proceed to excavate and compare long extant environmental discourses with those introduced to the Australian continent with European colonisation. My analysis is partial and I draw on a small suite of published texts that come from the far north-eastern tropics. My intention is only to pay attention.

Which brings me to the first point in my argument that “environment” in Australian formal education policy, curriculum and research is still largely imagined from within colonial framings, with Aboriginal and Torres Strait Islander readings of country relegated to an extramural positionality. The orderly construction of an abstracted, and often displaced, “environment” is both the subject and the object of educational praxis. “Environment” is a convenient discursive category (I am employing a Foucauldian notion that discourse is a field of thought). However, the term “environment” can be devoid of specific and specified biophysical, geochemical and ethnographic meaning. Berry (1977, p. 22), was always critical of the term “environment”, writing, “Once we see our place, our part of the world as *surrounding* us, we have already made a profound division between it and ourselves”. And use of the term “the environment” remains problematic in that it continues to cause “widespread confusion” among children and adults alike (Smyth, 2005, p. 4).

The confusion occurs because these discourses that divide a contiguous fabric of life into oppositional binary categories, such as “humans” and “the environment”, were imported into the Australian continent from the other side of the world. In contemporary Australia, “everything that is official, institutional and corporate insists on this separation between Culture, where people live, and Nature, which is there for people to exploit” (Muecke, 2007). These binaries, as discourses establishing a received “order of things” (per Foucault, 1970), were introduced with European settlement, along with rabbits, camels, starlings, roses, cats and cucumbers. Way back in time, the original waves of human immigration to the southern continent brought people who did not, and still do not, divide our biosphere in such ways. For example, in far north-east Queensland, the types of environmental ordering with European origins such

as “scrub”, “jungle”, “rainforest”, “the tropical environment” and “Wet Tropics World Heritage Area” are very different from the original, Indigenous systems of meaning making. In Djabugay language, “balmba” means habitable country – or wet woodlands in European terms - and “bama balmba” translates to English as a person or people quite at home within these wet woodlands (Bottoms, 1999).

Davison (2008) researched “ideas of nature and the everyday lives of [Australian] environmentalists” and discovered a profound “ambivalence” in how English-speaking environmentalists engage with the dualisms forced upon them. The linguistic contortions of the people Davison interviewed stand in direct contrast to the straightforwardness of Djabugay understandings of how bama’ (people) and a “balmba” (woodland) *together* become “bama balumba”. The original Djabugandi people were semi-permanent rainforest settlers who lived in woodland clearings (Djabugay Incorporated, 2010). In practical Djabugay thinking, people and place *are all in it together*. There is no fictional divide between a human culture and an external Nature and its contemporary corollary, an externalised Environment.

Colonial migration brought “that European ‘culture’ which, ever since the Enlightenment, separates off Nature, treating it as a uniform backdrop to the diversity of ‘our’ cultures [and] as an exploitable resource which cannot answer back” (Muecke, 2008, p. 99). None of the first peoples of the Australian continent ever bothered to “propose such a grandiose concept as Nature” (ibid). Muecke (2008, p. 104) makes the point that “there is no absolute nature ‘out there’ to which ‘we’ can go ... humans and non-humans are always acting on each other in *naturecultures*”. “Nature” is an empirical fiction. Attempts to disentangle one category from the other will always fail, for “our natures and cultures are always shot through with second natures in the process of becoming” (ibid). The difference being that Djabugay people, for all those hundreds of centuries, never made any pretence the world was otherwise. I have spent many hours scouring the published dictionaries of Indigenous Australian languages, searching in vain for any terms that translate as “Nature” or as “The Environment”, or anything remotely approaching what Muecke (2004, p. 103) calls, “the conceptual architecture of modern Western thought”. There is not one hint of such grandiosity to be found in the publicly available literature that documents the remaining languages of 40,000 – 60,000 + years of extant human settlement in Australia. What I find most intriguing is that the contemporary and highly influential scholarship on *naturecultures* (for example Haraway, 1997, 2003, 2008; Latour, 2004, 2007; Muecke, 2008, 2009) reproduces long established ontological understandings endemic to the Australian continent. And Djabugay understandings long precede contemporary socionature scholarship. With growing global awareness we now live in the Anthropocene, Puig de la Bellacasa (2010, p. 152) notes there is “renewed contemporary awareness that we live in a natureculture world”. Davison (2008, p. 1287) argues for socionature scholarship as a means for recognising and moving past “internal inconsistencies” in Australian environmentalism holding the promise of “less adversarial and more supple engagements” within society.

### **Considerations of Language and History**

The formation of the contemporary nation of Australia began with the arrival of boats from the United Kingdom that landed in Sydney Cove on the 26th of January 1788. (This date in January is now formally celebrated as Australia Day, and is a declared public holiday. It is also known as invasion day.) The distinguished anthropologist W.E.H. Stanner (1991) saw the modern history of Aboriginal and Torres Strait Islander peoples as a long and painful search for an accommodation with Australian immigrant society. The reciprocal immigrant accommodation with Aboriginal and Torres Strait Islander peoples is also necessary. It is timely to reconsider how Australian environmental



education scholars and educators can make our own accommodation with the ideas of the first peoples of this continent.

One means for advancing our thinking towards reconciling the older and endemic understandings with those produced through formal education is to consider more seriously the matter of language. The formal language of education in Australia is “Standard” Australian English - a derivative of a dialect from the southeast of the United Kingdom. The fact this dialect derivative became the language of formal education in Australia, a continent with once over 600 languages from 250 language groups, is not a matter of linguistics but a legacy of politics and power (Tripcony, 2000). Bourdieu has argued that any “standard language” is only one of many versions, socially highly specific and “generally bound up with the history of state formation” (Jenkins, 2002, p. 153). Bourdieu (1986) takes a wide view of sociology and he considers it quite reasonable to research and analyse language, “culture” and education together because “they are all concerned with the manner in which domination is achieved by the manipulation of symbolic and cultural resources” (Jenkins 2002, p.153).

The history of the formation of the continental, nation state of Australia is intricately tied to the linguistic colonisation of the continent by English – a language that brings with it a freight of dualistic meta-concepts, including that of an othered “Nature” category nominally based on bodily difference. Historically, not only have viruses, bacteria, fungi, plants and non-Human animal bodies composed this category. Women, too, have been classified as belonging to a naturalised realm and systematically excluded from educational, economic and political activity. As were Aboriginal and Torres Strait Islander peoples, far too many of whom suffered the indignity of being classified as Australian fauna upon their birth and excluded from formal census gathering up until the latter half of the 20th century. (This is no minor matter when the state distributes educational, infrastructural and social resources based on census data.) This difficult social history is, in my view, an argument for treating the Nature-Human binary with great scepticism in contemporary Australian scholarship.

Language serves practical ends, institutional as well as social. Therefore, an examination of what is, and what is not possible to think and speak in the dominant language is germane to a discussion of environmental education research in Australia. In an editorial on directions of international environmental education research, Alan Reid (2009, p. 138) argued that researchers must more fully engage with “questions about the relationship between environmental education praxis and deep seated personal, social and cultural structures, often tacit and hidden, that govern the ways we think and how we act”. Reid is concerned with what he calls “the problem of anglocentricity” in environmental education research, and this is not just a comment as to where the majority of research is produced.

To de-anglicise the field is not only a matter of fostering greater international inclusivity. The project can also extend to an ontological interrogation of the very language used to constitute the field. Many environmental education researchers commonly employ the terms “the natural environment”, “the environment” and “nature” (e.g., as “in contact with”) in their own writing. Thereby reproducing the language of binary thinking and, consequently, “the ‘Euro-modernity’ that has proven itself unsustainable in its conceptual architecture ... and driven its material consequences to its planetary limits” (Muecke, 2009, p. 405). In Australia, a willingness to unproblematically reproduce the great binaries of the Enlightenment can appear as continuing the project of colonisation, when this is not the intention of environmental thinkers and researchers at all. The scholars who wrestle with the concepts of place-based education and critical pedagogies of place (see Stevenson, 2011 this issue), for example, are trying to make their own ways past the limitations of discursive binaries

by paying attention to place, to land and to the surfaces we inhabit. I have taken up a different analytical approach in considering the deployment of language rather than concentrating attention on geographies (whether virtual or real). However, there is a collective desire among many Australian scholars to unpick ourselves from the laces of history, to search for more mobile meanings for research practice, to make environmental education something more than a reproduction of a colonising history, and to perform academic research that advances method and purpose towards “decolonising” (see Tuhiwai Smith, 1999) education practice.

### **“Whitefella Taxonomy” can be “Tongueless and Earless”**

When researching language and the discursive categories a standardised language produces – what Muecke (2008, p. 99) calls “whitefella taxonomy” - it is important to understand that “languages are not merely systems of rules ... they are also vehicles of social interaction and badges of social identity ... shaped by socio-cultural forces [and] conditioned by social practice, social relationships and attendant ideologies” (Winford, 2003, p. 35). All manner of interesting relationships emerge when attention is paid to the language employed for environmental education. Stanner (1991, p. 44) was one scholar who noted that a problem with English is it is, “a different tradition [that] leaves us [immigrants] tongueless and earless to this other world of meaning and significance” in comparison to the subtleties of language through which old indigenous meanings for place are constituted. Stanner noted that, “no English words are good enough” to give a sense of the social links between people and place that serve as the cultural fulcrum of the Aboriginal and Torres Strait Islander people of Australia. He gives the example of the English term “home” and remarks that, “warm and suggestive though it be” the word “home”, “does not match the aboriginal word that may mean ‘camp’, ‘hearth’, ‘country’, everlasting home’, ‘totem place’, ‘life source’, ‘spirit centre’ and all else in one. ‘Land’ is too spare and meagre” (Stanner 1991, p. 44).

The difference *is* ontological. However, this paper is written from an optimistic view that the many tensions between different ontological orderings are, at least, partially negotiable in contemporary Australian environmental education. The adjective “environmental” proves useful in setting out directions for curriculum, pedagogy and research praxis expressly critical of dominant ways of thinking that privilege economic growth without limits. However, researchers in the field/s of EE/ Efs/ESD do not have to uncritically accept the hegemonic orderings of English. English is a logo-centric language that travels well through time. The fact that English is no longer tied to any aspect of the earth’s geography probably explains its success as a global language. English may be “spare and meagre” when it comes to constituting intimate and embedded meanings in Australia. But that very absence of geographic attachment means a displaced English is now the most powerful and economically desirable language in the world. Cloete (2011, p. 1) analyses the power of English is that it takes its “European-based meaning systems” across continents “at the expense of indigenous knowledge systems, cultural practices and languages”, and that “the culturally embedded meaning systems” of English “have become so naturalised they remain largely unquestioned”.

I have become quite fascinated with the use of the noun marker (definite article) “the” commonly employed in environmental writing. “The” environment is a term that is meant to “encompass” everything (alive, dead or inanimate) that does not fall into the category Human – whomever “human” is constituted to be at any given time. In environmental education, “the environment” is held to be *the* singular central subject and object of environmental education research and praxis. However, the “the” (as in “the natural environment”) is not locatable on the ground and use

of this terminology gives no clues at all as to where or what is being referred. Does “the natural environment”, for instance, mean a coral reef, or a mangrove swamp, or a beach or a local conservation park? When children desirably “experience the natural environment” what does this mean? Do these same children exist wholly in a cultural space at other times, or a non-natural environment? If so, are the ants that invade sugar jars or the geckoes that run across ceilings non-nature? These are *unanswerable* questions when a contiguous biosphere is fictionally divided against itself. The tensions and contradictions bear too much weight and the logic collapses. My critique is that a singularised “the environment” cannot carry any sense of meaning with respect to the subtleties of place such as the diversity of climates and geographies, the differences between torrid and temperate zones or the difference between Tully and Launceston.

The lack of place specificity and the erasure of lived relationships appear to be a problem inherent in the use of English. The Jirrbal and Girramay people of Jumbun (1992) in the Upper Murray region (adjacent to the legally declared Wet Tropics World Heritage Area), record four noun markers in place of the one English noun marker “the”. These are: “bala”, a noun marker for inanimate objects; “balam” for edible objects; “balan” for feminine nouns and nouns associated with fire, water and danger; and “gayi” for masculine nouns. There are also four additional nouns markers translated into English as “this” which indicate a sense of proximity. There are: “ginya”, a noun marker for inanimate objects; “ginyam” for edible objects; “ginyan” for feminine nouns and nouns associated with fire, water and danger and “giyi” for masculine nouns. While use of masculine and feminine nouns is common in many languages other than English, the notification of conditions of edibility, dangerousness, proximity and inanimateness add great suppleness of meaning in Jirrbal and Girramay.

There is similar suppleness with respect to Jirrbal and Girramay word endings. In a monograph titled *Jaban bububgga nyajun wabubungga: trans. Eel cooking in the rainforest* (Jumbun Ltd. & Pedley, 1992), Pedley records that “jaban” means eel; “jabanda” means at, in or on the eel; “jabanu” means belonging to the eel; “jabunga” means an action done to the eel; and “jabangunu” means from the eel. Such relational conditions concerning an edible fish are simply not available in English. Cloete (2011, p. 2) makes the argument that English’s “signal weakness is its placement as a language of the metropole”. Jirrbal and Girramay are people from the far northern, coastal, hot, wet woodlands – in contemporary parlance, a “rainforest”. Most urbanites (and Australia is largely an urban nation) would find these woodlands difficult country to experience even for a short while. As Johnston (1997, p. 45) explained it, “ten minutes in a rainforest taught me it was no paradise”. The sheer intense thickness is confronting to the senses. The heat is cloying and close. There are large, succulent eels, but there is also a surfeit of leeches, biting insects, poisonous reptiles, stinging trees and stabbing vines. Vegetation grows in profusion. And yet Flood (1989, p. 261) describes the Jirrbal people as “masters of economics [having] a healthier and more nutritious diet than have many Europeans today”. And Pedley notes the social system of the six dialect groups she worked with was rich and complex. Jirrbal and Girramay home country is not some “wilderness” that exists to succour a jaded western imagination. It is a *natureculture*, same as everywhere else on the continent.

A strong argument *for* a sympathetic hearing for the adoption of a socionature scholarship and of adopting the concept of *natureculture* in environmental education research is, again, to be found in history. The Australian continent has never been “pure wilderness because it has always been interfered with by humans as far back as we can know. Most so called wilderness in Australia is overgrown Aboriginal country” (Muecke, 2008, p. 97). All areas presently claimed as “Nature” and as “natural” on this continent *were* and *are* somebody’s home country – intricately known, intimately loved,

studiously mapped and prodigiously sung. Griffiths (1996) discovered that from an Aboriginal standpoint, the despoilment of land due to European colonisation creates a “wilderness”. Land that has been cared for is normal, “quiet land”. Land that has been degraded by pastoralism (running cattle or sheep) has been turned into “wild country”.

The wilderness idea is not just anthropocentric, it is Eurocentric ... [The concept of wilderness] restores landscapes as Europeans supposedly found them – and as Aborigines made them – and calls them untouched and pristine. Aborigines are therefore rendered invisible as agents in the landscape. Is this *terra nullius* in another form? ... One Aboriginal man, Daly Pulkara, speaks of land that has been cared for as “quiet land”, and land that has been degraded by pastoralism as “wild country”. His wilderness is European made. (Griffiths, 1996, p. 263)

The British colonisation of Australia was predicated on the convenient lie – the legal fiction - of *terra nullius* or empty land. The resultant effect was that vast numbers of Aboriginal people were physically, politically, economically and socially *alienated* from their own country. To present but one example: George Skeene records he is a descendent of the Yirriganydji, Wakaman and Birri Gau. As a child he lived on two Aboriginal Reserves in Cairns. Now a rainforest historian, he is a good friend to a number of academics at James Cook University. Segregation for his family started in the 1880s with the arrival of colonists in the far north and continued through the 1960s. His politics of skin began at birth. This is his account:

When I was born in 1948, Mum was in the maternity ward with all the white people. Mum could pass for a white person. Uncle Charlie, Mum’s brother, told me the following story. Dad went to visit Mum and picked a few flowers from the hospital garden. As soon as the nursing staff saw Dad, Mum was moved to the ward with all the Aboriginal mothers and the other Mums whose skin was not white. This ward was called the “alien ward”. It seems if you were not white you were treated as *an alien*. (Skeene 2008, p. 12 italics mine)

When Skeene attended school he found the settlement history of his family was actively ignored (or actively eradicated) from Australian history classes.

The lies that were told of Aboriginal people seem to be endless. We are the most studied people on the planet, and yet very little is known about us. My schoolteacher in the history classes said the first lies I heard [that Australia was first “settled” in 1788]. I still don’t know why lying is an accepted part of Australian life. (p. 226)

One of the continuing challenges of Australian academic life is to find a way through the accumulating distortions of place and history in order to rethink the ambiguities of the present. As an academic, I have no scholarly interest in reproducing a colonising discourse in researching somebody else’s home country. This is why I think the bridging concept of *natureculture* is an enticing (and intellectually exciting) venture to consider in environmental education research. Firstly, because the proposition of *natureculture* explicitly accepts that people always live within both “nature” and “culture” and not on one side or the other of this rather un-Enlightening discursive divide. Secondly, because interpretations of *natureculture* offer environmentally attentive researchers some means for reconciling the disgraces of Australian history (see Kidd, 1997 and Skeene, 2008) and take responsibility for redressing what McGloin (2009, p. 37) calls “the lies, silences and omissions that continue to shape Australian history and to mark out the limitations of Australian citizenship”. Thirdly, the concept *natureculture* offers an elegant solution to the bedeviling problematic of imported binary thinking that

represents the mental habits of the colonisers, not the colonised. And fourthly, if we pluralise, *naturescultures*, this opens up some really interesting spaces for alternative forms of scholarship yet to be realised.

### **Interculture in Australian Scholarship**

At this point you may be thinking, is it really possibility to do environmental education research in Australia beyond “the environment”? The answer is yes of course. There are all manner of opportunities available. I will follow one track suggested by Nakata (2006, 2007), a Torres Strait Islander scholar, to illuminate relevant opportunities presented by the emerging discursive (and political spaces) of *intercultural* accommodation. Nakata (2006, p. 272) proposes that what is needed is “a different conceptualisation of cross cultural space, not a clash of opposites and differences, but ... a layered entanglement of concepts, theories and sets of meaning”. Nakata’s work consistently makes clear just how extensively Aboriginal and Torres Strait Islander knowledge systems have been marginalised in the academy, across all disciplines, and the field of environmental education research proves no exception. Nakata (2007) proposes that scholars work at what he calls the “cultural interface”. While he is not convinced that bodies of indigenous knowledge can ever be contained within the academy’s traditions, Nakata (2007, p. 199) conceptualises the interface as intersecting transactions “between different people with different histories, experience, language, agendas, aspirations, and responses”. What is formed is a space to “produce cohesive, consensual and cooperative social practices” notwithstanding “the contradictions, ambiguities, conflict and contestation of meanings that emerge from these various intersections” (ibid). The purpose is to “elevate what might not have been the [previous] focus of attention” (p. 214). Thus the cultural interface is where “people discard and take up different ways of understanding” (p. 208).

Scholarship at the cultural interface is described by McGloin (2009, p. 39) as a “place of negotiation where unlearning can occur, and new knowledges [are] given primacy ... it can be a site of struggle [as] the process of unlearning is never easy”. Taking up this point, the “unlearning” of “grandiose”, aging, Enlightenment binaries is really tough. Unlearning what you *know, teach and have been taught* is really very difficult. As McGloin (2009, p. 40) coolly puts it, “defamiliarising can lead to a feeling of discomfort”. And yet there are many examples in Australian environmental and education praxis where people have made genuine attempts to unlearn and relearn and to work together at a cultural interface. Doing what Paddy Roe (in Benterrak, Muecke & Roe, 1996) once asked, “You people try and dig a little more deep. You been digging only white soil – try and find the black soil inside”.

### **Talking Up Country**

The concept of country is an emerging space for intercultural negotiation in Australian environmental education, environmental management and environmental communication. Country is a very, very old concept – it is not preceded by a “the”. Rose (1996, p. 7) explains that Aboriginal and Torres Strait Islander people “talk about country in the same way that they would talk about person: they speak to country, sing to country, visit country, worry about country, feel sorry for country, and long for country”. This is because “country is home, and peace; nourishment for the body, mind and spirit; heart’s ease” (ibid). Country means far more than “land”, “landscape” or “environment”. Country is a relationship – a contiguous way of seeing, being and acting. Country is tens of thousands of years of accumulated knowledge and understanding. Rose (1996) argues there is nowhere else in the world where such a body of knowledge has been built up “so consistently” for so long. But this knowledge is not only cerebral; it



is also an embrace - somatic, cellular, spirit laden, blood pumping, heartfelt. Country is not only a terrestrial concept. Sea country is also known, claimed and owned. According to the Northern Land Council:

Coastal people have been connected to saltwater country for many thousands of years and it remains an intimate part of their everyday existence today. The concept of the sea as a public commons or open access space was imported to Australia at the time of colonisation. Aboriginal concepts of the sea are intimately linked to traditional ownership and management in the same way that places in the land are connected. (Northern Land Council, 2003)

Country is a highly sophisticated recognition and expression of (a) *natureculture*. No binary is made between human and other. All country is owned. Both traditional land and sea country ownership and management responsibilities is based on customary lore/law, that is, passed from one generation to another, and held in a sacred trust, where people have “specific and complementary rights and obligations to ensure the spiritual and physical health of defined areas” (Northern Land Council, 2003). The relational subtleties and complexities of country are not always readily translatable into English. Wandjuk Marika (1995) puts it this way (“they” are immigrant settlers to her country):

They don't know about the tree, who is the tree, what the tree is. They don't know what the grass is, who the grass is or what is in the earth and what is in the mountains, and what is in the trees. A tree is a tree, yes, but we have individual names. What is my tree and what is my mother's? Which river is my grandmother or which mountain is also my mother? (Marika 1995 cited by Jagtenberg & McKie, 1997 p. 98)

Country is both an ancient and completely contemporary concept. And, in the age of facing up to anthropogenic climate change, Australian governments are supporting a number of programs that recover the concept of caring *for* country as a means for managing *the* environment, in a complex and contradictory, but highly salient, example of working the cultural interface. In 1995, the Northern Land Council in the Northern Territory set up a Caring for Country unit to specifically assist Indigenous landowners “deal with the new land and sea management challenges they faced and to consider commercial enterprises promising environmentally sustainable development” (Northern Land Council, 2003). Increasingly it is recognised that old knowledge and new science can be applied together across tropical Australia to stabilise and repair environmental destruction.

The Australian Government in its national, “natural” resource management program has recently adopted the concept of “caring for country”. Though its most recent manifestation adds a sense of nationalism in that the name of the program is now called “caring for *our* country”. Caring for our Country “integrates the Australian Government's previous natural resource management initiatives, including the Natural Heritage Trust, the National Landcare Program, the Environmental Stewardship Program and the Working on Country Indigenous land and sea ranger programs” to establish “national priorities and outcomes to refocus investment on protection of our environment and sustainable management of our natural resources” (Australian Government Land and Coasts, 2011). Country has replaced “the environment” as the entity that needs to be cared for. The contemporary technical language of “outcomes” and “business plans” and “investment strategies” is incorporated with the ancient concept of country and a AUD two billion dollar budget to “achieve an environment that



is healthy, better protected, well-managed, resilient and provides essential ecosystem services in a changing climate” (ibid).

Similar hybrids at the cultural interface are appearing in tropical marine education. The Great Barrier Reef Marine Park Authority (GBRMPA) has introduced a highly successful Reef Guardians Program to schools in Great Barrier Reef catchments. In extending the program to Cape York schools, Indigenous communities were asked to participate in the Sea Country Guardians program. The concept of sea country guardians is developed for all school communities in a monograph titled *Reef Beat 2010 Sea Country Connections Activity Book* (GBRMPA, 2010) – a project funded by the Australian Government’s Caring for Our Country program. The concept of country is explained as “not just the physical features but includes objects, resources, knowledge, stories and sense of belonging”. Ownership is explained as “cultural and legal rights and custodial responsibilities for that country” (p. 1). Distinctions are drawn between Aboriginal and Torres Strait Islander understandings and those constructed from “a western viewpoint”. Nevertheless, the concept of sea country is dealt with seriously and with propriety.

The term “country”, of course, is an ontological transposition that is only partially communicable in English. As Muecke (in Benterrak, Muecke & Roe, 1996, p. 17) remarks, “not even the wildest European imagination could produce the Nyigina man Paddy Roe’s reading of country: the words are just not there”. However, use of the term, in English, in Australia education and resource management practices, is an act of stepping out of the legacies of colonisation. The greater education enterprise can be explained as “a nation-wide focus on the importance of Aboriginal and Torres Strait Islander peoples and their cultures” (GBRMPA, 2010). I see country as representative of a kind of extra territoriality and the use of the term in contemporary environmental practice (this includes education) brings us to spaces where the contingent and relational nature of knowledge(s) become more apparent. There are means for thinking and acting outside the hobbling histories of binary thinking. In doing so, some possibility for reconciling the differing ontologies of understanding *this* country emerge. In Australia, scholars can draw on tens of thousands of years of thinking to construct contemporary understandings. As educators, we can work at a cultural interface, no matter how clumsy the first attempts to do so may appear. This task is not without its difficulties. Nakata (2007, p. 191) cautions scholars that working “in this contested space between knowledge systems, things are not clearly black and white, Indigenous or Western. In this space are histories, politics, economics, multiple and interconnected discourses, social practices and knowledge technologies which condition how we *all* come to look at the world, how we come to know and understand our changing realities”.

The thing is, in Australia, in this magnificent, vast island, *we are all in this together* – the families who have been here for tens of centuries and the families who have just arrived. Environmental education in Australia has the task of reaching everyone in this complex old/new immigrant nation. Perhaps this is what makes environmental education scholarship so challenging in this country. And what also speaks to the “uniqueness” of Australian environmental education research. There are the colonising discourses with which we have become so familiar and then there are these very ancient, traditionally maintained discourses and re-emerging fields of knowledge on which scholars can draw. Language, history, intercultural, and negotiations about the cultural interface – these can all form part of scholarly explorations into the *natureculture* of Australia.

*Keywords:* natureculture; environmental education; Aboriginal and Torres Strait Islander history; discourses; language.

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## Becoming-Speckled Warbler: Re/creating Australian Natural History Pedagogy

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### Abstract

The speckled warbler and other woodland birds of south-eastern Australia have declined dramatically since European settlement; many species are at risk of becoming locally and/or nationally extinct. Coincidentally, Australian environmental education research of the last decade has largely been silent on the development of pedagogy that reflects the natural history of this continent (Stewart, 2006). The current circumstances that face the speckled warbler, I argue, is emblematic of both the state of woodland birds of south-eastern Australia, and the condition of natural history pedagogy within Australian environmental education research. In this paper I employ Deleuze and Guattari's (1987) philosophy "becoming-animal" to explore ways that the life and circumstances of the speckled warbler might inform natural history focused Australian environmental education research. The epistemology and ontology of *becoming-speckled warbler* offers a basis to reconsider and strengthen links between Australian natural history pedagogy and notions of sustainability.

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### On the Australian-ness of Australian Environmental Education Research

When contemplating the Australian-ness of Australian environmental education research, I can not help but think of some pressing environmental issues where I live and work in south-eastern Australia: possible/probable local extinction of many plants and animals, loss and fragmentation of habitat, poor and declining river health to name a few. I am left with a profound sense of sadness and grief at what has been lost from our natural-cultural history since the arrival of Europeans. The impacts of European settlement are by no means complete, they are still very much ongoing. For example, in my lifetime the woodlands of south-eastern Australia are forecast to lose about 50% of their woodland birds, the speckled warbler among them (Ford, Barrett, Saunders, & Recher, 2001; Mac Nally, et al., 2009; D. Paton & O'Connor, 2010; Recher, 1999). As a naturalist and educator I find this distressing. The causes of species extinction of woodland birds in this region are largely well known; habitat loss and fragmentation are the primary impacts, but there are many contributing factors. I wish it was otherwise but I have grave concerns not only for the state of the woodland birds of south-eastern Australia, and the landscapes in which they live, but for Australian (environmental)

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education research that is largely silent about the decline and extinction of many Australian species.

In relative terms Australia is a wealthy nation and has high levels of literacy, yet it also currently has the highest rate of land clearing of any developed nation and arguably the worst record of animal extinction of any nation on earth (Lindenmayer, 2007). The settlement of Australia by Europeans has been marked by a failure to recognise that the landscapes, flora and fauna of the continent are radically different from those of Europe. Remarkably, environmental education research in Australia in the last decade has largely not addressed natural history pedagogy tailored to the specifics of the continent. Discussion in the *Australian Journal of Environmental Education* from 1995 to 2006, for example, was dominated by issues of sustainability (Stewart, 2006). While this in itself is not a bad thing, I argue that any discussion of sustainability needs to be underpinned by a pedagogy addressing the more-than-human world of one's local area. Australian environmental education *research*<sup>1</sup>, I believe, is not embedded in the natural history of this continent, and therefore, is not Australian enough.

While it is of no comfort it would appear that I am not alone in lamenting the general state of environmental education research (see for example Jickling, 2009; McKenzie, 2009). In response to William Scott's address at the 2007 World Environmental Education Congress, McKenzie (2009) wrote, "despite an abundance of methods and methodologies of research, it is unfortunately not clear that environmental education research *is* making a difference in the face of critical challenges of environment and development" (p. 217). I strongly agree with McKenzie that it is unclear that environmental education is making a difference in light of the socio-ecological issues that are present in my part of the world.

### Seeking Speckled Warblers

It occurred to me in late May, 2010, that I had not seen a speckled warbler during the year to date in my local Box-Ironbark forests. Most years I see these small, non-descript, almost secretive birds in autumn when out teaching, however, in autumn of 2010 I took some long service leave so was not in the forests as frequently. After several days of searching I eventually encountered three speckled warblers foraging happily on the margin of a mixed species cloud of small birds that include buff-rumped thornbills, varied sittella, grey shrike-thrush and flame robin. Not having had the opportunity to observe this species closely for some time I stopped and watched. I observed for about 30 to 40 minutes. The birds spent three-quarters of that time on the ground foraging through leaf litter and around grass tussock. They also spent about a quarter of their time in the upper branches of the over-storey trees<sup>2</sup>, greater than 5 metres off the ground. I had not observed speckled warblers so high in trees before and thought perhaps that my presence had forced them into the trees, so I backed away and watched from a distance. However, the birds still frequented the higher branches of the trees, and later when I approached more closely they remained foraging on the ground.

Before going out in search of speckled warblers I refreshed my knowledge of the bird using the *Handbook of Australia, New Zealand and Antarctic Birds* (HANZAB) (Higgins & Peter, 2002). I find HANZAB an invaluable resource for deepening my knowledge and understanding of Australian birds and the landscapes they inhabit<sup>3</sup>. Regarding the speckled warbler, Higgins and Peter (2002) report:

**HABITAT** Mainly grassy ground layer of dry sclerophyll forests and woodlands, often with scattered shrubs in understorey ... Often associated with rocky ridges and gullies ... Round Bendigo, Vic., recorded in Red Stringybark, Red Box *Eucalyptus polyanthemos* and Long-leaved Box *E. goniocalyx* forests



with a grassy ground layer and well-spaced shrubs in the understorey, but not in Red Ironbark or Yellow Gum forests. (p. 279)

**FOOD** Mainly insectivorous, but also take seeds and other plant material. **Behaviour** Reasonably well known. Mainly forage on ground, by gleaning or by probing leaf-litter; also foraging from tussocks, fallen timber, low shrubs and low trees; occasionally sally ... Usually forage in pairs or small parties of up to six birds ... Often occur in mixed-species feeding flocks ... **FORAGING HEIGHTS:** Mostly forage on ground ... Of 278 observations of foraging in Imbota NR: 81.7% were on ground (0-1 m above ground), 8.3% at 1-2 m above ground, 7.2% at 3-5 m, 2.2% at 6-9 m, and 0.7% 10-17 m above ground; not recorded >15 m above ground. Near Bendigo, forage on ground throughout year, though possibly more often in winter than in summer. **FORAGING SITES:** Forage mainly on bare ground among leaf-litter and grass ... Near Bendigo, foraged mainly in small open patches on ground (94.3% of 70 foraging observations) and among layers of thin leaf-litter or sticks. (pp. 281-282)

Watching the speckled warblers I had encountered I was fascinated to see that some of the behaviour of these three did not neatly fit that reported in HANZAB. They were foraging amongst red ironbark, frequently on the ground, but also going high into the trees. I am not suggesting that my observations are generalisable or particularly scientific, but I was reminded that one might learn new or unexpected things by paying close attention.

What we know, both individually and collectively as a community, about a given species and their environment is always partial and incomplete. We can never, I would argue, fully know about the lives of speckled warblers<sup>4</sup>. Yet, as a community we know that speckled warblers, and many other woodland birds of south-eastern Australia, have declined remarkably since European settlement, to the point that in NSW and Victoria the species are now listed under state legislation as “Vulnerable” to extinction (Higgins & Peter, 2002). Although we may never know all there is about the lives of woodland birds, I believe what has been revealed about their lives through research ought better inform environmental education pedagogical research. The current circumstance that face the speckled warbler, I argue, are emblematic, not only of the state of our woodland birds in south-eastern Australia, but also of the state of Australian environmental education research addressing the natural history of this continent<sup>5</sup>.

### **Cultural Mis/understandings of New-Old Landscapes**

While Australia covers only 5.7 per cent of the earth’s land surface it “supports between 7 and 10 per cent of the world’s species, most of which occur nowhere else” (Lindenmayer, 2007, p. 2). The Australian continent and its natural history are relatively new to European culture, yet geologically and biologically remarkably old. In recent years cultural and environmental histories have provided alternative lenses through which to reflect upon and evaluate the impact of European settlement on Australian landscapes (see for example Flannery, 1994; Main, 2005; McKenna, 2002; D. C. Paton, 2010; Robin, 1998, 2007; Seddon, 1994; Sinclair, 2001). Sinclair (2001), for example, reflecting on the continual ecological decline of the Murray River, cautions settler Australians against forgetting old landscapes and native species:

Stories, fables, or parables about Australia’s native species and the landscapes they inhabit can bring together disparate forms of knowledge that expand settler Australians’ understanding of the connections between themselves and the ecological processes that ultimately sustain them. Perhaps when more of



these stories are made to live in the public domain, settler Australians will be better able to think themselves into the country and adapt more successfully to the constraints of the environment. (pp. 233-234)

Main's (2005) history of the inland slopes of south-western New South Wales echoes that of Sinclair's account of the Murray River region. Main recounts how the natural history values that early settlers found appealing and enticed them to settle were over time destroyed through land clearing and the methods of industrial agriculture:

To build farmland on the southwest slopes, settlers erased and fragmented grassy woodlands and swamps formerly tendered by Wiradjuri. Natural stability and productivity depends on webs of ecological relations, on the interactions of various organisms and elements. Local extinction and decline of individual species made land vulnerable and brought chaotic responses. (p. 204)

Main observes that more recent changes to industrial agriculture have led to bigger farms that employ fewer people. Main contends that declining rural populations is accompanied by loss of local knowledge of the natural history values that were formerly widespread in the landscape. Both Sinclair and Main argue that the decline and loss of both local native species and local natural history knowledge leaves communities impoverished in their capacity to imagine a sustainable future.

These recent cultural histories share a common story of European settlers struggling to obtain a cognitive and physical grasp on the nature of Australia. What I think Sinclair and Main are suggesting, and what I believe is needed in my region, is education that links the past, the present and the future through storytelling and imagination that is informed by local natural-cultural history, and the impacts of colonialism and settlement. Australian culture, and Australian environmental education research, I argue, is desperately in need of some new ideas that connect people with their local natural histories, fostering greater understanding of old landscapes and the species that inhabit them. What might Australian environmental education *research* look like if it were informed by the natural history of this continent; how species live, what they need, and the places that sustain them? In the remainder of this paper I explore Deleuze and Guattari's (1987) idea "becoming-animal", inspired by Gough (2009b), Fawcett (2009) and Somerville (2007), to contemplate how *becoming-speckled warbler* might inform a natural history focused pedagogy for Australian environmental education.

## **New Ideas for Old Landscapes**

Poststructuralism foregrounds both the limits of consciousness and intentionality and the will to power inscribed in sense-making efforts which aspire to universal, totalizing explanatory frameworks. Premised otherwise on a profoundly unsettling critique of the primacy of consciousness and the politics implicit in the critical practices of those who propose to speak for or on behalf of others, deconstructive strategies are not instruments for mastery of self and/or others but an exploratory tool for how we might move beyond our present positions ... poststructuralism helps us to 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 in a liberatory efforts (Lather, 1991, pp. 155-6).

The French poststructuralists Deleuze and Guattari wrote widely on philosophy, literature and the arts in their attempts to challenge and disrupt many fundamental concepts of Western thought (see for example Deleuze & Guattari, 1983, 1987). Deleuze

and Guattari employ concepts such as *multiplicity*, *assemblage*, *becoming*, *rhizome*, and *nomad* to re/image alternative philosophies. Their ideas have also permeated education (see for example Gough, 2004, 2006; Gregoriou, 2004; Roy, 2004; Semetsky, 2004a, 2004b, 2006; St.Pierre, 2004) and environmental education (see for example Fawcett, 2009; Gough, 2009a, 2009b; Somerville, 2007). I will give a brief introduction to becoming rather than an extensive introduction of Deleuze and Guattari's philosophies.

Like others, I often struggle with many of Deleuze and Guattari's concepts and what they really mean. But I have come to understand that it is more rewarding to think about what they do or how they work. St. Pierre (2004), discussing *multiplicity*, suggests that "rather than asking what a concept means, you will find yourself asking, 'Does it work? What new thoughts does it make possible to think? What new emotions does it make possible to feel? What new sensations and perceptions does it open in the body?' (Massumi, 1992, p. 8)" (pp. 284-5). Becoming acts to free up thought and initiate alternative assemblages of ideas. Deleuze and Guattari (1987) argue that "becoming is a verb with a consistency all its own; it does not reduce to, or lead back to, 'appearing,' 'being,' 'equalling,' or 'producing.'" (p. 239). Colebrook (2002b) suggests that:

Becoming, for Deleuze, is not a relation between two terms. Becoming-animal is not a human being impersonating an animal; becoming-woman is not a transformation to a pre-given image of what woman is or should be. Becoming is a direct connection, where the self that contemplates *is* nothing other than the singularities it perceives. (To become-animal is thus to perceive the animal as if one were perceiving 'its' world. To become-woman is to create what is other than man and fixity, or to become as such.) (p. 155)

Following the encouragement of Deleuze and Guattari to experiment and engage in playful thinking, becoming has been used in a range of ways. Gough (2009b), reflecting on Gruenewald's assertion that "places are profoundly pedagogical" (in Gough, 2009b), argues that places *become* pedagogical through the cultural practices that enable or encourage us to engage with the diverse qualities of any given place. Gough's use of Deleuze and Guattari drew my attention to the highly constructed and culturally mediated nature of any educational experience.

In a different context Somerville (2007), in *Becoming-frog: a primary school place pedagogy*, uses becoming to analyse the "relationships between the place, integrated program, the website, and particularly the children's representations, in order to understand this as a pedagogy of place" (p. 4). For Somerville, becoming brings emphasis to thinking about the dynamic nature of the human body and its "relationships with landscapes, weather, rocks and mountains, as well as other non-human animate beings" (p. 5). Somerville observed students' responding to the school's endeavours to link their program with their local wetland; children dancing to frog calls, exploring wetlands in search of frogs, and the alternatives they found when frogs were in short supply. Somerville's observations highlight to me the always already becoming nature of education.

It is my experience that environmental education straddles the traditional science-humanities divide that has dominated Western thought for some time. Like St. Pierre (2004), I feel that I need some new language and concepts, new tools for tackling old challenges. In my case, new concepts to think through the relative silence of Australian environmental education research on natural history pedagogy for this continent. Deleuze and Guattari's (1987) becoming offers alternative lines of flight or nomadic thought, opportunities to re/think and re/create pedagogies for and inclusive of the natural history this place:

Deleuze's destruction of the idea of man as a foundational being is part of a more general affirmation of becoming: thought *is* becoming ... The task is to think without models, axioms or grounds. Philosophy, literature and science are powers of becoming. Philosophy allows us to think the forces becoming by producing concepts of the differential or dynamic power of life; science slows us to organise matter by creating functions that allow us to extend our perceptions beyond what is actually given; literature allows us to become by creating affects that transform what we take experience to be. (Colebrook, 2002a, p. 126)

In what follows I explore how becoming-speckled warbler might offer opportunities for re/thinking and re/creating Australian environmental education pedagogy that is informed by the natural history of the continent.

### **Learning from the Birds**

Learning from birds is not a new concept. However, as Birkhead (2008) comments, in the past some unusual meanings have been attached to some observations:

Imagine a world in which your day-to-day life is ruled not by logic and common sense, but by fear, superstition and a God whose constant succession of 'signs' often appears in the form of birds. Where, seeing a solitary magpie predisposes you to some form of bad luck; where hearing a raven means imminent death; where you can restore a blind person's sight with a special stone found only in the nest of the swallow; whereby placing semen of a pigeon on someone's dress will make them love you; and where a dead kingfisher suspended from a silk thread acts as a natural weathercock ... Such fanciful ideas were very deeply ingrained and it was only in the 1600s that they began to be challenged. (p. 17)

Birkhead's observation's of European cultural understanding of birds, and how they have changed over time, serve as a reminder of the misunderstandings that can originate in not paying close attention to the life and circumstances of an entity under observation. Today's Australian ornithological research has its conceptual roots in the European Enlightenment and scientific revolution (Robin, 2001). The methods and ethics of collecting knowledge about birds have thankfully changed dramatically in last 200 years. In the early 1900s, for example, shooting was a common technique for catching birds and egg collecting a widely practiced hobby. Australian ornithological research today is a well-established discipline and the scientific community, I would argue, has considerable knowledge of many species, the landscapes they inhabit, and what they require to survive. For example, woodland birds of south-eastern Australia have received considerable attention, and their decline is well documented (see for example Ford, et al., 2001; Gardner & Heinsohn, 2007; Mac Nally, 2008; Mac Nally & Bennett, 1997; Mac Nally, et al., 2009). While I do not doubt that further research will strengthen our knowledge of birds and their habitats, I believe there is a disconnection between the production of knowledge through ornithological research and knowledge of birds (and their environments) in the wider community. Buried in the final page of discussion, Mac Nally et al. (2009) argue:

The climatic conditions expected under rapid climate change render avifauna populations even less resilient to land-use change than previously thought. Current methods for protection of remnant habitat and increase in revegetation will be insufficient to prevent regional extirpations. The urgency and magnitude of remedial action required are many-fold greater than current practice. Increased awareness of the current situation is a prerequisite to policy reform,

and policy levers, such as carbon trading (Harper et al., 2007), might induce radical land-use change. (p. 728)

Implied in this analysis is the role of education, particularly that of environmental education research. Education informed by the particulars of Australian natural history and its conservation status, would appear to me to be a key requirement to increasing awareness.

Becoming-speckled warbler prompts me to contemplate a range of ontological and epistemological dimensions of pedagogy that I believe Australian environmental education research is yet to shine light on. What do speckled warblers need daily, seasonally, yearly; how do their surroundings shape their lives (foraging for food, partners, neighbours, looking for predators, attending to offspring, daily and seasonal climate differences)? Becoming-speckled warbler is not just about the particular species, but also includes all the relationships and associations that sustain individuals and the species. Becoming-speckled warbler is also not just about the present; understanding a species and what sustains it, I believe, should include contemplation of the environmental conditions that shaped its evolution and the circumstances that might determine its future.

### **Becoming-Speckled Warbler: the Present is Also the Past and the Future**

As a consequence of long-term climatic variability of the Australian continent many of its bird species have evolved life-cycles and strategies to cope with “boom and bust” (Robin, Heinsohn, & Joseph, 2009). As a woodland bird of south-eastern Australia, speckled warblers have been subject to these conditions. Being largely insectivorous, speckled warblers would keenly experience the short supply of food that accompanies extended dry periods (Gardner (2002) observes that for speckled warblers extended dry periods result in lower reproductive rates and shorter breeding seasons). Prior to extensive land clearing and habitat fragmentation associated with European settlement, speckled warblers would have had a greater capacity to move across landscapes in search of food. The capacity to respond to dry periods by moving, even if only short distances, is part of what makes the speckled warbler the bird that it is (this is also true of many other Australian avifauna). Restricting the speckled warbler’s capacity to move across landscapes in dry times, through habitat clearing and fragmentation, seriously reduces the species long-term survival capacity<sup>6</sup>.

Historically, the reasons for the establishment of National Parks and nature reserves in Australia have ranged from parks providing recreational opportunities, health and wellbeing of urban societies through to conserving our natural and cultural heritage (Hamilton-Smith, 1998). While Australian efforts to conserve nature through a representative reserve system are commendable, they are also indicative, I believe, of the dominance of our European notions of nature in our approaches to land management. Historical approaches to nature conservation have not served the speckled warblers well. Speckled warblers would experience land clearing and fragmentation in a range of ways. Clearing of woodland, I believe, is about displacement, and the loss of home, food, family, neighbours and opportunities. Fragmentation is about the ongoing thwarting of opportunities to find alternative places to forage for food, new partners, and neighbours.

As a consequence of the intensive European-style agricultural land use in southern Australia of the last 200 years much of recent ornithological research in the region has attended to the importance of remnant patches, their size, management, connectivity and landscape revegetation and restoration. Radford, Bennett and Cheers (2005) highlight the complex relationships between the size of remnants, vegetation types

and diversity within remnants, remnant shape complexity, and the proportion of tree cover at a landscape level. All these factors play significant roles in determining species richness of woodland birds, but they argue “there is a risk that identifying a single richness threshold for a diverse group such as ‘woodland birds’ may mask other important responses, because species respond to the environment in different ways” (p. 333). Having said that, they do indicate that a goal well in excess of 10% tree cover is required to prevent the collapse of woodland birds in northern Victoria (they highlight that northern Victoria has only about 6% of tree cover remaining).

Gardner’s (2002, 2004) research demonstrates that for speckled warbler patch size is particularly important. In winter months speckled warblers form foraging groups with other species, which is thought to increase foraging efficiency and detection of predators, thus acting to increase survival (Gardner, 2004). Gardner’s research suggests that “because flock territories were up to 30 ha each, and larger territories are likely, birds living in remnants smaller than 40 ha may suffer increased mortality if there are too few birds available to form flocks of an appropriate size to facilitate the benefits of grouping when conditions are extreme” (2004, p. 195).

The distance between remnants is another critical issue that shapes the lives of small woodland birds. Robertson and Radford (2009) have observed that grey shrike-thrush and white-throated treecreeper, both larger than speckled warbler, were most unlikely to cross cleared land when distances were greater than 85 metres and 65 metres respectively. Although revegetation is an important strategy in reducing the effects of fragmentation (see for example Martin, Eyebars-Chaddock, Wilson, & Lemon, 2004), the types of vegetation used, the density and ongoing protection of large remnants remain critical issues in limiting the decline of woodland birds (Major, Christie, & Gowing, 2001). Because of the nature of revegetation and the time involved it is also accompanied by a time lag in the provision of some habitat resources (Vesk & Mac Nally, 2006; Vesk, Nolan, Thomson, Dorrough, & Mac Nally, 2008). Different habitat resources develop at different rates, and some birds and mammals require resources, like thick bark, large boughs, hollows, and fallen timber, that are slower to form. Vesk et al. (2008) observe that the management of revegetation can have a dramatic effect on the rate of development of some resources: “planting at high densities greatly reduces tree girth growth rates and delays the occurrence of large boughs, tree hollows and fallen timber by decades” (p. 174).

Nature conservation in Australia has historically been the responsibility of governments, however, in some areas community involvement has grown substantially (Figgis, 2003). In north-eastern Victoria the community-based Regent Honeyeater Project (see <http://regenthoneyeater.org.au>) has set about replanting thousands of trees to reconnect remnants. While the regent honeyeater, also endangered, is the focal point of the project, the broader goal is halting the decline of biodiversity in the region. In the wheat-belt of south-west Western Australia the much larger project Gondwana Link (see <http://www.gondwanalink.org>) is also seeking to reconnect remnant patches to prevent the further loss of biodiversity and facilitate the movement of native wildlife. These projects, and the many others like them, are inspiring and a credit to their communities. However, they are sadly, I believe, indicative of the extent to which Australian environmental education pedagogical research lags behind community activity. Both the Regent Honeyeater Project and Gondwana Link are examples of communities *becoming*; communities challenging historical assumptions about land use, the role and value native wildlife, and creating alternatives that suit their landscapes and circumstances.



An aspect of becoming is that it must take as its aim the non-dominant. MacCormack (2001) argues that for Deleuze and Guattari becoming involves questioning cultural hierarchies, power and the majoritarian:

All becomings must be a becoming-minoritarian because all becomings repudiate cultural arboreal (tree-like) structures of access and power, value and value-lessness based on any notion of fixed or complete subjectivity, preferring the more multi-plateaued model of the rhizome (root or grass like). In this respect becoming is as much about becoming non-dominant as it is becoming something else (p. 3).

Deleuze and Guattari do not refer to minority and minoritarian in a quantitative sense. Becoming-minoritarian, for Deleuze and Guattari (1987), “is a political affair and necessitates a labor of power (*puissance*), an active micropolitics” (p. 292)<sup>7</sup>. Becoming-minoritarian, I believe, offers environmental education research opportunities to re/consider the micropolitics of the places we teach with/in, and the organisms that inhabit them.

In this light, one of the consequences I perceive of becoming-speckled warbler is the embedding of pedagogy within the complex relationships between a given species, its habitat, the land use pressures that shape its long-term survival, and questioning cultural assumptions about how we conceive of and use the natural world. Through becoming-speckled warbler environmental education research might strengthen the links between Australian natural history and the current socio-political focus on sustainability. Becoming-speckled warbler prompts me to question a number of issues relating to sustainability and land use in southern Australia. Is agricultural land use that leads to the localised extinction of native species sustainable? What might agricultural land use that sustains native species look like? Are our current approaches to urban development sustaining our native species? What might urban development that sustains native species look like? Do our existing government structures, legislation and management of land, both public and private, effectively protect the sustainability of our native species? What might education that addresses these issues look like? These questions serve to emphasise that becoming-animal, becoming-speckled warbler, becoming-native wildlife might act to re/create our understanding of environmental education where our notions of sustainability are not human-centred.

The pedagogy that I envisage might flow from becoming-speckled warbler involves spending time in their habitat, connecting with their life and circumstances, and exploring aspects of the above socio-political dimensions of their survival. Such an approach draws on the ideas that I have previously explored (Stewart, 2006; Stewart & Müller, 2009), however, I believe becoming-speckled warbler draws attention to the complexity of relationships between the ecological, cultural and political circumstances that shape the lives of Australian flora and fauna. Becoming-speckled warbler serves as a reminder that the survival of the more-than-human world is intimately linked to how we think about and act in their interests.

### Concluding Comments

Colebrook (2002b) suggests that while Deleuze’s work is often challenging he was in fact a practical philosopher:

He believes in, and carries out, the creation of concepts; but he does so for one reason only: the enhancement of life. The more difficult and challenging our concepts are, the more they allow us to change and expand our lives. A theory or philosophy which merely gave us an accurate picture of the world would



present itself as a supplement to life; but a philosophy which challenged the form and structure of our thinking would be an event of life (p. xii).

Although Australia might share some cultural histories with other colonial nations, many of our environments and much of our natural history is unlike other parts of the world. That invests Australian environmental education research with responsibility and opportunity that I believe is yet to be realised. The survival of many bird species of southern Australia is strongly linked to the knowledge we collect, and how we use that knowledge to manage ourselves and the landscape. Their survival is equally linked, I would argue, to how we think about, create and enact education. Becoming offers environmental education pedagogy a dynamic process to contemplate the power relationships between human and more-than-human world, and opportunities to reconceptualise notions of sustainability. I do not intend the stories, ideas and arguments I have assembled here to be read as *the* approach required to reinvigorate natural history within Australian environmental education. Rather, I offer becoming-speckled warbler as one strategy that might be employed to re/think and re/create environmental education pedagogy that reflects the natural history of this content. Halting the further decline and possible extinction of woodland birds in south-eastern Australia, I believe, will be linked to the capacity of Australian environmental educator-researchers to create alternative forms of education embedded in, and reflective of, the specifics of *Australian* landscapes and native species.

### **Acknowledgement**

The author would like to thank reviewers and the editor for their encouraging and thoughtful feedback.

*Keywords:* natural history; becoming; Deleuze; pedagogy.

### **Endnotes**

1. I am aware that there are many environmental education programs in Australia that reflect or revolve around the Australian natural history, see for example the program Birds in Backyards (<http://birdsinbackyards.net>). My point is that *research* on pedagogy informed by Australian natural history is in short supply (for an extended discussion see Stewart, 2006; Stewart & Müller, 2009).
2. The forests of central Victoria are predominately Box Ironbark. The over-storey trees where I observed these warblers consisted of red ironbark, red stringybark, and grey box. The healthy understorey consisted mainly of drooping cassina, gold-dust wattle, with a mixture of native tussock grasses.
3. The seven volumes of HANZAB are a comprehensive summary of all that is scientifically known about each bird species of Australia, New Zealand and Antarctica. Information covers things such as identification, habitat, distribution and population, relations with humans, movements, food, social organisation and behaviour.
4. Weston (1994) makes a very similar argument. For Weston “direct experience of real life” (p. 8), such as re/connecting with animals, is a key component of a new environmental ethic, one based on closer relationships between humans and the more-than-human world.
5. Previously I have observed (Stewart, 2006) that between 1995 and 2004 the *Australian Journal of Environmental Education* contained no pedagogical research relating to Australian natural history. With the exception of Stewart and Müller (2009), little would appear to have changed between 2004 and 2010.

6. While my focus here is on the speckled warbler, these pressures and issues of long-term survival are also true for many other woodland birds of south-eastern Australia.
7. A lengthier discussion of becoming-minoritarian, and majoritarian, is beyond the scope of this paper. For more detail, see Deleuze and Guattari (1987, pp. 291-2) or Colebrook (2002a, 2002b).

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# Goethe's "Delicate Empiricism": Assessing its Value for Australian Ecologists

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## Abstract

Johann Wolfgang von Goethe, recognised as a seminal German polymath, developed a unique approach for investigating nature, termed "delicate empiricism". Goethe's approach uses empathy, imagination and intuition to promote a participatory engagement with the world. It goes beyond the dualistic-rationalism that defines "conventional" ecological research and can lead to novel insights. "Delicate empiricism" was applied in an ecologically-degraded agricultural landscape in the Brigalow Belt, Queensland, Australia, and its potential for increasing landscape understanding and providing a basis for land-use design was assessed. It was found that Goethe's approach led to holistic, qualitative landscape awareness, not ordinarily accessible via "conventional science". Application of "delicate empiricism" also gave rise to a land-use design that reflected the Australian-ness of the Brigalow Belt landscape, particularly the potential for recovery of native biodiversity values through retention of regrowth vegetation. Overall, the study suggested that there is merit in educating Australian ecologists about "delicate empiricism" to encourage more creative and sensitive landscape management, that is in sync with the environment.

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## Introduction

Johann Wolfgang von Goethe (1749-1832), although known primarily as a German poet and playwright, was also a natural scientist. His areas of scientific endeavour were considerable, encompassing colour, anatomy, geology, meteorology and botany (Magnus, 1949; Seamon, 2005). However, it is not Goethe's discoveries, but rather, his unique investigative method termed "delicate empiricism" (Bywater, 2005; Robbins, 2005), that is relevant to Australian ecologists.

Goethe recognised the importance and power of the rational, analytical, quantifying, "conventional scientific" approach (as used by his contemporaries, e.g. Newton), yet he questioned whether it was the only way to develop meaningful knowledge about nature. Hoffmann (1994a) writes that Goethe often perceived "conventional science" to overlook, obscure or even destroy what was most precious about a living entity. According to Robbins (2005), Goethe saw scientists acting as detached controllers, manipulators and predictors of nature, who discovered knowledge of the world through

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quantitative analysis of phenomena under experimental conditions, where the world of human experience is reduced in meaning to simple cause and effect relations.

Robbins (2005) explains that in contrast to “conventional” scientists, Goethe did not work on the basis of there being a dichotomy between himself and the outer world. Seamon (2005) and Wahl (2005) highlight that Goethe sought to understand his surrounds in intimate, dynamic, living terms; in order to achieve a participatory engagement with nature (Seamon, 2005; Wahl, 2005). More specifically, Goethe’s approach is said to have involved paying focused and sustained attention to subjects (as opposed to objects), and using empathy, intuition and imagination as the basis for realising insights (Schilling, 2007; Wahl, 2005). Goethe reportedly avoided the use of preconceived categorisation and classification schemes, preferring an uninfluenced viewpoint (Hoffmann, 1994a; Schilling, 2007); and placed emphasis on secondary qualities, (i.e. raw qualities registered by our senses of sight, touch, taste and smell), rather than primary qualities, (i.e. measurable qualities that can be transformed into mathematical models) (Bortoft, 1996; Seamon, 2005). According to Robbins (2005) and Seamon (2005), by giving primacy to perception uninfluenced by scientific categorisation and focusing on secondary qualities, Goethe found subjects to become intelligible *within themselves*, without the use of external explanatory agencies such as mathematical abstractions.

A number of interpretations of “delicate empiricism” exist, and the method has been applied to a range of subjects including European landscapes, Australian native plants, granite outcroppings, animals and even social development processes (Brook 1998; Cameron, 2005; Colquhoun, 1997; Hoffmann, 1994a; Kaplan, 2005; Seamon, 2005; Vereijken, van Gelder, & Baars 1997). In the European landscape studies of Brook (1998), Colquhoun (1997) and Vereijken, van Gelder, & Baars (1997), “delicate empiricism” has been used to analyse and appreciate landscape appearance, form, function, context and metamorphosis through time. These studies have essentially sought to understand the “character” of their respective landscapes; and have used this understanding to inform land-use design.

The work of Brook (1998), Colquhoun (1997) and Vereijken, van Gelder, & Baars (1997) provided a foundation for the first likely application of Goethe’s approach in an Australian landscape ecology study, in the Brigalow Belt, Queensland. This application took place as part of the author’s PhD research, which also involved studying the Brigalow Belt landscape using “conventional”, reductionist scientific methods (Bradley, 2006). The purpose of this paper is to describe the application and outcomes of “delicate empiricism” and to assess its value for Australian ecologists.

### **The Brigalow Belt Landscape**

The Brigalow Belt landscape is so-named because it was once characterised by approximately 7 million hectares of native brigalow (*Acacia harpophylla*) vegetation communities (Department of Sustainability, Environment, Water, Population and Communities [DSEWPAC], 2011). In the second half of the 20th century, however, land-use in the Brigalow Belt was dominated by a desire to clear and control brigalow vegetation in order to utilise the landscape for agricultural production (Johnson, 1997; Seabrook, McAlpine, & Fensham, 2006). Due to this aspiration for rapid landscape transformation, more than 90% of brigalow communities have been destroyed or severely degraded (Department of Sustainability, Environment, Water, Population and Communities [DSEWPAC], 2011). Unfortunately, this has resulted in widespread biodiversity loss and impairment of ecosystem processes and functions. In recent years though, attitudes towards the Brigalow Belt and its native vegetation have begun to change. There is growing recognition that ecologically-sensitive styles of land-use



need to be fostered to preserve native biodiversity and landscape health, alongside supporting agricultural production (Seabrook, McAlpine & Fensham, 2006).

Goethe's "delicate empiricism" was applied in the Brigalow Belt in the midst of this changing mindset. The aim in applying "delicate empiricism" was to look at and understand the landscape in a different light, (especially compared with "conventional" scientific analysis and understanding), and then to use this new understanding to guide land-use design. The idea was to arrive at a design that was respectful of the "character" of the landscape, in contrast to the *status quo* design that had largely arisen from an agricultural development mindset.

Previous applications of the method in European landscapes were followed (i.e. Brook, 1998; Colquhoun, 1997; Vereijken, van Gelder & Baars, 1997), and an eight step process was worked through over four days in April 2006, within a 95 hectare paddock (or field) (Figure 1). This paddock was part of a 4410 hectare property located approximately 400 km west of Brisbane, and had been extensively cleared of brigalow vegetation and developed for agriculture. There were stands of regrowth brigalow, 11 years old (yo), along the northern, southern and western paddock boundaries, and stands of mature brigalow vegetation along the eastern boundary and in the centre, the latter surrounded by a vast expanse of cropping. Application of "delicate empiricism" was limited to a single paddock because 95 hectares was considered a sizeable area in which to trial the method. The eight step process and its outcomes are detailed below.

### Application of "Delicate Empiricism" in the Brigalow Belt

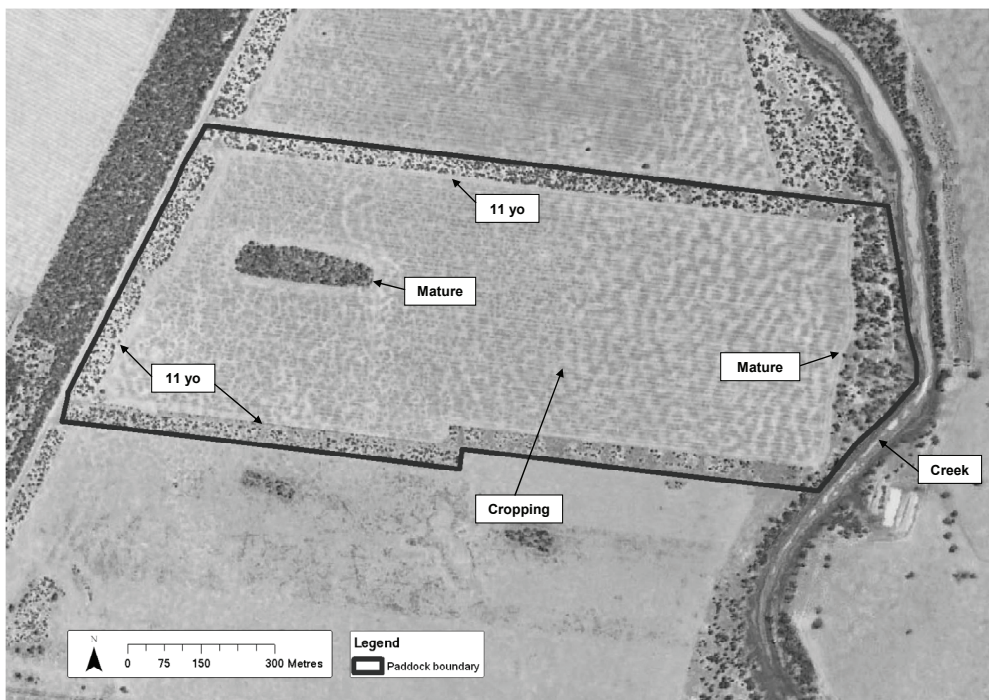


FIGURE 1: "Delicate empiricism" study site

*Step 1: The First Impression (Day 1)*

The First Impression was about developing a fresh vision of the landscape and establishing a foundation for land-use design. It involved walking slowly around the paddock for 4 hours, being completely open to and aware of all forms, colours, sounds and sensations. It was important to perceive the paddock as a “whole” but also the differentiated areas and boundaries within the “whole”.

Approximately 4 hours after leaving the paddock The First Impression was recorded from memory using whatever medium seemed most appropriate. The aim was to document a naïve description of what was experienced. This resulted in a drawing that reflected the “mood” of the landscape (Figure 2, original in colour) and some simple descriptive statements:

Paddock waiting with stoic solemnity –  
Anticipation whispered through the trees.

A biospheric dome of non-angularity  
Revealing spatial and temporal transition.

A wounded, tired, grieving Heart –  
Surrounding resounding stillness...

And yet – pulses of Life emerge  
Projecting strength beyond their form.

During step 1 the bragalow vegetation stand in the middle of the paddock revealed itself as the “Heart” of the landscape. This stand became a significant feature in the steps that followed.

*Step 2: Detailed Description (Day 2)*

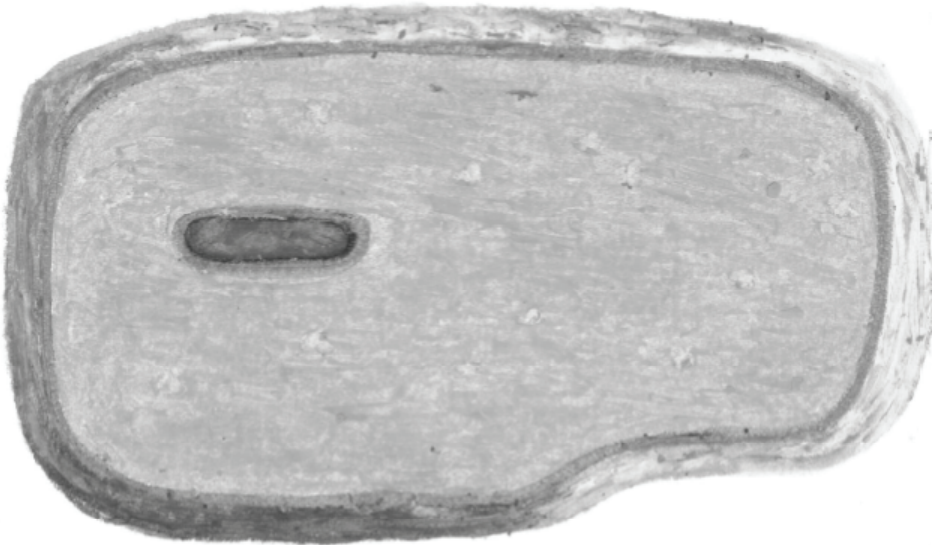


FIGURE 2: First impression “mood” drawing

A detailed dataset about the present and past character of the landscape was assembled, based on conversations with local farmers, historical aerial photographs and personal observation. Data from the first two sources had been collected previously, so day 2 focused on personal observation. This involved utilising the five senses and recording anything that could be experienced but without using personal judgement or evaluation (see Appendix 1 for examples). It was particularly important to set aside prior knowledge and avoid the use of scientific language or classifications when recording descriptions. This prompted the recording of details based on *actual experience* rather than simply recording details *about* the landscape.

Detailed description took approximately 6.5 hours, beginning early morning and working until late afternoon, with a few short breaks taken throughout the day to rest the mind and re-sharpen the senses. The goal with step 2 was to move from a tentative First Impression to a more established and firm appreciation of the landscape.

When one actively engages all five senses an incredibly descriptive and large dataset can potentially be collated. A vast accumulation of data is unnecessary, however; it is more important to be as precise and systematic as possible in detailing the subject of interest.

### *Step 3: Exact Sensorial Imagination (Day 2)*

This step involved using imagination in a systematic manner, to perceive the landscape moving through its history, to its present, and then into its future. The aim was to try and experience the landscape as if living in its flowing processes or changing forms, rather than simply observe a static representation (Brook, 1998). In other words, this step of "delicate empiricism" was about connecting within oneself what is already connected within the landscape, and in turn, strengthening one's relationship with it (Schilling, 2007).

Based on data collected in step 2, the paddock was visualised in as much detail as possible over a period of 15 minutes, at the end of day 2. Temporal change was firstly imagined for the paddock as a whole and then for separate sections or individual elements e.g. changes in the cultivation area with cropping cycles, growth and development of brigalow vegetation.

Step 3 proved challenging because it involved using the mind in an unconventional manner and visualising temporal change over a large landscape area (95 hectares) with various different elements. This type of "minds-eye" visualisation exercise is quite distinct from the computer-based, virtual landscape visualisation methods commonly employed in conventional landscape analysis and design (e.g. Bohnet & Smith, 2007; Muhar, 2001).

### *Step 4: Seeing in Beholding (Day 3)*

With this step the aim was to suspend all forms of active perception (e.g. those used in steps 1 and 2), and simply "receive" or behold the subject of study. The landscape was given an active role so that it could articulate its "meaning" to the observer, without becoming the subject of theoretical manipulations. Allowing a landscape to reveal itself in this way can often provide for a sudden flash of insight, as one encounters its identity (Brook, 1998). Essentially, "seeing in beholding" is about inviting inspiration to reveal the "character" of the landscape.

Step 4 was initiated by standing adjacent to the "Heart" stand in the middle of the paddock. A slow walk was then taken around the cultivation area, with the mind being open and receptive. During the walk a series of inspired thoughts were recorded based on "receiving" the paddock's "character":

Old, undulating Bed of Soil  
Carrying the vegetative memory  
Open, bare, grey, exposed –  
Lying in state – as it awaits –  
The next disturbance.

Profound silence in this open space  
Save the buzzing of persistent flies –  
They that linger ‘round corpses  
Their activity – heartless contrast  
To Death Bed’s stillness.

Young trees – respectful mourners –  
Surrounding the solemn scene.  
With vitality and strength beyond their years  
‘Tis their duty –  
To mark the Brigalow legacy.

And there’s a lively rabble of spectators  
Gathered at the bottom of the site.  
Down by the watering hole  
They seek light relief  
And reminisce about old times.

But spare a thought for the Landscape’s Heart  
Oh such aching and pain –  
Dishevelled and weary, losing form,  
Wondering how to survive  
The great land-use change.

Yes, the machinery and exotic plants –  
Come winter, will drive and thrive again.  
And stake their claim on foreign soil –  
Another nail  
In the Brigalow coffin?

No – grieve but for a moment,  
To new life, the Landscape gives rise.  
Bold suckers push through –  
Reclaiming, while exclaiming:  
“We want co-existence!”

*Step 5: “Being One” With the Subject (Day 3)*

Step 5 built on the previous steps and involved utilising intuition so as to come to know the paddock “from the inside”, and on this basis, to develop a sense of responsibility for

its future land-use direction. In essence, step 5 was about discovering the "theory" of the landscape based on direct, intimate experience (Schilling, 2007). This "theory" lies behind the landscape's "character" (step 4) and can provide guidance about future land management.

Step 5 was begun adjacent to the "Heart" stand then a slow walk was taken around the cultivation area. An intuitively-derived response was recorded during the walk:

Lying open, exposed

In vast Body of Land –  
Heart needs repair.

Draw forth young veins

Reinstate old circuitry –

Let Native rhythms

Pulse through Landscape

Again.

The step was completed with an abstract drawing (Figure 3, original in colour).

Delicate empiricism studies often end with step 5, after arriving at the "theory" of their subject. However, studies that seek not only to comprehend landscape "character", but to also use this understanding for landscape design, entail further steps. In this

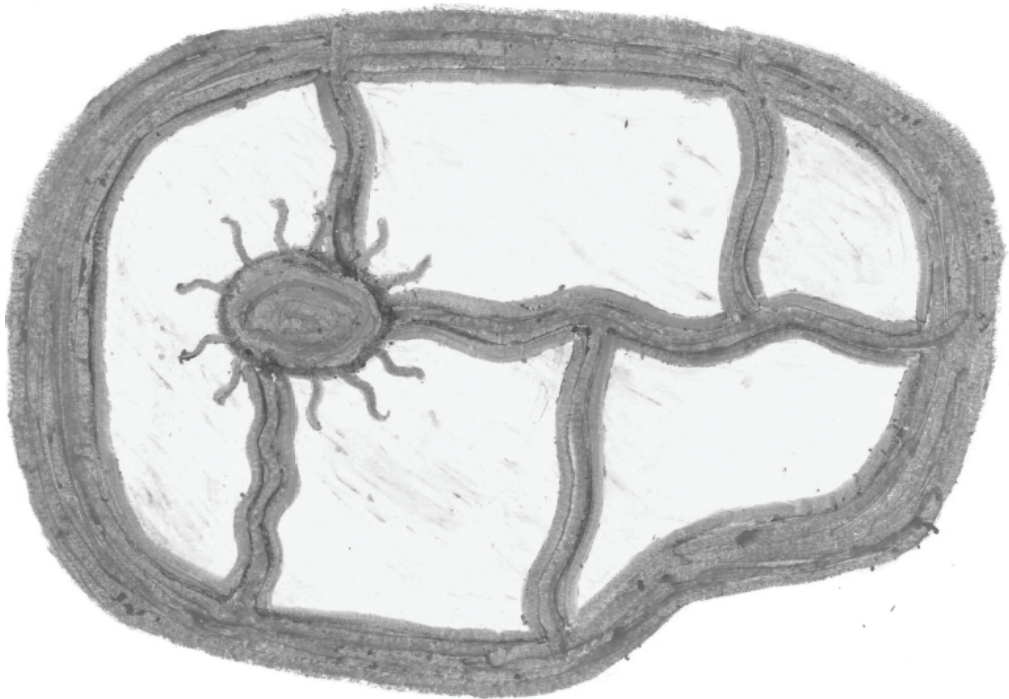


FIGURE 3: Intuitive response to "being one" with the landscape



case, the approaches of Colquhoun (1997) and Brook (1998) were followed and three additional steps were worked through to arrive at a new land-use design for the paddock. These steps mirrored the fourth, third and second steps described above.

*Step 6: Seeing in Beholding (Day 4)*

Active perception was once again suspended so that inspiration for land-use design could be drawn directly from the landscape. The paddock was entered at its south-western corner and then a slow walk was taken around its entire area, relying on inspiration to produce some fluid land-use design ideas:

Shroud my western entrances  
 Let my secrets unravel slowly,  
 May one catch their breath –  
 As they behold my Heart.

Extend arm of south-eastern border  
 Let it meet and greet the south-western,  
 And in areas vast and bare –  
 Let organic organs arise.

Number of organs? Let's see...  
 A dozen would do just fine,  
 For Heart to beat to borders  
 And borders to bounce energy back.

My playful eastern foot-end  
 That dangles by the creek,  
 Wants more space to splash about  
 Let it be to the watering point.

Unusual northern boundary  
 With soil and vegetation change –  
 Extend its width, either side,  
 Recognising its diversity.

And Heart – beautiful yet worn –  
 Requires strength and fortification,  
 Encase behind a generous boundary  
 So no intruders venture past.

*Step 7: Exact Sensorial Imagination (Day 4)*

Imagination was used for a second time, to perceive the paddock moving through its past, into the present and through to the future. Particular attention was paid to the future. The inspired ideas for land-use design (developed during step 6) were “tried out” in the imagination in order to determine if they could suitably “grow” in the paddock, given its preceding development history. Basically, the purpose of this step was to get a sense of what would be fitting land-use change (Colquhoun, 1997).



Use of exact sensorial imagination helped to determine that one western access/entrance point to the paddock should be for small vehicles and the other for larger agricultural machinery. It was difficult, however, to visualise exactly where the "organic organs" (i.e. patches of brigalow regrowth) should be positioned in the paddock, and whether twelve "organic organs" would be appropriate. The other ideas for land-use design seemed to fit appropriately with the evolution of the paddock.

#### *Step 8: Detailed Description – the Future (Day 4)*

The last step involved surveying the paddock on-foot and accurately detailing the new land-use design (Figure 4). Widths were determined for the paddock access areas (10 m and 30 m), for the extensions of the brigalow vegetation stands (20 m to 70 m extensions), and for a fenced buffer zone around the "Heart" stand (10 m). On the basis of the paddock survey it was decided that six "organic organs" would be more appropriate than twelve. The "organs" were sited and sized (0.05 to 0.08 hectares) according to already-present patches of brigalow regrowth in the landscape. Overall, the new design resulted in 35% native brigalow vegetation cover across the paddock, compared with 25% cover under the *status quo*. The application and outcomes of "delicate empiricism" are assessed below.

#### **Assessment of Goethe's "Delicate Empiricism"**

"Delicate empiricism" is a systematic process for engaging in different ways of thinking in order to dissolve the "conventional science", dualistic-rationalistic boundary between place and person (Brook, 1998). Previous studies have found that Goethe's approach can lead to the development of a greater openness toward and more holistic awareness

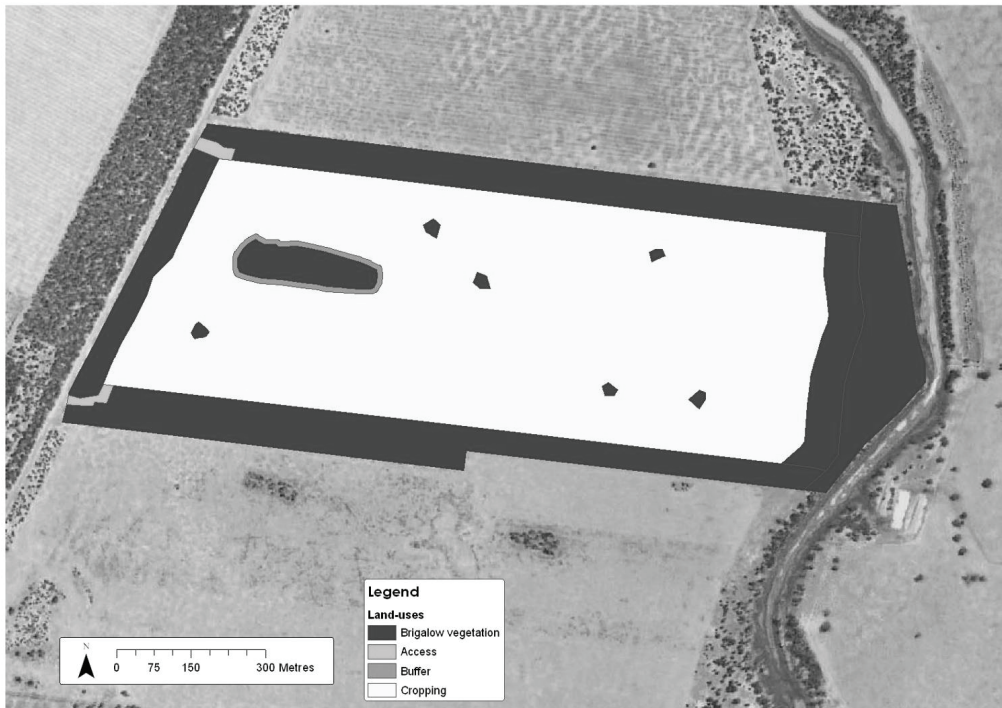


FIGURE 4: "Delicate empiricism" land-use design

of nature, and in turn, an attitude of concern, respect and responsibility for the subject, or landscape, of interest (Brook, 1998; Hoffmann, 1994a; Robbins, 2005).

When applied in an ecologically-degraded agricultural landscape in the Brigalow Belt, as part of my PhD research, “delicate empiricism” produced outcomes both tangible (i.e. poetry, drawings, land-use map) and intangible (i.e. strong personal connection with the landscape) that reflected the development of rich, holistic landscape understanding. This holistic understanding – mental, biophysical and emotional – is generally inaccessible using “conventional scientific” methods alone. It was through the application of “delicate empiricism” that a sense of the method’s validity was developed, alongside an appreciation of its potential for extending the present ecological paradigm.

Although systematic, “delicate empiricism” is undoubtedly a fluid process, with a thin line between different ways of thinking. Practitioners may find that they can combine or even discard different steps, and still arrive at a new landscape perspective. Practitioners may also find that the main strength of delicate empiricism is not necessarily in terms of land-use design *per se*, but more broadly in terms of how it allows one to develop a greater degree of empathy, a heightened awareness of, and a stronger relationship with their landscape of study.

Through applying “delicate empiricism” the Australian-ness of the Brigalow Belt landscape came to the fore. Firstly, the scale of agricultural practice in Australia, (e.g. 95 ha paddock, 4410 ha farm), is markedly different to that of Europe (e.g. 10–100 ha farms) (Smeding & Joenje, 1999), where “delicate empiricism” has been principally developed. Applying the method at larger landscape scales is mentally demanding and it is probably best to work with a team of people rather than as an individual. A group approach will allow for easier survey of large areas and be particularly invaluable for applying the method at an Australian farm-scale. Other potential advantages of group work include opportunities for dialogue with a range of people, especially farmers, and the uncovering of shared perceptions and generalisations about a landscape’s “character” (Brook, 1998; Vereijken, van Gelder, & Baars, 1997).

Another example of Australian-ness is the relatively recent broadscale land-clearing in the Brigalow Belt, with the majority of its native vegetation cleared in the last 50 years (Seabrook, McAlpine, & Fensham, 2006), as opposed to significant land-clearing occurring in Europe in pre-industrial times (Kaplan, Krumhardt, & Zimmermann, 2009). This relatively recent native habitat destruction in the Brigalow Belt, combined with the suckering capacity of brigalow vegetation (i.e. an ability to sprout freely from shallow, lateral roots), means that there exists real potential for landscape restoration and recovery of native biodiversity values, through the retention of regrowth brigalow vegetation (Bradley, House, Robertson, & Wild, 2010). This recovery potential was found to strongly influence and bring distinct Australian-ness to the “delicate empiricism” process, and in particular, the new land-use design, which depicted a 39% increase in brigalow cover (on an area, hectare, basis). Similar recovery of native biodiversity is unlikely to be possible in European landscapes, given broadscale land clearing occurred hundreds of years ago.

### **Implications for the Education and Practice of Australian Ecologists**

Some ecologists could regard “delicate empiricism” as a “soft” philosophical approach that has no place in the domain of “hard” science. However, given the significant land management challenges that we presently face in Australia, there is a recognised need to expand our intellectual horizons to more holistic, empathetic approaches, in order to arrive at novel solutions (Sinatra & Murphy, 1999).

It could be further argued that if we are to respond appropriately to complex ecological problems we need to be in sync with our outer environment. In the words of Reitan

(2005, p.77): "successfully sustainable human societies must...be as attuned as possible to their local and regional environments". In practical terms, this means that to carry out effective ecological research, that leads to sustainable landscape management, we must be cognitively supple, with a capacity to move beyond conventional paradigms and to fluidly transform our *inner* thinking just as fluid transformation is ever-present in landscapes of the *outer* world. Education in the way of "delicate empiricism" can provide ecologists with a systematic means for achieving such transformation.

Indeed, education in Goethe's approach can be seen as a form of environmental education that challenges "conventional" mental models in ecology and encourages greater creativity, flexibility and reflection. The latter three skills are recognised as being particularly important for working towards sustainability (in the case of the Brigalow Belt, working towards sustainable landscape management) (Tilbury, 2006). Hoffmann (1994b) has actually outlined a "Goethean Environmental Education", potentially useful for ecologists, which emphasises the cultivation of qualitative, intuitive knowledge, alongside the accumulation of 'facts' about an environment or landscape. Hoffmann (1994b) suggests that sound strategies for conservation and sustainable development are likely to be the creative outcomes of cultivating a deep relationship with an environment, and becoming more in sync with nature, through the application of "delicate empiricism".

Finally, it is important to consider our expression of landscape perceptions and understanding. Do we make an effort to engage personally with the landscapes in which we do research so that our communication is compelling and heartfelt; or do we only form a strong landscape connection in the initial stages of research and then lose ourselves in mathematical abstractions? If we want to tell powerful landscape stories, convey strong conservation messages and develop engaging landscape designs that reflect a real sense of Australian-ness, not just "textbook" conservation principles, we need to be able to understand landscapes both qualitatively and quantitatively. In an ecological context, "delicate empiricism" is arguably best used in a complementary manner alongside "conventional scientific" studies. "Delicate empiricism" can establish a creative, sensitive, qualitative design foundation and then "conventional science" can be used for design fine-tuning and rigorous quantitative evaluation. Ultimately, if we are educated, practising and communicating as bilingual (qualitative and quantitative) scientists, we are likely to deepen and enliven our research and reach a wider audience.

### Acknowledgements

Appreciation is shown to Silke Schilling for providing an introduction to "delicate empiricism". Thanks to the Lush family for granting access to the field site and to Stuart Brown for assisting with creation of the land-use maps. Alan Andersen, Alan House, Fiachra Kearney, Danielle Spruyt and two anonymous reviewers gave helpful feedback on earlier versions of the manuscript.

*Keywords:* delicate empiricism; Goethe; holistic; conventional science; ecologists; landscape; Brigalow.

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### **Author Biography**

Melanie Bradley's interest in Goethe's "delicate empiricism" was developed during her landscape ecology PhD. The holistic, qualitative aspects of "delicate empiricism" have particularly influenced her approach to scientific research and communication, and her appreciation and understanding of landscapes. Melanie is currently the Policy Officer for the Environment Centre NT, which is the peak non government community environment organisation in the Northern Territory, Australia.



# Experiencing Beach in Australia: Study Abroad Students' Perspectives

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## Abstract

The current “Australian-ness” of outdoor environmental education is an evolving “set” of socio-cultural constructions. These constructions can be interpreted within the circumstances of an empirical study of tertiary study abroad students’ participation in an undergraduate semester long unit “Experiencing the Australian Landscape” (EAL) as an ambivalent mixture of belonging and beach, or solidity and fluidity. This ambivalence imparts various meanings within and about the Australian context of beach as a “place”. The study is based on an interpretive mixed method ethnographic and phenomenological small-scale case study. It finds that the beach experience is influenced by various social discourses, such as neo-colonialism, individualism and mobility. Participants experienced the beach in a fluid sense of non-belonging, despite the EAL intention of fostering a place-responsive pedagogy. In order to understand their experience and its alleged link to an enhanced environmental awareness, an embodied dialectic descriptive interpretation of place experience is suggested.

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## Introduction

Outdoor environmental education in Australia has a somewhat confused identity largely due to being an uncritical “set” of sometimes imported and mediated social and cultural constructions (Payne, 2002, p. 5). The enigmatic, sometimes, contradictory nature of outdoor environmental education persists despite some promising examples of recent research that have selectively emphasised some of the intersections of the “natural” and “cultural” as it might be found in Australia (for example, Payne & Wattchow, 2009; Stewart & Muller, 2009). Thus, it is possible that the “Australian-ness” of outdoor environmental education is a local or national project worth pursuing when globalising forces in education increasingly confront the pedagogical prospect for naively fostering an Australian “place” identity, if indeed that is important. Following Payne (1983), Australian outdoor education has drawn sporadically from the discourse of environmental education over the past two decades (for example, Brookes, 1993; Lugg, 1999; Martin 1993, Thomas & Thomas, 2000). More recently, a nascent pedagogical movement highlighting the characteristics, qualities and virtues of “place” has been promoted in Australian outdoor environmental education (for example: Birrell, 2001; Brookes, 2002; Stewart, 2004; Wattchow, 2005).

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The exploratory small-scale interpretive study reported on below aims to examine critically the emerging role of place in the discourse of Australian outdoor environmental education (Garrard, 2010), but significantly and originally from a more global perspective of study abroad (or international) students at an Australian university. The research participants were undertaking a one-semester undergraduate third year level outdoor environmental education unit, "Experiencing the Australian Landscape" (EAL), at Monash University in 2009 that included two fieldtrips to the beach, or more generally to places on the coast. Experiential learning is a central part of this unit. Focussing on study abroad students is relevant for Australian outdoor environmental education and the interest in place and its pedagogies in at least two respects. First, Australia, including its tertiary education sector, has increasingly been exposed to globalisation (Australian Education International, 2009), and place-responsive outdoor environmental education units are recommended for study abroad students as a way of experiencing Australia (Monash University, 2010a). Second, study abroad students can be seen as an example of postmodern cosmopolitan beings who do not belong to one place but globally move across borders, physically and imaginatively (Gunesch, 2007; Rizvi, 2005). Considering our current mobility (Urry, 2007), study abroad students' place experience is informative as an archetype (Weber, 2002) for a deeper consideration also of "local" students' place experience.

This paper comprises three main sections. In the first section, using EAL as a text, adopting Bauman's (2000) socio-physical concept of fluid and solid, a set of two contradicting elements will be identified as potentially constituting a distinctively Australian feature for interpreting study abroad students' experiential learning in EAL. They are *beach* and *belonging*. While the former historically relates to the significance of the liminal space (Turner, 1974) for the "new" settlers to narrate "Australian-ness" (Drew, 1994; Dutton, 1985; Fiske, Hodge & Turner, 1987; Huntsman, 2001), the latter can be understood as the Antipodeans' counteractive expression of loss and want (McLean, 1998).

However, as will be developed via conceptual and empirical means in this study, the notions of place and belonging to it, or dwelling in it (Garrard, 2004), must be treated cautiously in the postmodern Australian context for at least three reasons. First, making a claim for belonging in Australia by non-Indigenous Australians may be a sensitive issue due to the consequences of Australia's colonial history. Any fleeting expression of belonging in place can be challenged as an act of *neo-colonialism* (Plumwood, 2000), particularly when considered against the much longer term histories and legacies of Australia's indigenous populations. Second, the rise of *individualism* (Hales, 2006) may well have decreased the relevance, appropriateness and importance of place (to which one potentially belongs to) by a weakening of the meaningful social ties of those individuals with communities, families and their historical ways and geo-political settings of being together and taking responsibility for each other in certain locales. Third, *mobility* (Urry, 2007) as a counterforce challenges the traditional notion of belonging or dwelling, by conceptualising (local) place as progressively (Massey, 1994) relative (Appadurai, 1996) and/or agents as cosmopolitans.

Despite the pedagogical difficulties associated with uncritically assuming that students, local or international, can fleetingly belong somewhere or in some place in the current social condition in Australia, successful outcomes of place-responsive pedagogies have been reported and claimed (Stewart, 2004; Wattchow, 2008a). However, as Wattchow (2007) also observed among his students, different types of place experience other than belonging can be identified in place-responsive outdoor environmental education. In the third section, based on a mixed method case study of a small sample of study abroad students' experiences *of* and *in* (Malpas, 1999) Australian beach, two

additional phenomenological themes (van Manen, 1990), “*tropical projection*” and “*filling in a map*”, will be suggested that help express this under-researched and under-theorised difference in the ways that claims are made on belonging and place.

### **Beach and Belonging**

In Australia, the curriculum and pedagogical field related to outdoor education has been largely an import from the United Kingdom, Europe and, more recently, North America. Recently, merging with some “existential” type “currents” (Sauve, 2005) of environmental education, belonging to “place” has become a more influential discourse within Australian outdoor environmental education.

EAL, a semester-long undergraduate level outdoor environmental education unit offered at Monash University in Melbourne, is one of the representative examples (Payne & Wattchow, 2008). As well as taken by local students of outdoor education towards the end of their degree programs, EAL is promoted as a “uniquely Australian option” (Monash University, 2010a) for study abroad students who usually stay at Monash University for one semester to one year. EAL is particularly popular among study abroad students at the Clayton Campus where the majority of them study. In 2009, when Nakagawa attended as a participant researcher, 30 out of 32 students who enrolled in the unit were study abroad students. In addition to the weekly lectures, the students were required to participate in fieldwork twice during the 13 week semester for three to four days each: the first fieldwork program was to Point Leo in Mornington Peninsula; the second one to the Wilsons Promontory National Park. Both of these locations are on the Victorian coast in Southeast Australia. The fieldwork excursions primarily focused on the beach where students participated in activities such as snorkelling, rockpooling and beachcombing. The fieldwork programs are titled ELP’s – experiential learning programs that, allegedly, “recycle” with the university based academic learning program (ALP) and, if well recycled, are claimed to represent a fuller notion of experiential education (EE) (Warren, Mitten & Loeffler, 2008, see also Dewey, 1938/1991). We focus only on students’ experience of the ELP part of the unit given that strong educational claims in outdoor environmental education are often associated with the pedagogical values of learning through “direct” experience via a set of certain activities.

Besides the focus on the beach, “sense of place” was another emphasis in EAL (Monash University, 2010b). In this context, the term generally means “the subjective and emotional attachment people have to place” (Cresswell, 2004), rather than a value-free psychological phenomenon. Sense of place has been rephrased, with a positive connotation, such as “topophilia” (Tuan, 1974), “insideness” (Relph, 1976), or “belonging” (Wattchow, 2005) to indicate its significance not only for our identity development and transitions over time but allegedly also for the benefit or well-being of nature. At this point the environmental value is assumed or promoted within outdoor environmental education. Wattchow (2005) writes:

A focus on relationships with nature in Outdoor Education has gathered momentum in recent years and now a major component of most programs... In many ways this focus echoes the broader community’s attempts to explore a relationship with Australian nature... It represents part of a collective exploring to find a place we can identify with in the deepest sense – a place we can call ‘home’. (p. 14)

As Martin Heidegger (1993) suggested, to dwell in a place like home is to care and spare, and modern environmental deterioration can be improved if nature *in a particular place* becomes our home and consequently if we learn to apply the particular

positive relationship with the place to the wider environment. The two three-to-four day fieldtrips in EAL, particularly the one to Point Leo, are designed for its students to feel a sense of belonging, as one of the course objective is specified as to “identify how educational approaches can contribute to a deeper understanding of outdoor experiences and place attachments” (Monash University, 2010b).

The purposes of EAL, therefore, can broadly be characterised by these two elements: *beach* and feelings of *belonging* there fostered pedagogically as “immersing” in, “attaching” to, and developing an affinity. This combination of beach and belonging, employing Bauman’s (2000) socio-physical metaphors of *fluid* and *solid*, is unique in the sense that those phenomena are of opposing social ontology. Bauman writes:

Fluids, so to speak, neither fix space nor bind time. While solids have clear spatial dimensions but neutralize the impact, and thus downgrade the significance, of time (effectively resist its flow or render it irrelevant), fluids do not keep to any shape for long and are constantly ready (and prone) to change it ... (p. 2)

In other words, the beach as the fluid is a *mobile* place where the flux of tide is continuously changing, whereas the belonging as the solid is an act in a *fixed* place to which one attaches over time.

These somewhat contradictory opposing metaphors as signs are not limited to their physical aspects but can be extended to the socio-cultural and ecological levels where their particular meanings are historically constructed. Bennett (2007) wrote that the liminal topology of the beach has been typically adopted by Australian writers, such as Robert Drewe and Tim Winton, to dramatise the national psyche. This is, however, not to generalise “Australian-ness” of Australian outdoor environmental education through EAL; rather, it shows how the two competing conceptualisations of place are tied together and somewhat non-problematically included within the pedagogical discourse of Australian outdoor environmental education. By introducing this puzzle for interpretive purposes, our aim is to both confuse and clarify the concept (and practices) of “Australian-ness” itself, but from the broader globalising imperatives and perspectives of study abroad students’ various experiences of EAL.

The fluidity of beach as a broad construct is closely associated with its physical setting where the border of land and sea constantly changes. However, it also influences how we make (or do not make) sense of place on the beach. This is due to its topos of “in-between place” (Bærenholdt, Haldrup, Larsen, & Urry, 2004, p. 51). Consequently our performance in the beach bears a liminal character in which we transit (therefore do not belong) and transform ourselves (Turner, 1974). In the modern capitalistic urban society, the transformation often takes the form of recreation in which the labour force as a way of life is rejuvenated and reproduced, although leisure time is also socially organised and recreation is indeed an embodied praxis (Abbas, 2004). The beach, thus, is not a place to belong but primarily a “place” to visit and play. The “times” spent there and the “nature” of the experience of that “nature” form warrant critical attention if strong rhetorical claims are made for “place pedagogy” and, indeed, experiential learning and education in outdoor environmental education (Payne, 2003a).

This liminality of beach is particularly relevant in Australia where the beach is a widely recognised national symbol (Broeze, 1998; Phillips & Smith, 2000). This is due to how Australia has been positioned historically as well as geodemographically as a British colony. The new settlers often had an ambivalent relationship with Britain and the centre of Australia in which the semantics of inside/us and outside/them were occasionally replaced with each other (Drew, 1994). Lifesavers on the beach have been a caricature of national heroes who colonise the beach as the natural frontier into

the human domain (Fiske, Hodge & Turner, 1987). The beach is an egalitarian place where social status symbols are shed with clothes (Dutton, 1985). The beach as a liminal becoming place implies the multiculturally transitional dynamism Australia faces today (Huntsman, 2001). The symbolism of beach is a partial history of modern Australia itself.

Belonging also has a special meaning in Australia. McLean (1998) argued that modern Australia's origin is oceanic, which unconsciously represses non-Indigenous Australians to be refugees. McLean traces the settlers' efforts to make sense of Australia in landscape art and concludes that it was not an easy process: he writes "[t]he scar Australians bear is antipodality" (p. 7). Belonging is still a culturally sensitive issue, as a well-known debate between Plumwood (2000) and Read (2000) strongly suggested. Plumwood asserted, referring to the history of colonisation, any non-Indigenous way of connecting to the land in Australia is not appropriate. Read argued that place attachment is a personal phenomenon that can be parallel to others. Belonging in Australia is, therefore, perhaps desirable but can be an expression of loss and want, and its various tropes have been revealed in ecocriticism as a way to represent culture-nature relations historically (Garrard, 2004).

### **Problems of Belonging**

Beach as many Australians understand it historically and the notion of belonging have been identified as major yet ambivalent aspects of EAL. Here, belonging is considered in relation to the complex social conditions in which we are positioned today. The hope or anticipation for belonging, as it might occur in contemporary Australian society, must engage with the discourses of *neo-colonialism*, *individualism* and *mobility* if it is to have any validity or credibility in any claims made educationally for a place responsive pedagogy.

The debate between Plumwood and Read suggests that it is not only the mentality for belonging which may be a particular cultural element of "Australian-ness" but also the sensitivity required to deal with the phenomenon in relation to Indigenous Australians. Otherwise an act of belonging may also be an act of neo-colonialism in which the meaning of the land is reconstituted as newly acquired territory into the web of the colonial power.

Neo-colonialism is also implicit when Australian nature is perceived as wilderness (Rose, 1996; see also Nash, 1982 for how the notion of wilderness and desire for it has been played out in and on the American Mind, and influenced that set of constructions of Australian outdoor education). Griffiths (1996) warned that such an idea is another form of *terra nullius* in which the histories of Indigenous Australians are erased and their existence is categorised as part of nature, thus non-human. In relation to outdoor environmental education, wilderness extends into two aspects: wilderness to be technologically conquered; and wilderness to be worshiped as the dualistically contraposed antipode of the industrial urban (Cameron, 2001; Cronon, 1996). For example, while Wattchow (2008a) maintained that belonging, or "an intimate, sensory and an embodied response to the river place itself" (p. 12), as a theme that was identified among his students and that it possessed a great value for the place-responsive pedagogy in outdoor environmental education, he (2007) also observed two major differing themes, "rivercraft" and "romancing the river" which both derive from the concept of wilderness. Rivercraft refers to concerns related to one's skills for the mastery of wilderness, while romancing the river is a perspective in which nature as wilderness is separated from human and its abstract experience is prioritised over the experience in the river place itself.

Individualism also problematises belonging. In the discourse of outdoor (environmental) education, Hales (2006, p. 53) observed that “place has become less important in the construction of individual identity and the shaping of social relations”. He argued that this is due to the rise of individualism. In order to theorise individualism, Hales employed the concept of “risk society”. Beck (1992) argued that due to rapid socio-technological advance, human risks such as environmental deterioration and social deviation have been significantly increased in the modern age. Within this risk, Beck also was critical of the privileged middle class “escape” to wilderness and desire for nature. If used as a form of critique, the wilderness-nature intersection beyond those everyday risk cultures actually obfuscated social critique because, according to Beck, such a “naturalistic misunderstanding” constituted a “morality beyond morality” and critique of society beyond social critique. In order, therefore, to deal with the complexity of the risks, our knowledge becomes more dependent on the professionals who foresee the risks in advance with specialist knowledge rather than relying on the traditional communal institutions. In relation to individualism, knowledge of individuals (and also individual identity, if it is valid to say that identity derives partially from knowledge) is cut off from a *gemeinschaft* (Tönnies, 1974), or a homogenously communal place to belong. Instead, it is alienated in the space of professional knowledge.

Place, or more precisely its semantic solidity in this context, is also threatened by “time-space compression” (Harvey, 1990) due to the technological advancement of communication and transportation and other forms that accelerate the “fast” individualisation and intensification of what Payne (2003b) has referred to as the technics of experience in environmental education. Acknowledging the significance of a heightened *mobility* in postmodernity, a challenge is thrown up to the relevance of traditional anthropological place where its cultural integrity is supposed to be independently unique (Augé, 1995; Meyrowitz, 1985; Ong, 2009). Rather than being solidly independent against others, place “progressively” changes reflecting its internal co-existence of plural narratives (Massey, 1994).

Agency is also affected by mobility. An understanding of mobility as a social phenomenon, Urry (2007, p. 141) argued, requires a consideration of social organisation of human subjectivity as well as objectivity of place, in order to avoid both linguistic and technological determinism (see also Robertson, 1992). In *Tourist Gaze* (1990), applying Foucauldian governmentality (see Foucault, 1990 for the difference between “right of death and power over life”) Urry suggested that modern subjects have embodied the discourse of relative and mobile, thus consumable, place, which is often generated by tourism professionals. Tourists practise the internalised discourse and gain pleasure, which also results in reproducing the authority and capital of the tourist professionals.

Although place-responsive outdoor environmental education strives to facilitate affinity to the more-than-human world (Abram, 1997) at the level of sensuous embodiment or pre-discursive/practical consciousness (Giddens, 1984), our place experience can be also influenced by ontological historical realities, such as neo-colonialism, individualism and mobility, within which we are situated. Indeed, Merleau-Ponty (2002) emphasised that our embodied perception is neither only sensuous (empiricism) nor only conceptual (intellectualism). Rather, the body is *emplaced* (Pink, 2009, p. 25), that is, our body is embodied into *a certain space and time* which attributes certain existential conditions to our perception. Merleau-Ponty explained: “I am not an individual beyond class, I am situated in a social environment, and my freedom, though it may have the power to commit me elsewhere, has not the power to transform me instantaneously into what I decide to be” (p. 520).

On these three thematic grounds, there is, therefore, considerable importance in critically interpreting study abroad students’ archetypal experiences of beach in



Australia and any alleged belonging to it in rhetorically claimed place responsive pedagogy that, in reality, occurs over two very short temporal periods of three to four days of peripatetic “experiential learning” at different beachscapes. In the following section, referring to the qualitative data gathered from a small number of study abroad students who were enrolled in EAL in Semester One 2009, a few types of place narratives lived (Entrikin, 1991), or *speaking of* place (Wattchow, 2008b), that differ from belonging will be used to highlight the complexity of place experience.

### **Study Abroad Students’ Experience of Australian Beach**

In this section, based on an interpretive mixed method ethnographic and phenomenological small-scale case study of a sample of study abroad students, the findings reveal two major themes of students’ lived experience of Australian beach. The themes differ from the notion of belonging given in the relevant place literature of outdoor environmental education. The four research participants (with pseudonyms) in the study were one Israeli female (Abby), one American female (Brigitte) and two American males (Chris and Don). All of them were in their early to mid twenties at the time of data collection. Triangulation (Creswell, 2007, p. 208) of the multiple sources of data was employed to increase the plausibility, credibility and richness of the interpretation of the data. The data sources included: individual semi structured and conversational interviews of approximately 60 minutes each with each participant three times over the duration of a semester, adopting the general interview guide approach (Patton, 2002, p. 349); participants’ unit journals as protocol writing; and thick description of the sample through ethnographic participant observation (Emerson, Frez & Shaw, 1995; Geertz, 1973) during the weekly academic class meetings and the two three-to-four-day fieldtrips, in which Nakagawa attended as a student/researcher.

The locations of these two fieldtrips were Point Leo and Wilsons Promontory. Point Leo is located on the shore of Western Port Bay near Phillip Island, a well known tourist site for international tourist, 70 kilometres to southeast of Melbourne. Point Leo is a preferred place among campers who enjoy water activities such as surfing and boating. Wilsons Promontory lies approximately 200 kilometres southeast of Melbourne. Known as “The Prom” among Victorians, it is one of the most popular National Parks in Victoria not only for family camping at the town of Tidal River but also for more serious overnight bushwalking, now often renamed as “backpacking” following the cultural logic of North American outdoor education and recreation. Although beach was a main focus in both of the fieldtrips, due to their coastal locations as well as the fact that “beach” is part of “coast” in our daily language usage, the terms “beach” and “coast” were often used interchangeably by the research participants in their interviews and writings.

Each method and its sourcing of data provide a particular form and limited type of representing the participants’ experience of Australian beach. This “messy” methodological “assemblage” (Law, 2004) was used to satisfy as best as possible the aims-means-ends congruence now demanded in the framing of environmental education research (Reid, 2009) and in this critical ethnographic study of the phenomenological understandings of study abroad students’ lived experience and, possibly, sense of belonging in or of an Australian beach. For this double hermeneutic re-representation (Giddens, 1984, p. 284), van Manen’s (1990, p. 101) four fundamental lifeworld existential aspects are adopted as providing a conceptual and contextual framework for the methodology. They are: *spatiality*; *corporeality*; *temporality*; and *relationality/communality*. Within this framework, due to the limitation of words in an article like this, this paper primarily focuses on the dimension of existential spatiality, although those four lifeworld existentials are inextricably intertwined with each other through



which a fuller meaning of their beach experience is interpreted and constructed. In adopting this interpretive frame, two other themes of place experience emerged that appear to be particularly relevant for study abroad students in Australia. They are “*tropical projection*” and “*filling in a map*”. Examples related to each theme are provided so as to highlight the problematic nature of claims being made about both a pedagogy of place and the belonging that can potentially be attributed to it.

Experience is a complicated matter (Fox, 2008). As such, when meaning of place experience is interpreted in relation to spatiality, it is crucial to examine the potential metaphysicality of space as well as the influence of spatial physicality, and this is to be cross-referenced to other lifeworld existentials (for instance, see Thrift, 1993 for the inseparability of space-time). For the study abroad students, the beaches they visited in EAL were not only the spaces filled with physical objects (e.g. water, sand, etc.) but also metaphysically and metaphorically representing aspects of Australia as “imagined community” (Anderson, 2006). One common imaginative projection of “Australian-ness” onto those actual beach places was the idea of the tropical, in relation to the world-famous Great Barrier Reef in north-eastern Australia. On the first page of Brigitte’s unit journal, a map of Australia was drawn and only included the locations of Melbourne and the Great Barrier Reef. When Chris first arrived in Melbourne, he was very determined to visit the Great Barrier Reef so as to best characterise his Australian experience in the limited time he felt available to him as a study abroad student:

*I'd say the top thing I want to do is to see the Great Barrier Reef. (Chris, First Interview)*

Other study abroad students also positioned themselves according to their tropical imaginary, particularly into their first fieldtrip to Point Leo. It was above all during the snorkelling activity when they realised through their bodily senses that their pre-conceptions of the “Australian-ness” did not match with this particular beach place. The result was, at least initially, negative.

*I'm not dealing well with the weather, the cold weather, I mean. I was really cold and I started coughing. I even cough until this day since we went snorkelling. (Abby, Second Interview)*

*Snorkelling sounded exciting because you'd expect like something, somewhat tropical, but it seemed like everything that we saw was really grey and a lot of seaweed. And it was a lot of shallow water. (Don, Second Interview)*

*I didn't like when we were snorkelling. He [the instructor] said to look for fish and everything and I could not see a thing. It was so murky and full of seaweed, and I guess this kind of goes back to my former perception of Australia. When you think of snorkelling you think of like very clear pristine water with colourful fish, so that's kind of what I was thinking when we were going there ... First of all it was cold in the water and second of all I didn't even see anything cool. (Brigitte, Second Interview)*

These data extracts demonstrate how they thought about an Australian beach, and experience of it, was, indeed, preconceived and heavily coded with these symbols: tropical warm weather, abundance of colourful fish, absence of seaweed, and pristine deep water. In Point Leo, however, the beach was the total opposite: cold, no fish, abundance of seaweed, and murky grey shallow water. These characteristics of the beach in Point Leo were perplexing for those study abroad students who were imagining the snorkelling space to be like the Great Barrier Reef. They struggled to have any

positive feelings or awareness of attachment to the beach place. Their sensibility was, essentially, one of disappointment. Pedagogically, it appears that if the conditions for snorkelling were inappropriate, then the instructor was most likely more concerned and “locked into” delivering the snorkelling activity.

This negative snorkelling experience in Point Leo was, however, not totally negative for them. This leads to the second theme of “filling in a map”. Brigitte reflected her snorkelling experience as the following:

*I guess that was the point, you know. There're all different water environments ... they are not all going to look like Cairns and the Gold Coast. I mean, this is Point Leo, this is what this water environment looks like and it doesn't look like those. So it was negative at that time but I guess now I'm reflecting on it and it's not a bad thing. (Brigitte, Second Interview)*

Clearly, Brigitte acknowledged the diversity of beaches. Snorkelling at Point Leo was perhaps negative for belonging, but it was positive for experiencing the otherness of Australian beaches with which she might then construct a larger picture of her Australian-ness. It is “larger” in the sense that her knowledge of Australian-ness spread “horizontally” rather than deepened “vertically”, as in filling in a map of Australia with diverse places that they had visited. This horizontal knowing of Australia is also observable in the following extracts.

*It influenced my idea of Australia because you got to see another part of it, something I hadn't seen before ... It's just more of getting the knowledge and being able to say that you saw that area ... It's more sort of filling in a map, like I have been there and yeah I have been there and know what it looks like. (Don, Third Interview)*

*I know more about Australia because I got to see two areas that I guess wouldn't be able to see if I wasn't doing this unit, like Point Leo and Wilsons Prom. I got familiar with these two areas ... like geographical places that belonging to Australia. (Abby Third Interview)*

The diversity of experiencing two beaches only in EAL also brings pleasure of experiencing something new.

*It was a good experience because, you know, you are going to the beaches ... like Bells Beach or other beaches like St Kilda ... they kind of get redundant. They kind of get the same and it's good to know that natural beaches are right there like Point Leo and Bushrangers Bay. It's good to know that, you know, there are other things out there, not everything is the same around the coast. It's different no matter where you go. I love the fact that I have experienced two different kinds of beaches now. (Chris Second Interview)*

A preference for seeing more places horizontally and, presumably, superficially over staying in one place for a longer time to understand the place from inside is common among study abroad students (Gmelch, 1997; Papatsiba 2006), and this is partially due to their high mobility. As the moving and mobile body is also gendered (Kiewa, 2001; Newberry, 2003) and sexually-oriented (Dignan, 2002) to a degree that modifies the nature of place experience, their body is also mobilised (Urry, 2007) in particular ways so as to embody a “tourist gaze” (Urry 1990) as a desire to see as many spatial features as preferred sites within a limited, if not compressed, time. The above two themes are its consequential configurations in relation to spatiality: study abroad students brought in their pre-conception of Australia that was globally generated and circulated

by tourism professionals (“tropical projection”) and other sources or mediums such as the movie “Crocodile Dundee”; and understood the country two-dimensionally utilising the highly mobile network and gained pleasure by experiencing differences (“filling in a map”). These themes, which relativise the very notion of place, suggest a fixed physical/emodied notion and static spatial-temporal notion of belonging must be approached cautiously while its experiential pedagogies need to be treated as problematic.

Addressing the mobility factor as a significant historical reality, Payne and Wattchow (2008; 2009) critically challenge outdoor environmental educators to consider “slow pedagogy” as a pedagogical option to the peripatetically fast in outdoor education that, for many years, has been characterised as the celebration of the “journey”. Distance and/or height are emphasised pedagogically; often the more the better for experiential learning. Payne and Wattchow’s slow ecopedagogy is alternative in that it encourages the pedagogue to “pause or dwell in spaces for more than a fleeting moment and, therefore, encourages us to attach and receive meaning from that place” (2009, p. 16). However, a question still remains: if individualised intensification and “compression” of the spatiality and temporality of “experience” lived is a predominant attribute among study abroad students, can slow pedagogy convince or persuade otherwise their exotic/global and mobile/journeying desire to see as many things as they possible on their respective or collective sojourns into “nature”?

## Discussion

The above conceptual and empirical sketches of two spatial themes of study abroad students’ experience of Australian beaches raise some interesting questions about the notion of “Australian-ness”, at least of their interpretation of experiences of its “place”, and now it appears more enigmatic than before. Australian beach was imagined to be somewhere tropical, which was soon to be deconstructed by the sample into being considered as one part of a more diverse form of “Australian-ness”. What does “Australian-ness” mean now after a stereotype has been negated then synthesised into a systematic category? Does it differ from, say, “American-ness” or “Israeli-ness” in the globally mobilised world? How does place-responsive pedagogy or slow pedagogy affect meaning of placeness (or placelessness)? What are the roles of the other lifeworld existentials, especially of temporality, in relation to spatiality? This paper cannot answer to those critical concerns but only seeks to raise issues and questions around them to be researched further. They are, to name some: place and mobility; localisation and globalisation; semantic relationship among different geopolitical units represented by the term “place” (e.g. city, state, nation state); and hermeneutics of lived place experience. And, while we have studied international study abroad students’ perspectives, we feel that the questions raised above are equally salient to, for example, students who see themselves as Australian, or identify strongly with it. Moreover, we have flagged how other constructions such as gender, physical ability, and class will, indeed, shape the experience of, for example, beaches and other “places”, environments and “natures”.

Meanwhile, for claims to be made about Australian place-responsive outdoor environmental education, a critical examination of “Australian-ness” is still relevant, as is the pedagogical place of experiential learning in the absence of theoretical or academic interventions such as we have undertaken here in incorporating, for example, themes concerning colonialism and globalisation. If one current aspect of “Australian-ness” within Australian place-responsive outdoor environmental education can be identified as an ambivalent mixture of beach and belonging, or fluid and solid, the balance between those two competing concepts is being broken by various other social objectivities (and their subjective internalisation and externalisation – Berger & Luckmann, 1967), such

as neo-colonialism, neo-liberal individualism and global mobility, to incline towards the former. Particularly for study abroad students who are more intensively mobile and less nationally/culturally “qualified” to belong to an Australian place, it is questionable if the pedagogy of place-responsive outdoor environmental education can always be accepted in the way it is commonly given. While “local” students were not included in this study, they are not immune from the same qualifications we critically introduce. Indeed, an “Australian” student from the “bush” may feel disoriented and displaced at the beach, in the city and so on. Indeed, there might be many “Australian-nesses” all of which require cautious treatment if bold claims are to be made pedagogically and on behalf of enhancing a critical environmental or ecological consciousness. Further study is needed of a range of demographic and geographical/historical considerations.

At this point, based on Merleau-Ponty’s embodied dialectic of sense and concept, Gruenwald’s (2003) suggestion to employ eclectically both “critical pedagogy” for beach/fluid and “place-based education” for belonging/solid seems, initially, insightful for Australian outdoor environmental education. The place-responsive pedagogy normatively *prescribes* students’ experience *in place* to be of belonging or positive sense of place as a practical experiment to bring time and space back to pre-industrial pre-modernity after which human environmental risks widely emerged. In addition to that, it is important to treat other forms of lived experience *of place descriptively*, which may be equally significant for an interpretive understanding of the relationship between self and nature mediated through various relevant historical realities in the mobilised world. Although it is not yet clear how that awareness might lead to a pedagogy of the environmental sustainability, this paper concludes with an autobiographic anecdote to suggest its possibility.

*In the Grampians, we were on a bus on an unsealed road. Suddenly, one of the instructors pointed out the window and said that there was a deer in the bush. Because I had never seen a wild deer in Australia nor in Japan (where they were often regarded sacred), I tried to look for it. Then I found two deer – probably a mother and a child – quietly standing close together. Although the bus was shaking loudly, it was a calm moment. Human dynamics absorbed into static nature – I thought that I ‘experienced the Australian landscape’. Then, the instructor added, ‘They are pests here.’ He explained that the deer had been imported by European settlers for hunting sports and they had been destroying the native vegetation and that had caused an ecological damage to Australian nature; therefore the government was culling the deer. The way he talked, it seemed to me, was not particularly sympathetic to the deer. His explanation made sense yet I was disillusioned. At the same time, I felt I understood what Australia could mean and wanted to know more about the relationship between the nation and nature in Australia, which somehow might relate to myself as an outsider here. (Nakagawa’s recollection from *Experiencing the Australian Landscape in 2001*)*

**Keywords:** place-responsive outdoor environmental education; experiential learning; study abroad students; beach; belonging; mobility.

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## Environmental Education as the Mountain – Exploring Chinese-ness of Environmental Education

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**Abstract** What experiences have influenced Chinese educators' environmental consciousness and their involvement in environmental education work? Using the autobiographical inquiry approach the author explored this question with fourteen master environmental educators from various regions of China and examined in depth their significant life experiences (SLE). Participants described several paths to become involved in environmental education work. Multiple factors impacted their environmental consciousness. Out of ten main categories of SLE three themes emerged: serendipity, 既来之则安之, and a strong sense of responsibility toward the environment and toward environmental education work. This study illuminates the Chinese-ness of environmental education from the angle of life experiences and reflections of environmental educators in mainland China, which also has relevance to and implications for the wider international environmental education community.

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### Introduction

It is a ridge when viewed horizontally, or a peak vertically.  
It is not the same when viewed from afar or nearby, above or below.  
The true face of Mountain Lu is not known to me,  
Only because I am in the middle of it.

- *On the Wall of West Woods Temple*  
by Su dong po (1037-1101)

This article aims at exploring the Chinese-ness of environmental education by uncovering and reflecting on fourteen Chinese environmental educators' life experiences that have impacted their environmental consciousness formation and have influenced their commitment to environmental education work. In doing so the author hopes to present another side of the environmental education "mountain" so that together our views on environmental education will be broader and hopefully closer to its true being, which is always evolving. On a practical note, the author hopes to not only "reclaim our own histories through 'acts of remembrance' but also to 'escape the automatic imprint of our

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own educational experiences', and to 'surpass them through acts of critical reflection and interpretation'" (Gough, 1999, p. 411).

In a sense, this study intends to continue the significant life experiences (SLE) research in environmental education, but with a slightly different purpose. Most SLE studies intend to uncover and "arguably foster" (Hsu, 2009, p. 497) the kinds of life experiences that have significant influence on someone's responsible environmental action, that is, most of the SLE studies operate within the "for the environment" domain of environmental education. Hsu summarized well both the mainstream goal for environmental education and the SLE literature saying that "one of the ultimate goals of environmental education is the creation of an informed citizenry that will actively work to protect the environment." The author agrees that globally we need to take immediate action to safeguard the natural environment, which we depend on for survival as a species. We need to defend it from our own greed, arrogance, and ignorance. The urgency of such challenge is particularly high in certain parts of the world, such as the People's Republic of China, due to its large human population and expanding consumerism among its increasing affluent residents. Also, we surely need to continue our search for the kind of educational experiences that can heighten people's environmental awareness and bring about responsible environmental activism. However, environmental education is education after all. Protecting the environment is a "personal commitment" and should not be blurred with the role of education (Jickling & Spork, 1998, p. 317). Because, it is "one thing for an individual to assess the range of available environmental alternatives then advance a case for a preferred option, it is quite another to insert this option into the heart of anything educational." As teachers and educators, it is our "ethical responsibility" not to "indoctrinate students" (Hart, 2007, p. xi).

The author argues that when we broaden our view on environmental education beyond the "deterministic" end of "for the environment" we can start to be more inclusive, because not all environmental educators share this ultimate goal for environmental education as protecting the environment through education (Gough, 1999, Ji, 2007; Jickling & Spork, 1998, ). Through active reflection and critique of our own experiences which have shaped our environmental consciousness we can better comprehend the various views and practices in environmental education. Doing so we can keep this young and vibrant field of environmental education open and continuously evolving.

Let us first look at what the author means by these terms used in this article: environmental education and environmental consciousness.

### **Environmental Education**

In this article, environmental education is about how we human beings find out about the world, and about ourselves as human beings. That is, human beings use the environment to find out about ourselves. Sauv  wrote that "the weft of the environment is life itself, at the interface between nature and culture. The environment is the crucible in which our identities, our relations with others and our "being-in-the-world" are formed (Sauv , 2002, p. 1). She further summarized the range of relationships between human and environment into the following overlapping categories. Environment is considered as nature; as a resource; as a problem; as a system; as a place to live; as the biosphere; and as a community project (Ibid).

### **Environmental Consciousness**

Environmental consciousness refers to a state of awakening in one's relationship to the environment, where one is aware of /sensitive to and knowledgeable about the environment, and is committed to act in a way that demonstrates enlightened

environmental responsibility and care. In other words, environmental consciousness encompasses our environmental awareness, attitudes, knowledge, skills, values, and actions (UNESCO, 1977).

### **Review of Significant Life Experiences Literature**

Significant life experiences (SLE), also known as formative influence, or significant life influences or sources of environmental sensitivity in the literature, referred to the kinds of life experiences which help to influence the development of someone's environmental consciousness. SLE studies were carried out mainly in the 1980s and 1990s (Tanner, 1980; Palmer, 1993; Sward, 1999; Chawla, 1998, 1999, 2001). The peak of interest in SLE studies was evidenced in the journal of *Environmental Education Research* special editions (Chawla, 1998a; Palmer et al., 1998a; Palmer et al., 1998b; Palmer & Hart, 1999; Sward, 1999; Tanner, 1998a, 1998b, 1998c, 1998d, 1998e; Gough, 1999; Gough, 1999a; Gough 1999b; Payne, 1999) and an American Educational Research Association Special Interest Meeting in 2000. The major findings of SLE research studies are summarized in Table 1. The author echoes Chawla's critique (1998) that environmental activism needs to be broadened beyond the conventional focus on wildlife and conservation issues. Several researchers (Gough, 1999; Ji, 2007) shared the concern that existing SLE studies mainly reflected narrowly the ideology and values of the white male middle-class and often elite groups of conservationists and had no regards for the ordinary people whose daily life depends directly on the natural resources in their environment. Ji (2007) reviewed SLE studies and commentaries in the last three decades and concluded that almost all of the categories of analysis in the existing SLE research referred to the external environment of natural areas and altered habitats or social mediators such as friends and relatives, teachers, and books. Very few categories even begin to address the "silent side" of these experiences, which is the internal environment of the individual who receptively responds to these places and people.

Major criticism of SLE research is around these questions. Who to study – environmental activist or environmental educators? What does SLE research really explore? What is the most appropriate research methodology? How about trivial (insignificant) life experiences? The forces of criticism of SLE research makes SLE seem like a politically incorrect subject to pursue (Chawla, 1998). However, the author agrees with Jickling's statement that "there is great power in the stories which we tell ourselves and the stories we tell others. ...by directing attention to stories about sources of environmental interests and motivations, studies of SLE have in fact opened up an important field for study" (Jickling, 2000). Payne's (1999) article on the significance of experience in SLE research offered several insightful criticisms as well as recommendations for the SLE researcher, which Payne believes should "continue to refine their understanding of the ontological significance of the central category of human experience" (Payne, 1999, p. 365). Payne maintained that support for ongoing projects of SLE research is warranted. This research on SLE of a few Chinese environmental educators might shed light on some of the less addressed aspects of SLE research, such as the "ontological perspectives" of study participants, the "continuity of experience," and the "continuity of inner and outer experiences."

### **Environmental Education and Research in China**

Environmental education in China has been following the international development in environmental education since the early 1970s, while maintaining its own unique characteristics. Over the last four decades, both the content and methodology of environmental education in China have broadened and diversified, as well as the people

TABLE 1: Summary of Major SLE Research Findings

Influences on Choice of Conservation Work (Tanner, 1980)	Influences on Attitude Toward the Env (Peterson, 1982)	Influences on practical concern for the Env. (Palmer, 1993)	Influences on Interest in the Env. (Peters-Grant, 1996)	Influences on Path to Work in EE (James, 1998)	Influence on Attitude toward the Env. (Sward, 1999)	Influences on Commitment to Env. protection (Chawla, 1998)
Outdoors: <i>Interaction with natural, rural, or other relatively pristine habitats.</i>	Outdoors: <i>family vacations childhood play Youth groups/camp Hunting / fishing</i>	Outdoors: <i>Childhood outdoors Outdoor activities Wilderness/solitude</i>	Childhood natural areas: <i>Vacation trips Play outdoors Camp</i>	Outdoor exposure: <i>camping Youth groups Exposure to rural settings Parks and open space</i>	Outdoor experiences	Experience of natural areas
Habitat: (frequent contact)	Family	Education	Parents	Job opportunity	Environmental destruction	Family: <i>Parents, others</i>
Parents	Study of natural systems	Family	Other relatives	Mentors: <i>family members Teachers Supervisors/coworkers</i>	Education	Organizations
Teachers	Love for area in which one was raised	Organizations	Natural curiosity	Inherent interest	Scout movement	Negative experiences: <i>Habitat destruction Pollution, radiation</i>
Books	Professional responsibility Habitat alteration	TV/Media	Teachers	Community concern	Environmental Jobs	Education
Other Adults	Friends/Others (teachers)	Friends/Others (teachers)		Specific issues: <i>Community health Social justice</i>	Raising animals/plants	Friends
Habitat alteration	Env. Organizations	Travel abroad		Science	Innate affinity toward nature	Vocation
Solitude outdoors	Books	Disasters/Negative issues		Spirituality	Teachers and peers	Sense of social justice
Miscellaneous	Peer sensitivity	Books		Personality	Concern for future generations	Book or author
Travel abroad	Becoming a parent Pets/animals Religion Miscellaneous			Reading Cultural identity		Principles/religion Concern for Children, grandchildren



engaged in environmental education work, with the current goal for environmental education being developing an ecological civilization in China (Zhang, 2010).

Environmental education was formally established in China via a broad legislative mandate that provided for environmental protection in 1973. Since then, it has “grown steadily in sophistication” (Kwan & Lidstone 1997, p. 88). Environmental education entered the formal schooling in China at the tertiary level (Lin & Ross 2004, p. 5), with Beijing Normal University as the first higher education institution in China to offer graduate degree program in environmental education in 1993. The “green schools” promoted by the Centre for Environmental Education and Communication (CEEC) of the Ministry of Environmental Protection of China has played a key role in developing environmental education for elementary and middle school administrators, teachers, and students. In 2003, the Ministry of Education of China issued a memo titled “Outline for Environmental Education in Elementary and Middle Schools”, It symbolizes a new era in China’s environmental education by allocating school time for environmental education and education for sustainable development, both of which are expected to be integrated into existing school subjects as well as carried out in the weekly Comprehensive Social Practice Activities (Ministry of Education of China, 2003).

Since early 1990s environmental nongovernmental organizations (NGO) such as Friends of Nature, Global Village, and Green Rivers, etc. started to form and have grown in both numbers as well as their impacts on environmental education in China. They are the key to understanding China’s environmental movement and education (Hong, Guo & Marinova, 2006, p. 324).

Ji (2010) concluded that environmental education in China, as a kind of “state supported public good”, is mostly equated with environmental protection education and environmental awareness education, and is often treated as environmental science and technology and environmental law and regulation education (Ji, 2007; Hong, Guo, & Marinova, 2006; Tian, 2004; Lin & Ross, 2004; Jiao, Zen, & Song, 2004; Lu, 2003; Stimpson & Kwan, 2001; Lai, 1998; Stimpson, 1997; Zhu, 1995; Xu, 1995; *Environmental Education* magazine, 1995 to 2011). Environmental education in China operates primarily from the view that environment is seen as “problems’ to be “solved” and “avoided, and as “resources” to be sustainably “managed” and “used.”. In the formal education domain, environmental education primarily centered on views of environment as “nature” to be “appreciated”, respected, and protected, and on environmental science knowledge accumulation. Views of the environment as a system or places to live, and as community projects to be actively involved are just starting to surface in the last few years, especially since the Environmental Educators’ Initiative project was launched in late 1990s. At the turn of 21<sup>st</sup> Century, environmental education in China has gradually taken on the shape of education for sustainable development (ESD).

Environmental education research in China included in the *Environmental Education* magazine 1995-2011 (which is an academic journal in Chinese, currently issued twelve times a year, and is the only professional magazine specializing in environmental education in mainland China) is rather lacking in empirical studies. The existing research studies are predominantly quantitative (large scale questionnaires) in its methodological orientation and feature mostly theoretical/ conceptual speculations and commentaries, which reflects the overall reality of educational research in China.

## **The Research**

The scope of this study was limited to the environmental educators participating in China’s Environmental Educators’ Initiative (1997-2007) project, which was a collaboration between Ministry of Education of China, World Wildlife Fund China

Office, and British Petroleum. Twelve teacher education institutions and scores of elementary and middle schools all across China participated in this project, the overall objectives of which included capacity building for environmental educators, integration of environmental education into basic education curriculum, and sustainability of environmental education. This in-depth study aimed at uncovering what life experiences have impacted Chinese educators' environmental consciousness and their commitment to environmental education work. Specifically this study explored two questions. What life experiences or formative influences have contributed to these Chinese environmental educators' environmental consciousness? What life experiences or formative influences have led to these educators' involvement in/ commitment to environmental education work?

As Hart stated (1996, p. 59), "educational research can take a variety of forms depending upon the perspective taken and the questions asked." Methodology choice speaks much about the researcher's worldviews, values, and beliefs as well as is bounded by the limitation of the researcher and context of study. The overall methodological orientation of this study was under the qualitative, descriptive/interpretative paradigm, particularly along the traditions of life stories /life histories / autobiography. Grounded Theory (Strauss & Corbin, 1990, Glasser & Strauss, 1999) guided data analysis, while specific measures were taken to ensure the trustworthiness of the representations and interpretations in this study. A total of fourteen master environmental educators from twelve Normal Universities in China were interviewed. They were all teacher educators in their respective institutions and joined in the Environmental Educators' Initiative (1997-2007) program at various times. Majority of them were between thirty-five and fifty years in age. Participants' experience in environmental education was between two to over twenty years.

## Findings

After comparing and contrasting the experiences of all fourteen study participants, several categories emerged as shown in Table 2. They are included here for comparison with previous "significant life experiences" study results. One category that stood out from previous SLE studies was participants' self knowledge. Here is an example.

I have this strong tendency to critique ... Sometimes I feel this is part of me since I was born. Other times I wonder if it all comes from the books by LuXun whose books I read so many as a child ... Therefore I find a perfect match between my personality and the "critical thinking" aspect of environmental education.

Another participant expressed her interest in work that seems to benefit the common good.

I think I have always been interested in things that would benefit the common good. Environmental education is for the common good. It exposes us to new ideas and thoughts and gives us the space to try out new teaching methods.

The life experiences of all of the fourteen study participants revealed three themes: serendipity, "既来之, 则安之" attitude or mentality (meaning "since I am here already, I will make peace with it"), and a strong sense of responsibility for (the environment and for carrying out environmental education work).

TABLE 2: Significant Life Experiences of Chinese Environmental Educators

SLE	# of People	Percent
Negative experience of environmental problems	12	85.7%
Work/job	11	78.6%
Education	11	78.6%
Self Knowledge	9	64.3%
People	9	64.3%
Outdoor Experience	8	57.1%
Media	6	42.9%
No SLE	6	42.9%
Social Issues	5	35.7%
By Chance	5	35.7%
BER*	4	28.6%
ZhiQin Experience**	2	14.3%
Pets	1	7.1%
Arts & Aesthetics	1	7.1%
Teach in High School	1	7.1%

\* BER refers to Basic Education Reform in China.

\*\* ZhiQin – literally means “knowledge youth”. It refers to a movement in China in the 1970s when the Central Government of China encouraged / forced school students to learn from farmers in the countryside and from workers in factory. Massive number of youth have responded to the call from government and worked with farmers and workers.

### *Theme One: Serendipity - Circumstantial environmental educators*

Twelve out of the fourteen participants became involved in environmental education work somewhat due to circumstance, either because of a job opportunity or their academic background as shown in the following quote.

World Wildlife Fund people came to our university to discuss about establishing the Environmental Education Center (EEC) under the Department of Geography. Our Department Chair came to me because I majored in environmental studies and he gave me this opportunity to receive environmental education training. Without the Environmental Educators' Initiative project or my academic background in the environmental area I wouldn't have been involved in environmental education work in 1997.

Many of the study participants went to college majoring in something they did not intend to study initially. They were assigned to an academic field and expected to stay there no matter they were interested in the subject matter or not. Most of them got involved in environmental education work due to job arrangement or job opportunities.

Involvement in China's Environmental Educators' Initiative program turned out to be a significant experience for many participants. These categories of SLE shown in Table 2 such as Job Opportunity, Academic Background, and By Chance all support this theme of serendipity.

*Theme Two: “既来之, 则安之” attitude or mentality (meaning “since I am here already, I will make peace with it.”).*

There was very little possibility for college students in China to change their major once they were admitted to a program or department. Or, in many cases people did not know what subject area they were interested in studying so they just took whatever major assigned to them by the universities. Half of the fourteen participants did not choose to study the discipline that they were assigned to, but developed an interest in it afterwards. A few participants' determination to learn kept them there long enough to make a career out of the subject they studied. Trying to adapt to the circumstance, especially among generations older than 40 years of age, reflected the greater cultural context of China. During the half century in which most participants lived so far, China witnessed one event after another – the June 4, 1989 Tian An Men Square Protest shared by one participant being the most recent one. These events had to a large degree shaped many people's lives in China. People learned to live and make peace with the situation they were in.

*Theme Three: A strong sense of responsibility for the environment and for carrying out environmental education work*

Many people shared their sense of responsibility toward the environment and toward environmental education after they learned about it and the significance of it. This finding is well illustrated by the following comment from one participant.

I fully recognized the importance of environmental education when I started to work in the environmental management and regulation areas. Currently environmental management and planning are carried out by government officials. It's like “规划规划, 墙上挂挂.” meaning “planning, planning, - it's good for hanging on the wall.” ... So, I think we should have environmental education for these decision makers ... maybe it's impossible to educate them ... then, we need to focus on our next generation – help them to gradually develop this environmental awareness and consciousness, so that they would have such awareness when they grow up and become governmental leaders ...

The more they understood what environmental education is the more they regarded it as meaningful work. Most of the participants shared a sense of urgency in carrying out environmental education work so that the environmental degradation trend could be halted or reversed. Such categories as Self Knowledge and Concern for Social Issues as shown in Table 2 support this theme in particular.

In terms of what led to these educators' commitment to environmental education work, an interesting finding was that environmental consciousness did not always lead to pursuit of environmental education work. In fact, only two out of the fourteen participants mentioned that his or her environmental consciousness led to his or her involvement in environmental education work. What actually got most subjects involved in environmental education work was because of a job opportunity or work expectation/ requirement. The Basic Education Reform of China came out as a significant context to understand these educators' involvement in environmental education work. It provided these participants a platform for action in environmental education; offered a way to formalize environmental education; provided a platform for

people to apply theories of sustainability and environmental education and pedagogy/methods to teaching (such as inquiry learning, critical thinking, cooperative learning and experiential learning) and approaches to informal settings; and finally helped to sustain environmental education in schools.

## Discussion

One conclusion from this study was that study participants brought out various experiences in their life that have influenced their environmental consciousness formation, but no one experience is more significant than the other. It is the totality of their experiences that have contributed to their environmental consciousness. The possible breakthrough in SLE studies may lie in the work on “significance” and “experience”, both of which calls for deep reflection. These study participants’ active pursuit of self reflection reflects a long tradition of self reflection in China. Any event, including “outdoor experiences”, can set off the “unsettling dis-equilibration/ re-equilibration processes”, thus can possibly be “significant” (Payne, 1999, p. 374). This keen awareness of and active work on the self surfaced the most in one participant, who said that she is always searching – targeting one goal and reaching it and then setting the next target to go after.

The feeling of impasse/ standoff in one’s professional path is a bitter pill to swallow ... Once I reach a goal I look for the next and the next and the next. Always push myself a little bit more to see how far I can go and always look for breakthroughs ... Otherwise I will feel very uneasy.

Compared with the findings from previous SLE studies, this study did not find that outdoor experiences in natural areas (especially as a child or youth) was a major influence for most of the participants. Considering the agrarian context of China, most study participants have had experience living in the countryside, working in farm fields or pasture fields in the early years of their life. Eight out of the fourteen participants mentioned various “outdoor experiences” such as place of growing-up, field studies experience in college, but only three among the eight attribute much significance to these “outdoor experience” in terms of influencing their environmental consciousness or commitment to environmental education work. Indeed one of the study participants point out this difference between himself and the conclusions of most SLE studies.

I have read some articles from American and European countries, ... which claim that childhood experience in nature has significant influence on someone’s future (meaning environmental consciousness formation)... You may find that the experiences of most environmental educators participating in the Environmental Educators’ Initiative (EEI) project particularly disagree with that conclusion. We came together to engage in environmental education work mainly because of the EEI project work opportunity.

## Conclusion

This article presented the Chinese-ness of environmental education as reflected through fourteen Chinese environmental educators’ life experiences which are influential to their environmental consciousness formation and involvement in environmental education work. It contributes to environmental education and research by extending the framework for significant life experiences (SLE) studies beyond protecting the environment through education. Self knowledge and concern for social issues stood out as new categories of significance. However, no one experience was more significant than the other. It was the totality of their experiences that had contributed to these Chinese

educators' environmental consciousness formation. Unlike findings from previous SLE studies, outdoor experiences in natural areas (especially during childhood) was not regarded as very significant by most participants. Interestingly, for most participants environmental consciousness did not lead to their pursuit of environmental education work, but rather a job opportunity or work expectation got them involved. Three themes emerged: serendipity, 既来之则安之(making peace with the situation), and a great sense of responsibility for carrying out environmental education work.

As we respond to the call for this Special Issue on Australian-ness of environmental education, we should keep in mind that no one country or person holds the whole view on the environmental education "mountain" because we all are parts of the "mountain." Environmental educators and scholars from different countries and cultures would benefit from seeking to view the many other sides of the environmental education "mountain" by learning from their own and each other's experiences, perceptions, and understanding. As Confucius (551BC-479BC) said, what a joy it is to learn something new by reviewing the past, and what a joy it is to have friends come to visit from afar!

### Acknowledgement

The author likes to thank the anonymous reviewers for their insightful comments and suggestions. This study was funded partly by the University of Minnesota (Twin Cities) Dissertation Scholarship Award (2006).

*Keywords:* environmental education; Chinese environmental educator; significant life experiences; Chinese-ness of environmental education, environmental consciousness; teacher educator; Environmental Educators' Initiative.

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# The Historical, Present and Future *ness* of Environmental Education in India

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## Abstract

What is distinctive or indistinctive about environmental education in schools and other formal education settings in India? In essence, what is the *ness* of environmental education in the Indian education system? Our responses to these important questions form the focus of this paper, shedding light on the historical, present and future directions (or *ness*) of environmental education in India. In effect, we attempt to capture the *ness* of environmental education by considering practice, policy and research developments throughout the various contemporary and traditional environmental education movements. In so doing, we identify a theory-practice gap and a dire lack of research as some of the pertinent issues facing environmental education in India. In conclusion we discuss possible future directions that environmental education might take in addressing these issues.

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## Initial Thoughts and Reactions to the *ness* of Environmental Education in India

Environmental Education<sup>1</sup> in India is strongly influenced by rapid economic developments, and the barrage of environmental issues brought along with it. This article discusses environmental education in India by considering its evolution from the Aryan times to the present. Environmentalism in India in the Aryan ages was a way of life, integrated into the everyday lives of citizens through culture and religion. Ancient scriptures such as the Vedas prescribed these more than 5000 years ago. For example *Purushasukta* in *Rigveda*, which describes the creation process, considers humans to be an integral part of the universal personality, “the entire creation is one and indivisible and entire universe constitutes a life unto which every aspect including the human is integrated” (Sharma, 2010, p. 47).

Even as recently as 1950 when the Constitution of India was drafted, living in harmony with nature and protecting it was prescribed as a fundamental duty of every citizen of India. However the India of today presents a radically different picture. This is reflected in the extent of pollution, overpopulation, rapid deforestation, and indiscriminate usage of natural resources. This article examines the reasons for this transition, in the context of the diversity that India presents in every realm. Cultures,

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traditions and religions vary dramatically across India and can play an important role in environmental education and perceptions on environmental issues, thus giving India a unique environmental perspective. This article highlights the *ness* of environmental education in India, which makes it stand apart from the rest of the world. What gives environmental education its special flavour in India and how does this distinctiveness infuse itself globally? This paper considers such questions drawing upon key practice, policy and research developments not only in India but elsewhere.

### **Historical *ness***

When speaking of the historical *ness* of environmental education, this paper specifically discusses pre-1990s, the era prior to liberalisation of the Indian economy. In 1991 India dismantled its tight system of controls and permits, ushering in a new era of liberalisation and galloping to become the second fastest growing economy in the world (Chakraborty, 2008; Luce, 2006). Prior to liberalisation India's economic development was restricted and consequently the number of environmental issues were also restricted. The 1990's then could be seen as a transition point, the start of a new era.

India's first attempt at incorporating environment in education was initiated by Mahatma Gandhi in a movement called "Nai Taleem" of Basic Education in 1937. It aspired to create freethinking individuals with relevant skills to be able to act locally and aspire transcendently for liberation. The aim was foster "reflective learners, skilled with useful knowledge, who were integrated into community life through engagement in productive work and who desired to undertake service for humanity" (Haigh, 2008, p. 244).

This movement ended once India achieved independence and Gandhi (1869-1948) was assassinated before his ideas were completely evolved. It has been replaced by the current conventional model based on colonial methodologies of thinking and is limited to the learning by rote techniques, where "free thinking" is not encouraged. Local and regional issues are often neglected and the main aim seems to be the production of "able" individuals who could contribute "economically", and meet the needs of rapid "industrialization" and "globalization" of the country.

Environmental education however is not new to India. Protection and improvement of the natural environment including forests, lakes, rivers and wildlife; and living harmoniously with the environment is embedded in the Constitution of India in articles 48A and 51 G (Government of India, 2008). It is also deeply rooted in the religious and cultural ethos of India where nature is perceived as an all-encompassing entity that needs to be protected and revered (Baez, Knamiller and Smith, 1987; Bussey, Inayatullah and Milojevic, 2008, Ravindranth 2000, 2007; Sarabhai, 1995). This is echoed by Nobel Laureate Rabindranath Tagore who said, "the same stream of life that runs through my veins ... runs through the world" and "the world is a living thing, intimately close to my life, permeated by the subtle touch of kinship, which enhances the value of my own being" (as cited in Haigh, 2008, p. 238).

Awareness and connection with Nature is an integral part of the Hindu culture; worship of flora, fauna, rivers, oceans, and mountains, in fact of anything that may be life sustaining, is considered part of religious/social observations with an ecological meaning. "Divinities as all pervasive, in all humans, all life forms" is a very distinctive feature of India's spiritual life (Shiva, 2005, p. 156). For example a tree is called "Dasputra" or "ten sons" because it provides for ten important needs, namely food, fodder, fertilizer, fibre, fuel, air, water, soil, shade and beauty (ParthaSarthy as cited in Baez et al., 1987). Strict instructions on the need to preserve the environment and protect it from degradation are part of this ethos and have been laid down in ancient Hindu scriptures like the Vedas, Puranas, and the Upanishads (Baez et al., 1987,

Haigh, 2008, Ravindranath, 2007, Sarabhai, 1995). Protection of the environment and its connections with daily communal life has always been an integral part of the social fabric of Indian society (Ravindranath, 2007). This ethos has been very simplistically echoed by Gandhi's words "Live simply so that others may simply live" (as cited in Haigh, 2008, p. 243).

### **Transition from Past to Present:** Landmark policies that shaped Environmental Education in India

Environmental education in India is under constant transition. The influential landmark developments that shaped environmental education in India is presented in Table 1. It provides a timeline of the important milestones in the development of environmental education in India both pre and post liberalisation. Whilst environmental education is part of the Indian ethos and was also promulgated by Gandhi through his Basic Education program, its formal entry into the Indian schooling system could be attributed to the Kothari Commission's recommendation (1964-1966). Another major thrust was the formation of the Centre for Environmental Education in 1984, which spearheaded numerous movements for the introduction and integration of environmental education especially at all grade levels within the school system. The Supreme Court mandates in 1991 and 2003 (Supreme Court of India, 2003) provided the necessary impetus for policy formation as seen by the subsequent changes in the National Curriculum Framework (National Commission for Education Research and Technology, 2005) and the National Council of Teacher Educators new curriculum for teacher educators (National Council of Teacher Educators, 2005).

### **Present** *ness*

Presently, India is in the throes of industrialisation and development and is the second fastest growing economy in the world. The liberalisation of the economy has triggered intense growth in all sectors of the economy. This rapid development has intensified the concerns for the environment and the rapidly depleting natural resources (Rangarajan, 2009; Ravindranath 2000; 2007). In December 2003 the Supreme Court of India mandated the teaching of environmental education across all years of formal schooling. In 2005 the National Curriculum Framework was released and also the National Council for Teacher Education released a new curriculum for teacher education with a clear emphasis on environmental education. All the above policies appear to have provided a much-needed impetus in raising awareness of environmental issues in India.

### *Environmental Issues in India*

Cuff and Goudie (2009, p. 358) identify four major areas of environmental problems and challenges in India. The first is the gross over population, which places increasing demands for resources that are often met through unsustainable means like the agrochemical agriculture practised widely in India. The second is the extreme poverty and need, which are stipulated to be the greatest polluters of the environment (Gandhi, as cited in Rangarajan, 2009, p. xviii). The third is the large number of urban centres, as 25 out of the 100 fastest growing cities in the world are in India (Barta & Pokharel, 2009). 60% of India's population lives in these cities (World Bank, 2009) in slum-like conditions, which place a huge demand on natural resources like food, water and building materials which affects not only the immediate urban, but also the distant rural environments. Finally India's diverse environment makes it particularly "difficult" and "fragile" as each region poses a different kind of challenge in terms of the environmental issues it raises (Joshi, 2005).



TABLE 1: Chronology of Key Developments in Environmental Education in India (Adapted from Sarabhai, Raghunathan & Kandula, 2000, p. 130)

1964-1966	Report of the Education Commission – the Kothari Commission	Considered the root of Environmental Education (EE) in India
1975	Curriculum for the Ten-Year School: An Approach Paper and Curriculum for the Ten-Year School: A Framework	First framework to explicitly indicate teaching of EE
1984	Establishment of the Centre of Environment Education (CEE) as a National Centre for Excellence in EE under Ministry of Environment and Forests	CEE worked with different sectors – particularly education- to spread environmental awareness.
1986	Adoption of the National Policy on Education The National Environmental Awareness Campaign of the Ministry of Environment and Forests	First National policy indicated including EE in schools.
1988-89	Environmental Orientation to School Education Scheme of the Ministry of Human Resources Development	Called for orientating curriculum to include EE
1989	C.P. R. Chennai established as a second Centre of Excellence.	Works towards promoting EE in south India
1991	First Supreme Court of India mandate requiring the University Grants Commission to prescribe courses on the environment at all levels of higher education	The judiciary steps in to help control environmental problems – a first of its kind step.
2003	Second Supreme Court judgment mandating EE to be taught across all formal education institutions.	Requires every school in every state of India to teach EE.
2005	National Council for Teacher Education provides the EE curriculum framework for teachers and teacher educators  National Curriculum Framework is drafted – clearly specifies the role of EE	A major step providing national level impetus for the inclusion of EE in teacher education.  School curriculum now includes EE and has to be mandatorily taught.

### *Curriculum and Policies*

As is outlined in the earlier Table 1, the field of environmental education has recently received major impetuses in the form of the federal courts mandate and development of curriculum policies.

In December 2003, the Supreme Court of India passed a ruling that it hoped would change the scenario of environmental education in India. The direction No. 4 issued by the Court read as follows:

We accept on principle that through the medium of education awareness of the environment and its problems related to pollution should be taught as a compulsory subject. Learned Attorney General pointed out to us that the Central Government is associated with education at the higher levels and University Grants Commission can monitor only the under graduate and post graduate studies. The rest of it, according to him, is a state subject. He has agreed that the University Grants Commission will take appropriate steps immediately to give effect to what we have said, i.e. requiring the Universities to prescribe a course on environment. They would consider the feasibility of making this a compulsory subject at every level in college education. So far as education up to the college level is concerned, we would require every State Government and every Education Board connected with education up to the matriculation stage or even intermediate college to immediately take steps to enforce compulsory education on environment in a graded way. This should be so done that in the next academic year there would be compliance with this requirement (Supreme Court of India, 2003, p. 1).

This was a follow up to a 1991 ruling which had directed that “through the medium of education, awareness about the environment and its problems related to pollution should be taught in all schools and this should be implemented by the State authorities” (Supreme Court of India, 2003, p. 1). The National Commission for Education, Research and Training (NCERT) was also directed to prepare the syllabus/curriculum for environmental education for all grades. This directive was not uniformly adhered to and hence was followed up by the 2003 directive that provided the government only one year to comply. In 2003 the Supreme Court also reviewed a curriculum framework prepared by the NCERT under its directions. The State governments were asked to develop textbooks using this framework and environmental education was made mandatory across all grades, in schools all over the country, from the year 2004-05. This directive, while giving a much-needed thrust to the cause of environmental education concerns, has also added to the strains of an already over-burdened educational system. While the mandate is of critical importance, it is still unclear whether it is being implemented and how effective the implementation has been.

The Supreme Court intervention seems to have provided a much-needed impetus to the cause of environmental education in India. Environmental Education is now compulsorily taught in most undergraduate institutions in India. This was achieved by direct action through the University Grants Commission (UGC), India’s apex grant giving and policy making body, for all higher education organisations in India (Chhokar, 2010).

In schools this has been achieved mainly through directives to the concerning educational bodies. The National Curriculum Framework drafted in 2005 (NCERT, 2005) has been a big step in attempting to bridge the gap in environmental education. Its guiding principles are to connect knowledge to life outside school, ensure that there is a shift from rote memorisation and textbook centeredness to a rich curriculum that

provides overall development. Section 3.9 is devoted entirely to Habitat and Learning, which in substance and spirit is equated to environmental education. In this section it is acknowledged that formal education has become largely alienated from the students “habitats”, which in turn implies that the current education system is far removed from the current lifestyles of students. This section also asserts that environmental degradation is happening at an unprecedented pace and there are vast imbalances between the advantaged and disadvantaged. It substantiates the role of education in helping comprehend the roots and re-establish the links between education and habitat. An important concern addressed in the new framework is “making children sensitive to the environment and the need for its protection” (p. 6). Table 2 details NCERT recommendations for implementing environmental education in schools in India. In grades 1 to 3 it proposes the use of activities to teach environmental education. In grades 3 to 5 it suggests imparting environmental education through a separate subject named Environmental Studies (EVS). At the secondary grade levels it recommends an infusion based model and project based studies.

The National Council of Teacher Education maintains that the importance of environmental education is being widely recognised but “it is yet to get its rightful place in education, much more so, in teacher education” (NCTE, 2005 p. 1). In its guidelines for environmental education, also revised in 2005, the NCTE asserts that unless environmental education is prescribed as a compulsory and integral component of education and teacher education its message will not be conveyed to all (NCTE, 2005). However in the NCTE curriculum framework revised in 2009 although environmental education is mentioned not much emphasis is laid on it.

*Practice*

While undoubtedly establishing the necessity of environmental education in India, the Supreme Court (2003) ruling however has placed large responsibility on the State education boards to adapt the syllabi from NCERT to their respective education systems. How this will be done is not clearly defined and therefore the policy could be open to numerous interpretations and loopholes. There is currently little information available on how the different agencies interpret and implement this policy.

There have been efforts towards introducing environmental education in schools but they have been few and far in between (Joshi, 2005; Pande, 2001; Sarabhai, 1995). Pandya (2000, 2004) claims that efforts towards preparing pre-service teachers to teach environmental education have been made. However these efforts have been few or are unreported and hence unnoticed. Khirwadkar and Pushpanadam (2007) however maintain that most teacher education programs merely train teachers to adjust to the current system of education by transmission of information.

TABLE 2: NCERT recommendations for implementing environmental education in schools in India based on CEE website (CEE, 2010, p. 1)

<b>Grades</b>	<b>Modes of transaction</b>
I and II	Through Activities
III to V	Environmental Studies (EVS)
VI to X	Infusion Model
XI to XII	Project based study

A few notable efforts have been made by organisations like the Bhartiya Vidyapeeth University's Institute of Environment Education and Research (BVIIEER) and the CEE towards educating teachers. CEE in particular has played a pivotal role in preparing teachers to teach environmental education. Since its inception in 1984 it has worked tirelessly to promote environmental education through various programs some of which have involved teachers. It has established regional centres, which often act as resource centres for school students, teachers and teacher educators. CEE has been instrumental in publishing India's first international journal in the field, *The Journal of Education for Sustainable Development*. It has been working with teachers in conjunction with the government and other Non Governmental Organisations (NGO's) to help implement environmental education in schools. CEE has also been working in non-formal and informal education to enhance environmental awareness and promote action. It is also important to acknowledge the role of numerous NGO's now working towards raising environmental awareness and solutions. The 2008-2009 WWF directory of environmental NGOs in India lists 2342 such organisations working in a range of fields from nature and biodiversity protection to water conservation and promoting environmental policies (WWF, 2009). These programs are often keen on finding environmental solutions keeping in mind the religious sentiments of the people. For example the Ganesha festival celebrated with special fervour in Western parts of India celebrates the immersion of Ganesha idols in water bodies after a few days of worship. This would cause immense pollution of the water bodies with thousands of these clay/plaster-of-Paris idols with their toxic paints and decorations creating havoc to the water and the marine life. A novel solution promoted was the introduction of eco-Ganeshas and use of eco friendly decorations. These are made of mud, straw, paper and other biodegradable materials that cause least pollution (Daily News & Analysis, 2010). About 60,000 people pledged to use them for the following years celebrations. If the trend continues it should help considerably reduce the pollution caused by this festival.

However there has been no research conducted to gauge the longevity and effectiveness of these programs or to help identify the core needs of those working in the field - so that future programs could be tailored to meet those needs. Research on environmental education in India is still in its nascent stages. Very little data is available about research that has been conducted and published in the field of environmental education.

Patil (2006) in a review of research studies undertaken between 1990 and 2004 contends that the themes for research during that period included environmental awareness, developments of teaching methodology and learning styles, and curricular aspects of environmental education. Patil referred to studies by Gupta, Gogoi and Das who tried to evaluate environmental awareness amongst students. Also reviewed were studies by Indubala, Kidwai and Sen, which found that video instruction, field trips and conducive classroom environments influence students learning styles. Sunnetha, Tomar and Modak looked at the curricular aspects of environmental education and found that multi-disciplinary approaches including activity-based instruction helped improves student learning (Patil, 2006). Whatever little efforts that have been made in the field seem to have been restricted to quantitative studies dealing with students and their learning. There appears to be little research on gauging the perceptions and experiences of students, teachers and teacher educators. This is particularly striking given the widespread recognition of teachers and teacher education as vital in the implementation of environmental education.

This lack of research is a cause of concern as there are a number of important policies formulated without any studies on the efficacy of their implementation. Without

adequate research on how these policies are implemented and what the ground realities are – there is every chance that these policies will be confined to paper only. Due to these concerns, the primary/first author of this paper is focussing her PhD study on the role of teacher educators in implementing environmental education in India. She is examining the ways in which teacher educators understand, negotiate, determine and implement environmental education. The aim is to examine the organisational culture of teacher education and its role in the implementation of environmental education and to study the qualities, issues and problems that enable and/or constrain the development and implementation of environmental education in teacher education. The study is still in its initial stages but findings point towards the lack of training and resources provided to the teacher educators, which at least in this instance meant a significant barrier in implementing the environmental education policies devised by the government and educational bodies. This gap in policy and practice could be attributed to a lack of policies backed by adequate research.

Another important finding is the overwhelmingly technocentric perspective of all the participants who believed that modern technology can solve our environmental problems and that although environmental preservation was important, development can never be sacrificed for its sake. An example is the following statement by one participant, “Science and technology has developed like anything you see. I think we can take sufficient measures with which we can take care of the environment and develop the country also”.

In India there have been increasing trends towards sustainability and education for sustainable development (Chhokar, 2010; Joshi, 2005; Khirwadkar & Pushpanadam, 2007; Ravindranath, 2007). India’s only international journal in the field is called *Journal of Education for Sustainable Development*. There is strong emphasis on the individual’s “everyday behavioural change, rather than an actual connection to and affinity with the environment (be it other people, nature and/or animals)” (Knapp as cited in Cutter-Mackenzie, 2010, p. 353).

The current study once again highlights this with all participants expressing strong beliefs in education for sustainable development as the solution. When asked if they would consider sacrificing development over environment, all participants replied that it would be detrimental to India’s future. In the words of a participant, “It (the environment) should be protected there is no doubt in that but again if sufficient care is taken I think the economic growth will not be decreased”. Participants saw current developments as essential in alleviating poverty and improving standards of living and felt that if given a choice they would put development ahead of environmental concerns. This is far removed from traditional approaches to the environment in India.

Rapid economic growth has led to a section of the society having an increasing level of disposable income. This has fuelled materialism and a culture of immediate fulfilment of needs as opposed to having to wait for it. Globalisation has brought a vast number of choices to the current generation who also have the economic means to exercise their choice (Luce, 2006; Kamdar, 2007). The ancient Indian philosophies of “Karma” and “Nirvana” or salvation have become quaint to this generation. “Vedanta” and its beliefs of oneness of all life (not only humans) have been all but abandoned. Affluence was never glorified in the Indian culture. But attaining fulfilment (*santosh*) through simple living has always been promoted. Education was placed higher than power and hence sages and seers held higher status than rulers. Gandhi foresaw the troubles that materialism brought and famously pronounced “the earth provides enough to satisfy every man’s need but not for anyone’s greed” (Bahuguna, 2007, p. 6).

The liberalisation and economic growth has led to the formation of the “Nouveau Riche” class of Indians whose wealth allows them to satiate almost all material needs,

leaving them with the time to indulge in environmental consciousness as a “fad of the day”. The other section is a large populace trying to emulate and convert themselves into the former class described above. This group barely manages to make a living and for them environmental concerns would not be a priority over their more immediate need of income and success (Luce, 2007).

### **Future ness ..... a research agenda**

Concerns for the state of the environment both globally and locally have spurred numerous policy changes. In India there have been increasing calls to develop environmental consciousness especially among the younger generation through education. Federal mandates and policies are a step in the right direction. There is however urgent need to support these policies with research that will help in their implementation. Policies and directives are insignificant unless matched by efforts to put them into practice, and there appear to be gaps in this process.

The 4th International Conference on Environmental Education held in Ahmedabad had launched the concept of the “handprint”, which measures personal accountability thereby making every individual responsible for his/her own actions (Sarabhai, 2008). This approach will hopefully alleviate the feeling of helplessness that Indians feel, given the scale of the problems facing them. Measuring one’s handprint places responsibility on the individual for improving the state of the environment. However the need to stay connected to the environment is equally important and this means forging connections with people, the trees, the animals and nature itself. Education that is confined to the four walls of the classroom will not be able to provide that strong love for the environment. These bonds can only be forged in the vast outdoors, in the local communities and through personal interaction and involvement.

Looking forward to a decade from now or even on to 2050 what is the vision for India? It will have to be an India that is rooted in its past and geared for the future. It will have to be an India that understands that materialism can be a big hurdle in its path. Carrying forward the traditional values and the connection with roots will have to be an important part of this vision.

Chalking up a research agenda for the future would bring the following questions to the forefront:

- To what extent are professionals involved, including pre service and in service teachers, teacher educators, principals and those designing the curriculum trained?
- What resources and funds are available to education colleges and how much is clearly earmarked for use in environmental education programs only?
- Are the people directly working in the field of environmental education involved in the policy-making procedures? Are the teachers, teacher educators and administrators of teacher training institutions consulted? How are the policy makers aligning their policies with the ground realities involved in teaching environmental education?
- What kind of research is being conducted to gauge the effectiveness of earlier programs and pave way for future programs? How are the factors that enable and/or constrain the effectiveness of environmental education in India being determined? In particular, are there any qualitative studies being conducted that would delve into the underlying issues?
- What steps are being taken to remove environmental education from the confines of the classroom and conduct this outdoors? How are we inculcating a love for nature, a passion for the environment and zeal to protect and preserve it amongst the children?
- What lessons are we taking from our past? How are we bringing forth our rich tradition and ancient knowledge to pave our future path?



There is a lack of research studies in India in the field of environmental education. Furthermore the few studies undertaken so far have tended to be mainly quantitative, revealing a wide gap in qualitative research studies. This is a matter of great concern and needs to be addressed immediately. Specific priority needs to be paid towards research in the effectiveness of environmental education programs conducted through school curriculum and textbooks. There is need to further study the impact of the numerous environmental projects that are being conducted in India. There are a few programs that educate teachers to teach environmental education. More needs to be done to assess the efficacy of these programs and replicate them if found successful. India has a willingness to bring about change, but what is needed is to ensure that the policies are made in line with the ground realities to ensure proper implementation. It is now the time to relook at the past and take stock. Mahatma Gandhi (as cited in Khoshoo & Moolakattu, 2009, p. 144) rightly predicted, “A time is coming when those who are in a mad rush today of multiplying their wants, will retrace their steps and say: what have we done”.

*Keywords:* environmental education; education; India; school; teacher education.

### Endnotes

1. The broad focus of this study is situated within the formal education sector. There have been numerous initiatives in the non-formal and informal education sector. These initiatives have been discussed where appropriate, however the non-formal education movement is beyond the scope of this paper.

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## Framework Thinking, Subject Thinking and “Taiwan-ness” in Environmental Education

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**Abstract** In the 1998 Taiwanese national curriculum revision, environmental education was one of six new “Important Issues”. To some early observers, the generic “framework” sections of this 1998 curriculum (Aims, Goals, Core Competences) resonated well with the integrative and transdisciplinary nature of environmental education. This synergy held out promise for the successful introduction of environmental education to Taiwan, despite it not being one of the seven new Learning Areas (or subjects). However, this study suggests that a pervasive nation-wide exam-driven, subject-dominated educational climate resulted in a somewhat truncated “Taiwan-ness” in the environmental education that emerged. In three Junior High Schools preparing for curriculum implementation, there was little early focus on, either the national curriculum’s framework aspects or the intended integrative nature of environmental education. Rather, by 2004 curriculum integration had become officially non-compulsory, and environmental education was conceived as a minor priority, to be wedged where possible into spaces within the traditional subjects.

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### Introduction

Environmental education has increasingly gained emphasis since the late 1960s in school curricula worldwide. Further, it has been widespread in national educational policies, curriculum documents, curriculum development initiatives, and conservation strategies (Rickinson, 2001). In Taiwan, prior to 1998, environmental education largely consisted of voluntary initiatives by individual schools: organic and inorganic recycling within the school community, enhanced energy efficiency in new schools buildings and the through-flow of materials, documenting of the condition of local streams and parks, and so on. If there was a distinctive “Taiwan-ness” to environmental education in Taiwan at all, it was characterised by a focus on the need to achieve a cleaner *environment* rather than by the presence of systematic, long-term, theory-grounded *education* programs in schools. However, a national curriculum framework released in 1998 (and which, in 2011, is still current) required for the first time that environmental education be taught in schools. Environmental education was categorised as one of six Important Issues intended to be taught across all seven Learning Areas (or subjects) (Yueh, 2007).

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In fact, many environmental education specialists (refer Chen, 1999) in Taiwan saw the 1998 curriculum as an even broader opportunity for the advancement of environmental education because, in their views, there were also strong resonances between the generic framework sections of the 1998 curriculum and the fundamentals of environmental education. For example, at a national environmental education conference in Taipei, Chang (1999) suggested that the five Aims and the ten Goals of the curriculum framework could readily be reframed to make them compatible with the fundamentals of environmental education as outlined in the Belgrade Charter of 1975 (UNESCO, 1975) (refer Table 1).

This vision of an extensive overlap between the fundamentals of environmental education and of educational reform at large, and the significance of this overlap as a leverage for the introduction of environmental education (or, more recently, Education for Sustainability), has been commented on worldwide, e.g. in the United Kingdom (Sterling, 2001), Australia (Malone, 2006), the United States (McKeown, 2002) and New Zealand (Barker, 2008). The crucial point for the success of this strategy for environmental education is that what we call “framework thinking” (see below) is in the forefront of teachers’ attention. The literature suggests that schools where framework thinking is generating such a synergy are ones which venture well beyond what Orr (1994, p. 41) calls the “tinkering” of current educational reform efforts. They will be schools where the “critical and action orientation of environmental education (is challenging) the dominant practices in schools, which emphasise the passive assimilation and reproduction of knowledge and unproblematic truth” (Hart, 2003, p. 24). Such a synergy, according to Orr (1994, p. 41) will significantly influence “the relationship between an increasingly specialised education process and our ability to ask large questions having to do with the human condition”. This relationship, Orr (1994) believes, will engender a deep sense of community, nourished not only by knowledge but by human qualities of humility, connectedness, courtesy, respect, responsibility, caring, wisdom and love.

Despite this optimism, however, surveys of the international literature (for example Bolstad, Baker, Barker & Keown, 2003) suggest that, whatever the proposed strategy, introducing environmental education on a nation-wide basis has often been a difficult and complex process. The present paper describes three case studies designed to probe how successful, or otherwise, this “framework” approach to environmental education in Taiwan was to be. We believe that the lessons learned in Taiwan from this study about how environmental education may be promoted or demoted in the context of national curriculum innovations (for example, those recently in Australia and New Zealand) may be valuable. First, however, Taiwan’s environmental education strategy will be cast in a wider context.

### *Environmental Education: “Subject Thinking” and “Framework Thinking”*

Prior to the formal description of environmental education in the Belgrade Charter of 1975, a range of terms and meanings for education related to the environment had been used in local situations but no common definition had been agreed. The Belgrade Charter stated that the goal for environmental education was: “To develop a world population that is aware of, and concerned about environment and its associated problems, and which has knowledge, skills, attitudes, motivation and commitment to work individually and collectively towards solutions of current problems and the prevention of new ones” (UNESCO, 1975, p. 3). Two guiding principles of all environmental education programs were to be that “environmental education should be interdisciplinary in its approach” and it “should emphasise active participation in preventing and solving environmental problems” (UNESCO, 1975, p. 4).

TABLE 1: Chang's (1999) proposals that the aims and goals of the 1998 Taiwan National Curriculum are largely co-extensive with the characteristics of environmental education as in the 1975 Belgrade Charter.

<b>Taiwan National Curriculum (1998): Aims</b>	<b>The Aims Of Environmental Education</b>
1. Developing humanitarian attitudes	1. Perceiving education as the relationship between humans and the environment
2. Enhancing integration ability	2. Integrating humanity and technology
3. Cultivating democratic literacy	3. Achieving ecological literacy
4. Fostering both indigenous awareness and a global perspective	4. Thinking globally but acting locally
5. Building up the capacity for lifelong learning	5. Developing environmental consciousness and taking consequent long-term action to achieve lifelong learning
<b>Taiwan National Curriculum (1998): Goals</b>	<b>Goals For Environmental Education</b>
1. To enhance self-understanding and explore individual potential	1. To explore the relationship between humans and the environment and to understand an individual's values and responsibilities in order to fulfill individual potential
2. To develop creativity and the ability to appreciate beauty and present one's own talents	2. To experience the environment in order to cultivate environmental sensibility, and then to pursue environmental beauty and quality
3. To promote abilities related to career planning and life-long learning	3. To develop lifelong concern for, learning about and participating in environmental issues
4. To cultivate knowledge and skills related to expression, communication, and sharing	4. To be able to communicate, express, and share information, views, and solutions relevant to environmental issues
5. To learn to respect others, care for the community, and facilitate teamwork	5. To co-operatively solve environmental problems with respectful and concerned attitudes
6. To further cultural learning and international understanding	6. To understand the multicultural aspects of environmental issues
7. To strengthen knowledge and skills related to planning, organising, and their implementation	7. To be able to design, organise and take active action in order to solve environmental problems
8. To acquire the ability to utilise technology and information	8. To be able to explore and study environmental issues actively
9. To encourage the attitude of active learning and studying	9. To be able to diagnose environmental issues, to evaluate their solutions, and to solve problems
10. To develop abilities related to independent thinking and problem solving	10. To be able to use scientific technology and information to solve problems



The “interdisciplinary” nature of environmental education and a focus on problem solving have remained, worldwide, central themes in conceptions of environmental education and its successor, Education for Sustainability, especially in terms of curriculum design, where the notion of curriculum “integration” draws these two original guiding principles together. Curriculum integration is usually considered to be a design that “promotes personal and social integration through the organisation of curriculum around significant problems and issues, collaboratively identified by educators and young people, without regard for subject area lines” (Beane, 1997, p. xi). Viewed this way, environmental education is to be regarded as an approach to education *as a whole* rather than a subject in its own right (Palmer, 1998); and the resulting lack of regard for traditional subject area lines has resulted in environmental education frequently being described as “interdisciplinary” (for example, Fien, Heck & Ferreira, 1997, p. xiv) and “transdisciplinary”. Huckle and Sterling (1996) describe the latter as “breaking free of disciplinary perceptions and traditions to create new meanings, understandings, and ways of working. Simply putting disciplines together, by contrast, is often no more than the sum of the parts” (p. 23).

However, “integrated learning” in environmental education invariably has additional special connotations beyond this interdisciplinary perspective. Environmental education “involves the integration of three key dimensions – education in, about and for the environment” (New Zealand Ministry of Education, 1999, p. 14). Fien, Heck & Ferreira (1997, x) express another closely related idea, namely, that “Environmental education considers the environment in its totality, i.e. ecological, political, natural, technological, sociological aesthetic and built environments”. More recently, Littledyke, Taylor and Eames (2009), have proposed a model of integrated learner development: by adapting Bronfenbrenner’s ecological model, they contend that environmental learning is fruitfully understood if the learner is seen as being at the centre of seamless, ever wider circles of influence (microsystem, mesosystem, etc.).

Nevertheless, however environmental learning is conceptualised, the actual mode of operation of environmental education in schools remains a central issue, and the focus of our investigation here. As a basis for the analysis of school practice that is to follow, we shall refer to *subject thinking* as the traditional way that educators view separately time-tabled disciplines, each with a semi-independent curriculum prescription, and each often taught by subject specialists. *Framework thinking*, by contrast, pays particular attention to the generic and integrating aspects of national curriculum frameworks (overarching Aims, Goals, Vision Statements, Core Competencies, etc.). “Framework thinking” usually manifests as whole-school phenomena (Eames, Barker, Wilson-Hill & Law, 2010); it resists timetable compartmentalisation, and it is intended to be embraced by all teachers in a school, whatever their area of specialisation. Clearly, “framework thinking” resonates strongly with the literature of environmental education.

We now apply this distinction to an analysis of the fate of environmental education - its promotion or demotion - as the 1998 curriculum was implemented in Taiwan. Would environmental education be apprehended and implemented in schools in a transdisciplinary way, by all teachers, and be manifest at a whole-school level? And would the possible resonances perceived by Chang (1999) and others between the framework aspects of the 1998 curriculum (the Aims, Goals, Competences) and the characteristics of environmental education as originally outlined in the Belgrade Charter result in a mutually productive synergy? Or would environmental education be misconceived in more traditional, stand-alone terms as being yet another Learning Area? In short, would teachers’ conceptions of environmental education be dominated, respectively, by framework thinking or by subject thinking?

## **The Context of this Study**

In response to continuous calls for curriculum change in Taiwan since the 1980s, the General Guidelines and the Guidelines for each Learning Area of a new curriculum were first unveiled in September 1998 and March 2000 respectively (Yueh, 2007). Prior to this curriculum change, environmental education was encouraged, but not mandated, in every Taiwanese junior high school, but there had been nothing specifically written for the implementation of environmental education in the former national curriculum. (It should be noted, in passing, that despite a then-emerging international trend, e.g. Tilbury (1995), the notion of “Education for Sustainability” was not part of Taiwan’s Ministry of Education discourse over the period of this study.

The 1998 national curriculum apparently heralded a new approach to environmental education. A major feature was the curriculum’s generic and overarching Aims, Goals and Core Competences which signaled resonances with 21<sup>st</sup> century global trends and reforms, the need to improve the quality of citizens’ lives, less centralised control, greater teacher choice as evidenced by a more flexible and school-based approach to curriculum planning and the design of materials, and a more integrative approach to learning generally. These generic features were to subsume seven Learning Areas (Language Arts, Health and Physical Education, Social Studies, Arts and Humanities, Science and Technology, Mathematics and Integrative Activities) and it was announced that environmental education, for the first time, was to be mandatorily infused into all the Learning Areas. The curriculum was to be initiated in all primary and junior high school classrooms from August 2001 and 2002 respectively (Yueh, 2007).

In addition to these Learning Areas, there were six Important Issues to be taught via infusion within the seven Learning Areas. The six Issues were: information technology education, environmental education, gender education, career development education, human rights education, and home economics education. A crucial point, however, was that although all six Issues were required to be infused across all Learning Areas in all schools, there was no written requirement that equal attention was to be paid to all six Issues, and there was little specificity about how student learning of the Issues was to be assessed.

School timetables comprised Learning Area Periods and Alternative Learning Periods. Typically, the former were to occupy 80% or more of the school timetable per week or per school year. As regards the time for Alternative Learning Periods, schools could design grade level or school level activities especially relevant to the school’s characteristics (school-based curriculum), optional courses for the Learning Areas, remedial teaching programs, group counseling or self-learning. Significantly, schools could make their own decisions regarding time allocations for these choices. The key points were that environmental education, like other Issues, did not occupy specific timetable slots during a school week. Also, if it were to adopt the character of the international literature quoted above, its efficacy rested heavily both on how amenable school staff were to the notion of curriculum integration and, according to Chang (1999), Chen (1999) and many others, how well schools attended to the generic aspects of the 1998 national curriculum.

That teachers quite often fail to attend to national curriculum Aims, Goals, Core Competencies, etc. is well known (Baker, 1999). In fact, high school teachers may perceive them to be “the pages we just turn over” (Loveless & Barker, 2000) en route to locating material on their specialist Learning Area. This appears to be an ongoing problem (Barker, 2009).

Given this context, the present study sought to document the uptake of environmental education before, during and after the 1998 curriculum (which was launched in August

2002) was implemented in three Taiwanese junior high schools. How would teachers (unused to accommodating environmental education in the visible life of schools before the 1998 curriculum), respond during their exploration of the novel demands of this national curriculum? After implementation, would environmental education have established a place as an integrative multidisciplinary Issue across all school programs? And as Chang (1999) and others had anticipated, would environmental education and the Framework aspects of the 1998 curriculum have established a productive synergy?

## Methods

The virtues of case studies in environmental education research such as the present investigation, have been recognised at least since the late 1990s (Hart & Nolan, 1999). Case studies, “rich descriptions of bounded cases” (Mutch, 2005), can provide details to help others’ decision-making in similar situations (Bassey, 1981), and they are the preferred strategy when “how” and “why” questions emerge from “what” questions (Yin, 1994). Case studies are a “step in action”, beginning in a world of action and contributing to it (Cohen & Manion, 1994). In this study, three case study schools were selected in order to monitor the extent to which environmental education was promoted or demoted in the context of a national curriculum change.

Data-gathering monitored both the *inputs* to the overall longitudinal process of curriculum change, especially the professional development that occurred, and also the *staff responses* to the professional development, namely the staff’s personal stances, and the curriculum implementation that occurred in each school. The purposes of the data-gathering were to document:

- 1) teachers’ attention paid to, and perceptions of, the “*framework*” aspects (Aims, Goals and Core Competences) relative to the “*subject*” aspects (the seven Learning Areas), particularly how the balance might change over the whole implementation process.
- 2) how the six *Important Issues* were approached in each school, and how certain Issue(s) were selected for attention within each school.
- 3) how environmental education was perceived by staff and to what extent it was implemented.

The research strategies needed to accommodate the timeframe for facilitation of the new curriculum in the three case study Junior High Schools. After the Guidelines for each Learning Area were released in March 2000, school staff had until July 2002 to explore what the new curriculum would require. In August 2002 the old curriculum was relinquished and the new curriculum then directed teaching and learning in Junior High School classrooms. From August 2002 teachers and students adjusted to the new curriculum and the period of transition to the new curriculum was completed in July 2005. The research strategies comprised:

- 1) *Documentation* of Ministry materials sent to schools and the documents consequently produced in schools (i.e. the school calendar, the teaching plans for the seven Learning Areas and the topic teaching, agendas and minutes of professional development meetings, senior administrative meetings, and Learning Area meetings). City administrative orders were also collected as supplementary information. Nearly all documents were written in Chinese.
- 2) *Interviews* with school administrators, and with teaching staff from a wide variety of Learning Areas. To study the process of environmental education development before, during and after the first year of curriculum implementation, three rounds of semi-structured interviews were conducted: in 2001 (i.e. when staff were exploring what the new curriculum would require), late 2002/03 (i.e. during the first school year of classroom implementation) and 2003/04 (i.e. approaching full

implementation). The interviewees in each school comprised three administrators (the principal, instructional director, and environment officer) and at least seven teachers, one from each of the seven major Learning Areas. Due to staffing changes, 38, 35 and 32 faculty participated in the three rounds of interviews, which took approximately 30, 60 and 90 minutes each respectively. All interviews were conducted in Chinese.

The three public Junior High Schools (pseudonyms Redbrick, Parkway and Riverside), in a city of population one million, had 1000 - 1400 students. As well as carrying out the standard environmental education activities seen in all Taiwanese schools (namely garbage classification and recycling), each school possessed a feature that seemed promising for the successful implementation of environmental education. Redbrick had an effective principal who majored in biology and showed a special interest in environmental education, Parkway had gained numerous awards in energy education, and Riverside had published booklets about the local environment and was conducting an active outdoor community education program.

## **Findings and Discussion**

As signaled above, we shall present responses to three parameters, namely, attending to “framework” aspects and “subject” aspects; implementing the six Important Issues; and perceiving and implementing environmental education. In what follows, there were no significantly different patterns of responses between the administrators and Learning Area teachers.

### *Attending to “Framework” Aspects and “Subject” Aspects*

The claims made for environmental education in the literature cited above are unanimous about the breadth of its scope - that it is “integrative”, “transdisciplinary”, and so on. If environmental education were to flourish in Taiwan’s schools, propelled by Chang’s (1999) hoped-for synergy with the framework aspects of the 1998 curriculum (Aims, Goals, Competences), then teachers would need to be initially well disposed towards the notion of curriculum integration, and would need to remain so.

During the first year of implementation and the second round of the interviews in 2002/03, the interviewees were invited to share their perceptions of the characteristics, merits and shortcomings of the new national curriculum. In terms of characteristics, there was at that stage generally a broad, if imprecise, perception of the curriculum’s Aims and Goals (see Table 1). For example, more than two-thirds (71%; 25/35) of the interviewees (8/12 in Redbrick, 9/11 in Parkway, and 8/12 in Riverside) cited curriculum integration as the most striking characteristic (refer the second Aim: Enhancing integration ability). The eighth Goal (“to acquire the ability to utilise technology and information”) was frequently cited as a case where integration was demanded. Nearly one-half (46%; 16/35) of the interviewees considered that cultivating students’ abilities (creativity, critical thinking, problem solving, and expression) was both a characteristic and a merit that resonated with the fifth Aim (the capacity for lifelong learning) and at least three curriculum Goals (second: developing creativity, fourth: cultivating expression, tenth: developing independent thinking and problem solving). This suggests that at the point of implementation, many of the teachers in this study did apprehend and applaud many of the Aims and Goals (i.e. the framework thinking) of the 1998 curriculum and therefore, according to Chang (1999) and many others, were potentially well placed to develop environmental education.

However, Ministry of Education professional development - a compulsory week-long workshop on the 1998 curriculum at large, offered in the winter vacation of

2001 and again in the summer vacation - was apparently doing little to enhance teachers’ perceptions of the importance of framework aspects and integration in the 1998 curriculum. In the second round of interviews, curriculum integration was also seen, by two-thirds (66%; 23/35) of the interviewees, as the biggest *shortcoming* of the 1998 curriculum. By the last round of the interviews, this view was re-enforced: integration was seen as the biggest obstacle impeding the successful curriculum implementation in Taiwan. This view suggests that, in contrast with their professed philosophies, teachers’ subject thinking was readily surfacing in practice because they still preferred to teach their own subjects rather than the new integrated Learning Areas (framework thinking). Except for Language Arts and Mathematics, the other five Learning Areas were all integrated from several previously independent subjects in the old curriculum. Teachers who taught these integrated Learning Areas all said that the urgent need for them was to prepare unfamiliar subjects within the new Learning Area that they were responsible for. Teachers of Science and Technology and of Social Studies complained the most stridently because these two Learning Areas would be tested in external assessments. “Subject thinking”, it seems, was emerging strongly amongst these teachers. In the last round of interviews, in 2003, the Redbrick biology teacher commented that ... integration in the Learning Area of science is not occurring comfortably ... biology should not be integrated into chemistry/physics ... In fact, one year after August 2002 in the schools studied, Science and Technology was still being taught by separate subject specialists, although Social Studies was taught by one teacher in the lower grades. This can be viewed as a commentary on how the “framework thinking” which teachers’ initially professed was being undermined in the face of the practical demands of “subject thinking”.

Many teachers commented that the success or failure of the curriculum implementation would depend on what would be examined in the external assessment after curriculum change. In fact, a few months after implementation there were mountainous waves of criticism from society and schools towards the whole notion of curriculum integration: the more specialised knowledge required at Junior High School (compared with Primary Schools) was held to demand clearly defined subjects areas. The Redbrick mathematics teacher said in the last round of interviews, in 2003 ... teaching math should pay attention to traditional requirements ... I think it’s okay to cultivate students’ creativity in the arts but we should not do it in basic subjects like math ... This subverted the radical change that the Ministry of Education had intended in the curriculum document, and the Ministry announced in late 2002 that the external assessment would test the same subjects as in the old curriculum. Further, in early 2003 the Ministry announced that curriculum integration would no longer be compulsory (Yueh, 2007).

The upshot was that no satisfactory balance between framework thinking and subject thinking was achieved. Rather, we could say that, somewhat to the relief of the teachers, framework thinking was surrendered to subject thinking at the government level, and the implied legitimisation of the traditional approaches to school subjects became strongly reflected in school practices. This shift in teacher orientation had the unintended (but very real) effect of disestablishing the kind of curriculum climate necessary for the promotion of environmental education.

### *Implementing the Six Important Issues*

The six Important Issues required to be infused into all the seven Learning Areas in schools were information technology education, environmental education, gender education, career development education, human rights education, and home economics education. During the third round of interviews in 2003/04, teachers were asked how



they perceived their school had prioritised the six Important Issues (see Table 2, in which scores were calculated by summing each teacher's perception of the priority - allocating 6 points for top priority, 5 points for second priority, etc. - and averaging over the cohort).

Table 2 suggests that information technology education was given top priority in all three schools, in contrast with environmental education, which was perceived as medium priority. From the interviews and document analysis (city administrative orders), we concluded that central government support was the main reason why information technology education was more strongly prioritised than environmental education. Information technology education, according to the Redbrick Chemistry/Physics teacher in 2003 had been supported by ... experts to edit textbooks, required teaching hours in the school timetable, and professional teachers to teach it. No such support was provided for environmental education.

Similarly, gender education and career development education, which ranked second and third, were also well-funded Issues and would be evaluated at the end of each funded project. For example, the Riverside Instructional Director said in 2003: ... gender education has already been allocated with a budget for many years ... Now the new Issue valued more is career development education and lots of money from the Ministry of Education was distributed to schools for its implementation rather than environmental education.

All of this suggests that targeted allocations of government funding to some selected Important Issues was powerfully subverting the Aims and Goals in the curriculum framework; teachers were tending to treat these funded Issues as stand-alone subjects.

The funding of particular Important Issues made it unlikely that all six Issues would be implemented equally, as intended. In fact, the paucity of funding for environmental education created the suspicion that it was less valued by the Taiwanese government during this curriculum change. As a consequence, what actually constituted environmental education, and its resonances with the Aims and Goals, remained unidentified and unexplored. The Parkway math teacher said in 2003: I don't feel that

TABLE 2: Scores generated from pooled teacher perceptions of how their schools had prioritised the six Important Issues offered in classrooms at three case study Junior High Schools as required in the new Taiwanese curriculum.

<b>Important Issue</b>	<b>Redbrick (N=11)</b>	<b>Parkway (N=11)</b>	<b>Riverside (N=10)</b>
Information technology education	5.9 (1st)	4.8 (1st)	5.9 (1st)
Environmental education	3.5 (4th)	4.1 (3rd)	3.6 (4th)
Gender education	4.6 (2nd)	3.7 (4th)	5.1 (2nd)
Career development education	3.7 (3rd)	4.2 (2nd)	4.2 (3rd)
Human rights education	3.0 (5th)	2.8 (5th)	2.1 (6th)
Home economics education	1.4 (6th)	2.6 (6th)	2.2 (5th)



our government valued environmental education a lot ... it might have, but it didn't specifically raise the term “environmental education” ... My school did do many things relevant to the environment but the problem is that we can't connect what we've done with environmental education.

The “framework” potential of human rights education and home economics education was even less realised than for environmental education. Far from being infused across all Learning Areas, in the context of a crowded curriculum they were perceived as tiny subject content subsets of either the Social Studies (human rights education) Learning Area or the Integrative Activities (home economics education) Learning Area.

In summary, although environmental education (like the other five Issues) was perceived having “framework” potential, by contrast it was treated in reality rather more as a subset of other subjects, that is, one with lesser status than, say, math or geography, and not dignified by clear assessment procedures. The allocation of especially dedicated funding to certain Issues (and environmental education received relatively little) was taken by teachers as further encouragement to treat each Issue in isolation. In-service workshops appeared to contain little specific advice about the teaching of environmental education, an area that has subsequently seen considerable international pedagogical development, e.g. Saunders (2010). How environmental education actually *was* taught in the schools studied will be described further in the next section.

Finally, we would note that the discourse around Issues that was occurring, as reflected in the teacher interviews, was one in which the Issues were to be selected and engaged with *separately*, i.e. with little pedagogical interaction *between* Issues. This meant that environmental education was very infrequently viewed through the lens of the other five Issues, i.e. its technological, gender, career, human rights and domestic aspects. Such a climate militated strongly against a wide-ranging exploration of the “ecological, political, natural ...” (Fien et al., 1997) aspects of environmental education.

### *Perceiving and Implementing Environmental Education*

Having described the broad fate of environmental education within the three case study schools, we now document individual teachers' views about environmental education especially as they were voiced in 2003, i.e. when curriculum implementation was well under way. We shall note especially what happened when these views, which often initially encompassed wide “framework thinking”, were confronted by a growing climate of traditional, pervasive “subject thinking”.

Over the three years studied, every interviewee said more than once that environmental education was important, should be taught in schools, and was a broad enterprise encompassing everything relevant to the environment. Even in the third round of interviews in 2003/04, all 32 interviewees continued to affirm that environmental education could enhance their school's general educational goals in some way, directly or indirectly. However, by 2004 this ongoing “framework thinking” was often being supplanted by “subject thinking”. For example, the Parkway mathematics teacher in 2001 said ... (Environmental education) is very broad and is involved in every subject. It's better for subject teachers to teach environmental education while teaching their own subject ... In 2002 his attitude had changed: It is probably difficult, possibly difficult, for every Learning Area to infuse the teaching of environmental education ... it looks constrained if doing so in math teaching. By 2003, he was anxious about appearing to forego his existing subject base: At present, I don't feel that I need to stress environmental education a lot because the real goal of my teaching is to achieve the understanding of mathematics. (Environmental education) will become a burden if students and parents think we are encouraging something not

relevant to mathematics. In 2004, the Riverside health education teacher worried that she might not afford to teach environmental education in her subject teaching. She said: Who is going to teach it? Which Learning Area should environmental education belong to? Everyone is overloaded and it is hard to get someone interested in teaching environmental education. Similarly, the Riverside English teacher commented: Environmental education is not a school subject but just a kind of living habit, style, or thinking ... Yes, we might do it if there is still have time after school subjects and other Important Issues. These comments suggest why environmental education was not the first priority to be implemented among the six Issues, despite every teacher saying that it should be taught in schools. In fact, some teachers admitted that they did not understand environmental education well and therefore could not teach it well. Early in 2002, the Parkway mathematics teacher admitted: Honestly, I don't really understand environmental education in-depth. The Redbrick scout training teacher said in 2003: It'd be better to let people more professional than me explain environmental education to students ... My understanding about environmental education is not good enough. The Redbrick math teacher also said in 2003 ... I'm seriously lacking in knowledge if I have to teach environmental education professionally.

This emergent lack of confidence about teaching environmental education might have been predicted from data gathered in the first round of interviews in 2001 that revealed considerable confusion about environmental education pedagogy. Two-thirds (66%; 25/38) of teachers cited action-orientated behavioral change as their expected student learning outcome. However, when asked what should be taught in environmental education, four-fifths (79%; 30/38) of the school staff in 2001 suggested that teaching knowledge about a wide variety of environmental education topics was paramount. This obvious disjunction between knowledge-based teacher input and behavioral-based student output was bound to create a lack of confidence about what would be achieved.

This confusion was not addressed by the government-sponsored teacher professional development workshops, which offered little specific introduction to environmental education. In 2001 the Redbrick Art teacher commented: Before implementing the new curriculum, there was no workshop specifically for environmental education ... Those early workshops mainly introduced the new curriculum in general such as curriculum integration, aims, curriculum goals, and so on ... with only a little introduction of the six Important Issues. In fact, our final interviews also showed that no specific environmental education workshops were ever conducted in the schools studied, although there were workshops for some other Issues such as information technology education, gender education, human rights education, and career development education. This resonates with the fact that no interviewee had ever checked the National Environmental Education Guidelines to identify to which extent the environmental education teaching was required in either teachers' own subject teaching or in school practices overall.

In summary, a broad pattern emerged when teachers talked about their experiences with environmental education in the curriculum change process. Initially, they had generally held positive perceptions of environmental education as an Important Issue, with potential to contribute to achieving the Aims and Goals of the 1998 curriculum framework. However, these perceptions were later overtaken by confusion about practicalities - how to actually go about implementing environmental education in order to achieve these curriculum Aims and Goals. This was never a clash of pedagogies between those teachers who advocated a practicable "framework" approach to the introduction of environmental education (as an integrative transdisciplinary whole-school enterprise) and those who conceived it, in practice, as a traditional "subject". The "framework" approach never took shape in the teachers' minds because of their

previous lack of experience teaching environmental education and, now, the lack of supportive in-service offerings in environmental education. A “framework” approach to environmental education therefore never materialised in practice. However, neither was environmental education even accorded the “subject” status of a Learning Area, that is, a separately timetabled entity with a semi-independent prescription and taught by specialists.

So how might the environmental education that *was* implemented in these three schools be characterised? In the absence of direct classroom observations, this study can only surmise a scenario from the teachers’ interview comments. In the name of an elusive “infusion” pedagogy, it seems that what actually transpired in the classrooms was usually rather unstructured opportunistic environmental education content teaching, loosely derived from whatever happened to be taught in the given Learning Area. No assessment of student learning outputs in environmental education, behaviorally orientated or otherwise, was required of teachers.

### Implications

As we have pointed out, Chang’s (1999) observation - that the overarching Aims and Goals of the new Taiwanese national curriculum were largely co-extensive with the aims and goals of environmental education - was not unexpected. It has been paralleled in many other countries, and its strategic potential often noted. McKeown (2002, p. 29) warned what could happen if the challenge is not taken up: “If (environmental education) can be linked to the current global educational reform movement, (environmental education) will be swept along with the energy of the reform movement. If, however, the wave is missed, proponents of (environmental education) will be looking for a foothold in the curriculum and trying to convince teachers to wedge sustainability principles, knowledge, issues, skills, values, and perspectives wherever possible”.

In Taiwan, an analysis of these three case study schools suggests that, as the 1998 curriculum was facilitated, there was an early de-emphasis on the relationship between environmental education and the generic Aims and Goals. This was later followed by a further deterrent to “framework thinking”, namely, the active discouragement of the allied notion of curriculum integration. As concerns environmental education, there was little existing teacher knowledge of its generally accepted characteristics - that it addresses the environment in its totality, be life-long, interdisciplinary, future-focussed, issues-based, and so on (Fensham, 1976) - nor about how environmental education might actually be manifest in schools. Instead, these teachers perceived other signals demoting environmental education: the lack of government support for environmental education (especially in professional development), and its relegation to the 20% of “Alternative Learning Periods”, which were to be school-designed, not-specifically time-tabled, and without assessment directives. (Except for information technology education, the four other Important Issues to be addressed in the Alternative Learning Periods met with more or less similar responses from teachers.) It is not surprising, given all this, that Chang’s (1999) hopeful synergy of broad frameworks – the Aims, Goals and Competences of the national curriculum, and those of environmental education - was apparently never perceived in the three study schools. In contrast, in these schools, a host of pragmatic “subject thinking” issues, especially related to student performance in traditional subjects in prestigious examinations, rapidly surfaced and these appeared to be actively government-supported. All of this meant that environmental education became prone to a “wedging” mentality (to use McKeown’s evocative term) and this resulted in its relatively low impact in these schools.

The issue addressed here was perceived twenty years ago, namely, that environmental education “cannot be claimed as a subject in itself, rather it must be

treated as a “whole” concept that requires inputs from all parts of the curriculum” (Worldwide Fund for Nature [WWF], 1990, p. 1). As Yueh (2007, p. 89) put it: “The problems which environmental education encounters are not merely self-generated; rather, they are also a basic problem of education itself”.

In conclusion, we suggest that the 1998 curriculum *has* influenced the “Taiwan-ness” of the nation’s environmental education. Now no longer a purely voluntary aspect of schooling, made visible only by the commitment of some enlightened school leaders and dedicated teachers, environmental education currently has a defined and secure - if low-profile - place in all school programs. However, internationally, not just in Taiwan (Huang, 2010), schooling continues to wrestle with implementing environmental education in “framework” aspects of curricula. In New Zealand, early results (Cowie et al., 2009) relating to “framework” implementation of the “New Zealand Curriculum” of 2007, are not encouraging; and the implementation of “sustainability” (the discourse which earlier environmental education has generated), conceived as a future focussed theme and a value, is also tentative. Australia faces similar challenges as it currently explores the inclusion of sustainability as a cross-curriculum dimension in the first Australian Curriculum (Australian Government Department of the Environment, 2010). Achieving this alignment will be vital. As Hart (2003, p. 20), paraphrasing Orr (1994), claimed: “If we re-examine what education is for, measured against an agenda of human survival, ... then all education is ultimately environmental education”.

### Acknowledgements

We are grateful for comments from Chris Eames on an earlier draft of this paper, and to the two AJEE reviewers who encouraged us to clarify and augment aspects of this paper.

*Keywords:* curriculum; subject; learning area; subject thinking; framework thinking.

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# **An Australian Story: School Sustainability Education in the Lucky Country**

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## **Abstract**

This paper documents a case study involving a Perth primary school accompanied on its sustainability journey by Millennium Kids Inc, a local not-for-profit community organisation. Tension between the school's sustainability focus, its prestige as an elite private school and a "lucky country" mentality frames the Australian-ness of this environmental education story. Data draws from interviews conducted with teachers, the deputy principal, principal, and CEO of Millennium Kids. School staff reported that Millennium Kids' collaborative approach connected the school with community groups and families in meaningful ways, provided support to staff, and influenced curriculum integration by engaging the student voice. Challenges in the school related to managing expectations from families, leadership that fosters shared responsibility, and teachers' efforts to integrate sustainability across learning areas. A pattern of sustainability education was established in the school but these challenges could encumber the longevity, integration and support for these initiatives in the future.

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## **Introduction**

For many Australians "the lucky country" has become a celebrated phrase used to describe Australia's bountiful natural resources, weather, lifestyle, history, and distance from problems elsewhere in the world. This phrase, though originally intended to be an indictment of Australia (Horne, 1964), has become an affirmation of the Australian way of life and produced a "she'll be right" mentality (AG, 2011). For environmental educators in Western Australia this relaxed mentality combined with economic reliance on the mining and resources industry is an obstacle to discussing the implications of climate change and encouraging uptake of environmentally responsible behaviours. Another obstacle to environmental education in Australia, especially apparent among children in affluent counties, is the phenomena of "action paralysis" where people feel disempowered about making lasting change because of continuous negative reports of environmental problems without sufficient action-oriented information (Ballantyne, Connell, & Fien, 2006; Jensen & Schnack, 2006). Studies suggest action paralysis needs to be replaced by action competence based on feelings of shared responsibility.

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These two factors combined create unique challenges for environmental education in Australia.

This paper presents a case study framed within whole-school, whole-system approaches to environmental education for sustainability, supported by the Australian Sustainable Schools Initiative in Western Australia (AuSSI – WA) and the Millennium Kids approach to sustainability facilitation. The school featured in this case study is a prestigious private school located in an affluent suburb of Perth. This suburb and those surrounding it are among the greatest polluters, biggest water users and have the highest eco-footprints, per person per year, in the state of Western Australia (ACF, 2010). The school's principal and staff were aware that many of the children's parents work in the mining and resources industry and may be more financially driven than environmentally driven. They also were aware, however, that many of these children are from families of influence and some children may be in a position to lead systemic change when they grow up. In 2008 the school set out to implement sustainability education using principles of action competence and shared responsibility. To do this, the school adopted a whole-school, whole-system approach and formed partnerships with AuSSI-WA and Millennium Kids. The Australian-ness of this environmental education story is framed between the school's focus on sustainability education and shared responsibility among the whole school community, and the lucky country mentality and reliance on natural resources by most of the families whose children attend the school.

In this research we explored the question: what organisational outcomes and challenges might this newly enrolled AuSSI – WA school encounter when they utilise the Millennium Kids approach to sustainability facilitation? We present results about three key elements of sustainability education (DoE, 2010b): community links and partnerships, school governance and policy, and curriculum integration. We also discuss the strengths and challenges of the school's new direction as reported by the staff. Because of their importance to this case study, in the next section we introduce two organisations, AuSSI-WA and Millennium Kids.

### *AuSSI – WA*

The Australian Sustainable Schools Initiative is a federal and state partnership, that promotes a whole-school, whole-system approach to sustainability (DSEWPC, 2011; Lewis, Baudains, & Mansfield, 2009). In Western Australia, AuSSI advocates a holistic, integrated vision of education for sustainability, by placing equal emphasis on environmental, socio-cultural, and economic perspectives and facilitating explicit links across the curriculum (DoE, 2010a; Lewis et al., 2009). It encourages schools to tailor a sustainability journey appropriate to their school community, while still drawing on AuSSI – WA for access to networks, tools and resources. Similar to other states, AuSSI – WA provides schools with professional development, access to an alliance of key educational providers and case studies of school experiences to foster resource sharing (Davis & Ferreira, 2009; Gough, 2005; Ilich, 2008). In addition, AuSSI – WA provides a detailed rubric self-assessment tool, a basic step-by-step guide to help schools get started and visual tools termed the “ecological footprint” and “social handprint” that emphasise the environmental, socio-cultural, and economic perspectives of sustainability (DoE, 2010a, 2010b; Ilich, 2008). Currently more than three hundred and fifty schools across Western Australia are registered as participating AuSSI-WA schools.

### *Millennium Kids*

Millennium Kids Inc. is a Perth-based non-profit, non-government environmental organisation for young people aged 10-25 years old. Over the past 15 years

Millennium Kids have developed strong relationships with schools and a wide variety of organisations. Millennium Kids currently provide services as a sustainability facilitator for almost 40 schools in Western Australia (Taylor, 2010). Millennium Kids act as a conduit for a school by “advertis[ing] the diversity of groups and people out there who care about the environment and with which young people could participate” (Taylor, 2010, p. 79). Based on the school’s priorities Millennium Kids “call in the people with expertise in other areas, rather than overlapping or competing” (Taylor, 2010, p. 79). Millennium Kids promote AuSSI-WA to all the schools they work with because “the AuSSI framework has supported the way Millennium Kids works ... [and] gives us credibility in a federal framework” (C. Aniere, personal communication, August 4, 2010). Because of their diverse community networks, including AuSSI-WA, and experience working with young people, Millennium Kids is well placed to act as a school sustainability facilitator.

## **Methods**

The data presented in this case study are a subset of a larger research program and focus on organisational aspects of the school’s sustainability program. The data for this case study were drawn from document searches and interviews with one teacher from each of Year 4, 5 and 6, the main staff sustainability coordinator, the deputy principal, principal and CEO of Millennium Kids. To enhance validity a range of opinions was purposefully sampled (Lindlof & Taylor, 2002). Purposeful sampling of interviewees provided triangulation across levels of organisation within the school’s sustainability program with a focus on the upper-primary years. The findings of the case study are limited by the opinions and experiences of the participant sample. Interview and document data were analysed using deductive content analysis where coding of categories was guided by previous research findings (Lindlof & Taylor, 2002).

All interviews were semi-structured, conducted individually, voice recorded and transcribed. Interviews ranged from 30 to 60 minutes. Interviews with the teachers and deputy principal included questions about their opinions of climate change, how they incorporate sustainability into class lessons, and the strengths, weaknesses, opportunities and threats involved in the school’s collaboration with Millennium Kids and AuSSI – WA. Interview questions for the principal were similar, with additional questions about the history of sustainability education at the school, and milestones. Interviews with the CEO of Millennium Kids included questions regarding the history and nature of their collaboration with this school, their approach to sustainability facilitation, and their relationship with AuSSI – WA.

Documents that were analysed included school newsletters and newspaper clippings related to the school’s sustainability initiatives and reports from the school’s self-documented timeline of sustainability activities located on the Millennium Kids social networking website (Millennium Kids, 2010).

## **Results and Discussion**

The results address three key elements that influence the organisation of sustainability in school life (DoE, 2010b).

### *Community Links and Partnerships*

Providing support is seen as critical to the effectiveness of whole-school sustainability initiatives (Henderson & Tilbury, 2004; Ilich, 2008). Facilitators and external support staff contribute to this effectiveness. In early 2008, the case study school signed up to AuSSI – WA and in June 2008 the school’s principal, in consultation with the teaching staff, contracted Millennium Kids to facilitate their sustainability initiatives. The

CEO of Millennium Kids described their collaboration as a “partnership” and stated, “A partnership is more than Millennium Kids giving to the schools. It’s about sharing knowledge and ideas.” The case study school’s partnership with Millennium Kids was founded upon a pre-existing interest among the school’s staff towards adopting a whole-school sustainability focus (Figure 1). From June 2008 onwards, the number and diversity of sustainability initiatives undertaken by the school grew rapidly (Figure 2).

Millennium Kids worked closely with the principal and the main school sustainability coordinator to provide step-by-step support to the school. They delivered professional development tailored to the staff’s sustainability interests, used the Millennium Kids’ Ten Step Methodology with students, and helped the school foster relationships with parents, other sustainable schools, organisations and educational providers. Of their approach to sustainability facilitation, the CEO of Millennium Kids explained, “it’s about capacity building... It’s not about taking a package in. It’s actually about sitting around collaborating and creating”. The principal described their collaboration as dynamic, saying “they keep stimulating us, keep us moving along, stop us from becoming complacent”. When asked whether and in what ways the partnership helped the school develop its sustainability focus and policies, the deputy principal said, “definitely [by providing] guidelines, expertise, passion, they’ve got the passion.” Teacher D remarked:

I think it focuses us, I think it helps us to find useful activities that you can do in school. Other schools have done them so you can have a look and follow through. That’s a real strength.

Sustainable schools are encouraged to build partnerships and networks with community organisations to enhance their local relevance and increase multi-stakeholder involvement (Tilbury, Coleman, & Garlick, 2005). In less than two years, the school built relationships with various agencies to tailor activities relevant to the school’s focus and the students’ interests. Millennium Kids facilitated connections with groups such as Ribbons of Blue, Travel Smart, Slow Food International, Millennium Kids – South Africa, Aboriginal groups, other schools, the local town council, local bushland friends group and a local supermarket (Figure 2). Of this the principal said, “There are lots more ventures that are happening, like us connected with The Centre for Water Research [at The University of Western Australia]”.

Millennium Kids also encouraged the school to weave sustainability messages into some of the existing whole-school traditions and priorities, such as Harmony Day and Friends of the Library (Figure 2). These included attempts to “involve parents in initiatives that we are doing” (Teacher C). The principal explained, “We’re trying to build in some of our current traditions and then just double up on it”, for example:

We have Grandparents Day every year. But what we did this time was we actually got the grandparents and children to compare the carbon footprint when they went to school versus the children.

Despite best efforts the school encountered some challenges related to its status as a prestigious private, primary school and a lucky country mentality. Staff said they “tread carefully” when approaching the sustainability message “because there’s potential for it to backfire” (Teacher D). Teacher B said, “You don’t want to annoy anyone too much because a lot of the parents at this school work in the oil and gas industry”. The principal acknowledged:

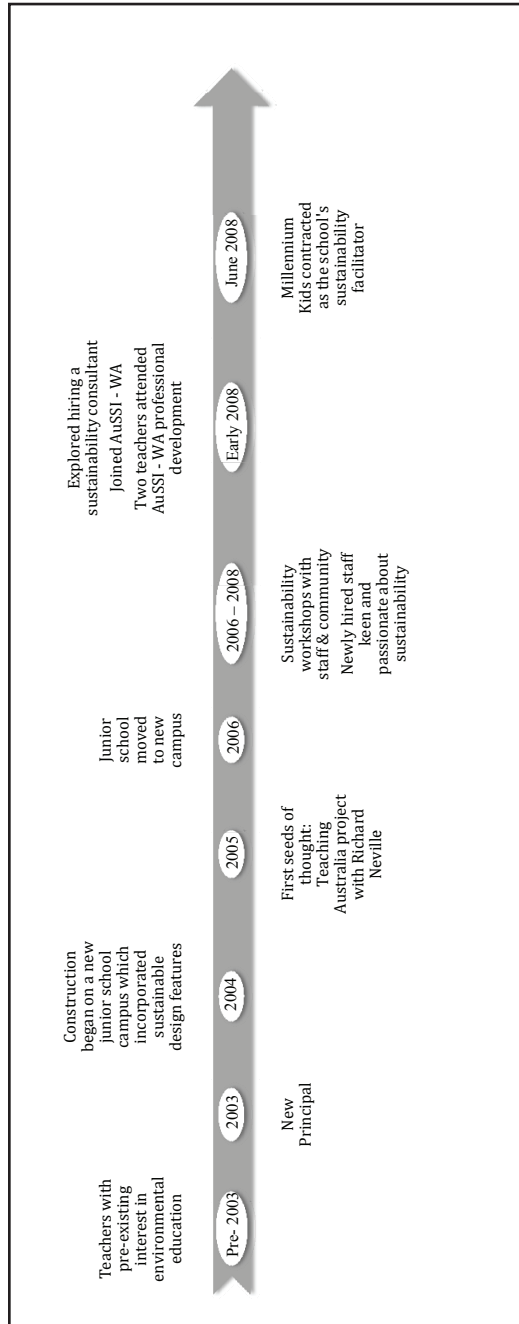


FIGURE 1: Timeline of sustainability activities at the study school before their partnership with Millennium Kids

Time	Event	Time	Event	Time	Event
<b>June 2008</b>	Millennium Kids hired as sustainability facilitator	<b>January 2009</b>	Whole-school: From river to sea, school mural	<b>June 2009</b>	Year 6: Digital dreaming: virtual activity, Indigenous
<b>July 2008</b>	Whole-school: Millennium Kids Conference 2008, July 25 <sup>th</sup> Sustainability Committee established, July 26 <sup>th</sup>	<b>February 2009</b>	Year 6: The river past Whole-school: Millennium Kids Conference 2009		Year 3: International lunch; cultural sharing
<b>August 2008</b>	Whole-school: The green games; mini-olympics, cultural sharing Year 4: Assume responsibility for school recycling Whole-school: School newsletter goes digital	<b>March 2009</b>	Pre-Primary: How the river was Staff Meeting: Local author of 'Dead Men's Dreaming' addressed the staff; Indigenous story Year 5: Sustaining culture, sustaining country; Indigenous		Whole-school: Grandparents return nurtured seedlings ready for planting in local park
<b>September 2008</b>	Sustainability Committee: Attend West Australian Youth Environment Conference, September 19 <sup>th</sup> & 20 <sup>th</sup>		Whole-school: 'Walking School Bus' begins; three days per week, driven by parents	<b>July 2009</b>	Year 5: Visit Burarra, virtual activity, Indigenous Swan River mural
<b>October 2008</b>	Year 1: Adopt a pond Year 2: Plant a veggie garden Year 4: Enter Quest Atlantis; simulated environmental investigations Sustainability Committee: "No plastic bags" initiative	<b>April 2009</b>	Whole-school: Harmony Day with Indigenous links Pre-Primary: Spinatex pigeon; art project with Indigenous links Whole-school: Change for good; fundraising for charity Whole-school: Class art projects		Year 5: Student wins local literature award Year 5: Secret women's business; visit from Indigenous Nyonggar women
<b>November 2008</b>	Year 5: Walk through time; researched the history and vegetation of local Swan River Year 1: Worm tea for sale Sustainability Committee: Report		Year 2: Invite community to share their stories; Indigenous stories Friends of the Library: Parents group start a mural of the Swan River Year 5: From port to point	<b>August 2009</b>	Year 5: Mtshidi Initiative; South African connection Year 5: Community service announcements Teacher visits Millennium Kids South Africa Teacher Reports after South Africa visit Year 4: Indigenous dance program
<b>December 2008</b>	Local council Bushland Management Plan: All staff support the plan by integrating into relevant learning areas Staff professional development: Point to port; history, geography, environmental, Indigenous Friends of the Bush: Many students and their families became volunteers of the local community group	<b>May 2009</b>	Whole-school: Join River Guardians Year 6: Prepare seedlings & activities for grandparents day Year 5: Kindy observations Year 5: River science; unit begins Whole-school: Students enter local literature award competition Sustainability Committee: The Hype Hotline; students on radio show Whole-school: National Walk Safely to School Day, May 15 <sup>th</sup> Whole-school: Grandparents Day Friends of the Bush: planted seedlings Year 5: New Norcia camp; Indigenous & historical investigation		Whole-school: Partnership with Centre for Water Research, University of Western Australia Whole-school: project meeting, Schools for Water Research and Management Whole-school: Web tools for water management Whole-school: Digital dreaming; the story grows Year 4: Knob Creek; simulated river watch by students Whole-school: Crazy shoes to kick-start fund; walk to school day & fundraising for local hospital
				<b>October 2009</b>	Whole-school: School joins collaborative project with Slow Food International; plans for school veggie & bush tucker garden in 2010 Teacher wins Ribbons of Blue award Year 5: Two students win Ribbons of Blue climate change competition for their short film School is finalist for Best School Garden competition run by Garden Gurus
				<b>November 2009</b>	Whole-school: Official launch of Schools for Water Research and Management Two teachers attend AUSSI – WA professional development Pre-Primary: Pupils show real vision; charity Year 5: Make dolls for African children Play pump proposed for school gardens in 2010 Staff professional development: A river runs through
				<b>December 2009</b>	

FIGURE 2: Detailed timeline of sustainability activities at the study school since beginning the partnership with Millennium Kids



We're fighting an upward battle of very wealthy and endowed families who perhaps are financially driven more than necessarily environmentally driven. ... There's an unwritten, unspoken sort of expectation that everything is just perfect. I think there is a slight expectation that we should be providing the service before looking after the environment. You know, I paid good money so why can't I have my newsletter in paper?

Schools involved in sustainability initiatives have reported greater involvement in the life of the school by parents and the community as a whole (Henderson & Tilbury, 2004). For many schools this involvement was garnered through collective efforts of greening the school and meaningful participation on school governing bodies. Data from interviews with parents will be reported in a future paper, but preliminary analysis suggest this school could go further to involving parents in meeting school sustainability priorities.

### *School Governance and Policy*

The way school governance and policies are managed can create tension in the set up of whole-school sustainability initiatives (Wooltorton, 2004). In describing the steps leading up to their partnership with Millennium Kids, the principal explained, "We got more staff on board who were really keen and passionate, then I drove the priorities". She was aware that teachers integrated sustainability to "different extents" and shared her vision that "as the students go from teacher to teacher they'll pick up inspiration for different things". The principal's motivation for driving sustainability priorities at the school was that the students "are more than likely going to be decision makers for big companies or part of a private enterprise" and "these people can influence because some of these kids may go into politics and could make systemic change".

The principal's leadership style could be described as "managerial", where influence is exercised through positions of authority (O'Donoghue & Clarke, 2010). The principal stated that "leadership is essential", and "there's a certain culture here where principal and head of junior school are key decision makers". The principal's enthusiasm and direction were clear when she stated:

I'm in the position to try and influence things [by introducing initiatives such as] fair trade coffee [in the staff room], reduce the amount of [plastic] wrap that's used to wrap up dishes, ... Encouraging walk to school with the community. And institutionally talking about how often you should be using your heating and air conditioning. It sounds a bit dictatorial, but there are whole-school things that you can actually do, like the whole-school recycling.

All teachers interviewed acknowledged that leadership of their principal was integral to the school's sustainability focus, and that losing her could be a threat to the process. They also voiced the importance of being flexible with time, resources and expectations, and not over-directing the process but providing support and collaboration. Teacher A explained that the challenge for the school's governance was being able to "keep staff motivated but at the same time not giving them additional work" because "when you start loading up the curriculum with initiatives that the school takes on you have to be very aware that you can lose staff". Teacher B expressed her frustration:

As a teacher it can get boring because you just keep doing it again and again and again, and you want to be able to have a bit of fun with it. It's got to loosen up a bit. The problem we've got is there's so much that we need to teach, and that we're expected to teach.

Commitment and support from a school's governing body is required for a whole-school sustainability program to be successful, without which it "will lose momentum and fail to become embedded in the school culture" (Henderson & Tilbury, 2004, p. 35). Because of their administrative authority the principal plays an important role in how a school's governing body is managed (Wooltorton, 2004). All collaborators on the governing body, including administrators, teachers, parents and students, need to share responsibility and assume ownership for sustainability initiatives if they are to be successful and lasting. To achieve this shared responsibility, leadership should be distributed and all collaborators engaged in participative, democratic decision-making (Henderson & Tilbury, 2004; O'Donoghue & Clarke, 2010; Wooltorton, 2004). Data from this case study suggest that more can be done at this school for all collaborators to feel more engaged in the decision making process.

### *Curriculum Integration*

In Western Australia, AuSSI advocates a holistic, integrated vision of education for sustainability, by placing even emphasis on environmental, economic and socio-cultural perspectives and facilitating explicit links across the curriculum (DoE, 2010a; Lewis, et al., 2009). Curriculum integration at this school was influenced by engaging the student voice. Millennium Kids fostered student engagement through use of their Ten Steps Methodology. This tool was used in student conferences (Figure 2), where students were given opportunities to voice their concerns and opinions about their environment and society. "The concerns realised were centered around the issues of air, water, trees, waste, native animals, energy, peace/lifestyle and leadership" ("Timeline", 2010, para. 1), and became the platform from which the school set its focus. The deputy principal spoke about the process, "They [Millennium Kids] treat them [the students] like adults. They give them adult type activities, for instance creating an audit of what they see as important". Data from interviews and surveys with students will be reported in a future paper, but preliminary analyses suggest students valued this collaborative process.

Staff were asked to participate in the student conferences to observe the Millennium Kids Methodology and were encouraged to develop their yearly planning around one or more of the students' main concerns. The principal said, "There's things you can do personally, things you could do curriculum-wise and things we can do as an institution." She explained that each teacher has an area of sustainability they are personally interested in, such as transport, waste, or water, so she tells teachers they should "follow their passion" when incorporating sustainability into lesson planning "because then you'll do it properly". The principal described how action competence could be developed among students, "instead of thinking just classroom and the wider world, by looking locally they could actually act, the kids could be empowered". And, as a result, "each year level has run with something they can manage and are aware of themselves". Teacher C commented, "There's a lot of teachers who are willing to get their teeth sunk into it" and teacher D explained:

The year 4s come around and empty the recycling bins every week. ... The year 5s are focusing on the river so that's their thing, the year 1s have got the worm farm and other year levels have got other things. There's a lot of things happening. [Figure 2]

Issues arise for teachers when planning and teaching sustainability such as: making links to the curriculum, using whole systems thinking, depth of personal understanding, and teacher time (Summers, Corney, & Childs, 2003; Tilbury et al., 2005). In this case study, several teachers said it was possible to weave sustainability messages across

learning areas. Teacher A explained, “As long as the kids are excited and engaged and the teachers are keen and interested the course sort of evolves.” However, teachers also discussed the challenge of managing time, and not over-doing the message. The deputy principal explained:

Timetable is a big problem. ... You have to teach smart and incorporate it in a lot of different learning areas but without overkill, which we could be in danger of doing with one or two components.

Interviews revealed that, in practice, teachers weave sustainability into their lessons to different degrees. Teacher B described her approach in this way, “I tend not to incorporate the learning into the other areas, but I do incorporate the action ... as an incidental learning kind of thing”. Whereas teacher A stated:

Once you start going down that track things open up for you, ... so long as you’re addressing outcomes that we have to cover. And sustainability, in terms of the social sciences it’s in all the areas, and in terms of English being a tool for the social sciences, maths, everything. ... Sustainability just falls into place naturally.

Whole systems thinking, is an encouraged approach to teaching sustainability because it focuses on a holistic understanding of the interconnections and interdependence between all things and helps foster action competence (Tilbury et al., 2005), rather than teaching separate projects which the students may not connect to the bigger picture (Lewis & Baudains, 2007). A whole systems approach requires teachers to weave sustainability messages across curriculum learning areas, which can be a challenge for some teachers, as observed in this case study. Schools require sufficient resource materials, professional development and teacher time to adopt this integrated approach (Tilbury et al., 2005).

## **Conclusion**

Establishing environmental education as a school priority often creates tensions between outcomes and challenges that arise along the journey (Henderson & Tilbury, 2004; Tilbury et al., 2005). In this Australian story, Millennium Kids’ approach to sustainability facilitation helped the school establish patterns of whole-school, whole-system sustainability education in less than two years by fostering certain organisational elements. These elements were characterised by several tensions: tension between the school’s sustainability focus and a lucky country mentality observed among the parent body, tension between the principal’s determination to drive initiatives and the staff’s involvement in decision-making, and tension between the expectation on teachers to integrate sustainability messages across curriculum learning areas and the time, effort and training required to do so. These tensions did not prevent the establishment of sustainability education at this school, but they may encumber the longevity, integration and support for these initiatives in future years if not addressed.

Every environmental education story is different yet there are often common features that can be learned from and transferred to other schools or contexts (Lindlof & Taylor, 2002). Schools can benefit from considering the tensions highlighted in this Australian story as they plan and navigate their own sustainability journeys.

*Keywords:* environmental education; Millennium Kids; sustainability facilitation.

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# A Process for Transition to Sustainability: Implementation

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## Abstract

This paper reports the outcomes of the second action cycle of an ongoing project at Edith Cowan University (ECU) called *Transition to Sustainability: ECU South West* which is located in a small, single faculty regional university campus. The overall project has comprised three action research cycles, the first of which was the planning cycle which established the importance of building a community of practice with a learning stance for sustainability transition. It also highlighted the issue of a common definition of the term sustainability; of including cross-disciplinary perspectives; and of working with the local community. The second action cycle which was the first implementation phase, is the subject of this report. In this phase, we found that by not foreclosing on the meaning of sustainability, important aspects of sustainability were included. Although research participants initially expressed some concern about using an open understanding of sustainability, the problem of the meaning functioned to foster involvement in dialogue. In fact, these ongoing discussions around sustainability and the notion of a sustainable future formed the heart of this action cycle. However there were constraints associated with the subject of dialogue. These included problems of site communication, the maintenance of effective networks and issues around power and authorisation. We observed that each of these elements could work together in ways that enrich and/or obstruct a transition to sustainability. Finally, we found that lack of time hinders participation in sustainability transition projects because of its effect on authentic dialogue, thereby impacting upon the development of collaborative ways of working within the university. Our project is distinctively Australian in that it reflects an emerging movement in Australia to create social frameworks for embedding sustainability education activities. In our project, the transition process by which learning and change has been facilitated comprises the action research itself.

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## Introduction

This paper reports the outcomes of the second of three action cycles of an action research project undertaken at the South West campus of Edith Cowan University (ECU); a small, single faculty, regional campus located in Bunbury, Western Australia. The first action cycle comprised the planning phase, whereas this second cycle was the first

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implementation phase of the research. An earlier paper (Wooltorton, Palmer, Goodwin, & Paine, 2010) contextualised the project in the literature, described the background of the project and presented the findings of the first action cycle. That phase of the project identified the importance of building a community of practice and the significance of developing a learning stance for sustainability transition. It highlighted the need to work to develop a local understanding of the term sustainability; the necessity to engage with the local community and the desire to relate more deeply with the local and built environment. The significance of working in ways which incorporate cross-discipline perspectives was also identified. Whilst the outcome of the first action cycle was the identification of the process and design for the project, this current paper reports on the initial implementation cycle.

The main intention of the project has been to reorient the curriculum to sustainability across the seven program groups which make up the faculty: Business, Computer Science, Creative Industries, Education, Nursing, Social Work and Coastal Environmental Science/Surf Science. Specifically, the goals of the research described here have been to:

- Plan the reorientation of the faculty to sustainability in terms of the content (curriculum) and processes of teaching and learning;
- Use Action Research as a methodology to achieve the necessary ongoing learning and to frame the reports on the project findings; and
- Begin building the social sustainability framework.

Teaching, learning and research in the field of sustainability education<sup>1</sup> have a history of more than a decade at the campus, which has hosted a number of sustainability education research and development projects. The campus is located in a region of Western Australia known as Australia's only biodiversity hotspot and the university is the custodian of 80 hectares of natural bushland. For these reasons, the Faculty of Regional Professional Studies has been well placed to undertake this research into transition to sustainability.

The key aims of this ongoing project are distinctively Australian in that they are part of a nascent movement in Australia to create social frameworks to anchor sustainability education programs. The project is innovative in that our transformative approach is underpinned by community development knowledge and principles (Ife & Tesoriero, 2006). Given the nature and location of our faculty we have had an opportunity to trial sustainability reorientation using a community resilience/community linking approach and in doing so build community among the staff and students. The project has also been based on a learning approach linked to sustainability initiatives in non-government organisations, schools, community networks and government departments in the town, region and nationwide (Wooltorton et al., 2010).

### **Australian Universities and Sustainability Education**

Substantial research in the field of sustainability education has been implemented in universities in international contexts (for example Corcoran & Wals, 2004). There have been regular calls over the years to radically transform higher education in particular universities (for example Reason, 2002) and more generally in international contexts (for example Fadeeva & Mochizuki, 2010) in order to more competently address the sustainability education agenda. In relation to a double learning challenge which he calls "paradigm" and "provision" in higher education, three areas of concern for each university are identified by Sterling (2004). These are firstly that which already exists in relation to paradigm and provision; secondly that which is implied by sustainability in relation to paradigm and provision; and thirdly that which is required to shift

both paradigm and provision for sustainability outcomes (Sterling, 2004). This paper addresses the third of Sterling's areas of concern. In the remainder of this section, aspects of the contemporary Australian university context for sustainability education are outlined, and some other sustainability initiatives in the higher education setting are introduced. Some of the issues pertinent to the current study are highlighted.

In 2009, *Living sustainably: The Australian Government's National Action Plan for Education for Sustainability (NAP)* (Department of the Environment Water Heritage and the Arts, 2009) was released. The NAP proposes a transformative approach to education, with the stated aim of "achieving a culture of sustainability in which teaching and learning for sustainability are reinforced by continuous improvement in the sustainability of campus management" (Department of the Environment Water Heritage and the Arts, 2009, p. 5). The NAP is part of Australia's contribution to the UN Decade of Education for Sustainable Development 2005 – 2014. UNESCO takes the view that: "We have to **learn our way out of** current social and environmental problems and learn to live sustainably" (UNESCO, nd) (our emphasis). The intention of the NAP is to reorient all education systems, at all levels, to sustainability through learning, which in most cases will require transformation of practices and structures.

The NAP bases education for sustainability on a number of defined principles:

- Transformation and change;
- Education for all and lifelong learning;
- Systems thinking;
- Envisioning a better future;
- Critical thinking and reflection;
- Participation; and
- Partnerships for change (Department of the Environment Water Heritage and the Arts, 2009, p. 9).

These principles were adopted by the Australian Research Institute for Environment and Sustainability (ARIES) and incorporated into "mainstreaming" which uses a complex systems approach to holistic change within the university setting. Projects to mainstream sustainability into pre-service teacher education, accountancy and MBA programs have so far been conducted (Ferreira, Ryan, Davis, Cavanagh, & Thomas, 2009; Steele, 2010; Thomas & Benn, 2009).

A whole-of-university approach to sustainability links research, education and operational activities together and engages students in these activities (Mcmillin & Dyball, 2009). For example, management and operations staff might engage all staff and students in a process to create a shared vision for the faculty (including the use of facilities and grounds) that encourages critical reflection and an opportunity for participation and dialogue. To support this and to overcome disciplines operating as silos, it is suggested that an interdisciplinary approach to planning and teaching the curriculum is needed (Paige, Lloyd, & Chartres, 2008; Sherren, 2006). Further, it is advocated that graduate attributes be developed that address the skills and competencies required for partnership, participation and action as well as those that enable graduates to critically enquire and think about problems and the associated complexities for a more sustainable way of living (Barth, Godemann, Rieckmann, & Stoltenberg, 2007; Fien, 2002; Sibbel, 2009). It is also vital that students acquire the ability to work with people from different cultures and backgrounds (Martins, Mata, & Costa, 2006).

A number of universities have implemented successful projects to incorporate sustainability education. Five universities in Queensland and four in NSW were involved in a project to mainstream education for sustainability into pre-service teacher education (Ferreira et al., 2009; Steele, 2010). A whole-of-university initiative at the Australian National University (ANU) resulted in significant change on that campus (McMillin & Dyball, 2009). Similarly, the Royal Melbourne Institute of Technology (RMIT) undertook a project that sought to achieve lasting change in organisational structure/operations and curriculum content. The main aim of that project, *Beyond Leather Patches* (BEP) (Holdsworth, Bekessy, Peliwe, Hayles, & Thomas, 2006) was to provide practical guidelines for integrating the broad concepts of sustainability into a wide range of university courses while also gaining a deeper understanding of the methods needed to achieve curriculum and institutional change. To achieve this, the project coordinators ran a series of workshops that encouraged academics to take ownership of their respective practices, undertook a course audit and surveyed staff about their attitudes towards teaching sustainability (Holdsworth et al., 2006; Lang, Thomas, & Wilson, 2006). Initial outcomes from the project resulted in 16 courses being revised.

Another initiative, this time undertaken at the University of South Australia (Paige et al., 2008), was the development of a transdisciplinary unit incorporating science, mathematics and ecological literacy for pre-service teacher education. *Transdisciplinary* was defined as “interdisciplinary + participation” and required going beyond the current content of each unit (Paige et al, 2008, p. 24). The authors note that it would have been much easier to do the three units as separate subjects, but argue that delivering in this way is important for the long term reorientation of teaching towards a sustainable future. However reaching this level of integration of content and theory was found to be stressful and time consuming. This is not surprising; lack of time was also the most commonly cited reason for non-participation in sustainability actions in the pre-service teacher education study conducted by ARIES (Steele, 2010).

A number of issues confront many Australian universities and directly impact on their sustainability education capacity. One is that academic communities are expected to confront a shortage of academics within the next decade (Hammond & Churchman, 2008). This is because academic salaries fail to compete favourably with those in the private sector, therefore many universities are failing to attract highly qualified and suitable staff (Murray & Drollery, 2005). It is also because of increased casualisation (Hammond, 2011, p. 11). Additionally, high student-staff ratios (a result of increased student intakes in times of declining permanent staff appointments) compound this problem Australia-wide. Another issue is a perceived loss of opportunities for creativity and autonomy for research (Hammond & Churchman, 2008). This is explicated by Cooper & Poletti (2011) who argue that the process of journal ranking stifles collegiality, threatens international research networks and potentially erodes the socio-cultural role of academic journals. The overall audit and quality context is a factor in the decreasing capacity of academics to sustain academic life or nurture a social dimension of sustainability (Hammond, 2011).

Another constraint to building sustainability is establishing a shared meaning for the term so that mutual comprehension is possible when it is in common use among people working together. The problem of the meaning of the term sustainability has been alluded to earlier in this paper and will only be briefly outlined here. Internationally much work has been completed around pillars of sustainability to frame the transdimensional nature of the concept. Whilst they have been variously named by different authors for a variety of reasons, the biophysical, economic, social and political systems in conjunction with the inter-related principles of conservation,

peace and equity, appropriate development and democracy (UNESCO, 2002, p. 8) provide an outline for beginning learners.

In terms of the Australian literature, Sherren (2007) found some agreement about a knowledge base for sustainability but more in the area of ecology than in the political, social and economic aspects of sustainability. Reid and Petocz (2006) found that university lecturers had varying and often narrow understandings of the term. Many held naive views such as “keeping something going” or recycling paper (Reid & Petocz, 2006, p. 120). Fuller (2010) argues that the word has become clichéd and urgently needs sharpening for students to understand that major changes to the ways we live and design buildings are needed. Accordingly he uses principles originally devised by Palmer, Cooper & van der Vorst (1997) comprising environment, participation, equity and futurity. Wals and Jickling (2002) suggest that talk around the meaning of sustainability can bring together disparate groups, creating dissonance and generating learning. It is this approach which has informed the current study.

## Methodology

Action research, a strategy to link theory and practice using a cyclical process of planning, implementation, description and evaluation (Carr & Kemmis, 1986), has diverse applications (for example Grundy, 1995; Reason, 1988; Tripp, 2005). Action research is a way of researching collaboratively. For Grundy (1995), action research is about involvement (participation and collaboration) and the improvement of practices. Such improvement targets three areas: “improvement in practices; improvement in the situation in which practice is occurring; improvement in understanding both the practice and situation” (p. 9).

At the end of the first action cycle for this project, the researchers planned to establish a series of nested projects within a paradigm of transformative human inquiry (Heron, 1996) to progress the goal of finding out what works in transitioning the curriculum towards sustainability. The projects that were introduced, or continued from the first action cycle, were an art project; a student sustainability group; linkage to an emerging Transition Town (Hopkins, 2008) project ; a series of program-based focus groups and one faculty-wide reflective meeting. These projects aimed to build relationships amongst, and between, students and staff and between the campus and the local township.

The aim of the focus groups with staff from each of the seven programs was to collect data about their understanding of sustainability for their discipline area, and their thoughts on what might bring about a reorientation toward sustainability in their curriculum. As anticipated, each program had different understandings about the meaning and application of the concept of sustainability; meanings attributed to sustainability are influenced by the ways of working within that knowledge field. Thus debate continued as to whether multiple meanings of sustainability could be held at the same time, or whether the priority of the project should be to define the meaning more precisely.

Despite time limitations brought about by workload demands, 27 academic staff (68% of the program based academic staff) participated in the focus groups. Two meetings were held with each of the larger programs to allow more time for discussion and one meeting was held with each of the smaller programs. At each meeting a presentation was given to the groups detailing the aims and background of the project and illustrating sustainability through the four interconnected dimensions (or pillars of sustainability education): the biophysical, economic, social and political (UNESCO, 2002 p. 8). The presenters juxtaposed *sustainability* as an organising principle with *economic growth* (Trainer, 1989). Sustainability constructs acceptable to each program emerged from

the group discussions, such as preventative health (nursing) and social justice (social work). By leaving the definition of sustainability open, staff could be creative when translating sustainability as an organising principle into their curriculum.

In terms of analysis of the primary data, notes from all meetings were coded and uploaded into QSR NVivo 8. Further analysis generated key categories and themes (Miles & Huberman, 1994). Once the initial categories were developed, all academic and senior staff were invited to reflect on the emerging themes. In brief, the function of the methodology was to facilitate the process, and as the next section shows, this eventuated.

## Findings

From the outset, the researchers intended to use processes conducive to sustainability transition, and as far as possible, to work inside the paradigm that they wished to bring into fruition. Themes that emerged from the data were:

- Teaching between and across disciplines (transdisciplinary practice);
- Discourse;
- Communication strategies;
- Networking; and
- Shared and disparate meanings of sustainability.

It was apparent from the data that the ways the programs are linked have shaped the faculty's transition to sustainability. Within an overarching construct of transdisciplinary practice as defined by Paige et al. (2008) above, the other themes are outlined below, illustrated with extracts from the notes made at the program focus groups.

### *Discourse*

A number of groups spoke about the importance of discourse in creating interdisciplinary ways of working. However, two meanings of discourse were evident and these reflect the way this term is used in different fields:

- Authentic dialogue (Habermasian); or
- "Permission to speak"(Foucaultian).

Participants highlighted the fundamental importance of authentic dialogue in order to bring about the desired outcome of sharing teaching and research.

The problem of discourse was discussed in depth, including the problem of interpretations of meanings by disciplinary groups and therefore often contradictory assumptions by conversants with different backgrounds. Conversations underpinned by this problem have happened on campus in recent times, causing a rapid cessation of the conversation without the opportunity to explore and carefully investigate the construction of shared understandings. In other words, cross-program engagement can immediately halt without recognising the importance of clarifying these assumptions. (Researcher notes, focus group 1)

Increased opportunities for discourse (as authentic dialogue) involving clarification of meaning were called for. There was considerable discussion about the form this discourse should take:

Take an approach to inter-program collaboration that focuses on mutual respect, critical inquiry and respectful argument. (Participant, reflective meeting)

It was regarded as necessary to increase the dialogue between groups regarding the transition to sustainability project and one participant queried the rationale for conducting the focus groups within, rather than across, program teams.

There has been an ongoing question about whether the dialogue in meetings has been fully authentic, with one participant noting “elephants in the room” during the conversations. This comment related to an issue of staff reorganisation which took place during the action cycle and resulted in several redundancies. The idea that sustainability is linked to decision-making had been made prior to the staff reorganisation:

Things would be more sustainable if the people involved in a work area make the decisions around it. The concept of subsidiarity relates to the idea that the people who do the work make decisions around it. Taking this idea to education institutions, the biggest groups involved, the teachers and students, have the least say in what they do. So – in our system the bigger the group, the less say they have about their workplace! (Participant, focus group 2)

Another participant suggested another way of looking at the notion of discourse:

There was discussion about *warrants for participation*, and the issue of representation. For whom are we speaking? The importance of all materials being public was raised. (Name) spoke about the work by Charles Fox and Hugh Miller on warrants for participation. (Researcher notes, reflective meeting)

The idea to work with Fox and Miller’s (1995) ideas about warrants for participation in discourse has been taken on board by the project team, and has been considered more fully in action cycle three.

During the reflective meeting open to all staff, one participant commented that she felt uncomfortable with the term “power”, but was able to accept it when it was reframed as the capacity to bring about change through cooperative relationships. In that context, power related to having the capacity to control the content of units taught on the campus. The current situation in this faculty is that many units are *owned* by the larger faculties in Perth, and staff members are required to negotiate any changes to the unit outlines. Some staff felt this to be an impediment to change toward sustainability. Others felt that change could be made if dialogue was maintained with the parent campus and any formal policies and procedures about changing content adhered to. This view seems to suggest some faith in the idea of discourse as “authentic dialogue”, which Hammond (2011) finds is an integral quality of social sustainability.

### *Communication*

Although discourse is closely related to the theme of communication, here communication refers to the *means by which* interconnectedness can be achieved; the technologies of communication. Generally on the campus where this study took place there are few whole-of-staff meetings, conferences or retreats, yet people want to see *real things* happen:

Staff wish to improve campus-wide communication, for example consultation with staff about vital decisions impacting upon resource allocation, cultural fixtures and staff working conditions. It is important for wellbeing that people feel valued and included. (Researcher notes, focus group 1)

One focus group also highlighted the importance of culturally sensitive communication for both staff and students. Another sub-theme to emerge was that of



the importance of celebrating successes; for example, to provide a regular newsletter or an event at the end of semester that would showcase what had been achieved.

### *Networking*

Related to the theme of communication are the concepts of networks and networking. As networks become bigger and more complex, communication can become a problem. Inter-group networks, community networks, and wider academic networks were all identified as important. In response to a question about what makes sustainability education, one focus group participant responded:

We maintain and sustain relationships with schools. We maintain the work environment. We focus on relationships with each other, with schools and students, with other campuses of ECU. That is, as education is about relationships, so is our program. (Participant, focus group 4)

Similarly:

(Name) also spoke about Cooper Ramos' (2009) work on being adaptive. In a nutshell, this work claims that in day to day work we pay attention to the fast variables that change, instead of the slow variables that are strategic and long term. It seems that this is the place that this sustainability project needs to aim for. Fast variables are such things as curriculum framework, Operational Excellence and workloads formula. Slow variables are the community-based variables where we spend our time and care. (Researcher notes, reflective meeting)

In short, resilient community relationships manifesting themselves as functioning networks, are seen as one significant aspect of sustainability, in particular the need to maintain these over the longer term despite short term problems with workloads, restructuring and contestation around decision making. As well as documenting the need for such networks, the process of undertaking the research project actually contributed to the creation of networks. For example the art project was seen as providing an opportunity for staff to chat together in informal settings and discuss their individual meanings of sustainability. Similarly community networks were being developed through collaboration with a community-based sustainability education project which is modelled on the international transition town movement (Hopkins, 2008). Likewise, wider academic networks were being developed through sustainability education conference attendance by staff who would not normally attend these events.

### *Shared Meanings of Sustainability*

Developing a shared meaning of sustainability for pragmatic conversational purposes appears to be a critical component of transitioning the curriculum towards it. This section highlights the meanings of sustainability that were shared, and their potential to aid authentic dialogue in the future.

Traditionally work-life balance has not been seen as a major component of sustainability practice, as it has belonged in the realm of management and productivity negotiations. However, data from this project suggest that it should be part of our sustainability agenda, as this is seen as a survival issue for staff. A major study in an Australian university by Hammond (2011, pp. 116, 172) makes this link very clearly. Several of the focus groups defined sustainability in terms of their day-to-day survival as academics. For example, one participant noted that "burnout is palpably not a sustainable practice". This aspect of sustainability elicited the greatest passion. Conversely it was also the motivator of ingenuity.

Real flexibility is required; for example this program has survived due to continual changing of the course and creating new units whilst redistributing key concepts and content. This is quite evolutionary, the need to move in response to different forces/motivations for change. (Participant, focus group 3)

Tight funding was also a motivator for recycling and reusing practice teaching materials in one program which had the added benefit of reducing waste. However, the loss of students because of online provision of units taught centrally from Perth was a threat to the survival of some programs. Thus funding restrictions can simultaneously encourage sustainability (by promoting thrift) and discourage sustainability by promoting disillusionment and burnout when work is centralised as a cost saving initiative. The latter is also referred to in Hammond (2011).

Importantly in this study, the process used to discuss the meaning of the term sustainability not only enabled the articulation of a local understanding, but importantly, it was an integral part of the transformative learning process. Simply providing definitions and moving on would not have allowed the meaning making which is now shared. Even so, the discussions with various groups highlighted the distinct emphasis given by diverse disciplines represented by the different programs on the campus.

While this variety of meanings can easily be accommodated within definitions such as the four pillars UNESCO (2002) it can present a difficulty when transdisciplinary activities are the goal. In fact, there was disagreement about whether we needed to find a shared definition, with science and business related programs favouring a decisive outcome, and those in humanities being more comfortable with a diffuse outcome. The interpretations appear to reflect the underlying epistemological differences between programs. These epistemologies may be tacit rather than explicit and are not addressed in the dialogues, making authentic conversations more difficult. That is, to reach shared meanings may require a very far ranging discussion. However the point of this work is the discussion itself as a process for sustainability transition rather than the outcome.

Such disparity is illustrated in the table of meanings derived from the program focus groups and categorised according to their relationship to the four pillars (Table 1). It is envisaged that in the next action cycle, this table will act as a tool to encourage dialogue about the meanings of sustainability within and across programs. In particular it is envisaged that the table will assist teaching staff to think through how they can reorient their curriculum towards sustainability.

## **Conclusion and Future Directions**

This paper describes the methodology and findings for the second action cycle of a project that has been designed to research the process used for the transition of curriculum, teaching and learning to sustainability at a small, regional university campus. The process has the potential to produce a robust social sustainability focus. Our project is distinctively Australian in that it is part of an emerging trend in Australia to create social frameworks which act as pillars for sustainability education action projects. This movement is already quite marked in teacher education (Ferreira, Ryan, Davis, Cavanagh, & Thomas, 2009; Hammond, 2011; Hammond & Churchman, 2008) and is becoming evident in other university contexts (Holdsworth et al., 2006; Woollorton et al., 2010).

In our project sustainability has been used as an explicit organising principle, and the action research activities have formed the transition process. In this way, learning and change has been facilitated through reflection on practice with learning as the main intention. The original approach was to leave the definition of sustainability open

TABLE 1: Faculty context: Linking the pillars of sustainability to meanings discussed within the Faculty program workshops

<b>Program</b>	<b>Biophysical systems - life support systems for all life</b>	<b>Economic systems - continuing means of livelihood for people</b>	<b>Social/Cultural - ways for people to live together peacefully, equitably &amp; with respect for human rights &amp; dignity</b>	<b>Political systems - through which power is exercised fairly &amp; democratically to make decisions about all systems</b>
Business	Minimise the impact on the environment for business continuity	Development and growth to meet people’s needs without comprising the needs of future generations	Increasing recognition of the dimensions of corporate social responsibility and the need to serve all stakeholders	Sustainability includes leadership for the greater good
Computing	E-waste; power use in computing	Analyse systems of data; workloads	Potential in technology for social change; equality of access to information	
Creative Industries	Writing and the environment	We embed the concept of <i>industry</i> into study of the creative arts through workplace integrated learning and community engagement	Creative Industries units assume “poly-ethnic thinking” regarding culture & community. Local artists & culture	The course fosters critical thinking skills in students which enable them to understand the world through perspectives other than their own
Education	Incorporates easily into most subject areas; ecological literacy and science literacy	Sustainability is integrated; unsustainable workloads limit opportunities; natural, social and economic systems interrelate	Cooperative learning strategies; creative, critical and reflexive thinking strategies; systems thinking	Active and informed citizenship is the overarching goal; democracy is a core value; we create our future collaboratively and individually
Nursing	Preventative health; management of medical waste; recycling	Sustainability of a rural health workforce; sustainability of work practices	Teaching within ethics unit, ie. respect for life	
Social Work	Human rights – access to necessities of life; impact of climate change; disaster response.	Equitable distribution of wealth	Professional ethics around human rights and social justice. Online delivery to improve access	Improving understanding of participatory democracy
Coastal Environmental Science (Surf Science)	Coastal care; overfishing; global warming; coral bleaching	Ongoing viability of the program; tourism; surfing population; the surfing industry	Breaking down silos at ECU; improving opportunities for networking on campus; surf harmony – tolerance and respect in the lineup.	Surfing for the future; marine science education; knowledge is power

and this was effective in allowing important aspects of sustainability to be included or emerge. In relation to development of a shared meaning, our study affirms that broadly defining sustainability is a strength if used carefully to foster involvement in dialogue, as contended by Wals and Jickling (2002). While not all participants approved of the original approach - to not foreclose on meaning - particularly as ideas continually shifted, the ongoing discussions around sustainability and the notion of a sustainable future have formed the heart of the project. Conversations were rich and deep, and revealed the first views of an emergent transdisciplinary way of working, together with creative ways that would lead us into action cycle three. High levels of “systemicity” characterise more sustainable educational institutions, which feature qualities such as “internal connection, relatedness and coherence” and less tightly defined programs and courses (Sterling, 2004, p. 62). This compares to systematic management and organisation typical of non-sustainable institutions which emphasise hierarchical control, firm rules, clearly defined structures and a degree of inflexibility (Sterling, 2004, p. 62). Thus referring to Sterling’s (2004) work, a creative, more sustainable culture of learning was produced by the action research. Within this structure, transdisciplinary research approaches were explored and utilised as the normal disciplinary structures and boundaries did not apply.

Other findings to emerge were the constraints associated with the issue of authentic dialogue; issues around power and authorisation; and problems of site communication and maintaining effective networks. We found that each of these can work together in ways that enhance and/or hinder sustainability transition. Our findings also support those already found in the literature which reveal a poor work-life balance as a key constraint to participation in sustainability transition projects and this is certainly a barrier in social sustainability acquisition (Hammond, 2011). Specifically a lack of time limits authentic dialogue that would enable collaborative ways of working within the university work environment (Steele, 2010; Hammond & Churchman, 2008). Data in our study suggested that issues around lack of time and inappropriate life-work balance constrained the potential of staff to work in transdisciplinary ways.

Reason (2002, p. 3) writes:

In very simple terms I want to articulate a dreadful warning: we cannot go on the way we have been doing based on the way we have been thinking. And I want to offer a challenge, an expression of hope for a way forward based on a participatory ethos. I want to explore how a worldview based on the experience of ourselves as participants in the processes of life on earth might provide a more fruitful perspective.

The challenge put forward by Reason (2002) also motivates the authors of this paper. Sterling (2004) comments that the usual way of thinking about sustainability in higher education is to integrate it into the education schema of the university, that is, to add to an already overcrowded curriculum. He argues that instead, sustainability education implies an epistemological shift in higher education and in society which is what he means when he calls for systemic transformation. Within Australia, the realm of social sustainability – where we position this current study – is a newly emerging field. The journey of change is just beginning, however the metaphoric terrain to be traversed is clear and encouraging outcomes are already visible.

## **Afterword**

At the time of writing, the researchers had just completed the project’s third action cycle which had focused on connecting the university with the local community, particularly schools and environmental organisations. Accordingly, a number of interconnected

sustainability education projects along the lines of the international transition movement (Hopkins, 2008) now link the university with its wider community. A focus on process for transition is being maintained.

### Acknowledgements

The authors wish to sincerely thank the referees and in particular, Dr Amy Cutter-McKenzie for their very thoughtful comments on an earlier draft of this paper. We also wish to thank Richard Swan of HotRock ([www.thehotrock.org.au](http://www.thehotrock.org.au)) for his ongoing support of this project.

*Keywords:* transition; sustainability; interdisciplinary; process; learning.

### Endnote

1. In the literature the terms environmental education (EE), education for sustainability (EfS) and sustainability education – and a mixture of these terms such as environmental education for sustainability – are often used interchangeably for a similar range of meanings (Cutter-McKenzie, 2011, p. 350). In this paper the term we use for all of these purposes is sustainability education. By this we refer to the array of knowledge, skills, understandings, activities and practices used to learn, demonstrate or acquire qualities and attributes of sustainability. The word sustainability itself is deeply contested from a range of perspectives. However suffice to say that in sustainability education contexts it tends to be based on a critique of contemporary western capitalism and is generally understood as a process for transitioning toward practices consistent with an overarching philosophy of ecological and social justice (for example see Cutter-McKenzie, 2011, p. 351–353).

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Sandra Wooltorton is an Associate Professor of Education at Edith Cowan University's Bunbury Campus. She completed her doctorate in 2004 in sustainability education, and has maintained a strong interest and research focus on sustainability studies since then, with a particular emphasis on sustainability transition.

Marilyn Palmer is a social worker who teaches in the social work program at Edith Cowan University on the Bunbury Campus. She completed her doctorate in 2005, researching informal, community-based responses to domestic violence. Her doctoral research was premised on the idea that contemporary state supported responses to domestic violence are unsustainable given the precarious nature of Western economies. Thus, if the state abrogates its responsibilities to respond to domestic violence, what informal responses are possible and effective? Marilyn teaches in the areas of sociology,

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Fran Steele trained in biochemistry, working with CSIRO for ten years before becoming a science teacher in NSW schools. She then moved into research in science education and science teacher education, investigating the teaching of genetic technologies, boys education and constructivist approaches to learning. Her PhD research examined the creation of knowledge networks in secondary schools. Recently she has authored a report for the Australian Research Institute for Education for Sustainability relating to mainstreaming Education for Sustainability in pre-service teacher education.

## **As Aussie as Vegemite: Building the Capacity of Sustainability Educators in Australia**

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### **Abstract**

Vegemite, a thick, rich and salty product made from yeast extract, is a paste commonly spread on bread or toast in Australian households. This iconic product mirrors some of the unique aspects of this country. For example, Vegemite thinly spread is best. The population of this country is sparse across the wide lands, and the Australian environment with its thin soils, water shortages and intense climates, might also be described as spread thin. These aspects of context present challenges because Australia needs quality sustainability educators thick on the ground to deal with the many and diverse environmental issues.

This paper describes the development of the Australian National Professional Development Initiative for Sustainability Educators (NPDISE) and how it was influenced by the Australian context. Multiple challenges existed: the size of the country, its environmental conditions and rich biodiversity, distance and space between major centres, distribution of people and resources, understanding of and support for education, and three tiers of government – each with its own policies, programs and priorities. On top of this, the practice of sustainability education crosses multiple professional sectors and disciplines. All these challenges had to be taken into account.

Research conducted by the Waste Management Association Australia in 2009 revealed that the needs of Australia's sustainability educators in overcoming many of these challenges were broadly consistent around Australia. This gave encouragement to the establishment of a national professional development approach for those working in the environmental education field. This paper shows how four professional associations – Australian Association for Environmental Education, Waste Management Association Australia, Australian Water Association, and the Marine Education Society of Australasia – worked together for the first time and approached these challenges whilst developing the NPDISE. A 1954 jingle said Vegemite would help children “grow stronger every single week”. The NPDISE represents a similar ethos with an emphasis on building the sector.

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## Introduction

This paper provides an overview of the creation of a national approach to professional development for sustainability educators in Australia – the National Professional Development Initiative for Sustainability Educators (NPDISE) – and discusses some of the challenges faced during its formation. It explains how the approach taken by four key Australian professional associations – Waste Management Association of Australia (WMAA), Australian Water Association (AWA), Marine Education Society of Australasia (MESA) and the Australian Association for Environmental Education (AAEE) – addressed major and unique Australian contextual issues in the design stage. In these initial stages of the NPDISE, the prime areas of attention have been program development and program governance. As yet, there are few examples of delivery of the modules and no evaluation on the effectiveness of this collaborative program.

In this paper, the preferred term for educators in this field is sustainability educators. This follows Sterling's (2008, p. 65) definition, since the Associations agreed that the focus of the NPDISE workshops would encompass cultural, systemic, environmental and personal change:

Hence, the concept of “sustainable education”, a term which suggests not just a simple “add-on” of sustainability concepts to some parts of the curriculum, but a cultural shift in the way we see education and learning. Rather than a piecemeal, bolt-on, fragmentary response which leaves the mainstream otherwise untouched, it implies systemic change in thinking and practice, informed by what can be called more ecological thinking and values – essentially a new paradigm emerging around the poles of holism, systemic thinking, sustainability and complexity. This offers the possibility of education that is appropriate and responsive to the new systemic conditions of uncertainty and complexity that are reflected in the headlines everyday; one that nurtures the increasingly important qualities of adaptability, creativity, self-reliance, hope and resilience in learners.

Vegemite, the iconic Australian spread used on toast and in cooking, gives a flavour of the challenges and opportunities faced in establishing a national professional development initiative. It is rich, thick and one of the world's richest sources of vitamin B. The age, size and variety of environments means this country is rich in biodiversity. There is much to understand and equally much to accommodate and protect; educators understand that each community has its own regional ecosystems to preserve. The NPDISE is an innovative program that is designed to provide opportunities for sustainability educators whether they work in community, government, formal education or industry, and whether they work in Bondi, Bourke, Brisbane or Broome - anywhere across our vast continent where Vegemite is sold!

Each of the participating associations has members who design, deliver and evaluate sustainability education; many come to the profession from different background disciplines and with differing qualifications. The Associations and their diverse members therefore brought a richness of needs, ideas and thinking to the development of the NPDISE. In 2006, the NSW Department of Environment Climate Change and Water undertook research into the needs of educators in the field. It revealed that many do not have formal qualifications in education. Because this is a relatively new professional sector, many practitioners lack the depth of experience required for delivering quality education about sustainability.

To date, short course professional development opportunities for sustainability educators in Australia have had these characteristics: ad hoc; designed to meet short

term needs of specific groups of educators; variable in terms of quality and delivery; limited in availability; and not linked or integrated across sectors, issues or fields. Professional development for sustainability educators has attracted little consistent government support, and it is poorly articulated into further training or qualifications. In the Vocational Education Training sector<sup>1</sup> sustainability education has no Government led Industry Skills Council to support it, nor does it feature extensively in training delivered under the National Training Framework<sup>2</sup>. This is despite the fact that for many years both academics (Robottom, 1987) and practitioners (Waste Management Association, 2006, 2009) have been calling for improved professional development for education practitioners.

In sum, short course professional development for those working in this field in Australia has lacked direction, depth, quality and an overarching vision. The NPDISE seeks to redress this situation.

## **Brief Overview of the National Professional Development Initiative for Sustainability Educators**

### *Establishment*

New initiatives develop in different ways. Often they begin with the dreams of one or two people for a better future or a better way of working. In this instance, two volunteers – elected executive members of the AAEE – took the lead in 2006 and invited representatives from the other three associations to meet and discuss, in principle, the idea of developing the professional skills of our sector. Successive Australian National Action Plans (Australian Government, 2000 and Australian Government 2010) and needs assessment processes at State and Territory level had indicated the need for quality-assured short courses that would enhance the skills of practitioners. The Associations pondered: Could we fill the gap? What would happen if we opened this jar? Could we help build a profession that would “grow stronger every single week” just like the Vegemite kids in the Kraft jingle (Weeks, 1954)?<sup>3</sup>

Flowing from these initial discussions and working together formally for the first time, representatives from the four associations successfully submitted an application for seed funding of \$AU35,000 to the Australian Government, with WMAA as the formal applicant. Following on from the success of this application, the Associations formed a Project Management Group for the project and its first task was to commission research into the needs of sustainability educators in Australia. This was overseen by the Waste Management Association of Australia in 2009.

This research coupled with the findings from other state based research, for example, the needs assessment undertaken to inform the development of the NSW Education for Sustainability (EfS) Learning Hub (NSW Department of Environment Climate Change and Water, 2006) revealed the following broad areas of need for professional development needs within the sector:

- design and evaluation of education programs;
- facilitation;
- behaviour and organisational change;
- community engagement;
- strategic planning and project management; and
- building a case for sustainability/gaining organisational support.

### *Structure*

Just as Vegemite is ubiquitous in Australia, so too are the needs of sustainability educators, wherever and however they work. These needs shaped the structure of the NPDISE framework, as did the principles of sustainability and adult learning, and an appreciation of adult-based training strategies.

In identifying existing providers and modules, and developing new modules to deliver through the NPDISE, the Project Management Group has been diligently established quality assurance protocols so that only the highest quality modules are recognised under the program. Consistent with leading practice as advocated by the International Union for the Conservation of Nature (Hesselink, Pretorius & Wheeler, 2005), the NPDISE approach responds to the identified educator needs and the core goals of the United Nations Decade of Education for Sustainable Development (DESD). The NPDISE has mechanisms in place to evaluate delivery of each recognised module and to assess each participant's learning prior to issuing of a certificate under the program. These are designed to ensure the content, training and the delivery models remain relevant and appropriate to the target audiences and to ensure that formal recognition is validated.

The NPDISE is currently comprised of sixteen recognised modules, each of one or two days duration that can be delivered anywhere across our wide and brown land (for details please see the NPDISE website [www.npdise.com.au](http://www.npdise.com.au)). Unlike the cost of our famous and favourite black paste which varies away from the major metropolitan areas, the delivery of an NPDISE module costs the same everywhere, as long as the group size exceeds fourteen participants. The Initiative is managed by a Registered Training Organisation on behalf of the four Associations.

Ultimately, the NPDISE is intended to provide a bridge for sustainability educators between non-formal education, the formal higher education sector and vocational studies so it was essential to structure it in this context. The NPDISE also provides the initial step in the proposed creation of a continuing professional development accreditation protocol for all four Associations (Collier & Armstrong, 2010).

### **The Australian Context: Addressing Characteristics and Challenges**

In developing the NPDISE approach, the Associations were mindful of the diversity and extent of our unique island country and the significant challenges it brings to professional development. In many cases it is not the exceptionality of each individual challenge or problem but their *combination* that makes the Australian context unique.

#### *The Size of the Environmental Problem*

Size matters. And Australia is big! Geophysically, Australia is unique in the world – like Vegemite. The ecological and environmental challenges and opportunities are diverse. Extremes of climate, a lack of water, an agriculturally productive coastal strip and an arid, non-productive inland, a wealth of indigenous biodiversity of both flora and fauna and richness in mineral resources, make Australia a land of extremes. The 2006 State of the Environment Report (Department of Environment, Water, Heritage and the Arts, 2006, p. 35) indicates that:

Australia's biodiversity is distinctive because of the country's size, isolation, naturally fragmented landscapes and long-term climate variability. For example, about 80 per cent of vertebrate species and plant species are found nowhere else in the world. Many of Australia's ecological communities have a relatively low resilience to external pressures, particularly those in habitats that have already been extensively modified, such as in the wheat–sheep belt



and semi-arid areas, where many species have suffered a significant decline in numbers and range and even extinction.

In Australia, soils are becoming increasingly salty. Salinity, in part the consequence of many years of land-clearing, is a major issue confronting governments and communities. It is one of many concerns that sustainability educators across Australia address in their work.

In addition, In addition, Australia is highly susceptible to climate change impacts. In the online summary of his 2008 Climate Change Review, Professor Garnaut points out in Chapter 6 that “Growth in emissions is expected to have a severe and costly impact on agriculture, infrastructure, biodiversity and ecosystems in Australia”.

Because of our geophysical diversity, sustainability educators work across all parts of the country on a wide range of environmental issues and with variable professional support mechanisms. Some work in water education, others work in energy reduction, in waste management education, in mitigating against climate change and in biodiversity. Some work in industry, others for not-for-profit environmental organisations; lots work for Government – local, state or national – and in schools, universities and vocational training organisations. Those developing and delivering education respond to different challenges daily, be they in the classroom, at the mine site, in a government office or on a tour operator’s boat in the Great Barrier Reef.

*The NPDISE Approach:* With this diversity in mind, the NPDISE has been designed to build and strengthen the professional competencies of educators so that they can plan and deliver programs anywhere in Australia about any relevant, local or national sustainability issue. The recognised modules focus on skills for sustainability educators (e.g. facilitation), rather than specific technical content (such as how to improve energy efficiency in the home). Advice from educators in the field indicated that they were well able to access professional training in the specific technical content/knowledge required for their roles. What they say they needed was enhanced planning, delivery and evaluation skills, especially for behaviour change programs. The NPDISE providers therefore tailor their modules for the context or interests of the different groups that are booking them through the Initiative. For example, a module on evaluation will be focused differently for a group of council educators than it would be for an audience of community educators working for non-government organizations.<sup>4</sup>

The fact that the modules are designed, delivered and evaluated using principles of learning for sustainability (Tilbury, Stevenson, Fien, & Schreuder, 2002) better ensures a robustness of approach across the program. In addition, all modules focus on enhancing reflective practice and promote the use of “ethical and contextual considerations in professional decision making rather than making such decisions on the basis of habit, intuition, impulse, and tradition” (Fien & Rawling, 1996, p. 11). This occurs within a contemporary sustainability context.

### *The Challenge of Geographical Spread of Sustainability Educators and Self-Identification*

In line with the spread of the Australian population, the geographical spread of educators involved in the design, delivery and evaluation of sustainability education is diverse. While actual numbers of sustainability educators operating in Australia are not known, it is estimated by the four Associations that there are in the order of 2,000 people delivering some sustainability education (not including classroom teachers). Association memberships give some clue to the size, but not all members are educators: for example, a considerable proportion of AWA and WMAA members belong to these associations to meet more technical needs (e.g. water engineers, waste contractors).

The size of the profession is also unclear because a significant amount of education is carried out by non-education specialists and only as a part of their roles. For example, engineers write brochures, scientists run community education workshops, communications specialists design education projects, and bushcare coordinators educate volunteers about weeds, indigenous species and planting. These people often don't call themselves educators. But they do the job of education. Much of Australia's sustainability education is delivered by people with little or no education skills training and minimal educational professional support. The NSW Department of Environment Climate Change and Water (2006) research indicates that in many cases educators are working in isolation and are often managed by personnel who have little understanding of the nature and practice of high quality education programs. It could be argued that this is a product of a low valuing of education itself and of educators in this country, both of which have real implications for quality, support and professional development.

*The NPDISE Approach:* The NPDISE takes on the challenges of making professional development work in the "spread-outedness" of the land and its sustainability educators very seriously. Therefore:

- The NPDISE modules are designed to be of use to anyone designing and delivering sustainability education initiatives, regardless of what they call themselves.
- As indicated previously the cost structure for workshops is the same in every location across Australia.
- Modules are structured so that relatively inexperienced educators can access professional development designed at the early entry level.
- Locally organised delivery is an essential principle for the NPDISE. This means that while generic modules are recognised in the program, facilitators will be able to present their material in a way that meets local needs.
- In-house delivery is also available, meaning that a module can be delivered in-house to all relevant staff at a single organisation or group of linked organisations, at a reduced cost. (AAEE, AWA, MESA, WMAA, 2010)

### *The Nature of the Sustainability Education Community and Audience*

As indicated, educators across Australia are working with a vast range of audiences and contexts. In order to effectively design and deliver quality education initiatives, the educator has to appreciate the needs of the particular audience and situation. Each professional who develops and delivers a program must have a clear view of the audience across a number of demographic and other measures. The following features need to be accommodated in sustainability education initiatives in Australia.

Demographics: The population of Australia is approximately 22.5 million<sup>5</sup> (Australian Bureau of Statistics, 2010). According to the Bureau of Statistics 2006 Census Report its demographic features include that:

- Over 66% of Australians live in capital cities;
- More than three quarters of Australians live in the eastern states (ACT, Victoria, NSW and Queensland);
- Approximately 40% of Australians are overseas born and over 20% of Australians speak a language other than English at home;
- Only 2.5% of people live in remote areas;
- Approximately 2.4% of the population is indigenous;
- Over 40% of Australians have completed year 12 schooling or equivalent;<sup>6</sup>
- The annual growth rate of the population is approximately 1.5%; and
- Over 66% of dwellings in major cities have internet access compared to approximately 42% for very remote Australia.

The Associations recognise and acknowledge the demographic variation across the nation, but the NPDISE deliberately retains a focus on the core skills that educators themselves have asked for.

**Government:** Government is “heavy” in Australia. There are three tiers of government to serve the Australian population – national, state and territory (8 jurisdictions) and local government (approximately 500 jurisdictions). Education must build partnerships across these different levels of government, policies and approaches in order to achieve good and sustainable outputs and outcomes. The NPDISE is designed to support partnership-building.

**Behaviour:** Australians have indicated that they are prepared to make change for environmental reasons, and education is a vital tool in helping them do so. One example of such a change may be seen in the reduction of water usage in Sydney. Motivated through a combination of water restrictions, education and incentives, water usage in Sydney, Australia’s largest city, has reduced over the past 19 years from 506 litres per person a day in 1990–91 to 314 litres per person a day in 2009–10. Sydney residents use less water now than they did in 1974, even though the population has increased by more than a million people during that time (The Audit Office of NSW, 2010). Similar levels of water reduction have occurred in other major Australian centres over the last few years.

Chapter 36 of Agenda 21 (United Nations, 1992) reminds us that education for behaviour change is important if we are to achieve a more sustainable world. People across the country need to be shown how, and to understand why. Education must be well planned and delivered and link with other motivating strategies to achieve the best results.

*The NPDISE Approach:* The NPDISE approach takes account of the spread of the Australian population in terms of location, cultural background and education level. The NPDISE places a significant emphasis in its recognised professional development modules in assisting practitioners to deliver programs that motivate behaviour. The modules assist practitioners to develop programs in partnership as appropriate, and at relevant levels of skill, language, reading age, education level, methodology and approach. They help local practitioners to plan programs that are appropriate for people from diverse cultural and linguistic backgrounds.

### *The Nature of Australian Education Systems*

A number of characteristics defining the Australian education system influenced the shape of the NPDISE, particularly with regard to its focus on short rather than longer courses.

**Higher Education:** Across the tertiary education sector, competition for students drives (to some extent) the development and shape of courses. While an increasing number of relevant sustainability courses are coming on line in tertiary institutions, there is some evidence that the implementation is somewhat slow and this might be due to a range of barriers related to the nature of tertiary education (Thomas, 2004). The NPDISE, sitting in the professional development sector rather than formal education, was instead designed to meet practitioner-identified needs and provide immediacy of training. At this early stage, whilst the Initiative is not part of the formal tertiary education sector, it has been developed so that future articulation with the formal sector can occur. In addition, while increasing numbers of courses relevant to the needs of sustainability educators are being conducted through universities and TAFEs (Technical and Further Education colleges) all of these courses require time and financial contributions from the student – sometimes these are significant. The NPDISE modules on the other

hand are short one or two day courses that can be taken as stand-alones according to the particular professional development needs or interests of an individual or their organisation. Articulation will make them more attractive to potential participants.

**Schools:** The NPDISE is a professional development initiative not targeting schools or teachers. However, the new national curriculum influences the context in which the NPDISE is developed. The Australian curriculum mandates sustainability as a cross-curriculum dimension: all teachers in Australia are required to integrate sustainability knowledge, skills and values into their teaching. The implications are that students will leave schools more attuned to the need for sustainability education, wherever they work; and they will leave more equipped to take up careers in the sustainability sector.

**Community (Non Formal) Sustainability Education:** Across Australia, education agency support for those working in non-formal sustainability education varies. The task of building the capacity of this sector has fallen to the state environment departments, whose interests are to shift public behaviours towards sustainability. But education and training are outside the core remit of many environment agencies and understanding of education sector and systems is limited. In most cases, environment agencies are comfortable working within the formal education sector where they can partner education departments. However, when it comes to non-formal education, there are challenges and gaps; education and environment agencies have not yet taken non-formal sustainability education seriously enough to strengthen the skills of the educators who are required to provide it. So a gap remained. In part, the NPDISE was developed to fill the gap.

As far as funding for non-formal education at the national scale goes, small grants (such as the one that provided seed funding for the NPDISE) were, until recently, the extent of the support. But now even this has disappeared. During 2010, the new Commonwealth Government Department of Sustainability, Environment, Water, Population and Communities ended funding for community (non-formal) education. So, despite its 2009 National Action Plan that identified sustainability education of the community as vital, emphasis by the Commonwealth Government on building the capacity to design and deliver that education has fallen away quite significantly. No funding stream is currently available.

**The NPDISE Approach:** The NPDISE approach has involved working with a Registered Training Organisation to not only manage the program but also to develop an accreditation process that will, in the future, link the participants into further qualifications – if participants wish to pursue them. Australian training and education institutions have a system of recognition of prior learning (RPL) into which the NPDISE modules will link. The RPL system is based within the Australian National Training Information Framework and overseen by the National Training Information Service.

## **Conclusion**

The development of the NPDISE by the four Professional Associations marks a significant change and a highly important move forward for the sustainability education sector. The widespread interest and support by the sector indicates that it has made an encouraging beginning in meeting a need. Follow-up research will be conducted to test the effectiveness of this approach in terms of attracting participants and influencing the way they design and conduct their work.

For the first time formally in the sustainability education sector, the AWA, WMAA, AAEE and MESA have brought together their expertise, networks and energies to create a jointly owned professional development program that improves the capabilities of sustainability educators, whatever their focus in sustainability. The NPDISE has grappled with challenges inherent in doing the business of professional development in

Australia for a diverse and multi-focused audience. It has created a path and direction for improved sustainability education, therefore potentially influencing sustainability outcomes for the country in a significant and ongoing manner. The major challenge for the roll out of the program will be encouraging those educators delivering sustainability education across Australia to engage in ongoing professional development using the NPDISE recognised modules on a user pays basis.

Into the future the four associations have reached agreement that the sector needs to move towards developing and mandating a continuing professional development model that recognises educators who maintain continuous approach to their professional development. There is much work to do before this vision becomes a reality, but the strategic direction is in place and it has been significantly seeded by work on the NPDISE.

In the same way as Vegemite helps Australian children to “grow stronger every single week” the NPDISE is designed to be vital element in growing the capacity of Australian sustainability educators to provide the highest quality programs in their communities. The NPDISE helps to build a network of professional development and practice for sustainability educators so that they can work “thickly and actively” within the Australian community, education institutions, and business and industry to address our current and future sustainability challenges and opportunities.

*Keywords:* professional development; capacity; collaboration; diversity; sustainability; education.

## **Endnotes**

1. The Vocational Education Training (VET) sector in Australia is “education and training for work” and part of a broader educational network that includes schools, universities and adult community education. Australian Capital Territory Department of Education and Training (2010) Retrieved from [http://www.det.act.gov.au/vhe/the\\_national\\_vet\\_system](http://www.det.act.gov.au/vhe/the_national_vet_system)
2. The National Quality Training Framework is the nationally consistent, industry-led system for all Australian education and training. Its remit includes providing for nationally recognised qualifications and standards. As at July 2011 the responsibilities are being moved to a new organisation called Training.Gov.Au. Retrieved from Commonwealth Government (n.d.) <http://www.training.gov.au/pages/menuitem8859775ffeb7888a392e51017a62dbc.aspx>
3. From the jingle “Happy Little Vegemites” written in 1954 for Kraft, by Alan Weeks, and still played today.
4. A non-government organization (NGO) is a not-for-profit, voluntary citizens’ group, which is organised on a local, national or international level to address issues in support of the public good. United Nations (n.d.) Retrieved from <http://www.un.org.au/files/files/NGO%20Association%20with%20DPI%20v.2.pdf>
5. As at 09/07/2011 the Australian Bureau of Statistics website cites the Australian Population as 22,646,293 Retrieved from [www.abs.gov.au](http://www.abs.gov.au)
6. In Australia Year 12 students are aged 17-18 as cited by Wikipedia. Retrieved from [http://en.wikipedia.org/wiki/Twelfth\\_grade](http://en.wikipedia.org/wiki/Twelfth_grade)



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## Understanding Student Learning in Environmental Education in Aotearoa New Zealand

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**Abstract** This paper seeks to provide a perspective on environmental education in Aotearoa New Zealand. To contextualise this perspective, it illustrates how environmental, socio-cultural and political imperatives have shaped the development of environmental education in this land. These imperatives illuminate the natural history of the country, the connectedness within the worldviews of the indigenous Māori people, the pioneering views of some enlightened European settlers, and tensions between development and conservation. We connect this context with an overview of research in Aotearoa New Zealand into one aspect of environmental education – student learning in schools. Examples from recent research in this area are provided to show how these approaches are contributing to the Aotearoa New Zealand-ness of environmental education.

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In the beginning, there was a union between Papatūānuku (the earth mother) and Ranginui (the sky father). They had many children while remaining in an embrace that left the world in darkness. Their children grew frustrated in the dark and conspired to separate the earth and the sky to let light into the world. These children were gods of the sea, the forests, food and wind in this new world, and they in turn had children who became all the life forms such as birds and fish, and all natural phenomena such as wind and water. (Te Ara, 2011)

This creation story told by Māori traces all life back to the earth and establishes the interconnections between all living things and their environment. Māori are thought to have settled in Aotearoa New Zealand around 800-1000 years ago (King, 2003), and are considered the indigenous people of the country. Through this indigeneity, Māori claim a spiritual connection to the land and a sense of *kaitiakitanga* (guardianship) that pervades their language, their culture, their being (Durie, 2010).

Aotearoa New Zealand is a land that has been geographically isolated from other land masses for 80 million years and has developed a wide variety of ecosystems in a largely temperate climate (Fleet, 1986). These ecosystems supported a diverse range of life forms with high endemism and some unique features, such as the *kākāpō* (a large ground-dwelling parrot) and the *tuatara* (a reptile with links to ancient beings). Geological changes involving marine immersion and uplift created a range of geomorphological features from high mountains to riverine plains (Thornton, 2003) that supported forests, wetlands, grasslands and marine environments.

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Subsequent settlement by Europeans over the past 200 years brought large numbers of immigrants and technologies that drastically altered many of these ecosystems (King, 2003). Blessed by a benign climate, agriculture and forestry flourished, both enslaving the land and destroying native habitats, as well as creating new landscapes that had other aesthetic and productive advantages. Yet amongst these early pioneers, there were those who questioned this harsh treatment of the land (King, 2003) and who treasured natural places, and as the population grew significant tracts of land were protected as a tussle between development and conservation began in earnest, including establishment of the world's fourth National Park (Potton, 1987). Today many New Zealanders value their natural places and enjoy the recreational opportunities they provide (Ministry for the Environment, 2007). Coupled with a strong belief in democracy and social justice (Mulgan, 1989), environmental activism has had impacts on the global stage over nuclear arms (Gidley & Shears, 1985) and in our own country over habitat protection (Wilson, 1982). It is this history which characterises concerns around environmental issues such as biodiversity threats and land and water conservation that shapes environmental education in Aotearoa New Zealand today.

The development of environmental education in schools in this country (Eames, Cowie, & Bolstad, 2008) has followed a similar pattern to many western countries. From grass roots activity around environmental science and outdoor education, it gained a foothold in the national school curriculum in 1993 (Ministry of Education, 1993). A groundswell of activity was created by the production of government guidelines for environmental education in schools (Ministry of Education, 1999), a professional development programme to support those guidelines, and a successful non-government programme, *Enviroschools* (Enviroschools, 2011). This has seen more than a quarter of all New Zealand schools offering some form of environmental education programme (Eames, Roberts, Cooper, & Hipkins, 2010). This momentum is somewhat reflected in the recently revised national school curriculum, which includes significant mention of the importance of students' learning for sustainability but stops short of making it mandatory (Ministry of Education, 2007). A revision of the original *Guidelines* was called for, to reflect this focus on education for sustainability and to lead our schools forward to a sustainable future (Chapman & Eames, 2007). However, a change to a more right wing-leaning government around this time signalled a change towards economic imperatives in schools, with the scrapping of government-supported environmental education initiatives and a focus on literacy and numeracy assessment. Despite strong support from the environmental education community (Eames & Chapman, 2008), the *Guidelines* have yet to be revised. There has been a history of difficulties in resolving competing interests around support for teachers in environmental education (Law & Baker, 1997), and the Ministry of Education currently provides no ongoing support for teachers trying to deliver the sustainability imperatives in the curriculum. This lack of support by Government is threatening to stall the progress that has seen environmental education being delivered in over 25% of all New Zealand schools (Eames et al., 2010).

It is in this context that we report now on the state of environmental education research in Aotearoa New Zealand in one area, that of student learning in schools. As the practice of environmental education grew in our schools, researchers began to explore our understanding of student learning in environmental education, a problem that was clearly recognised nationally and internationally (Bolstad & Baker, 2004; Rickinson, 2006) and one that seemed crucial to developing both legitimacy for environmental education in the face of uncertain support, and a pedagogical basis for development of environmental education in our country. From early studies around children and nature (Leith, 1996; Tranter & Pawson, 2001) and school-based environmental education (Chidlow, 1997; McKenzie, 2006), a focus began to fall on participation

(Wilson-Hill, 2003), and transferability of learning (Birdsall, 2005). These latter two studies argued that student participation in environmental education was likely to be facilitated through whole school approaches such as offered in the Enviroschools Programme (Wilson-Hill, 2003), and that while student learning in stimulating outdoor environments showed evidence of development of sustainability thinking, this thinking did not necessarily transfer to other contexts (Birdsall, 2005; Birdsall, 2010). In considering these issues, we were attracted to the idea of action competence, based as it is on principles of democratic participation and connectedness, elements which particularly resonated with aspects of our European and Māori heritage respectively.

The notion of action competence had been developed in Scandinavian school research (Jensen & Schnack, 1997; Mogensen & Schnack, 2010) and sought to unify some key educational ideas in a democratic approach to empowering learners to act. Jensen and Schnack (1997) argued for the importance of the educational aspect of environmental education, claiming that it was not up to schools and their students to solve the environmental problems of the world, but rather to prepare future citizens to participate in the resolution of problems as adults. Jensen and Schnack noted the significance of experiences, that experiences and actions were intertwined, and that democratic participation in learning was more likely to lead students to develop competence to act in an intentional and informed way. These authors identified knowledge, commitment, vision and action experiences as specific components of action competence.

We began by exploring pedagogies that could enhance development of action competence (Eames et al., 2006). We then examined the interaction between the use of a whole school approach and development of student action competence (Eames, Wilson-Hill, Law, & Mardon, 2009). Curious about what this would mean for classroom practice, we worked with school advisors and teachers in their classrooms to tease out these components. Our work created an Aotearoa New Zealand framework (Eames et al., 2009) that argued that in order to develop students' action competence a teacher would provide experiences for their learners of environmental and sustainability issues, provide opportunities for them to develop reflective capacities around these experiences, build their knowledge through inquiry and explore their visions for a sustainable future, and help them plan and take effective action on these issues. The framework also emphasised connectedness both between these aspects of action competence, and also between people and their environment, with a strong sense of the importance of attitudes and values in addressing issues.

This Aotearoa New Zealand framework for developing student action competence was trialled in six schools and refined to produce a tool to be used in professional learning with teachers of environmental education (Eames et al., 2009). As a new national school curriculum had just been produced for the country (Ministry of Education, 2007), we were conscious of demonstrating synergies between it and our framework. The national curriculum identified five key competencies that students should develop "to live, learn, work, and contribute as active members of their communities" (p. 12). Viewed as fundamental to learning, we were able to draw connections between these five key competencies and the framework for development of student action competence (Eames et al., 2009). The connectedness aspect of the action competence framework provides a link to the holistic worldviews of the indigenous Māori people, and to the need for a whole school approach to environmental education.

Our studies also developed a second framework (Eames et al., 2009) for considering what whole school approaches to environmental education would look like in Aotearoa New Zealand schools. This whole school approach framework contains a selection of characteristics of school life that we believed to be important in determining the

environmental, social, cultural, political and economic sustainability of a school. This second framework was also trialled in schools and refined to produce a tool that could help guide schools to act in sustainable ways.

The development of these two frameworks allowed us to consider the link between the development of a whole school approach to sustainability and the development of action competence for sustainability for the school's students. In other words, we were interested in the conditions in a school that promoted learning for sustainability. This proved to be a complex task and is subject to ongoing work. Our preliminary conclusion was that staff of a school act as interpreters, conduits and culture brokers between the social and cultural climate of sustainability of the school and its community, and the development of student learning and identity (Eames et al., 2009).

Our research in this area has shown that a focus on development of action competence in environmental education can promote engagement of students in areas where achievement in the Aotearoa New Zealand education system is a concern, namely in education of Māori and Pasifika students, and in boys' education (Eames et al., 2006). It is to be noted that these two frameworks have as yet been trialled in only a small number of schools already engaged in environmental education. However, use of the frameworks in teacher professional development sessions has drawn a positive response regarding their use, although more so in primary than secondary schools. Teachers in the latter struggle to envisage how a more holistic development of students can occur within the constraints of a domain-structured curriculum. Ongoing research is indicating the key roles that culture (Arthur, 2011) and leadership within schools play in learning for sustainability, and how literacy can be enhanced through development of action competence (Wilson-Hill, 2010).

In summary, this article has attempted to provide a brief overview of some of the environmental, socio-cultural and political contexts that have influenced environmental education development in Aotearoa New Zealand. We have connected these contexts to an examination of research in this country into student learning in environmental education. A recent evaluative study of three key environmental education initiatives (Eames et al., 2010), that were providing teacher professional learning embedded in holistic, connected, action-oriented philosophies, indicated the nascent development of a particular Aotearoa New Zealand knowledge base in environmental education that holds promise for further progress in the field in this country. Regrettably recent political changes have shifted the Government's educational focus away from this holistic, connected view to a more conservative focus on literacy, numeracy and assessment. Coupled with this is the government's concern for prosperity based on material wealth, which puts pressure on the country's natural resources. A consequent tension between exploitation and conservation was clearly exemplified in 2010 through public protests over Government plans to mine for minerals in our national parks (Neems, 2010). This tension demonstrates the critical need for environmental education in this country to equip our people with the education to be kaitiaki (guardians) of this land and to make good decisions for its future. Understanding how to provide that education through student learning in schools is one important way that research in environmental education in Aotearoa New Zealand can contribute to satisfying that aim.

*Keywords:* student learning; environmental education; New Zealand.

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### Author Biographies

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## BOOK REVIEWS

*Emancipatory Practices: Adult/Youth Engagement for Social and Environmental Justice*. Edited by Warren Linds, Linda Goulet & Alison Sammel. Rotterdam/Boston/Taipei: Sense Publishers, 2010, 250 pp. ISBN: 978-90-8790-151-4 (paperback); ISBN: 978-90-8790-152-1 (hardback); ISBN: 978-90-8790-153-8 (e-book)

The value of collaborative adult/youth action for social and environmental issues such as child labour, homelessness, mental illness, racism, and climate change is cogently illustrated by the case studies presented in *Emancipatory Practices: Adult/Youth Engagement for Social and Environmental Justice*. The book's three sections converge around the ecotone, "the place where two ecological regions meet and transition into one another" (p. xi), - a metaphor for youths and adults melding wisdom and experiences to effect social and environmental change. The collection aims to present examples of adult/youth engagement, shared by those working in areas of community development, environmental education, and youth leadership in Australia, Canada, New Zealand, and the United States, and to examine the power dynamics that permeate this engagement.

The first section focuses on adult/youth engagement within school systems. As an example, Juli Gassner describes efforts to create a democratised learning environment at the unlimited school in Christchurch, New Zealand. Unlike the transmission mode of schooling, which feeds students an "enforced diet ... drip fed through: obedience, predetermined skills and prescribed values and attitudes, rote learning of content, testing, competition and sophisticated reward and punishment systems" (p. 33), curriculum does not drive the educational processes at unlimited. Rather, students are instrumental in their own learning processes, following personalised programmes, and a "dialogic learning community", in which students' voices are heard, is fostered. During "table talk", for instance, students, staff, and family members discuss issues ranging from the oil crisis to the New Zealand elections to art. Table talk, "a means of getting to know one another; building relationship/connection through genuine free ranging conversation", enables "foundations of trust and respect [to be] simultaneously modelled and built" (p. 40).

Case studies of marginalised youth as authoritative figures are centralised in the second section. Mark DeKraai, Denise Bulling, Carmen McLean and Brenda Fletcher use Youth Encouraging Support, a United States based advocacy organisation of/for young persons with various mental, emotional, and/or behavioural disorders, to illustrate the potential of dialogue: "Dialogue builds on the collective wisdom by tapping into the creativity of the entire group through conversation that demonstrates openness and values differences" (pp. 88-89). Presentations to lunch ladies on behavioural health disorders and a stigma busting campaign at a shopping mall are activities used to promote dialogue and share youths' knowledge and personalised experiences.

The final section presents examples of shared leadership. Alysia Garmulewicz and Liza Ireland emphasise the benefits of intergenerational collaboration and mentoring with regards to climate change. Garmulewicz, who undertook the organisation of a Canadian Youth Climate Change Conference as a 16-year-old, recounts how adult mentoring enhanced her self-belief: "My feeling of the adult community's belief in my project (and me), fostered a belief in myself, and I felt deeply committed and confident that the conference was indeed possible" (p. 150). Adult support also was indispensable

to navigating an adult-dominated world, particularly in instances where adults were unable or reluctant to trust or respect the capabilities of youth. The intergenerational partnership enhanced Conference outcomes, involving “youth and adults in a mutual process of building and envisioning a better future of new ideas and solutions - one that takes the best the older generation has to offer, and takes it to a higher level through the initiative of youth” (p. 162).

Of significance is the insight offered into the power dynamics which pervade adult/youth partnerships. In the Peace for the Streets by Kids from the Streets (PSKS) case study, Yve Susskind touches on the “thin” line between adult facilitation and adult domination as the adult coordinator at times finds it difficult to yield control to the youth because of her close relationship with them and her passion for PSKS. Writing on his experiences as an adult facilitator of youth groups promoting walking and cycling among peers, Arthur Orsini makes reference to power relationships among youths: in one of the groups, a student slowly takes on a “teacher” role, shifting power among the youths. These are issues common to other case studies as well.

Within the ambit of this *Australian Journal of Environmental Education* Special Issue, which explores the “Australian-ness” of environmental education and challenges readers to reflect on how lessons shared by researchers can be transferred to other national contexts, mention must be made of Lyn Carson’s piece. Carson shares how Australia’s first youth jury, “an experiment in deliberative democracy” (p. 109), emerged in response to a specific situation in the city of Parramatta - racial stereotyping among the city’s multicultural population. Carson illustrates how the project evolved within an Australian context and ends with suggestions as to how the project’s unique elements could be further adapted by practitioners, for instance, by ensuring that the voices of elderly and indigenous populations are heard. The collection’s case studies are thus useful points from which to consider ways in which practices used to support youth/adult collaboration in ecological and social initiatives can be adapted to particular settings.

Overall, the collection offers an honest appraisal of the possibilities of and challenges inherent to adult/youth partnerships, to a diverse audience, including, educators, researchers, youth and adult activists, and decision-makers. Several themes recur throughout, including, the advantages of intergenerational collaboration, the necessity for peer-mentoring and support among youth, the need for balance of power in joint efforts, and the need for capacity-building among youth. Case studies convincingly demonstrate that youth are capable of speaking for themselves and engaging in effective action; that dialogue *with* them has more transformative potential than conversations *about* them; and that once actively engaged in processes which equip them with skills and build their capacities, they are valuable partners in social and environmental action. Accordingly, credence is added to the global rhetoric surrounding the participatory rights and competencies of youth, highlighting their knowledge, creativity, and energy. Further, the volume offers thoughts as to how adults can connect with young people to create meaningful adult/youth cooperative efforts through a mutual process of listening to and learning from one another.

**Therese Ferguson**

*University of Guyana, Georgetown, Guyana*

### **Reviewer Biography**

Therese Ferguson is a Lecturer in the School of Earth and Environmental Sciences (SEES) at the University of Guyana. Her research interests include environmental education, children’s environments, and environmental discourses.

*The Meat Crisis: Developing More Sustainable Production and Consumption*. Edited by Joyce D'Silva & John Webster. London: Earthscan, 2010, 305 pp. ISBN: 978-1-84407-902-5

“The first step in developing ethical, sustainable and compassionate food policies is to acknowledge that we need them”, writes Kate Rawles in *The Meat Crisis* (p. 211). With this statement she offers a guiding heuristic for a compelling and revealing book that presents (a) overwhelming evidence that we *do* need ethical, sustainable, and compassionate food policies for meat consumption, and (b) proposals for how we might achieve them.

*The Meat Crisis* begins with the reality check that current and forecasted meat and dairy production systems are indeed in crisis, and the result is a series of interlocking problems. “Too much meat for our own good health, too much for dwindling resources of land and water, too much for the health of our planet’s climate and environment and too much to enable the animals we eat to have decent lives before we devour them”, explain editors Joyce D'Silva and John Webster (p. 1), outlining the multi-faceted forms the meat crisis has taken. With this starting point, the book launches an examination of a deeply unsustainable system that needs to change in the name of human, animal, and planetary health.

The book is divided into five sections and features the writing of 25 authors including researchers, veterinarians, biologists, epidemiologists, farmers, and professors of agricultural sciences and sustainability. What ties their perspectives together is a call for a global reduction in meat and dairy consumption and a transformation of current systems of production. While their approaches to exploring the issues vary considerably, along with their writing styles, the book is replete with well-researched papers that document, explain, and offer suggestions for mitigating the meat crisis.

The first section addresses the impacts of animal farming on the environment. The statistics here are chilling: an estimated 60 billion farmed animals are used for food production each year and this number is expected to double by 2050, given rising demand and projected population growth. The deep inefficiency of a food production system in which enormous amounts of wheat, maize, barley and soya are used to feed livestock may be a familiar concern to environmentalists, but the connected issue of water consumption—an estimated 85% of humanity’s water footprint is related to the consumption of agricultural products—should give readers serious pause. That agriculture is the number one contributor to anthropogenic climate change makes the book’s overall message undeniable: meat and dairy consumption need to be curbed, with one author suggesting a sustainable guideline for meat consumption would be 90 grams per day per person (against a 2005 baseline of 300 grams consumed per person per day in high-income parts of the world). For countries such as Australia, in which the dominant food culture focuses on meat and the ubiquitous barbecue, this represents a cultural shift as much as a call for dietary change.

What does this mean for the animals in question? One of the strengths of this book lies in its holistic focus on not only the environment and human health, but also animal welfare. The second section highlights that animal welfare cannot be a trade-off in a sustainable system, but rather must be a given. While the traditional sustainable development “triangle” includes a tripartite focus on the environment,

the economy, and society, *The Meat Crisis* urges that that triangle be replaced with a diamond schema that includes animal well-being as a core principle. Put into practice, this would see the end of oppressive incarceration systems and overcrowded feedlots—trends that are intensifying in countries such as Australia and the United States—and the replacement of factory and “fortress” farms (industrialised complexes controlled entirely by humans) with humane forms of animal housing.

The third and fourth sections of *The Meat Crisis* address the human health implications of meat-eating and industrialised production, along with ethical and religious approaches to animal foods. Vegetarianism is not a focus of the book, although some authors call into question the conventional wisdom that animal products are important for health and point to linkages between increasing rates of chronic diseases in developing countries and diets high in animal products. Other compelling ideas addressed in these sections include the role of animal-based agriculture in the spread of disease and virus outbreaks, and the possibility of returning to ancient models of healthy sustainable living through religious and cultural precepts.

The final section of the book focuses upon much-needed solutions for farming and food policies for a sustainable future. How can we eat meat, preserve the climate, and ensure animal well-being? Taxing animal foods to shift consumption patterns toward less greenhouse gas-intensive and land-demanding foods is one suggestion; another is to translate animal welfare status into a labelling scheme on meat and dairy products to allow for informed consumer decisions.

*The Meat Crisis* makes it evident that current modes of meat production and consumption are environmentally unsustainable, ethically egregious, and need to change. This book is not aimed at environmental educators but should be a clarion call to them to integrate issues of meat and dairy production and consumption into their teaching practices. For the sake of our own health, animal well-being, and sustainability of the land, water systems and the climate, the meat crisis cannot be ignored.

**Jan Oakley**

*Lakehead University, Ontario, Canada*

### **Reviewer Biography**

Jan Oakley is a PhD candidate in Educational Studies at Lakehead University in Thunder Bay, Canada. She is interested in humane education, environmental and social justice pedagogies that include nonhuman animals as agents and stakeholders. In 2011 she guest edited a special issue of the *Canadian Journal of Environmental Education* on “animality in environmental education”.

*Slow Travel and Tourism*. Janet Dickson & Les Lumsdon, London, UK: Earthscan, 2010, 232 pp. ISBN: 978-1-84971-113-5

This book sets out to propose nothing less than a paradigm shift in our attitudes towards travel and tourism. It explores notions of slow travel, defined as “an emerging conceptual framework which offers an alternative to air and car travel, where people travel to destinations more slowly overland, stay longer and travel less”. Clear links are drawn with the underlying premise of slow food and slow cities – improving quality of life and responding to global homogenisation – and resistance to globalisation, standardisation and economic rationality. Slow travel is presented as offering low carbon tourism options, and underpinning sustainable tourism development. However, the book stops short of any detailed investigation of how this paradigm shift may be achieved.

The book illustrates those characteristics of modern tourism which have led to what the authors point to as examples of unsustainable levels of development. These include increasing numbers of people travelling, both domestically and internationally (particularly in the growing economies of India and China), ubiquitous use of high emission transport modes (cars and airplanes) for most tourism trips, and low cost transport options (particularly low-cost air carriers) increasingly becoming the preferred modal choice. As the authors note, tourism is a net contributor to Greenhouse Gas (GHG) emissions and therefore the industry will face a number of challenges in future relating to regulatory pressure to reduce emissions, and the potential for various emissions trading schemes internationally. At the same time, travel and mobility are integral parts of our society – travel is considered almost a right in our affluent times, and attempts to curtail this right are likely to be met with strong opposition. Indeed, the authors admit that the idea that levels of travel should be reduced to meet the exigencies of climate change is not currently on the agenda. Further, tourism development is a common way to introduce economic stability and whilst it can be argued that a focus on the economic importance of tourism may mask negative socio-cultural and environmental impacts, nonetheless, tourism provides livelihoods and incomes for communities around the world.

It is against this background that the authors propose that slow travel may offer a “third way”, between unbridled consumption of travel and restrictions on the right to leisure experiences. Slow travel and tourism is conceptualised in this book as being formed of two main pillars. Initially, the choice of travel mode is one of the defining characteristics of slow travel, with trains, cycling, walking and coach travel providing low carbon transport options. However, there is more to slow travel than just the modal choice, and the authors go on to describe another facet of this concept – the notion that the journey itself will form part of the tourism experience, as they put it: “the celebration of place and travel as a value to be cherished” (p. 76). This elevates the transport choice from a simple matter of getting from A to B, to having a major influence on the entire trip, and one where the traveller has the opportunity to interact with people and place and take time out from the everyday rush.

The book examines in detail the various forms of transport choice that correspond with slow tourism. Each form is low carbon and also allows time to be spent on the



journey. Train tourism is considered to include not only using the train to travel to a destination, but also those cases where the train is the destination (think Orient Express for example). Walk tourism is acknowledged to be an under-researched area, but the authors highlight that walk tourism can involve a plethora of options, including walking holidays (such as trekking or hiking trips), walking to destinations, or even just day trips. Although the heyday of cycle tourism may be past, the authors still include cycling as a niche market, both touring using the bicycle as the mode of transport and riding for healthy exercise and to experience nature. Coach tourism may not immediately appear to be low carbon, but long distance coaches are relatively eco-efficient as they tend to operate on high loadings and therefore emissions per passenger are low. The use of coaches both as a long distance travel mode, and as a touring mode is relatively common, although research is lacking in both cases. Finally, water-based transport is considered as a form of slow travel, particularly small craft such as kayaks. However, if a high emissions mode of transport is chosen to get to a kayaking location, then this may outweigh any advantages associated with low carbon water based transport. For each mode of slow travel, useful and interesting case studies are included which help to illustrate the points being made.

However, there appears to be one issue from which the book has shied away, and this is the question of how can we persuade tourists to make changes. Whilst Chapter 3 covers the theoretical perspectives on behaviour change (including references to the theories behind the drivers of modal choice, attitude and behaviour research, discourses of travel, the sociology of mobility and travel identities), the book does not paint a clear picture of how slow travel and tourism can begin to replace the dominant paradigm of economic growth. This is a clear signal that research into how environmental education can contribute to this debate would be of great value. In their conclusion on the future of slow travel, the authors provide three possible scenarios - slow travel continues as a niche market; slow travel destinations emerge and become more mainstream; and slow travel becomes a set of principles to be applied to all types of tourism. This is laudable, yet does not truly address the issue of how people can be persuaded to leave the car behind and take the coach, nor does it suggest ways in which potential travellers can be persuaded to reject airplanes as a mode of transport and choose instead a longer and potentially more expensive journey by train. These issues offer a rich stream of research opportunities for those interested in environmental education, particularly as it relates to society and community. There is enormous scope for interdisciplinary research here, investigating how the theories and frameworks developed in environmental education may inform research into slow travel and tourism, and indeed, examining how existing research on behaviour change in the tourism context may inform environmental education in other contexts.

**Judith Mair**

*Monash University, Melbourne, Australia*

### **Reviewer Biography**

Judith Mair is a Lecturer in Tourism, and tourism researcher in the Australia and International Tourism Research Unit and the Department of Management at Monash University in Melbourne, Australia. Her research interests include pro-environmental behaviour both in tourism and events; tourism and climate change; consumer behaviour in tourism; and business and major events.

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1. The Australian Journal of Environmental Education provides a forum for the publication and dissemination of articles intended to further the research and practice of environmental education in all areas of formal and non-formal education.
2. There are two broad categories of papers that will be considered for publication in AJEE.

The first category focuses on academic/research articles which should be 5000 words in length (including references, tables etc). Where additional word length is warranted and clearly justified, extended papers will also be considered (up to 10,000 words). Contributions in this category may take the form of research or project reports, program evaluations or case studies of practice, critical essays relating to philosophical or policy issues, critiques of previously published articles, and literature reviews, that are of relevance to environmental education. Theoretical essays or research reports should include a description of the practical application(s) of the ideas raised or tested, while reports of practice should contain an explanation of the theoretical foundation underlying the practice in question.

The second category is for shorter scholarly opinion/discussion/story/review pieces and abstracts of completed PhD, Masters and Honours theses (in environmental education). These articles may be up to 3000 words in length (including references, tables etc) and abstracts of these should be no longer than 750 words. Shorter book reviews will also be considered (up to 1000 words). The editor is also actively encouraging special sections / issues working with guest editors. Please contact the editor with ideas and/or proposals.

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  - What new ideas are being proposed, or what existing ideas supported or negated?
  - What implications for environmental education practice, research or theory do these new, or changed, ideas have?
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Tables, drawings, diagrams and charts should each be presented on a separate sheet of A4 paper. The approximate positions of these should be indicated in the typescript.

Footnotes should be avoided. References should be listed alphabetically at the end of a contribution. Contributors should follow the specifications of APA (*Publication Manual of the American Psychological Association*, 2001, 5<sup>th</sup> edition). The following examples illustrate the recommended form for publications:

Australian Government Department of the Environment Water Heritage and the Arts (2009). *Living Sustainably: The Australian Government's National Action Plan for Education for Sustainability*. Canberra: Commonwealth of Australia.

Cutter-Mackenzie, A. (2009). Multicultural school gardens: Creating engaging garden spaces in learning about language, culture, and environment (Special Issue Guest Edited by David Greenwood and Marcia McKenzie). *Canadian Journal of Environmental Education*, 14(1), 122–135.

Hart, P. (2003). *Teachers' thinking in environmental education: Consciousness and responsibility*. New York: Peter Lang.

Hillcoat, J. (1999). *Beyond the commodity: Meaning-making, sustainability and the self*. Unpublished PhD, Queensland University of Technology, Brisbane, Australia.

Jickling, B., & Spork, H. (1998). Education for the environment: A critique. *Environmental Education Research*, 4(3), 309–327.

Selby, D. (2009). The firm and shaky ground of education for sustainable development. In B. Chalkley, M. Haigh & D. Higgitt (Eds.), *Education for Sustainable Development: Paper in Honour of the United Nations Decade of Education for Sustainable Development (2005-2014)* (pp. 199–213). New York: Routledge.

When references are cited in the text, details of author(s) and year of publication should appear, for example (Cutter-Mackenzie, 2009; Jickling & Spork, 1998). Direct quotes should include author, year and page number, for example (Hart, 2003, p. 65). Spelling should conform to The Macquarie Dictionary, Macquarie Library, Sydney.

Non-sexist language should be used at all times, for example, humankind or people, chair or chairperson.

Underlining is to be avoided except to indicate the use of italics. Emphasis should be made through sentence construction.
5. Submission of papers.

An electronic copy of the manuscript should be submitted by email to [ajee@officelogistics.com.au](mailto:ajee@officelogistics.com.au). Contributors are asked to use MS Word 2007 or a later version. **The names and present professional affiliations of the author(s) should appear on a separate title page so that anonymity is maintained during the reviewing process.** Papers are blind-reviewed by two reviewers who are experts in the field.

The typesetting process is simplified if the word processing file avoids the unnecessary use of tabs and the space bar. Please use only one space between sentences. The return key should be used only to create new paragraphs, not new lines.

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7. Authors will receive a complimentary copy of the journal issue in which their paper appears.
8. All contributions should be addressed to: Dr Amy Cutter-Mackenzie, Editor, AJEE, Faculty of Education, Monash University, McMahons Road, Frankston, Victoria 3199, Australia.

Telephone +61 3 9904 4638. Email: [Amy.CutterMackenzie@monash.edu](mailto:Amy.CutterMackenzie@monash.edu)

The new AJEE submission guidelines via the Australian Academic Press (<http://www.australianacademicpress.com.au/>) will be published on the AJEE and AAP websites in due course. In the meantime, all submissions are to be sent to Dr Amy Cutter-Mackenzie.

From here-on-in two issues will be published per year possibly moving to three. The next issue of the AJEE to be published will be Volume 27(2) in December 2011.



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