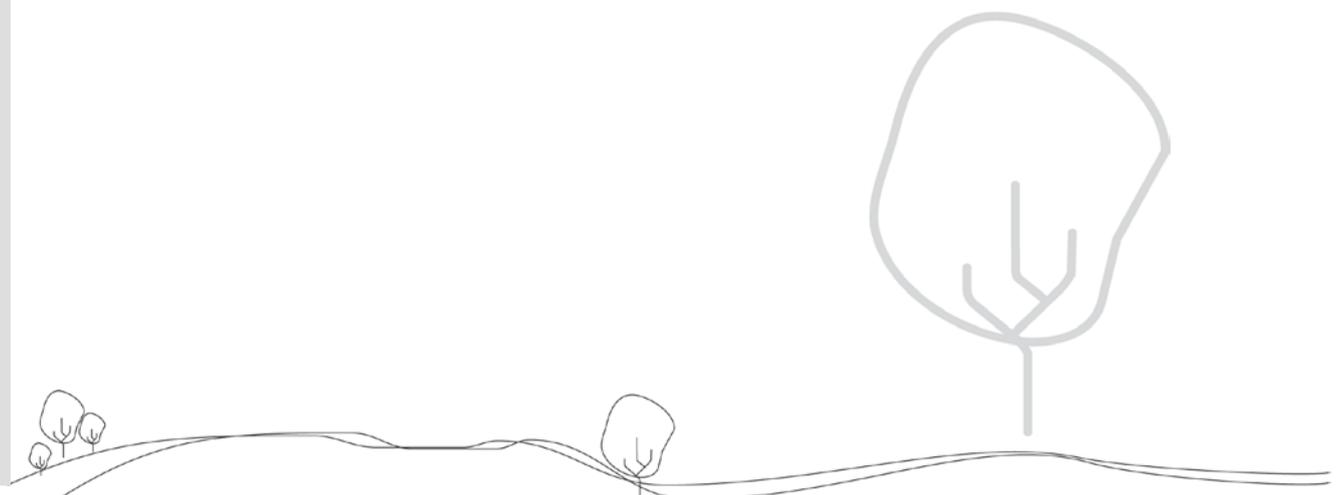




**Titiro Whakamuri, Hoki Whakamua.
We are the future, the present and the past:
Caring for self, others and the environment
in early years' teaching and learning**

Jenny Ritchie, Iris Duhn, Cheryl Rau, Janita Craw

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P O Box 3237

Wellington

New Zealand

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1. Aims, objectives and research questions

Drawing from both kaupapa Māori and Western perspectives, this study has focused on global issues of ecological sustainability in a variety of local/national early childhood education contexts. It has aimed to contribute to an emerging body of research which illuminates, documents and integrates possibilities for early childhood education pedagogies that reflect and enact an ethic of care, both from kaupapa Māori (Ka'ai, Moorfield, Reilly, & Mosley, 2004; Mead, 2003; Ritchie, 1992) and Western theoretical perspectives (Braidotti, 2002; Dahlberg & Moss, 2005; Foucault, 1997; Gilligan, 1982; Goldstein, 1998; Noddings, 1994, 1995). We considered this emphasis on ecological sustainability as a teaching and learning issue (Gruenewald, 2003), philosophically grounded in an ethic of care with a particular focus on respect for Papatūānuku, to be incredibly timely in light of discussions on climate change and globalisation (Bosselmann, 1995; Mies, 1999; Plumwood, 1993; Shiva, 1997; Smith, 2001).

For Māori, a sense of ecological responsibility is sourced in a conscious awareness of Papatūānuku (Haywood & Wheen, 2004; Kereama-Royal & Ashton, 2000; Marsden, 2003; Te Puna o te Matauranga, 2003). This realisation that our destiny is intimately/ultimately bound up with the destiny of the earth reflects a holistic and respectful view of life (Marsden, 2003). For this study, tikanga Māori has reinforced our imperative, in positioning us and our co-researcher educators as kaitiaki of our environment:

It is the task of all things of creation, particularly human beings, to seek te ao marama, enlightenment and fulfilment [sic]. Nature is forever in the state of te kore, te po, and seeking te ao marama ... it suggests a cycle and rhythm of life. And one in which the past, the present and the future are forever interacting. (Henare, 1998, p. 3)

This research focus on ecology and sustainability in the context of early childhood education was instigated by a teacher, Marina Bachmann, of Collectively Kids Childcare and Education Centre, who felt passionate about the possibility of developing a project that investigates how to “take action” against global warming and climate change with children, families and teachers (see Section 3.3). In a first conversation with the teacher it quickly became evident that we shared the desire to research how teaching and learning with young children can evolve around the notion of ethics of care for self, others and the environment as constructive action towards ecological sustainability. In consultation with other co-researchers, it became clear that we also shared common understandings across both Māori and Western constructions of the ethics of care. Throughout our work on this project we were privileged by the support of kaumātua and kuia for whom this sentiment of regard for our unity and totality with the environment and universe is intrinsic. This is expressed, for instance, by the Waikato people’s emphasis on kaitiakitanga of the river. Tainui kaituhi Carmen Kirkwood states:

It is not our mana that makes the river great. It has its own mana. People get mixed up about that. What it should be about, today, is the wellbeing of that taonga. And that's for all people. We should be addressing our environment right now as a total people. We should be looking at what we can do together, what we can learn from one another, right now, to restore the river. (cited in Kereama-Royal & Ashton, 2000, p. 35)

Our collective (practitioners and academic co-researchers) interest in this project arose from our awareness that learners and teachers urgently need to have access to knowledges and practices that enable understandings of the increasingly complex ethical relationships between self, others and the environment. Initial research on the topic of ecological/sustainable practices in early childhood education, both nationally and internationally, generated few results (Flogaitis, Daskolia, & Agelidou, 2005; Flogaitis, Daskolia, & Liarakou, 2005; Russo, 2001). This has changed over the course of the research project. There is clear evidence of an emerging focus on ecological issues in early childhood education (Pramling-Samuelsson & Kaga, 2008), and the literature is beginning to point out how important research in this area is (Davies, Engdahl, Otieno, Pramling-Samuelsson, Siraj-Blatchford, & Vallabh, 2009) which positions this project in a “cutting edge” category.

The study was planned and developed in close collaboration with a range of teachers who work in very diverse communities. These teachers hold a wide range of expectations of themselves as educators, of aspirations for children and pedagogies that enact global/local community values and knowledges. At the outset of the study, some of these teachers had expressed their sense of feeling overwhelmed by what they had perceived to be the need for drastic change in the light of environmental degradation, and their sense of a lack of support to begin the process. It is not surprising that these teachers articulated a sense of disempowerment. The Parliamentary Commissioner for the Environment, Dr J. Morgan Williams, puts the task these teachers are facing into the wider New Zealand context:

Our dominant value systems are at the very heart of unsustainable practices. Making progress towards better ways of living therefore needs to be a deeply social, cultural, philosophical and political process—not simply a technical or economic one. Technical and economic mechanisms will certainly be key parts of the process. However, they will not come into play unless we, as a society, are prepared to openly and honestly debate the ways that our desired qualities of life can be met. That is why there must be a vastly expanded focus on education for sustainability. (Parliamentary Commissioner for the Environment (PCE), 2004, p. 5)

Critical and postmodern perspectives are increasingly being applied to pedagogical thinking, validating and honouring our human vulnerability and situationality within the ecosystem, resulting in reconceptualisation of previously unquestioned assumptions reliant on positivistic technological fixes for environmental plundering (Gruenewald, 2003; Simon & Smith, 2001). Pedagogies of place have been the subject of recent theorising (Edwards & Usher, 2000; Gruenewald, 2003; Knapp, 2005). These theorisings reprioritise our interconnected and interdependent relationship as local and global citizens of the earth; they suggest that we integrate these understandings in our educational praxis, grounding them in respect for our localised

positionalities, focusing on how we live in order to ensure that our places/planet are/is respected and preserved by current inhabitants for future generations (see Section 3.3 in this report). It is interesting that these recent conceptualisations are exploring territory congruent with longstanding and enduring indigenous philosophies that are imbued with attitudes of respect and care for the environment (Haig-Brown & Dannenmann, 2002; Hill & Stairs, 2002; Patterson, 2000). (See Section 3.2 in this report.)

The need to foster diversity and multiple perspectives is also strongly emphasised in research that discusses concepts of ecology in the context of social and cultural discourses (Bryld & Lykke, 2000). By working across a range of different sites that all have an interest in engaging their local communities, we have been able to gather evidence for practices that work in very diverse communities (inner-city, rural, kaupapa Māori, North and South Island, kindergarten and childcare). (See Section 3.4 in this report.)

Our overall intention for this project, inspired by a conversation with teachers, was to build a culture of ecological sustainability practices in early childhood education. This rationale also involved expanding the focus of an ethic of care that has already been strongly articulated by some teachers in the context of kaupapa Māori perspectives' pedagogies (Ritchie & Rau, 2006, 2008). Recent research in early childhood education in Aotearoa has documented ways in which teachers have moved from “teaching about” tikanga Māori, to enacting and modelling Māori values such as manaakitanga within everyday routines and pedagogies (Ritchie & Rau, 2006, 2008). Whakapapa and manaakitanga are core organising frameworks within tikanga Māori (Ka'ai et al., 2004; Mead, 2003).

We were particularly excited by the opportunity of researching the possibilities of bicultural pedagogies based on ecology (broadly theorised in this context as an ethic of care for self, others and Papatūānuku). *Te Whāriki* (Ministry of Education, 1996), the New Zealand early childhood curriculum, creates a powerful base from which to develop ecological pedagogies. It draws on the notion of four interconnected dimensions (the physical/tinana; the mental/hinengaro; the spiritual/wairua; and the emotional/whatumanawa) to produce the idea of the child as a holistic learner. These dimensions are further embedded through the four principles (empowerment/whakamana; holistic development/kotahitanga; family and community/whānau tangata; relationships/ngā hononga). In many ways, ecology was already part of New Zealand's early childhood education discourse (see Section 3.1 in this report)—the question then became about how “ecology” is put into practice(s), and whether these existing practices support sustainability. These are the four broad areas framing this study:

1. What philosophies and policies guide teachers/whānau in their efforts to integrate issues of ecological sustainability into their current practices?
2. How are Māori ecological principles informing and enhancing a kaupapa of ecological sustainability, as articulated by teachers, tamariki and whānau?

3. In what ways do teachers/whānau articulate and/or work with pedagogies that emphasise the interrelationships between an ethic of care for self, others and the environment in local contexts?
4. How do/can centres work with their local community in the process of producing ecologically sustainable practices?

These overarching aims were unpacked in the following way:

1. *To focus on policies and practices that address the need for change towards more ecologically sustainable practices in early childhood centres. Each centre will already have practices and policies in place that can either be developed or modified.*

The objectives of this aim were to:

- examine current practices and policies
- identify areas for developing existing practices and policies.

Questions that guided the research under this aim were:

- What aspects of current policies and practices can be defined as “ecologically sustainable”?
- Based on current practices, how can learning and teaching become more focused on ecological sustainability?

2. *To consider ways in which Māori ecological principles can inform and enhance a kaupapa of ecological sustainability, as articulated by teachers, tamariki and whānau.*

The objectives of this aim were to:

- identify those principles and practices reflective of Te Ao Māori conceptualisations
- build and strengthen knowledge and understandings around this kaupapa
- further develop and/or modify existing practices and policies.

Questions that guided the research under this aim were:

- What understandings do we have of Māori ecological principles?
- Based on what is currently understood, how can these kaupapa Māori conceptualisations inform our learning and teaching in order to enhance a focus on sustainability?

3. *To understand how teachers articulate and work with a pedagogy of place that emphasises the interrelationships between an ethic of care for self, others and the environment. Within this project, the use of the term “pedagogies of place” refers to the understanding that practices do not exist in isolation; they arise according to available knowledges and discourses in specific locations.*

The objectives of this aim were to:

- examine the discursive relations between practices, knowledges and pedagogies
- begin the process of critically illuminating, documenting and integrating diverse knowledges to generate “pedagogies of place”.

Questions that guided the research under this aim were:

- What are the existing relationships between self, others and the environment in each centre?
- What does it mean to practise “an ethic of care for self, others and the environment” in the centre context?
- How can ethics be strengthened and articulated in ways that promote ecological sustainability in the context of pedagogies of place?
- How do wider social and cultural discourses inform teachers’, tamariki and whānau understandings of a pedagogy of ecological sustainability?

4. *To investigate how centres work with the local community in the process of producing sustainable practices, based on an ethic of care for the self, others and the environment.*

The objectives of this aim were to:

- co-explore with teachers how their sustainable practices relate to those valued and practised in their local community
- articulate how these practices, discourses and/or resources are responsive to an ethic of care for self, others and the environment.

Questions that guided the research under this aim were:

- How do existing pedagogies relate to practices, discourses and/or resources that exist within the local community?
- In what ways are links to the local community strengthened and/or developed?
- How do ethics held within each centre relate to the local context?

2. Overview and discussion about the research design/methodologies employed

Collaborative discussions and hui were arranged to ensure that the teacher co-researchers were involved in the final research design, and were able to tailor data collection instruments and processes to their own contexts and preferences. The theoretical paradigms for this study drew upon qualitative research methodologies (Kincheloe, 1991) such as kaupapa Māori (Bishop & Glynn, 1999; Mead, 1996; Smith, 1999); critical indigenous (Denzin, Lincoln, & Smith, 2008) and ethnographic modes that offer exploratory, naturalistic, holistic, multimodal and interpretative approaches to the study of people and communities (Aubrey, David, Godfrey, & Thompson, 2000; Barnhardt, 1994; Schensul, 1985). Processes for data theorising included dialogical negotiation of meaning (Siraj-Blatchford & Siraj-Blatchford, 1997) and collaborative storying (Bishop, 1996, 1997). Also central to the research process were ongoing reflexive supportive relationships between each participating centre and the academic researcher(s) who worked closely alongside the teacher co-researchers and tamariki/whānau of that centre. Our intention was to build a research community of practice, the foundations of which are trusting and respectful relationships that allow for challenge and critique (Wright & Ryder, 2006).

Ethical considerations and a range of data gathering strategies were explored with teacher co-researchers at a preliminary hui. Each centre had an academic researcher working closely alongside the educators to support the research process and utilise data-gathering strategies that the participants considered appropriate for their particular contexts. Different centres have utilised photographs, audiotaped and videotaped co-theorising interviews, documentation of tamariki and whānau narratives. A strength of the study has been the co-theorising hui where teacher co-researchers shared both their data and their methodological strategies with the teams from other centres. This co-theorising model demonstrates the increased researcher capacity that is consistent with one of the Teaching and Learning Research Initiative (TLRI) strategic goals. Teaching teams who had participated in previous studies that had utilised similar methodologies (Ritchie & Rau, 2006, 2008), demonstrated leadership in sharing their research skills with teams who were new to research at the preliminary collective hui for methodological discussion. Some centres preferred their assigned academic researcher to utilise an ethnographic approach, whereby they collaborated alongside the researcher who took primary responsibility for data collection by spending time participating alongside the educators, tamariki and whānau in that centre's daily activities. Data gathering also included documentary analysis (Fitzgerald, 2007) of centre policies pertaining to manaakitanga and sustainability. Interviews were transcribed and, along with other written data, were analysed utilising a qualitative software analysis program.

3. Research findings

This findings section is framed around the four research areas:

3.1. Philosophies for sustainability:

What philosophies and policies guide teachers/whānau in their efforts to integrate issues of ecological sustainability into their current practices? (Janita Craw lead writer)

3.2 Te Ao Māori:

How are Māori ecological principles informing and enhancing a kaupapa of ecological sustainability, as articulated by teachers, tamariki and whānau? (Cheryl Rau lead writer)

3.3 Pedagogies of place:

In what ways do teachers/whānau articulate and/or work with pedagogies that emphasise the interrelationships between an ethic of care for self, others and the environment in local contexts? (Iris Duhn lead writer)

3.4 Communities of ecological endeavour:

How do/can centres work with their local community in the process of producing ecologically sustainable practices? (Jenny Ritchie lead writer)

Glossary of early childhood centre abbreviations

In this report, each centre has been allocated an abbreviated reference as follows:

Bellmont Kindergarten Te Kupenga, Hamilton [BM]

Collectively Kids Childcare and Education Centre, Auckland [CK]

Galbraith Kindergarten, Ngāruawāhia [GB]

Hawera Kindergarten, Hawera [HW]

Koromiko Kindergarten, Hawera [KM]

Maungatapu Kindergarten, Tauranga [MT]

Meadowbank Kindergarten, Auckland [MB]

Raglan Childcare and Education Centre, Raglan [RC]

Papamoia Kindergarten, Tauranga [PM]

Richard Hudson Kindergarten, Dunedin [RH]

3.1 Developing philosophies and policies that guide ecological sustainability practices in early childhood education

Introduction

Trees cause more pollution than automobiles do ... (Ronald Reagan, 1981)

Environmental scientists have since confirmed Reagan was partially right—although we are the real villains every time we, for example, hop in a car or leave lights on when we've left the room, for all the good they do in the world, trees do produce atmospheric ozone: “in hot weather, trees release volatile organic hydrocarbons including terpenes and isoprenes—two molecules linked to photochemical smog. In very hot weather, the production of these begins to accelerate ...” (Radford, 2004). This example emphasises the complexity of developing a knowledge and understanding of ecological sustainable issues such as climate warming. Implementing an ethic of care that involves caring about ecologically sustainable issues that affect “our world”, our “life and the way we live it”, such as climate warming or local/global peace are (or should be) of concern to us all within early childhood education (Lenz Taguchi, 2010; Pramling-Samuelsson & Kaga, 2008; Selby, 2008). Perhaps an inspiring example of the active commitment that is not unique in, or to, early childhood education is ex Aotearoa New Zealand kindergarten teacher and tireless inter/national campaigner for peace and nonviolence, Alyn Ware—Alyn was recently awarded a Right Livelihood Award in recognition “for ... effective and creative advocacy and initiatives over two decades to further peace education and to rid the world of nuclear weapons” (The Right Livelihood Award, 2009). This report reveals the kind of active commitment (and advocacy) that a number of early childhood teachers/teaching teams across the country are considering as part of their endeavour to make a difference in the/ir worlds; teachers and communities are paying attention, in one way or another, to what becoming ethical and responsible means in a world committed to ecological sustainability.

This component of the report will indicate how the teachers (re)considered their philosophy, their policies and practices they identified as being essential to supporting “a culture of caring for education for ecological sustainability”, in the broadest sense, in early childhood education settings. It will indicate the teachers' different responses revealed in the research data to the first key question that would guide their self-review and action planning processes that would enable them to develop a direction for ecologically sustainable practices particular to their community and context. The question asked: What philosophies and policies guide teachers and whānau in their efforts to integrate issues of ecological sustainability into their current practices? The main objective of this question was to encourage the teachers to (re)examine their current philosophy, policies and practices and identify the need (or the desire) for transformative change towards becoming more ecologically sustainable in their philosophies, their policies and as a result in their practices in early childhood settings.

3.1.1 Becoming philosophical and/or theoretical about ecological sustainability in early childhood education

... Sustainability is the capacity to endure. In ecology the word describes how biological systems remain diverse and productive over time. For humans it is the potential for long-term maintenance of wellbeing, which in turn depends on the wellbeing of the natural world and the responsible use of natural resources.

(Wikipedia, The Free Encyclopedia, 2010b)

When the teachers were brought together in an initial collective hui at the outset of the research they shared their different understandings of the research project and exchanged ideas about how they might ascertain their centre's specific direction/s in response to the aims/objectives of the research. It was evident from the beginning that some centres, particularly, but not exclusively, those actively engaged in Enviroschools projects—and/or those who had already been involved in previous research projects that focused on developing principles and practices of whakawhanaungatanga in their centres (Ritchie & Rau, 2006, 2008)—had already embarked on a journey towards developing a philosophical/theoretical knowledge and understanding of the potential to develop ecologically sustainable practices in early childhood education. Hence, it was anticipated that the centres would already have philosophy statements, policies and practices in place that would, in one way or another—through processes of critical self-review—support the teachers/teaching teams to ascertain what education for sustainability would look like in their particular setting (Pramling-Samuelsson & Kaga, 2008). Further, these self-review processes would enable them to modify or develop current policies and strategic plans to ensure that the learning and teaching practices in their particular contexts could become more deeply focused on ecological sustainability—as teachers indicated:

... we looked at our philosophy and also reflected on how central and vital Papatūānuku is to ecological sustainability ... our collective vision compares children to trees—with attentive gardeners (teachers and parents/other adults) to tend and nurture them ... [RH]

... caring for the self, others and the environment are fundamental to the centre philosophy, policies and projects, drive the centre programme and define our relationships beyond the centre ... sustaining the quality of the programme requires ongoing input from all members of the centre community ... [CK]

... by being part of the environmental issues in our community highlights for children the connection between the community and kindergarten. Families/whānau are empowered to make a difference and care for the environment locally ... [PM]

... we are in sustainability and the things that (have) happened in our environment have a long history ... [GB]

... recycling has been a part of our kindergarten for some time now but we decided to revisit the process as we have not talked about it for a while ... [KM]

... everything I've heard, read, seen and experienced leaves me with no doubt that the impact of global warming is the biggest challenge our children will face. And it's one that has already had devastating effects on many children in the world ... children and the environment are vulnerable ... [CK]

3.1.2 Drivers for critical engagement—a catalyst for change in early childhood education

A number of different desires acted as drivers that motivated different teachers and teaching teams to be involved in the research project. For a number of individual teachers and/or teaching teams, the journey towards enacting the principles and practices towards an ecologically sustainable curriculum was relatively new. One teacher identified herself when she began the research as an “eco-skeptic”—she suggested:

... being a part of a team that is committed to the ecological sustainability approach has been a huge step for me, but having us all take it on board has helped to make these changes worthwhile ... we're all at different levels on the continuum and we're all progressing at our own pace ... [CK]

Some teachers had entered into the research project because there was a member or several members/whole teams whose drive and commitment were in response to a strong desire to enact the potential for developing deeper philosophical understandings, policies and practices in all early childhood settings. They had a vision that early childhood settings could be places/spaces where environmental and ecologically sustainable ways of living were centred within the everyday practices. From this perspective, “education for sustainability” work is inseparable from a participation in the everyday cultural/other politics that abound in the community—as Giroux (2000) suggests, pedagogy “in this discourse is about linking the construction of knowledge to issues of ethics, politics and power” (p. 25). He suggests: it is in the realm of everyday culture that “identities are forged, citizenship rights are enacted, and possibilities are developed for translating acts of interpretation into forms of intervention” (p. 25). Teachers were interested in developing a knowledge and understanding of how their own and others' agency unfolds in the everyday teaching and learning practices that occur in the early childhood setting that support “education for sustainability” in relation to the children, parents/whānau and the community. A few examples suggest:

... it's one of the ... ecological principles that we've become more aware of on our journey and manaakitanga: caring for people and our environment. As a team we acknowledge the shift in our practice and our philosophy. We've reflected on our values and our beliefs and how this shift in thinking is now evident in the kindergarten environment ... Our planning, evaluation, self-review processes always are within the context of education for sustainability ... we've realised that things take time and we will continue to review, discuss and implement new plans with both a bicultural and environment influence. It is about taking small steps and learning with children and families; empowering people with many different skills and ideas to come on the journey with us. [PM]

... an area that really interests me is developing critical and engaged citizenship in children and strengthening the advocacy role of the centre ... [CK]

It was evident that the research meant different things to different teachers/teaching teams in the project. Although some teachers were at the early stages of developing a philosophical knowledge and understanding of how they might engage with ecological sustainability, for others, the philosophical commitment to ecological sustainability revealed itself at a much deeper level. The documentation gathered as an essential component of the research data emphasises the importance placed on *Te Whāriki* (Ministry of Education, 1996) as a major support document for teachers. However, they articulated a number of other influences that determined how they were developing their understandings and ecologically sustainable practices in early childhood settings. Several made visible the idea that the Treaty of Waitangi underpinned their approach. For some teachers, a deep commitment to “Māori” involved developing a knowledge and understanding of tikanga Māori and its relationships with the earth, the universe. For these teachers, it was about embedding this knowledge into the very fabric, the principles and practices, of life and the way of living in the early childhood setting—they articulated how this commitment framed their research journey:

... The research is about Māori ecological principles, how they’re informing and enhancing a kaupapa of ecological sustainability ... the Māori worldview is holistic and cyclic, one in which every person is linked to every living thing and to the atua, which is the Gods. Māori customary concepts are interconnected through our whakapapa, which is your genealogy that links to te taha wairua, which is your spiritual element, and te taha kikokiko, which is your intellect or your body and your whole spirit. [PM]

For other teachers, the catalyst for critical engagement that happened as a result of designing and developing the physical environment for teaching teams was on occasion the catalyst for changed practices that initiated or enabled teachers to develop a deeper commitment to their ecologically sustainable research journey:

... while planning our new outdoor environment we visited several other kindergartens to gain some ideas about how we wanted to move forward with our environment. One of the kindergartens ... was involved in Enviroschools and we became interested in the areas of their environment set up with ecologically sustainable systems ... [MB]

... Developing new premises has allowed us to begin to address ecological sustainability in a more serious and effective manner ... [CK]

For one team, the catalyst for changed practices and a deeper commitment happened as a result of changes within the teaching team:

... what happens for a change of team, teams have to look inwardly and talk about what they believe, what they value, talk about their philosophy and recreate a common understanding, and this was at a time when this particular team started to really recognise that they had common interests around sustainability. [Tauranga Kindergarten Association Senior Teacher]

Yet this was also perceived as a threat—or perhaps a catalyst for further challenges that included defining their understandings of sustainability with “a respect and a connectedness with the past, the present and the future”—the teachers’ reflections indicated:

... can it be embedded in the kindergarten, in the kindergarten philosophy, in terms of should the team change. Teams will change. Is it something that has to come with the people in the team?

... sustainability today is drawing on the past ... when the team changes ... things get lost, things that have been built up but ... that accumulated knowledge ... I'm sort of loving that idea of these accumulated stories so that even if the team does change, I mean how do we build sustainable practices so that they don't disappear completely because we know they can ...

... we've seen the whakatauki as past, present, future and the change of teams and I just wanted to say ... each person here represents a team, and then the team represents a community and it goes back and back ... like in the ocean that goes right back ... I don't know how many people we would actually affect in a day. [KM]

On several occasions teachers noted it was a particular “event” that created conditions for further productive thought—and new actions. Lenz Taguchi suggests, “through everything we do we add something to the world” (2010, p. 52); one event is connected to another. Some teachers' motivation to pursue the what for, why and how would they manage or engage in everyday ecological sustainable practices with the children happened as a result of an excursion or a parting gift:

... But it was the worm farm that first started it off, wasn't it. A trip to the worm farm ... it was all new I think the recycling story ... how it started ... Papatüanuku. The recycling ... [RC]

... we got underway ... when we received a worm farm ... a leaving present from one of our families ... [MB]

Another teacher made connections with her own personal experiences as a way in to developing her knowledge and understanding of what ecological sustainability might mean in the here and now—and perhaps, the future:

... (the) lifestyle because I first was there in the 70s and you know I just loved gardening and just being in nature with children and just doing it. [Penny, RN]

Although the centres often differed in the things that motivated their interest and in their approaches to ecologically sustainable policies and practices, they all endeavoured to weave their developing knowledge and understandings into their fabric of life and way of living early childhood education in ways that made sense in their particular context. They were interested in establishing the kind of culture that enabled ways of being and becoming ecologically sustainable to occur “naturally” in the daily practices (Lenz Taguchi, 2010; Slattery, 2006). The principles of practices inherent in this approach are as essential to managing some of the challenges as they are to making a personal/professional commitment to being actively engaged in ethically determined ecologically sustainable practices; as teachers indicated:

... sustainable practice, it's what we do, all the time. [RC]

... being sustainable is a way of life. It has to be really ingrained in the programme or else it won't work. For example, there is a high turnover of children and whānau at kindergarten. We are constantly starting from the beginning again ... [MB]

... sustainability is meeting the needs of current generations without compromising the ability of future generations to meet their own needs ... and that's been the basis of what we've gone on with from there ... it's now written into our philosophy, it's written into our strategic plan ... [KM]

Creating and developing a shared professional knowledge and personal/team/centre/community philosophy that accepted an active engagement with local/global ecologically sustainable policies and everyday practices was central to this endeavour. Identifying the “need” (or the “desire”) for change towards more ecologically sustainable practices was inevitably determined by the teachers’ professional knowledge and understandings of what ecological sustainability might be. This, together with their image of what it meant to be a child in their particular early childhood context, determined how they interpreted and understood the possibilities for ecologically sustainable practice within an early childhood setting. One team used a “gardening” metaphor to articulate their philosophy:

... we believe that children are like young and tender plants and that we teachers, parents, whānau and caregivers are the loving and caring gardeners who nurture them, water them, and support them so that they can grow into mighty and fruitful trees. ‘Na te moa i takahi te rātā.’ The rātā which was trodden on by a moa when young will never grow straight, so early influences cannot be altered. [RH]

Slattery (2006) suggests that policies that promote “holistic and ecological models of curriculum dissolve the artificial boundaries between the outside community and the (centre)” (p. 216). He emphasises the importance of “teaching that celebrates the interconnectedness of knowledge, learning experiences, international communities, the natural world, and life itself” (p. 216). This can be interpreted to indicate a dissolving of the artificial boundaries that prevent children, teachers and parents/whānau and the community working—and learning—collaboratively in the shared endeavour that ecological sustainability demands. Hence, for many of the teaching teams, redeveloping a policy or vision statement at the beginning of the research project that reinforced a shared commitment to ecological sustainability acted as a “guiding light” and encouraged them to “orchestrate holistic learning experiences thoughtfully and carefully” (Slattery, 2006, p. 216) in collaboration with the children, with parents/whānau and/or with other people/experts in the community.

However, the teaching teams and the teachers within them often understood what this meant for early childhood education in different ways; another team articulated in their philosophy:

... children are our present and the future ... we aim to provide children with a curriculum that will enable them to make the most of diverse challenges in the present and the future ... [CK]

The teachers indicated in the rationale they wrote for being involved in the research that they were intent on developing (and enacting) a deeper knowledge and understanding of ecological

sustainability—and of the ecological systems theory promoted in *Te Whāriki* (Ministry of Education, 1996):

... Global warming is beginning to impact on children’s lives and will shape their future. Within the framework of our philosophy, doing our best as teachers means addressing this issue within the centre, as well as moving beyond our immediate environment to education, involvement in community projects, advocacy and lobbying. [CK, 2007]

3.1.3 *Te Whāriki* and other curriculum initiatives as frameworks for ecological sustainability in early childhood education

Philosophies and policies in early childhood education are driven by a combination of personal/professional beliefs about values about a range of things about (early childhood) education—about teaching and learning, as well as how we know and understand the world and what it means to be human (or nonhuman) living life on planet Earth—from a range of different perspectives. These are informed by particular carefully selected theoretical understandings that enable teachers to enact their personal/professional beliefs and values in ways that benefit children’s learning. Fundamental to *Te Whāriki’s* (Ministry of Education, 1996) philosophy and framework is an ecological approach derived from Bronfenbrenner’s ecological systems theory (Cullen, 2004, p. 70). Cullen suggests this approach to curriculum implementation confronts teachers with philosophical and practical dilemmas as they endeavour to reconstruct their professional knowledge in ways that enable them to work effectively within it. She explains this approach as “family focused, emphasising partnership with families, authentic assessment and learning in natural settings” (Cullen, 2004, pp. 70–71). However, this research challenged the teachers to go further than this—it expected them to engage in a process of collective inquiry that involved making changes to their philosophies, their policies and practices in ways that emphasised the centrality of ecological sustainability within a holistic sociocultural curriculum. An ecological approach was described by one team in their philosophy statement:

... where children are influenced by values and beliefs of his or her family and society/community in which they live. [MB]

The teachers revised their philosophy and vision statements to reinforce principles that valued ecological sustainability practices. They believed that a knowledge and understanding of different worldviews were important for all children, their parents and whānau—particularly in relation to Māori as the indigenous peoples of Aotearoa. They stated:

... we endeavour to honour te Tiriti o Waitangi in spirit and in practice. We are completely committed to our bicultural journey. [RH]

... our vision ... is for teachers, children, and family/whānau to learn and maintain an ecologically sustainable environment at kindergarten that will incorporate Māori ecological principles. [MB]

... we aim to involve (our)selves, children and families in community and global environmental issues to advocate for more environmentally friendly practices (for example, transition towns network, ties with Oxfam). [CK]

Although the philosophical/theoretical framework *Te Whāriki* (Ministry of Education, 1996) provides is highly valued by many in early childhood education, it has often been criticised for the lack of explicit expectation or direction that it offers early childhood teachers in relation to specific subject/content knowledge and practices. However, the Ministry of Education has a generic website, *Education for Sustainability* (<http://efs.tki.org.nz/>), that provides guidelines for all who work in education. It sends a strong message:

... Sustainability is a critical issue for New Zealand—environmentally, economically, culturally, politically, and socially. We need to learn how to live smarter to reduce our impact on the environment so that our natural resources will be around for future generations. (2010)

Such policy documents can be understood as “vehicles and instruments” of particular discourses that prescribe what is important if not essential in an early childhood environment (Moss & Petrie, 2002). These documents “paint a picture” of the desirable practices that determine what is best or wise for children and their learning. Although the research did not set out specifically to ascertain how these documents might guide and support teachers (or whether they do) with worthwhile ecologically sustainable practices, it is evident that the teachers relied heavily on principles and ecological systems theory that underpin *Te Whāriki* (Ministry of Education, 1996) as a basis for connecting their knowledge, their ideas and aspirations to implement practices in response to the ecological sustainability issues that abound in the community.

The research anticipated that any changes the teachers would make to their philosophy and policies would recognise that “education for sustainability” would offer children “learning experiences and interactions in rich environments in which nature has a central place (and) that builds (children’s) capabilities as active, engaged young citizens” (Davis, 2009, p. 228). However, for many of the teachers involved, the learning was as much about seeing themselves and parents/whānau as learners, as ethical and responsible citizens, learning—through a “green” lens, with/alongside children—as it was about the benefits to children’s learning per se. This “community of learners approach” is often transparent in their philosophical statements, in their policies and in the discourses they use to explain their practices. Although the centres involved in the research differed in the type of centre they were (childcare/kindergarten, public/private), the kind of community (urban/rural) they inhabited, there was an expectation that the teachers would incorporate and make visible how they would, in their specific environment, integrate different and diverse knowledge/s into their philosophies and policies, and consequently into their practices. In particular, that they would consider how they valued Māori ecological principles and practices and how these might be (re)enacted with and alongside other perspectives. As one team indicated:

... We thought it’s really important to us to share the stories and the legends of our local place ... even the other stories and legends like Papatūānuku and Ranganui. It’s important to pass on the local legends and knowledge of the land and each place has a significance because of its locality, and it creates an ownership and pride of place for everyone ... a sense of tūrangawaewae, a place to belong, within the kindergarten community and not

working in isolation but also working with the community. The community has a lot to offer and that's [the] value, being part of it ... This story is about the orca whales who were stranded on [the] beach last year and that was a big thing for our community ... [PM]

However, for many teachers, it was the “normalised” practices and processes of writing “philosophy statements” and of “self-review” that enabled them to ascertain the implications of “the big picture” stuff (for example, the community, climate change) and bring their values to the fore or identify their lifestyle aspirations and the learning opportunities these concerns offered in their everyday practices. These processes and practices strengthened the teaching team's commitment and supported the teachers to develop shared visions together with action plans that identified the things the team valued in relation to ecological sustainability that would support them to implement practices identified as relevant to children, parents, whānau and the community.

In another instance, the teachers articulated connections between what they were doing in relation to ecological sustainability practices with the National Heart Foundation of New Zealand's initiative that acknowledges early childhood education's commitment to self-care health practices.

Teachers consistently identified “links” with *Te Whāriki* (Ministry of Education, 1996). In particular they used the “learning outcomes” to explain the things that children did and the learning that might have occurred; in particular, children's developing relationships with people, places and things (for example, celebrating Matariki as part of their annual practices or their daily recycling and reusing paper practices). *Te Whāriki*'s (Ministry of Education, 1996) specific learning outcomes contributed to teachers' ways of explaining how they enabled children “to contribute positively to the environment”. This also involved teachers writing vision statements and/or policy and developing their philosophy statements in response to making “connections with family and community” as part of their strategy for addressing “environmental issues”. In several instances, this highlighted how they worked with the community “within the programme”. For one centre, the local community had established a recycling centre that became an important place of motivation for the teachers and children. For other centres, the (added) inspiration came from their neighbourly “Enviroschools”—several centres had award-winning Enviroschools next door whilst some were already “Envirokindergartens”. This often had the effect of enabling the school and the early childhood centre (often a kindergarten rather than a childcare setting) to build reciprocal, if not collaborative, working relationships. As one teacher articulated:

... our local school hosted the Rā Whakangāhau last year and we were invited to participate ... [we have] a really close relationship with our school, they're our neighbour ... they're right on our doorstep ... for us it was that acknowledgement about being part of the community ... being engaged ... that was incredibly valuable for us ... it was reciprocal, it was wonderful ... [PM]

Understanding the early childhood centre as being part of the community and having a dynamic engagement with that community involve developing a complex understanding of the possibilities and the potential for developing sociocultural curriculum. Dalli (2008, p. 173) notes the ten-year strategic plan (Ministry of Education, 2002) for early childhood education describes early

childhood education as “a multi-disciplinary field that draws on knowledge/s from diverse areas”, an approach consistent with *Te Whāriki*. Understanding *Te Whāriki* as “a weaving (whāriki) of experiences that are not subject-bound but arise when ... teachers are able to draw knowledgeably on insights from others with whom they might develop collaborative relationships” (Dalli, 2008, p. 173) with teachers/parents/whānau and others beyond the centre is evident in this TLRI research. As Dalli (2008) reinforces, teachers understand their professional role as including “being part of the community, making links with schools ... and making use of valuable community resources”, a role that actively supports “the life of the community” (p. 182). This being part of the community and making links with schools is also about making connections between the learning that is valued within and across these different contexts—and in society generally.

3.1.4 Resourcing—developing ecological sustainability know-how

Knowledge has the power to produce and change action. Having what is referred to as a “content” or “subject-specific” knowledge, that is, knowing something about something, being informed or having a depth of subject knowledge/s has been identified by several early childhood researchers and writers as being essential to enabling teachers to “provide children with a curriculum” that enhances teaching and learning in early childhood education (see, for example, Cullen & Hedges, 2005). Learning and teaching ecologically sustainable practices is no different; developing a knowledge about, for example, global warming and/or Māori ecological principles and practices enabled teachers to identify policies and relevant practices in response. For some teaching teams, developing an in-depth knowledge was focused explicitly on building their knowledge and understanding of tikanga Māori ecological principles and practices.

The teachers sought to resource their professional knowledge and practices in a number of ways that included a range of “extracurricular” activities:

- attending workshops: Yoga, Edible Foods or Sustainability as a Team
- consulting and collaborating with the kaumātua or other representatives of the local iwi
- working collaboratively with more expert others in the community; for example, working with parents/whānau who were expert compost makers
- developing working relationships with neighbouring Enviroschools
- participating in whole-team/Kindergarten Association relationship-building days that involved “beach clean-up” experiences
- contacting other eco-friendly groups in the local neighbourhood.

Consulting with others was, for some, an integral part of puzzling over the meanings of concepts in ways that would enable them to develop more depth—as they indicated:

... Papatūānuku is another real strength [in our] philosophy. That at the moment is in draft and we're discussing it because what does the wider concept of Papatūānuku [mean]; we could say Mother Earth but there's a wider concept to it and we need to work with all whānau and with our local iwi about what does that mean to them. [GB]

... the families that are in our community that are going the extra step, with no-dig gardens, and being self-sustainable and environmentally sustainable ... that has become deeper to me, and means a lot ... [CK]

However, how teachers in early childhood education “politicise” their approach to curriculum philosophy and theory (that is, how they take into account—and they did—the nature and evolution of, for example, capitalism’s consumer and exploitative culture (Reynolds, 2004)) is too often left up to particular teachers/teaching teams. This involves going beyond a “technicist approach” to both policy and practices (Moss, 2007). As Moss (2007) emphasises:

“democratic participation (and in the context of this research, it is import to add here, a less consumerist and exploitative democratic participation) is an important criterion of citizenship; it is a means by which children and adults can participate with others in shaping decisions affecting themselves, groups of which they are members of and the wider society”. (p. 7)

From this perspective (“green” as in an ecologically responsive), citizenship can be understood as a matter of developing community spirit as well as about being a responsible or “wise” consumer (for example, encouraging and aiding parents/whānau to buy eco-friendly goods (Fair Trade coffee or light bulbs)) and other sustainable practices (for example, saving power for the good of the environment) as well as for personal benefit (reduced family/whānau electricity bills). As one teacher stated:

... there is no question that to live sustainably we have to reduce consumption—how do you do this with kids who are bombarded with messages to consume, who regularly confuse need and want ... [CK]

Moss and Petrie (2002) suggest that children’s “spaces”—they use “spaces” as a deliberate strategy to avoid the neoliberal language of “services”—can be (or often are) “products” of public policy; that is, they are institutions, often “with narrow policy agendas (e.g., learning goals, readiness for school, childcare)” that result in a narrow curriculum focus with narrow learning opportunities for children (p. 110). It is evident from this research that many early childhood teachers are endeavouring to offer more than this, to be innovative in the way that they interpret curriculum, the way they interpret *Te Whāriki* (Ministry of Education, 1996), and in the philosophies and theories they draw on to ensure that opportunities for dynamic, value-laden learning and teaching happen—for children, parents/whānau and teachers. The teachers in this research are endeavouring to be the kinds of teachers who are able to (re)enact new kinds of education for sustainability that, as Pramling-Samuelsson and Kaga (2008) predict, “... can help prevent further degradation of our planet, and that foster caring and responsible citizens genuinely concerned with and capable of contributing to a just and peaceful world” (p. 9). A teacher indicated:

... we have high expectations of the children, even our very young ones, to care for our resources, tidy, take responsibility and this is an area that I would really like to continue working at, looking at alternative pleasures, like the joys of receiving and using an item with a history attached to it; giving home-made presents ... [CK]

3.1.5 Identifying principles important to teachers engaging with education for ecological sustainability in early childhood education

Although the centres developed focuses specific to their early childhood setting and local community, there were a number of recurring themes evident across much of the research data that stood out as being of importance or significance in regards to developing philosophies and policies pertinent to education for sustainability—in practice. These are:

- establishing an “ethic of care”
- connecting with nature
- “reducing, reusing and recycling” resources.

3.1.5.1 Establishing an “ethic of care”

Often, different members of different teaching teams had different understandings of what it meant to “care” for the environment (self and other). For some, “caring” meant children “sharing” with each other or caring for nature (growing vegetables, taking care of animals). Others who were aware of the “big picture” stuff sought meaningful ways of making sense of how an early childhood setting could be (pro)actively engaged in “making a difference” to the way we care for either our human selves and others or our other-than-human animals, places and things.

Moss and Petrie (2002) use the term “care” to refer to “an ethic, applicable to all practices and relationships within a children’s space ... (to) foreground responsibility, competence, integrity, and responsiveness to the Other” (p. 115). In the context of “caring for ecological sustainability”, the Other is interpreted as all other humans (people) or other-than-human—animals, places (the local/global environment)—as well as all nonliving things in the world. Moss and Petrie quote Readings (1997) to suggest, “children’s spaces have the possibility of being a ‘loci of ethical practices’” (p. 155, cited in Moss & Petrie, 2002, p. 115) that foster an ethic of care of all living/nonliving things, places and spaces. Moss and Petrie (2002) suggest this approach implies a “consciousness that relationships and practices that arise from being a collective setting are not just technical” (p. 115). From this perspective, the traditional practices of, for example, caring for animals, growing plants in an early childhood setting or integrating caring for Papatūānuku, can be understood as “technical”. Hence, perhaps key “questions of provocation” being asked, if not revealed, in this research might be: (a) What makes these practice(s) ethical? and (b) In what ways do they contribute to the principles and practices of education for (local/global) ecological sustainability? As one team articulated:

... we are committed to education for children and parents about and for the environment ... we want children to see caring for their environment as being a natural process and part of their lives ... [PM]

The teachers were somewhere on a journey that would challenge them to integrate an “ethic of care” that, in some way, recognised the dynamic interplay between Māori/Pākehā perspectives as well as the micro/macro: the interstitial (in)between spaces that exist between the early childhood setting, the community and the wider (local/global) world (Lenz Taguchi, 2010). An “ethic of

care” as an everyday practice, in relation to local/global environmental and ecologically sustainable concerns (and practices), can be understood as an exploration of the complex relationships between people, places and things. From this perspective, coming to know the (non)natural world, “is as much a matter of feeling as of concepts” (Hinman, 2008, p. 319); it involves a deep connection with, and a coming to know the (non)natural world in ways “that do not involve domination and mastery but rather harmony, balance, and peace” (Hinman, 2008, p. 319). As teachers explained:

... it’s that wonderful ecological feel. [BM]

... the turning point was Matariki. We learnt about and celebrated Matariki ... This strongly encapsulated our views and approach ... [MB]

However, integrating environmental education/education for sustainability into the policies, the curriculum and in the practices of early childhood education is not without its challenges. Sobel (1999) cautions that expecting young children to engage with ecological issues “prematurely” cultivates a culture of fear that results in cutting children off from possible sources of strength. He advocates policies and practices that foster what he believes is children’s natural empathy with nature. However, many of the teachers worked collaboratively with children, parents/whānau in thoughtful and careful ways that enabled children to engage with complex issues about nature, about the environment and about ecologically sustainable ways of living that were meaningful to them. They were motivated by the intent to, for example:

... involve children, families and teachers in advocacy for child, family and environmentally friendly policies and practices ... [CK]

... support children to see caring for their environment as being a natural process and part of their lives. [PM]

3.1.5.2 Connecting with nature

An emphasis in the curriculum on young children learning a “care and respect” for the environment or the “wonders of nature” is not new (Lewin-Benham, 2006; Rosenow, 2008). It is an emphasis that is often driven by a belief—or an image of the child—that suggests children have a natural tendency or affinity to bond with nature or because nature has so much to teach them (Sobel, 1999). However, more recently, for many, an emphasis on nature has arisen because of: (a) a concern for environmental issues that affect all our (local/global) lives—children’s included (now and in the future) —and are a result of our (local/global) human activity; the earthquake in Haiti being a most recent example; and (b) for many writers, a concern that many children—as well as many others in our communities/society—are, for a number of reasons, disconnected from the natural world and that this disconnection has detrimental effects—for individual health and wellbeing as well as the health and wellbeing of the community/society and the environment (Lewin-Benham, 2006; Louv, 2005; Nimmo & Hallett, 2007; Rosenow, 2008; Sobel, 1999). Louv’s (2005) popular award-winning text, *Last Child in the Woods*, suggests many children today experience “nature-deficit disorder” and calls for:

... a new ‘wonder land’ where the wild things will be: a new back to the land movement, another future, in which children and nature are reunited—and the natural world is more deeply valued and protected ... (p. 4)

Although Louv (2005) here promotes a somewhat romantic image of “the child of nature”, a focus on children—as well as teachers, and parents/whānau—(re)connecting with the values of “nature”, the natural world, the environment, the world of Papatūānuku, in meaningful ways was a big focus for many of the teachers/teaching teams for a number of different and dynamic reasons that included:

... Whakamana, respect, a mutual respect between tamariki, children and the environment. Early experiences with the natural world have been positively linked with the development of imagination and sense of wonder. Through these practices children learn about giving back to the earth. They see the cycle of growth in practical terms. Whakamana, we aim to create respect, a mutual respect for tamariki, the children, and the environment. Children develop a sense of mana ... [PM]

... Kaitiakitanga, is looking after places, things and people. We have observed our children gain a sense of pride and respect for our kindergarten environment. We believe that when children have the opportunity to engage and care for the natural environment they will gain the skills, knowledge and desire to care for it in the future. The environment is the third teacher ... [PM]

... nature helps children develop powers of observation and creativity and instil a sense of peace and being at one with the world ... The concept of a puna matauranga, growing a pool of knowledge about the world. [PM]

... over time we’ve made a conscious effort to naturalise both our indoor and outdoor environments. We’ve noticed the difference in the children’s play, in this area. They seem to be more engaged and ... it seems to be more of a calming environment. [PM]

... the natural environment stimulates social interactions between children. Tuakana teina relationships provide a model for buddy systems and older or more expert tuakana help that guides a less expert teina ... [PM]

... we just believe that wherever there’s harekeke, there’s tūpuna and tūpuna need people around them and they need people laughing and enjoying themselves and being good to each other because that’s what the tūpuna do for us and so we just believe this place is full of tūpuna who are looking after us and enjoying the children laughing and playing and singing ... and actually being near the harekeke, or maybe it sometimes [is] in the harekeke ... (BM)

... nature is not something we can own, we are a part not above the environment and have a responsibility to use the resources in a way that doesn’t damage the system as a whole ... [CK]

Nimmo and Hallett (2007, p. 1) reinforce the power of the natural world. They note, environmentalists “dream of spaces that belong to nature” to emphasise the importance of having opportunities for, for example, purposeful gardening for children in early childhood settings. They suggest the garden can be understood as a “unique place—a familiar place tamed by humans to

serve social purposes such as growing food and meaningful cultural relationships between the work of humans and the complexities and unknowns of the natural world” (p. 32). Developing a love of and commitment to purposeful gardening as an everyday sustainable practice, a way of life, of health and wellbeing, that involves teachers, children and family/whānau (inside/outside the early childhood setting) working together, was fundamental for many of the teachers:

... kids deciding that, yeah I can do real work, not dramatic play stuff all the time, I can do real work ... a real garden ... and then they go out and get the veggies for tea now. [RC]

... one dad rang me up and he thanked me for making him get outside one night and have to dig over a vegetable garden which they’d never had before but his daughter wanted to plant all her vegetable plants and now they have a regular vegetable garden. [GB]

... we always have available pots and ... a range of seeds and children go and plant up seeds whenever they want so planting happens individually ... and within our vegetable garden ... [GB]

... our vegetable gardens [are] always a source of food which the children use and also we have that free ‘anything extra goes’; whānau are welcome to take it. [GB]

Bates and Tregenze (n.d.) emphasise that the shift from environmental education towards “sustainability education has a broader context of empowering people to take responsibility for making informed decisions towards a sustainable future” (p. 1). They suggest that although the lifelong-learning approach recognises birth as the starting point for crucial learning, this has yet to happen in relation to education for sustainability. Davies et al. (2009) suggest “education for sustainability” in the early years has “the potential to foster socio-environmental resilience based on interdependence and critical thinking ... for lives characterized by self respect, respect for others and the environment” (p. 113). For one teaching team, an inclusive approach that recognised an image of the “infant or toddler as learner” and the relevance of ecologically sustainable practices to their lives was fundamental. They:

... view infants and toddlers as powerful and enquiring learners and as active members of the centre community who have much to contribute ... caring for each other, their little acts of kindness, helping, having high expectations of social conscience. [CK]

For many teachers, revisiting their understandings of nature and the environment involved increasing their understanding of what it meant to develop deeper and/or other understandings of ecologically sustainable practices—for teachers, parents/whānau and the community—that fostered both a love of and a care and concern for nature and the natural world:

... we looked at our philosophy and also reflected on how central and vital Papatūānuku is to ecological sustainability ... if we look after and respect Papatūānuku, she will look after us. [RH]

... we want them to just think about being in the bush ... we’ve been able to go up to kahikatea trees and hug them. But this is us starting to look at different places that we can go to ... I’d like to take them to the ... bush right here in the middle of town and there’s kahikatea in there ... [BM]

Several of the teaching teams actively integrating “Māori approaches to environment” into their practices sought new understandings about Papatūānuku that enabled them to be involved in sustaining different knowledges about the world. This involved the teachers finding out about:

... our mountain, water and marae ... celebrat[ing] Matariki, locat[ing] and [using] resources that support tikanga within the curriculum. [CK]

... by learning about Rakinui/Ranginui and Papatūānuku we can inspire our children and whānau to consider making ecologically sustainable choices. [RH]

3.1.5.3 Reducing, reusing and recycling resources

Recycling is a big area for education for sustainability. It is responsive to both government and local governing body initiatives to encourage “good citizenship” through “reduce, reuse and recycle” practices as a way of encouraging everyone to consider the impact our human activities are having on the environment—and on climate change (Young, 2007). Selby (2008) is critical of those who suggest education for ecological sustainability is about ecological sustainable development (often referred to as ESD) as it is more appropriate, he suggests, to describe it as “ecological sustainable contraction” (rather than development) as a way of acknowledging the urgency to “pull back”—be responsible with, take care of and use less of the world’s natural/non-natural resources. Young (2007, p. 1) suggests, “it would be irresponsible for us not to share this information with children, to give them the opportunity to learn how their actions impact on the health of the planet. This knowledge enables children to learn how to be part of the climate change solution, and teaches them that they can make a difference”. However, as one teacher indicated, it is not without its challenges:

... I continue to find it a struggle to make complex and potentially scary issues accessible to children in ways that give them the opportunity to engage and respond. My main way of doing that is to complicate their thinking when the opportunity arises ... [CK]

Another teacher indicated:

... we’re following the principles of reduce, reuse, recycle and we’ve also added conserve as something we look at as well ... there’s the ‘living the practice’ ... that we put into place that are sustainable ... [and there is] getting the advocacy out there, talking to the children about it, talking to the families about it. Explaining what it is, what it means and the importance to the environment, to us, to future generations ... [KM]

... it’s not just about recycling and reducing waste, it’s [about] how it impacts on the environment ... [KM]

As is evident, engaging in ongoing critical reflection to examine their philosophical beliefs and values added depth to their understandings—broadening their outlook in the processes and practices that enabled young children to be actively involved in these complex issues, as the teachers realised:

... reducing the amount of rubbish by choosing products for the children's lunchboxes ... also, changing the type of packaging. It is one small step towards environmentally sustainable practices but one that we can easily see results from. It is a good place to start for us to feel we are doing our bit for the environment ... [KM]

... as a team we're now into the recycling, reusing, renewing sort of mode and the thing is that it's recycling with all the sorts of paper—not just your usual recycle that you put out in the garden or at the gate for your council to collect but we're becoming really conscientious of just scrap paper. The children are now on board to put that to one side and we recycle that and we're ... taking it further and further ... [GB]

Having a knowledge and understanding that informed teaching and learning practices was as important for many of these teachers as it was that doing something could make a difference, albeit a small step. They sought the knowledge and understandings they needed to inform the decisions they made about changed practices. As one team explained, they were keen to reduce the:

... level of rubbish production at kindergarten and to help our whānau think about the choices they are making for food storage/preservation coming from home. [RH]

Teachers reiterated their knowledge and understanding to parents/whānau to ensure that they, too, understood the ecological issues at stake:

... packaging makes up 50 percent of all the plastics in landfills. As plastic is not biodegradable, this is creating a massive rubbish problem that will not go away, it will remain a problem for our children and grandchildren ... [KM]

Sharing this kind of information with parents/whānau rationalised the changed practices they expected parents to make in support of the practices to reduce, reuse, recycle rubbish within the centre. For example, "litter-less lunchboxes" required parents to use alternative wrappings/storage processes in their children's lunchboxes.

As is the tradition of early childhood education's integrated approach to curriculum (Davies et al., 2009), the strong emphasis teachers placed on reducing, reusing and recycling as an integral component of the everyday curriculum practices resulted in a variety of experiences. These were integrated within/across the learning environment, within a range of curriculum areas, in ways that permeated the culture of the centre. A few examples include:

... this is the recycling row where the children learn which things go into which bins ...

... the rubbish ... collected was sorted and made artwork out of

... we did the wearable arts ...

... we incorporate [yoga] into our mat times ...

... making our own recycling ... our recycled paper

... the children helped set up the worm farm ... we collected some juice from our worm farm

... we keep the worms moist so the worms don't dry out ...

... we made up a chart of daily chores ... planting ... watering the garden, recycling paper ...

... they use the shredder to shred the [used] paper ... they put it in the barrel then it's put into a brick maker and it makes solid bricks

... we've ... had this recycled sandpit shed made, and a parent has built us a carpentry shed out of recycled wood and corrugated iron ...

... we don't use plastic bags anymore, we provide cloth nappies, we garden, compost, recycle, children bring largely rubbish-free lunch; we buy less, use our local supermarket as much as possible, switch to eco-store cleaning products, buy 'Fair Trade' products ...

... we discussed the elections with the children and they made a banner and some posters for display that included their ideas of what was important for children and families, and we displayed that on [the] road so that the cars could see ...

... [we walk] to explore the local park ... and the shops and community and library ...

3.1.6 Conclusion

This chapter has provided an overview of teachers' voices gleaned from the research data that provided them with opportunities to articulate the philosophies and approaches that they produced as they strived to put in place policies and practices in support of environmental education/education for sustainability. Davis (2009) noted that there has been little research published that recognises "young children as agents of change around sustainability, what can be called education for the environment" (p. 235). Although children's voices are invisible here, what is visible is that the teachers in this research were working towards (some already had a sense of what this meant in practice) developing an image of themselves, the children and the parents/whānau as "advocates for sustainability" and as "agents of change". Although their knowledge and understandings of what Siraj-Blatchford (2009) refers to as a "radical engagement" in education for sustainability might entail in practice has grown throughout the duration of the project, it is not without a feeling sometimes that this is something that is "too big", something that is overwhelmingly difficult to get a handle on, to make a difference. Yet they recognise that journeying as a life and way of life centred within a philosophy that fosters ecological sustainability policies and practices—over time and across spaces—is inevitable and an ongoing collective project with lots of little steps along the way. This is best surmised through teachers' voices:

... it feels like we have only just begun as we all learn ... [we are] continuing to internally review our practices and environment with a green lens ... more networking with New Zealand and worldwide to gain and share ideas that can improve practice(s) in education for sustainability ... we have talked about using our local environment more for teaching and learning based on our research from forest kindergartens in Europe. [PM]

... we were thinking about ... how can we support others and certainly it's only an early journey for us, but a little about spreading that, and so ... we put a proposal together ... about developing an education for sustainability policy, and that's in its early stages but it

just brings that to the fore and also engaging our other kindergartens and what way we can support [them] in practical terms really ... putting ourselves out there a little more than we might've felt we were comfortable about doing ... [Senior Teacher, Tawanga Kindergarten Association]

... The concept of whakawhanaungatanga, a sense of community; through the young child we have the opportunity to influence change in family and community behaviour by involving, connecting and educating them in an environment ... and environmental awareness and sustainable practices; it is so important to create a sense of belonging, a sense of tūrangawaewae, within the kindergarten community, and not working in isolation. The community has a lot to offer that we value being a part of. Whakapapa, Māori genealogy, links us with the whenua, our land, moana, our sea, and cultural concepts working with family and whānau. And our pepeha, the children's genealogy and where that comes from increased our connections, relationships and valuing who people are and where they come from. Children see adults talking and connecting with each other which gives them a sense of mana and pride. [PM]

3.2 Te Ao Māori

Knowledge that endures is spirit driven. It is a life force connected to all other life forces. (Meyer, 2008, p. 218)

Ancient Te Ao Māori epistemology is whakapapa layered, the domains of Te Ira Atua (godly element), Te Ira Tangata (human element) and Te Ira Wairua (spiritual element) an interwoven multidimensional merging.¹ Whakapapa (origins) conceptually embody Māori perceptions of the relationship of the individual in connection to all other things. It is a kaupapa attained and realised through Māori pedagogical processes, one which acknowledges a whakapapa that connects Māori to all things that exist in the world: "We are linked through our whakapapa to insects, fishes, trees, stones and other life forms" (Mead, 1996, p. 211). Knowledge of whakapapa establishes one's tūrangawaewae, a place of belonging connecting mokopuna to tupuna, whānau, hapū, iwi and whenua, and to the universe. Mokopuna are the imprint of their tupuna, whānau, hapū and iwi (Ka'ai & Higgins, 2004). Māori knowledge, values and beliefs are bound in the procreative pūrakau/Māori reality. It is a narrative that highlights qualities of integrity and relatedness to Ranginui and Papatūānuku, to an intertwined spiritual and cultural relationship with nature. It is within these embedded energies and aspects that Te Ao Māori ecological principles reside.

Seers and sages of our Polynesian ancestry from past centuries had already discovered the new concepts of the universe being promulgated by 20th century physicists. Māori Marsden (2003, p. 65) a Māori tōhunga/seer highlights an important difference, that of a Māori world that recognises "three realms (the three baskets of knowledge) as an integrated whole, the basis for the holistic approach of Māori to his environment". Within the three realms of the three kete (baskets) of knowledge (Tua-tea, Aronui and Tua-uri) is encompassed a Māori worldview that incorporates

¹ These were previously discussed in *Te Ahutangä o Toku Whānau* (Rau, 2002).

a complex matrix of relationships inclusive of land, rivers, mountains, lakes and seas as tūpuna (ancestors). Rituals of reciprocity underpin this interwoven interconnectedness (Marsden, 2003). An indigenous Māori worldview also aligns sustainability with hauora (holistic wellbeing and balance with the natural environment) and rāhui tapu (conservation). This evolutionary framework positions social, cultural and ethical values amongst hapū and iwi as potentiality towards caring for each other and our planet.

Relevant to this in Aotearoa is Te Tiriti o Waitangi which acknowledges the unique relationship Māori have with the environment. Māori are guaranteed the undisturbed possession of their lands, forests, seas and fisheries and promises that the Crown will uphold the self-determination of tribes over their lands and taongā (treasures). In the spirit of the partnership of Te Tiriti o Waitangi Māori are integral to managing and developing an appreciation of the natural environment's spiritual significance and its importance in maintaining cultural identity. Marsden (2003, p. xiii) articulates the world as being “rhythmical patterns of pure energy”.

3.2.1 Kaupapa Rangahau

Our concern, therefore, should be to pay attention to how this fabric is woven, and the nature of our place within it. (Marsden, 2003, p. xiii)

The kaupapa of this section reports kairangahau (teacher co-researchers'), tamariki and whānau kōrero in response to a key question which asked: How might Māori ecological principles inform and impact upon the progression of sustainable outcomes for teachers, children and whānau? Navigating through Te Ao Māori to identify those principles and practices, kairangahau endeavoured to build and strengthen knowledge and understandings of Māori ecological principles to further develop and/or modify learning and teaching more focused on sustainability. The kairangahau focuses validated and highlighted indigenous worldviews, potentialising re-narrativising illuminations in facilitating shift towards the visibility and validation of Te Ao Māori (Ritchie & Rau, 2010). Te Tiriti early-childhood-based services in Aotearoa New Zealand exist within the tensions of colonised boundaries. This research project renegotiates the spaces as potentiality for counter colonial narratives (Rau, 2008).

3.2.2 Theorising Te Ao Māori ecological principles and early childhood education

Some kairangahau in configuring possibilities for enhanced global environmental sustainability in early childhood education initially approached integrating Māori ecological knowledge beliefs, values and systems with diffidence. Service/centre co-researchers articulated themselves as representative across the continuum in terms of Te Ao Māori ecological domain knowledge and understanding sustainability. Narratives gathered from kairangahau, tamariki and whānau are reflective of this:

I think there is a natural Māori kaupapa around the sustainability project at CK. We don't only educate about manaakitanga [care of the land] but also about whakawhanaungatanga [care for people]. [CK]

We still need to do a lot of work to really make bicultural approaches a living/breathing part of the centre. At the moment it takes conscious effort to make progress in this area ... [CK]

The focus we have on education for sustainability has naturally created kaitiakitanga and manaakitanga with families, children and teachers. [PM]

If we hadn't had the challenge of bringing in a Māori component to the project, it just would never have had the depth, the emotion, the identity and the wholeness that weaving te Ao Māori has accorded. [RH]

Papatūānuku is the Earth Mother, and the things we get from the Earth Mother are what we call the Gifts of Papatūānuku. [KM]

3.2.3 Mai ra no—ancient futures

Mua Te Whaia, Muri Te Taea

Using the past to describe the present

(Te Taura Whiri i Te Reo Māori)

Durie (1997) uses the above whakatauki to introduce the significance of Māori cosmological theories. Reconnecting to the ancient narratives is to traverse time:

The classical narratives take many complex shapes and turns before arriving at the whakapapa or genealogy of human beings. Buck (1949, p. 433) cites three distinct states which follow in sequence: the creation of the world (cosmogony), the creation of the gods (theogony), and the creation of human beings (anthropogeny). (Durie, 1997, p. 142)

Te Ao Māori ancestral interconnected relationships comprise embedded reciprocal responsibilities, a conscientiousness to uphold the wellbeing of individuals and the collective. Māori ecological principles are sited within these mutual responsibilities, a matrix of interdependent relatedness and answerabilities. Kairangahau across the country looked to the past, searching Te Ao Māori knowledge and understanding. One centre in particular posed themselves a research question: By learning about Rakinui/Ranginui and Papatūānuku can we inspire our children and whānau to consider making ecologically sustainable choices? [RH] These kairangahau shared their praxis:

We consulted with Huata Holmes, our kaumātua, for guidance, expert knowledge and inspiration. The Southern Māori perspective or 'flavour' is important. Lee Blackie, our Senior Teacher, accompanied Huata and gave us a practical aspect that could sit side by side with Huata's ideas. In order to add authenticity and depth we arranged for Huata to come and narrate his southern mythology/stories/pūrākau to the children and whānau (Communication/Mana Reo Goal 3: hear a wide range of stories, *Te Whāriki*, p. 59) as told to him as a child by his grandmothers and great grandmothers (Holistic Development/Kotahitanga: recognition of the significance and contribution of previous generations to the child's concept of self, *Te Whāriki*, p. 41). Huata's kōrero was excellent and by working together we have achieved more of a shared understanding. He told of the great waka of Aoraki coming through the sky down to the South Island. He also used the waiata Hōea te Waka to support his kōrero. This has become a real favourite. His kōrero has supported our teaching of the importance of Papatūānuku in our lives. [RH]

Huata's intergenerational kōrero is specific to Southern hapū and iwi. It is also reflective of Māori pedagogy, the seer sharing his wisdom in retelling a narrative from past generations. Kaumātua are uniquely positioned in Te Ao Māori, they are recognised for their stewardship of iwi narratives:

The old people were never put aside. They were the professors, te tohunga of Māori education in all fields. At a very tender age we would be taught about the sea and its many functions. We learnt to be in awe, to respect, to honour and to be very grateful. The sea yields good and healing for the body. We were taken to the sea to study the many signs of nature applying to the very safety of humans going out to do deep-sea fishing, to watch the seabirds and to listen to their noises, to watch the clouds—if the sky is clear, you are quite safe; if the wind is more vigorous, make for the shore. (Edwards, 1990, p. 12)

The *Te Whāriki* (Ministry of Education, 1996) Te Tiriti-based partnership approach celebrates a collaboration in which Te Ao Māori authenticity is valued as a source of inspiration in early childhood teaching and learning. Collaborative negotiated stories as strategies enacted have the power to be transformative, especially in reshaping Western research cultural spaces into Māori research cultural spaces with explicit Māori meanings and constructs (Ka'ai, 2001, p. 220). Huata's narrative is representative of the collective knowledges of indigenous peoples, oral traditions ensuring that these knowledges have been sustained over time, and that therefore "as we integrate new knowledge, it is we who give it life that it may sustain life" (Webber-Pillax, 2001, p. 169).

Kairangahau from different centres were proactive in finding multiple pathways for tamariki to engage with the cosmological narration:

We began by telling a simplified version of the story of Rakinui/Ranginui and Papatūānuku. This was done at mat time using a piece of paper folded into three parts horizontally. The top part was coloured in with blue pastel in front of the children, who guessed that it was the sky. The bottom part was coloured in brown and the children guessed it was the ground. The middle part was not initially shown but was described as a dark, wet place with no light or warmth and this is where the children of Rakinui/Ranginui and Papatūānuku lived. [RH]

Children play with natural materials and hear/tell stories about their natural environment and learn about caring for Papatūānuku. [RC]

We had been planning an excursion to a local beach, partially to collect natural resources for creative work back at the kindergarten. The day before, we talked to the children, at mat time, about the gifts of Papatūānuku and how we should show respect while gathering resources. This was begun by a brief relating of the creation story about how Papatūānuku and Rangānui were separated. [KM]

I think this is evident in attitudes towards care/guardianship of the earth—composting and gardening/harvesting. [CK]

The creation narrative, it's the foundation of everything we're doing. [RH]

The classical kōrero pertaining to Ranginui and Papatūānuku created significant links to Te Ao Māori, kairangahau and tamariki from centres forging new relationships and experiences with

Ranginui, Papatüānuku and ngā atua. This validates Māori connectedness to the whenua, stating its relevance in shaping thinking and actions:

By teaching the children about the importance of looking after Papatüānuku, they are learning, thinking and teaching others about the conservation and protection of the taoka/taongā of the land. The whenua is of utmost importance in the production of food, which affects us all. It is about our wellbeing. This is empowering the children to learn to become the kaitiaki/guardians of the land. [RH]

Like the team at Richard Hudson Kindergarten, many of the kairangahau sourced Te Ao Māori inspirations from the past to position themselves in the present whilst looking forward to the future:

Talking about the Earth as an entity (Papatüānuku—the Earth Mother) and the Gods who are guardians of various areas, such as the forest and sea (Tane and Tangāroa) gives the children a concrete focus for caring for the environment and all living things in it. [KM]

Papatüānuku (Earth Mother) and Ranginui (Sky Father) look after all of us. The sun, wind, rain and air look after the plants that look after us. We are nurturing our tamariki to look after their environment. [HW]



Tamariki at Hawera Kindergarten weeding raised garden beds

3.2.4 He arahi tapu—sacred pathways

Journeying within Te Ao Māori is to experience “wairua”, an uplifting of spirit or “hau, (the breath of the divine spirit) ... the source of existent being and life. Mauri ... the elemental essence imparted by Wairua” (Marsden, 2003, p. 47). Mihipeka Edwards upholds this whakaaro: “wairua emanates from the beginning of time and never changes. Everything and every person has wairua and mauri—your spirituality and your life force—they are something you are born with” (1992, p. 55). Wairua symbolises the significance of intertwined relationships and interconnectedness to all things. Rangihau (1975, cited in Ka’ai & Higgins, 2004, p. 22) states that:

... through the centuries the Māori has been close to nature. People who live in this way apply to nature and to things around them this feeling of aura. In the case of Māori, they give everything a mauri and this takes them into the world of conservation and being very much aware of the environment and how much they owe to their environment. So they do not create an imbalance.

Kairangahau shared narratives from their centres that spoke of wairua, of deepened relationships and new insights towards conservation:

Papatūānuku (Earth Mother) and Ranginui (Sky Father) look after all of us. The sun, wind, rain and air look after the plants that look after us. We are nurturing our tamariki to look after their environment. In caring for our natural environment, the tamariki are developing respectful relationships with nature whilst nurturing their health, wellbeing and wairua (spirituality/soul) within. The children freely interact with our garden to express their inner thoughts and emotions. Sadly, we lost our pet rabbit, Misty. The children miss our pet rabbit and often pick flowers from our garden or theirs and lay them on the ground by Misty. [HW]

Again the Māori cultural, spiritual element helps to make the ideas relevant—children can understand about rubbish being bad because we need to keep forests, waterways and the seas clean. It also becomes an holistic concept as we are not just talking about our kindergarten or the immediate environment surrounding it but all forests and seas. [KM]

Ancient Māori narratives acknowledge the recognition of atua and karakia by some iwi and hapū (Reilly, 2004). At Hawera Kindergarten (in)tangible wairua resonated in karakia to the atua Tāne Mahuta:

Our little pot plants had finished flowering so we recycled them by transplanting succulents in the pots. First we had karakia to acknowledge Tāne Mahuta, then broke off pieces of the succulent plants, sat them in the pots and watered them. The children carried river stones from the gravel pit and poured them into the planter boxes. We talked about gardening, looking after the plants, where the stones came from and experienced the mauri (life force) in the plants and stones. It was a good team effort. When we had finished, the children admired their work. When one works with Papatūānuku, one can find it relaxing and peaceful. It teaches patience and nurtures the soul. [HW]



Tamariki from Hawera Kindergarten experiencing the wairua of Papatūānuku

Kairangahau transcendental reflection emerges from within the rituals shared alongside tamariki, the mauri of the plants, stones, kaiako and tamariki intertwined.

3.2.5 Te Maramataka—Māori calendar

How was the maramataka guiding, helpful? ... it brought the 'past' to life for us in a succinct and purposeful way. [Judith Nowotarski, HW]

The maramataka might be considered as a sacred pathway. Traditional Te Ao Māori understandings about astronomy were vast. Williams (2004, p. 40) describes it “as an extensive body of knowledge of the celestial realm, only some of which survives ... Māori grouped stars in constellations ..., understanding the movements of the stars and planets. The astronomical knowledge was important for the division of time and the maramataka (the Māori calendar).” Specific to the maramataka were special names for each night of the astral month. The maramataka held knowledge of: “The suitability of a particular night for such things as planting crops, fishing, hunting birds, gathering wild crops and harvesting resources” (Williams, 2004, p. 40).

Hawera Kindergarten focused on “Ngā Marama Māori o Te Tau, the Māori months of the year, kaupapa Māori and Western perspectives on sustainable ecological practice within our kindergarten programme”. Kaiako highlighted their connectedness to the inherent qualities of the maramataka, describing them as “almost like a whakapapa in itself for us to follow ... you know

this is what happened in our tūpuna’s time”. In reaching to the past Hawera Kindergarten kairangahau, tamariki and whānau experienced Te Ao Māori planetary rhythms imbued with rituals, relationships and wairua. The kupu Māori and descriptions are expressive with rich imagery:

Hōtoke/Takurua

Winter

PIRIPI—JUNE

- All things of the earth are contracted owing to the cold, as also the people.
- For Māori this meant ...
 - Bird snaring and rat trapping
 - All game was preserved
 - Moki, warehou and kakahi mussels were collected
 - Breaking up new ground for planting of crops began
 - Fungi was collected for medicinal purposes. [HW]

In Hongōngoi/July the kairangahau highlighted the centre focuses:

We are learning about sustainability through traditional Māori practices. We are including a focus on rongoa (traditional Māori medicine) and how important Papatūānuku (Mother Earth) is in the Māori world. To support this, we have been reading a story book called *Koro’s Medicine* (Drewery, 2004), with the children. It tells of a boy’s holiday with his Koro (Grandfather) and how Koro passes the knowledge of rongoa down to his mokopuna (grandson).

Koro’s Medicine is richly imbued with Te Ao Māori values and beliefs, a literary counter-colonial narrative. This notion is discussed further in the following section.

3.2.6 Te Ao Māori narratives as disruptive

This section of the report focuses on “Using stories to disrupt colonial discourses” (Rowan, 2009, p. 127). Rowan states that:

Stories ignite the imagination, offer cautions, reveal histories, detail cultural knowledge, clarify family connections, articulate sacred beliefs, complicate understandings, expose scandals, record daily life, support us in understanding who and why and where we are, and stimulate us to dream of new challenges. (Rowan, 2009, p. 127)

The tamariki of Hawera Kindergarten were responsive to the story book *Koro’s Medicine*. *Koro’s Medicine* privileges Māori pedagogy, in offering an intergenerational model, the wisdom of the koro renewed with the mokopuna. In this part of the story Tama is gaining access to a new body of knowledge and is beginning to see a differing world through the lens of his koro as he begins building a new relationship to Papatūānuku. The new learning is emergent, arising with Tama’s unwellness.

In the holidays, Tama goes to stay with his Koro. When Tama arrives, his new shoes have given him blisters. Koro has a look, then uses the sap from the Harakeke plant to make it better. Tama is surprised it works. This is different medicine to the doctor's at home. While on holiday, Tama also falls off his bike, gets mosquito bites, a runny nose and a headache. [HW]

Koro is powerful in the following narrative—he is practising an effective indigenous health system aligned with what Papatūānuku teaches us:

Koro teaches his mokopuna (grandchild) about rongoa (Māori medicine) by using the plants in his garden and from the bush, to heal him. Koro's rongoa makes Tama feel better. Koro's knowledge of traditional rongoa has been passed down to him from his tūpuna (ancestors) and must be used carefully. It is important to wash your hands after applying some rongoa. [HW]

Respect for Tāne Māhuta is integral to a Māori paradigm; Koro softly speaking to Tama about the Māori medicine to be found as treasures from Tāne. Koro is speaking to Tama from his personal truths, his Te Ao Māori truths. This kōrero has potentiality to challenge colonised consciousness (Rowan, 2008, p. 130):

Koro takes his mokopuna for a walk in the Bush. 'Here,' said Koro in a whisper, 'these are the treasures of Tāne.' 'What do you mean?' Tama asks. 'There's plenty of rongoa here,' said Koro. Mokopuna puts his hand in Koro's. [HW]

Te reo Māori is integral to Te Ao Māori whakapapa relationships. "The link of the language to the land is unmistakable. Indigenous languages are intertwined with nature" (McIvor, 2005, cited in Rowan, 2009, p. 136):

As Koro talks with his mokopuna, he is passing on the traditional knowledge his tipuna have given to him. The bush is an integral part of Māori life and health and well being. Koro is teaching his mokopuna how to care for Tāne Mahuta, the Bush. By remembering the old ways of the Māori, Tāne Mahuta will always look after Koro, his mokopuna and their families. [HW]

Indigenous narratives validate Te Ao Māori ways of knowing, doing and being. Hawera Kindergarten has transgressed dominant cultural constructs by privileging Māori belief systems. The tamariki viewed rongoa as healing and were able to discern that, although there were different health approaches, both systems worked:

The teachers have continued to read *Koro's Medicine* and focused on different aspects of it, then linked it to different things relating to rongoa. When Judith read the book on this occasion, the children were making links to the story about how their families treated their cuts, sores and illnesses. Some children showed Judith some of their sores. Koro's medicine was very different to Mum's band aids and medicines from the chemist. The children could see that while there are different remedies, they both worked. [HW]



Judith and tamariki, re-centring Te Ao Māori knowledge systems

Joy from Hawera Kindergarten later shared a narrative from a book that has collated Taranaki kaumātua rongoa stories:

One of the things we noticed as we talked about rongoa was it always referred back to kai, the cultivation and gathering of it. So Joy shared a book with the children about local Taranaki people and their healing stories. This book was called, *Matarakau. Ngā kōrero mō ngā rongoa o Taranaki. Healing stories of Taranaki* (Tito, Pihama, Reinfeld, & Singer, 2007). She focused on one local kuia who grew up at Rangatapu, our local beach. [HW]

This was a personalised story, the kairangahau were related to the kuia. Joy became the intergenerational co-creator of Te Ao Māori environmental knowledge to the tamariki:

Kui Trish [relates how], ‘she grew up at Rangatapu, Ohawe Beach. Life was simple and they were always well fed. The gathering and growing of kai by her parents and whānau was her rongoa. Their wellness as children was dependent on fresh air and food that had been either gathered from the sea or collected from the homegrown gardens. Kai was gathered and preserved. Everything was dried including dried whitebait and mussels. They made jams and pickles.’ She remembered her kuia walking down the hill with a kete kai moana to gather kai. They wove their kete with harakeke that grew nearby. Kai was gathered daily. Karakia was said before gathering kai. They learnt the sounds of the sea, the signs of the incoming tide and the swiftness of the sea against the rocks. This was time to leave, even if their kete were not filled enough. They also gathered driftwood for the home fires. Whilst Kui Trish didn’t have native bush around them, she acknowledged she has little knowledge about leaves used for rongoa. However, living at the beach provided all their rongoa. [HW]

The koro and the kuia, in naming places, in reciting their whakapapa connections to specific areas, to environmental resources and in articulating the kōrero that connects them, reaffirm their connectedness to whenua, awa, marae, maunga, whānau and hapū. Te Ao Māori is repositioned to the centre, validated and visible, an interruptive force.

3.2.7 Kaitiakitanga—an ethic of stewardship

Kaitiakitanga is a traditional cultural system that upholds ecological conservation. The term “has come to encapsulate an emerging ethic of guardianship or trusteeship, especially over natural resources” (Benton, Frame, & Meredith, 2007, p. 90). In Te Ao Māori, an important understanding promulgated by many iwi is that of reciprocity, and the active engagement of caring *for* rather than merely caretaking of taonga (Waitangi Tribunal, 2004).

Kairangahau from the centres shared narratives reflective of nurturance, of caring, responsive relationships with the environment, whānau and each other. Koromiko Kindergarten began exploring the concept of kaitiakitanga. They asked questions and formulated a process. Kairangahau drew sustenance from their centre whakatauki:

*Manaaki whenua. Manaaki tangata. Haere whakamua.
Care for the land. Care for the people. Go forward.*

This is the whakatauki that informs and guides our research. With the principles of Education for Sustainability, we want to practise ourselves, and promote the idea for our tamariki and whānau, about being guardians/caretakers (kaitiaki) of our land and living things. It applies directly to caring for the kindergarten grounds and pets but also to the wider environment ... [KM]

I think this is evident in attitudes towards care/guardianship of the earth—composting and gardening/harvesting, how we encourage children to take care of their surroundings/toys (although this is challenging at times!), the care children take of each other (tuakana taina).

For Marina Bachmann of Collectively Kids Childcare and Education Centre, reading about Māori ecological beliefs supported and added another dimension to her previously held views:

In terms of sustainability I think (from reading I have done) that our approach to care of the environment is fairly compatible with Manaakitanga and Kaitiakitanga. I personally believe that nature is not something we can own and control. We are a part of (not above) nature and have a responsibility to use resources in a way that doesn't damage the system as a whole. If we don't take this responsibility seriously it is likely to cost us dearly. [CK]

At Belmont Kindergarten Te Kupenga it is the Te Tiriti-based partnership of teachers Pat and Pera who respectfully weave respect and reciprocity amongst tamariki, whānau, a stewardship of honouring the mauri and mana of tangata:

Working with Pat, she's just the mentor, a guide, a mother really and helping me in every way of my teaching. Our styles are different but yet we can combine them together as one and Pat's right. I come from a perspective and when you come from there, it's all about your marae, the styles that you've lived on your marae. I think it's all about whakapapa, history, our own family philosophy that we've been brought up in, grandfathers' teachings, and holding on to those treasures that we've been handed down. Whether it be material or whether it be words. We kind of combine together and gel as one. It's been special for me because I've had a pretty rough road but I can say this, I've found my place. This is my tūrangawaewae. I can be me. I can be, like what Pat says, 'he wahine toa Pera'. But I

always said to myself ‘but we’re both that’. I can’t be one without the other, it’s all about team work. [Pera, BM]

Pera acknowledges the relevance of being accepted for who you are and what you bring to an early childhood education setting. Her statement highlights implications for tamariki in services/centres who are not able to articulate this and whose cultural contexts are a mismatch with the centres they attend.

Papamoa Kindergarten prioritised Te Ao Māori values and beliefs as integral to their ecological journey, a holistic kaitiakitanga approach:

Kaitiakitanga—looking after places, things and people. Children have shared responsibility to look after our place. This is valued as real work. [PM]

Validating environment as teacher, Papamoa kairangahau instil a sense of caring for the environment within the centre:

Using the environment as the third teacher as a learning opportunity in each space. So in our environment we have gardens that are sensory, edible, native and flowering. We have composting and recycling systems including water conservation and eco systems. Through these practices children learn about giving back to the earth. They see the cycle of growth in practical terms. It is very important to us as a team that people feel our mauri (essence), aroha (love) and that the concept of turangawaewae (a place to stand) is nurtured, because we value the connections with the family and our environment. [PM]

3.2.8 Manaakitanga ki Te Ao Māori

The kupu manaakitanga is related to mana, a word associated with positive qualities focused on the nurturance and wellbeing of others. Qualities associated with manaaki are aroha, hospitality, kindness and respect and a responsibility to uphold whakapapa obligations. Durie explains:

A Te Ao Māori traditional paradigm prioritises the principle of ‘manaakitanga’, with an emphasis on individuals being responsible for the collaborative upholding of mana for the benefit of all. (Durie, 1997, p. 142)

The team at Collectively Kids viewed manaakitanga as a holistic responsibility to the whenua, to tangata and to Māori:

I think that there is a natural Māori Kaupapa around the sustainability project at C.K. We don’t only educate children about ... manaakitanga (care of the land) but also whakawhanaungatanga (care for the people), teaching children about other people around the world, and cause and effect. When educating children about ... manaakitanga there a sense of governorship we are advocating for which also helps us uphold the Māori treaty principles. [EM, CK]

Meadowbank Kindergarten supported an honouring of the atua Tāne Māhuta at the local marae:

(Teachers and their families/friends) turned up to a tree planting day at Orākei Marae ... we hope to make this an annual event with more families coming along next year. [MB]

Manaakitanga is reciprocal, Meadowbank Kindergarten making a responsive contribution to Orākei Marae thus honouring and upholding the mana of Meadowbank Kindergarten and tangata whenua. The koha of a waiata is a gift with potentiality to generate collective joy:

We sang the song we had been practising at kindergarten. We learnt some of the carvings and that the Orākei Marae is a national marae for everyone. The boys were taught a haka. [MB]

At Raglan Childcare and Education Centre the kairangahau shared a tamariki narrative that expressed a heartfelt connectedness to nature, a deep caring for the pūrerehua:

We have been learning lots about the life cycle of a butterfly lately. T gently holds a butterfly on his hand telling us ‘Don’t touch its wings or it will die.’ Lots of children gather round to see and tell us about monarch butterflies they have seen. [RC]

Kairangahau kōrero acknowledges T’s manaakitanga:

Learning outcomes: T shows care and respect for living things. T shares his knowledge of living things with his peers and adults.



T and the butterfly

The above narratives are representative of the many stories of manaakitanga gathered by kaiako, tamariki and whānau.

3.2.8.1 Manaakitanga ki te Kiingitanga

Galbraith Kindergarten is located in Ngāruawāhia and teachers from here have contributed to the previous research projects, Whakawhanaungatanga (Ritchie & Rau, 2006) and Te Puawaitanga (Ritchie & Rau, 2008). Throughout the years kairangahau have prioritised Tainui as the mana whenua, supporting the rituals and protocols of the Kiingitanga.

The Kiingitanga movement arose as a response to colonisation:

At the heart of the problem was land. Māori did not see land as a commodity that was bought and sold. Land had mana, it had a spiritual as well as practical value and ownership was complex. When the European settlers saw New Zealand's landscape, they saw forests, farms, mines and cities. (<http://www.kiingitanga.co.nz/history.asp>).

The current monarch, Kiingi Tuheitia, is the seventh. His Koroneihana (coronation) took place on 21st August 2006. He is the eldest son of the late Queen Te Arikinui Dame Te Atairangikaahu and her husband, Whatumoana Paki (http://www.kiingitanga.co.nz/meet_the_king.asp):

Today, the Kiingitanga continues to uphold enduring ideals, customs, traditions and principles. Its priority is listening to the voice of the people; to support freedom of worship and speech, and to work together so that Māori and Pakeha can live in harmony. (<http://www.kiingitanga.co.nz/history.asp>)

Manaakitanga of the Kiingitanga is highlighted in Galbraith's programme philosophy and validated in their praxis: "We acknowledge that we are in the heart of the Kiingitanga" [GB]. These kairangahau seek to uphold a unique whenua-based, place-based relationship, in celebrating the Kiingitanga and Tainui waka.

3.2.9 Waiora—life-giving waters

Te Ao Māori values and beliefs recognise water as healing, as life giving. The team from Richard Hudson Kindergarten symbolically included water in its metaphor for their research process:

The seed of this research has been planted, is being watered every day and is growing. Right from the start we decided that whatever direction we went in and whatever teaching and learning happened with the children, it had to be done gently and in a way that encouraged empowerment and positivity. We have focused on this positive aspect to our study to avoid creating guilt and fear. [RH]

The concept of water connected to growth, to wellbeing, to gentle fluidic process is a significant recognition of water's imbued qualities.

Kairangahau from Papamoa Kindergarten highlighted a Te Ao Māori concept of Ranginui and water, a precious gift from the ancestors:

We believe as a team that water is a great teacher. Children learn that water as a Māori concept 'taonga tuku iho' is a precious resource with our water recycling system. Water is collected off the roof in a barrel then children pump the water across the grass area in to the sandpit. They have a gauge that shows them how much water is in the barrel. Children then can decide how the water will be used. We talk with them about using vessels to catch the

water and we have provided tarpaulins for children to use to hold the water. Children will teach and learn from each other how the system works, telling each other when to turn taps off and pump more water. [PM]



Water conservation at Papamoa Kindergarten—caring for Ranginui

Tamariki anchored their respectfulness for water as a taonga of the ancestors through building a relationship grounded in caring and conservation. There were tamariki and whānau narratives from across the centres expressive of experiences with the moana, the awa and with Ranginui.

3.2.10 Te Ao Māori counter-narratives

Validation of Te Ao Māori was evident in tamariki kōrero across the centres. This counter-storying was expressive of Māori ways of knowing, doing and being. Joy from Hawera Kindergarten opened a window into her whānau life and took us to Papatūānuku, Tangaroa and Tāne Mahuta. Through the lens of a tamaiti, he kai Māori is articulated:

My Nanny B and T have a garden ... they grow tomatoes and spuds ... they take the weeds out so they don't make the spuds die! They also grow mint and silver beet so we can mash them in to our kai. My Koro and my Nanny go to the beach and get kai from there. My Koro dives in the sea and feels under the rocks to find pauas ... sometimes kinas and mussels. Koro takes me fishing but we haven't caught a fish yet! We go to catch eels at night in the rivers, with a long knife—I have caught one! When I have a headache my Nanny and Mum tell me to lay down where it's nice and quiet so it goes away ... and it does! [K and his whānau, HW]

K said this about the drawing he did with his mum ...



K and his picture of kaimoana

That's me fishing and that's my Koro. I'm catching a fish with my rod, and there's kinas and pauas and eels. My Mum did the fish and I did the rocks. Koro goes in the water and gets them.

At Belmont Kindergarten Te Kupenga, the kairangahau uphold Māori values of rangimarie, tūrangawaewae and whanaungatanga as integral to building closeknit, heartfelt relationships:

Once you've opened up one heart, you'll open up many and the children that come here, the parents, everybody and then you extend out to the grandparents and they feel that they have a special place here. They mihi too every morning but that empowers the kuia to know that, 'Yeah I feel special here, this is my tūrangawaewae and I'm proud to be here.' So they bring more mokopuna! The word gets out. They keep coming back, coming back. It's that puna of love. Love, respect, rangimarie. Everything our philosophy is all about. [Pera, BM]

A Māori concept of collective sharing was encouraged and practised at Papamoa Kindergarten:

Tohatoha—sharing excess. We harvested our vege garden. Usually we cook food but the enviro group decided to have a market day to show the community some of what we grow and make. We had made recycled paper bricks, recycled paper and worm wees. People brought in excess fruit and vegetables from their garden, local businesses donated vegetables which were in abundance. Children harvested, washed and bundled vegetables. We cut harakeke from the front garden to tie our herbs and veges with. [PM]

Matariki became a familiar Te Ao Māori kōrero, Maungatapu Kindergarten kairangahau describing what happened at their centre:

During mat time today we read the story of *Matariki* (the Māori New Year) which talked about a celebration to welcome the new growing season with a feast. The children decided to go fishing to catch fish for our feast. A large number of children made fishing rods and fish using the glue guns. There was a lot of collaborative support and assistance as the rods were made, also some awesome imaginative play with sea creatures floating past the fishing people. The children have gained the concept of gathering kai maona as a means of sharing with the group to celebrate Matariki. [MT]

3.2.11 He Whakaaro

What did I learn? I learnt about why I knew the things I knew—why they were familiar to me and I wished I had listened better ... [Judith Nowatarski, HW]

These educators' involvement in the study “Titiro Whakamuri, Hoki Whakamua” has reconfigured possibilities for enhanced global environmental sustainability, as learning was gained from the educative input and praxis of Te Ao Māori knowledge beliefs, values and systems. With global and local spaces and places in need of protection and restoration, kaitiakitanga (guardianship) has provided optimism with regard to possibilities for making a difference. Aotearoa early childhood education is a site of potential, a setting in which indigenous ancient wisdoms when valued and nurtured give voice to resonate powerful shifts:

The understanding of Papatūānuku is an abstract concept that the teachers at times find difficult to impart. However the children were able to grasp the notion of ‘the earth’, its land, rivers, mountains and valleys through a concrete reality. Through using teaching strategies and concepts such as the ‘treaty’, recycling, and walking around Mauao we were able to weave an understanding of Papatūānuku by encouraging the children to become in awe of nature through these experiences. By focusing on the reasons for recycling through real examples such as the wormery, recycled clothes day and supplying selected rubbish bins ... the teachers observed that the children responded to the concept from a different viewpoint. The care of Papatūānuku became an individual and group responsibility and this shifted the responsibility from the teachers enforcing rules, to empowering children to take ownership for their actions and this changed the motivation for the children. We observed children peer-monitoring each other regularly and role-modelling our agreed options. The children’s attitude and willingness shifted from an inward focus to starting to look outwardly—seeing beyond oneself, empowered by the importance of their contribution and responses. By creating a sense of endearment to Papatūānuku the children have an affinity and nurturing attitude, seeing and understanding the value of care and protection to Papatūānuku. The team philosophy valuing relationships has been transferred to the children in our responsibly and interconnectedness to the living and nonliving world. [MT]



Hikoi ki te Maunga o Mauao

Decolonising New Zealand requires Māori, indigenous to Aotearoa “to decolonise our minds, to recover ourselves, to claim a space in which to develop a sense of authentic humanity” (Smith, 1999, p. 23). However, equally important as liberating Māori psyche from imposed Eurocentric constructs is that of mobilising Tauīwi/Pākehā thinking beyond the colonialist mindset. As a nation, for groups and individuals to truly shift towards a counter-colonial era we will need to continue to undertake journeys of introspection (Lang, 2006).

The beginning of the research project had an impact in a number of ways: We began to think about how Māori values, practices and culture tie in with the principles we wanted to promote. The concept of kaitiakitanga (being guardians over the well-being of the environment and the creatures in it—including us) gives a holistic view of what we are doing ... We can see our mountain Mt Taranaki/Egmont from the playground. It is a symbol of our province and very important to the people of Taranaki and, particularly, the local iwi. When looking at environmental issues, it is an ever-present reminder of what we are wanting to preserve. [KM]



Tūpuna Maunga—Taranaki as seen from Koromiko Kindergarten

By teaching the children about the importance of looking after Papatūānuku, they are learning, thinking and teaching others about the conservation and protection of the taoka/taonga of the land. The whenua is of utmost importance in the production of food, which affects us all. It is about our wellbeing. This is empowering the children to learn to become the kaitiaki/guardians of the land. Mason Durie’s Te Pae Mahutonga articulates a link with young learners and the environment and depicts a balance between development and environmental protection, one that is intimately connected to the wider domains of Ranginui and Papatūānuku. This fits in well with our research focus. The children understand the story of Rakinui/Ranginui and Papatūānuku, a story from long ago and can link it to caring for the earth today, and into the future. Titiro whakamuri, hoki whakamua. We are the past, the present and the future. [RH]

Amidst an urgency towards building kaitiakitanga/ecological sustainability consciousness it may serve us well to truly listen and hear the narratives of the “Titiro Whakamuri, Hoki Whakamua” rōpū, the kairangahau, tamariki and whānau who live within deeply embedded values and beliefs of relatedness to the natural environment and the consequences of our ecological interconnectedness:

Past practices of our tūpuna are so applicable today ... they are still happening ... I think they were the masters of sustainable practices and that their foresight and respect for environment is the reason we enjoy what we have today. It is really important to pass this knowledge on,

our youngest children will remind us of our duty to this and they will be our measure.
[Judith Nowatarski – HK]

3.3. Pedagogies of place and the global/local discourse: Knowledge and practice in early childhood education

This section of the report focuses on the following two objectives:

- to examine the discursive relations between practices, knowledges and pedagogies
- to begin the process of critically illuminating, documenting and integrating diverse knowledges to generate “pedagogies of place”.

In order to examine discursive relationships, this section begins with a brief overview of how “place” and “pedagogies of place” are currently theorised. The overview provides a platform for an analysis of the emerging pedagogies of place in the participating centres and kindergarten.

3.3.1 Examining the relationship between global and local

Conceptually, a pedagogy of place draws on the work of reformers such as John Dewey who, at the beginning of the 20th century, “spoke to the importance of incorporating students’ experience of particular communities and places into their formal education” (Knapp, 2008, p. 5). For Slattery (2006) a focus on place means that in holistic and ecological models of education what is learnt inside a classroom (or early childhood centre) has to be closely interlinked with the learner’s experiences outside the institutional setting. The focus on holistic experiential learning can lead to a slippage between “place” and “community”. For instance, David Gruenewald (2008, p. 146), who has become a spokesperson for place-based education in recent years, states that “place based educators use the term ‘place’ synonymously with ‘community’”. In this report we have separated the sections on “place” and “community” to avoid the conflation of place/community; however, there are overlaps between the sections. These overlaps add to the richness that we identify as a potential strength of “pedagogy of place” perspectives. We distinguish between “place-based” education and “pedagogies of place” to highlight that pedagogies of place are not simply a subset of place-based education. The notion of pedagogies of place draws from place-based education but also considers the interrelations between place and the global.

The tendency to overlap can make it difficult to define what “place” actually refers to. Ellsworth (2005) emphasises that considering “anomalous” places, places outside of institutional settings, offers possibilities to rethink what learning, and what “places” mean in the globalised, postindustrial 21st century. “Place” is as much defined by concepts of mobility and connectivity as it is by geographical markers (Edwards & Usher, 2008). “Places” refer as much to Internet sites, malls, texts, images as to traditional places such as libraries and community markets. Place-based pedagogy can thus be understood in two ways: firstly, it can represent as “retreat” into locality, based on romantic notions of place as a haven from the onslaught of globalisation. Nespore (2008) identifies a moral agenda in this first set of understanding which pathologises

mobility and advocates rootedness in place as the solution to global displacement. Secondly, “place” can be considered as territory with fluid boundaries or as a network that has the ability to expand and contract. This second conceptualisation enables an integration of local and global, of a contingent “rootedness” (Bammer, 1994).

The theoretical framework for this section of the report refers at times to “pedagogy of place” to indicate the second conceptualisation of place as a basis for analysis. Pedagogy of place refers to the intention of addressing the complex relationship between the global and the local by considering how “globalizing forces reconstruct rather than destroy localities” (McDowell, 1999, p. 4). Pedagogy of place perspectives focus closely on the knowledges and practices that constitute, and reconstitute, a particular “place”. Place within this framework is neither a static entity nor a bound geographical location, but a field, network or territory (Deleuze & Guattari, 1988) in which specific ways of being and doing become visible.

The emphasis on local specificity has been analysed as an aspect of globalisation in education that offers possibilities for a rethinking of pedagogy and curriculum (Duhn, 2008; Edwards & Usher, 2008; Slatery, 2006; Sykes, 2008; Wright & Sandlin, 2009). Considering place and the local in education in relation to globalisation unsettles the notion of globalisation as “happening elsewhere”, and as inevitable global change which eventually trickles down to the local (Larner & Walters, 2002). Focusing on the interplay of the global and the local emphasises that they constitute each other (Massey, 1993; McDowell, 1999). Such understanding positions the local in relation to the global and critically examines the relationship between them. Undercutting the distinction between the local and the global is significant because an understanding of globalisation as “happening elsewhere” creates particular power relations that make a focus on the global seem impossible. If teachers see global issues as “too big”, the global becomes overwhelming and irrelevant to practice (see Section 3.1). Such a discourse carries the danger that teachers feel disempowered and unable to affect change.

3.3.1.2 Addressing global issues: The danger of paralysis

In our research, the discursive construct of “the global” as “too big” shaped teachers’ sense of agency, in particular at the beginning of the project. The teachers’ understanding is reflected in wider discourse around global warming, as a recent *New Zealand Herald* article highlights. *The Herald* reported that a recent Australian/New Zealand survey on climate change, probably one of the most dominant “global” issues, showed that at least 10 percent of New Zealanders believe it is too late to make a difference to climate change (Gregory, 2008). These 10 percent are the tip of the iceberg—a large percentage of the remaining 90 percent did not feel too confident about making a difference either, but overall they had a somewhat less fatalistic outlook. For at least every tenth person in the survey the global issue of climate change had a paralysing effect that completely absorbed their ability to act. Changing daily practices and habits consequently makes no difference—global change seems uncontrollable, inevitable and coming from “above”. According to an even more recent newspaper article, many New Zealanders “are suffering from

‘green’ fatigue through constant warnings of an approaching environmental Armageddon” (NZPA, 2009).

For teachers committed to addressing global issues, this means that they may feel their efforts are doing more harm than good, especially if they do not receive encouragement and support from within their teams and community. Teachers who are left to their own devices when trying to find ways of addressing global issues, such as ecological sustainability, can feel overwhelmed and disempowered with the task of dealing with complex global issues “on the ground”. Vanessa, an Auckland teacher, illustrates how knowledge and practice interlink:

I was a teacher who knew about global warming and environment issues on a very low scale and I definitely mean low. I entered the project thinking that I could not change anything being just one person and what I did at home was enough for me. When we first started talking about environmental sustainability I did the very minimum and was initially hesitant toward the changes that we were discussing ... My awareness was not great and the changes were quite daunting as I did not really understand what impact we as teachers and people could have or what we could do. [CK]

Marina, one of Vanessa’s colleagues, articulates her understanding of “the global” as potentially paralysing to practice and action:

However, climate change is an issue that is difficult to address meaningfully in ECE [early childhood education] for a number of reasons. There is no immediately visible impact on our lives in New Zealand and thinking about the topic can be an uncomfortable, even terrifying experience. In addition, the issues are complex. There are many uncertainties—we don’t know what will happen, it is not always clear what we should be doing. And there is potential for harm—how can important and urgent issues be addressed in ways that empower rather than paralyse? [CK]

Within a framework that builds on knowledge of the global as a “big issue”, place and the local can become a refuge that offers withdrawal from the world outside. When global issues are excluded from pedagogy and curriculum, a discourse of the local and place as “cocoon like” can emerge. The danger of excluding global issues from local pedagogy and curriculum can hinder constructive change and undermine teacher agency in a similar manner as the discursive construct of the global as “too big”. Marina highlights that teacher resistance to engagement with global issues can be an obstacle to change:

At the start of the project, teachers did not see the need to participate. There was resistance to change practices. It required strong leadership to get teachers on board. [CK]

Considering the interplay between local and global disrupts the notion of place as a refuge. It fosters critical engagement by creating spaces for agency and action that go beyond the narrow confines of place and the paralysis of the global (Nespor, 2008). This is evident in teachers’ accounts of how they began to consider how local practices and global ecological sustainability are related. One of the strategies used to build first interconnections between local practice and global issues was to take stock of existing practices:

After we attended the initial hui ... we did a review of where we are at with ecological sustainability in our kindergarten. We were surprised at how many things we already had in place and how green-minded we were as a team. [RH]

For this teaching team, the global/local interconnection had become more visible through the research project. They already had practices in place that addressed caring for “place” and began to articulate their emerging understanding of the global/local relationship.

3.1.3 Addressing global issues through multiple understandings of place

The concept of “place” has given rise to interdisciplinary analyses over the past two decades (Coombes, 1994; Harvey, 1993; Massey, 1993; Mouffe, 1994; Soja, 1989). In education the notion of “place” has been used to rethink culture, identity and belonging (Cooper, 2009; Davies, Browne, Gannon, Honan, & Somerville, 2005; Grosvenor, 2009; Nespor, 2008; Sykes, 2008). As outlined earlier, place-based education with its focus on “place” as a bound geographical entity, has been critiqued as romantic and politically limiting (Edwards & Usher, 2008; Nespor, 2008), particularly in relation to identity politics (Callejo Perez, Fain, & Slater, 2004; Ellsworth, 2005). Critics argue that a fluid notion of place opens possibilities for a rethinking of identity, culture, the social and politics as relational where “place” serves as a point of intersection and articulation of difference (Smith, 2001). “Place” in this fluid conception calls for theoretical engagement with specificity, with those elements that make the site of encounter unique (Braidotti, 2002; Grosz, 1995; Probyn, 1996). In early childhood education, calls for early childhood services to become sites for “democratic practice” (Moss & Petrie, 2002) echo the notion of place as a site of encounters. These sites are more fluid than fixed and differ in character. The kindergartens and centres in this project did not share a common definition of “place” and the concept was left undefined intentionally. We were interested in finding out how each kindergarten/centre articulated a specific understanding of “place”.

We assumed that diverse knowledges and understandings of what makes a place produce diverse pedagogical approaches to teaching and learning (see research aim three). The following section provides an overview of specific understandings of place and the pedagogies that arise from these understandings in the project.

3.2 Emerging pedagogies of place

3.2.1 Knowledges and practices: From the local to the global

All kindergartens and centres have developed pedagogies that are specific to their context; however, there are some principles that have become visible across the project. One principle is that “place-based pedagogies” radiate out from the centre. A sense of place starts with paying attention to the “here” and “now”, and has a “ripple effect”, as one of the teachers pointed out. In the context of caring for self, other and the environment, “self” stands for more than the “I”: caring for self means caring for those who are part of the immediate, day-to-day kindergarten/centre community. This includes children, families and teachers but also animals and plants, and even things such as furniture and resources. Caring for others often involves stepping outside the boundaries of the kindergarten/centre into the surroundings. “Others” are people,

places, plants, animals and the relationships that connect the kindergarten/centre “self” with those who are part of the immediate surroundings, the immediate “others”. Caring for the environment is the overarching “global” discourse that motivates the more immediate care for self and others. The next section gives some details of how these general principles take shape in their local context.

3.2.2 Place making as democratic practice: The cultural and the political

Although all kindergartens and centres were committed to bicultural practices, for some of the kindergartens and centres, indigenous knowledges and ways of being were an essential aspect of their engagement with the global issues of ecological sustainability from the start. Initially, it was not “the global” that seemed particularly challenging to some of the teachers. Caring for self generally meant caring for the immediate environment, and for the teachers the journey had to start “at home”. Thinking about what makes a place included an awareness of indigenous knowledges because they are specific to Aotearoa. Focusing on “place” created an awareness of the significance of Māori knowledge, and also of the “otherness” of Māori knowledge. As one of the teachers points out, the dual emphasis of the project on Western and Māori knowledge brought some insecurities to the fore: *“The scope of the research seemed daunting because of the Māori aspect, of which we felt quite ignorant. Where to start?”* [RH].

For others, turning to what makes Aotearoa uniquely different proved to be the starting point for a rethinking of pedagogy:

This is a special day for New Zealand celebrating the partnership between Māori and Pākehā. We talk with the children about how the seven waka came to New Zealand. This a great opportunity to introduce new te reo to the children and the waiata Nga Waka. Resources were used to show visual representations of the waka. Children constructed their own waka that they paddled while singing the waiata. [PM]

Learning to care for what is unique to New Zealand helps to create an awareness of the preciousness of “place” and culture, and begins to address ecological sustainability within a framework that includes historical analysis and contemporary politics (Sykes, 2008).

The engagement with local history and politics took different forms, arising from the existing practices and knowledges. While for some teachers, the politics and ethics of care played a central role from the beginning, for others the awareness of local history and politics meant stepping outside of their “comfort zone”. The following newsletter to parents sums up some of the kindergarten teachers’ initiatives related to developing a “wider sense of place”, but it does not indicate how new to the kindergarten this engagement with the local marae actually was. Making contact and organising a visit were first steps towards building relationships with the local indigenous community. A small group of teachers and families attended a tree planting day at the local marae:

What's been happening at kindergarten during term 2, 2008

K, M and myself, along with M's niece, K's fiancée, P and his children, turned up to a tree planting day at ... Marae at the end of the month. It rained a lot of the day, however, we had a great time, planted lots of trees and were treated to a scrumptious hangi feast afterwards. We hope to make this an annual event with more families coming along next year. [MB]

One of the effects of the encounter was that teachers and children began to learn:

all about Matariki ... this has included reading books and learning about what Matariki means, making stars, planting vegetables, which many of our families brought for us, weaving with paper, making tapa prints, making a wonderful scarecrow using children's own design ideas, to protect our growing plants. [MB]

For others, local politics took centre stage, and teachers took a leadership role in participating in local initiatives and networks. This is an aspect of pedagogy of place that arises out of an understanding that early childhood centres can be places for democratic practice and active citizenship (Moss, 2007):

World Environment Day last year was celebrated with walks including to our local creek and a focus leading up to the day where parents were encouraged to look at alternative methods of transportation so some of the photos here are of carpooling and kids coming on bikes and public transport to kindy. And we've made links with the local transition town's network and so we are getting information from them and passing that on to parents about topics of interest and talks such as the Western Highway Development and cycle advocacy and things like that. [CK]

One centre explained that the local politics within the community strongly encouraged sustainable practices. For this centre, developing a "pedagogy of place" meant becoming more vocal and visible within their wider community to further align their existing practices with local knowledge and "ways of doing":

... what's happening in the childcare, this centre is actually really already in place, it's not like you have to go out there as crusaders into the community and say this is a new message, because the message is actually so out there already ... [RC]

For the teachers in this centre, a pedagogy of place incorporated making some of their pedagogy tangible to whānau and children by, literally, entangling them in their practice. Teachers intended to focus on recycling within the wider community as a starting point for highlighting issues of consumption. They made visible how small items, such as yoghurt containers, become big issues by creating a curtain with the children. Mala, one of the teachers, explains in a conversation that it was not only the recycling they wanted to emphasise, but also the underlying cause of consumption and mass production:

You get rid of that particular yoghurt pot ... I mean you can, you can just get big pots and put it into plastic ... But also it was so tangible, it kind of trapped parents and children when they walked in the door and when the wind blew it used to tangle it up and the children kept talking about, how much noise it used to make ... The children really loved it didn't they ... they really, really enjoyed it.

Yeah. Well I really enjoyed making it; like we used to go outside and thread the [pots] and it just grew and grew and now I'm thinking about making another one. [RC]

Pedagogy of place in this context involved thinking about global issues, such as how easy it is to consume without considering the cost to others (for example, increased landfill, use of fossil fuels, production and recycling of plastic in places other than New Zealand, for example, Bangladesh).

For one of the kindergartens, caring for Papatüänuku, the earth mother of Māori cosmology, signified a particular meaning of “place” as deeply embedded in the politics of culture. “*We looked at our philosophy and also reflected on how central and vital Papatüänuku is to ecological sustainability*” [RH]. Caring for Papatüänuku became a cornerstone of their ethics of care for self, other and the environment. “*If we look after and respect Papatüänuku, she will look after us*” [RH]. This can also be read as a hopeful statement about the possibilities for intercultural sustainable development.

The knowledges that enabled teachers to develop a pedagogy of place varied greatly between centres and kindergartens. As documented in the following narrative, teachers’ increasing emphasis on making local knowledges visible created opportunities for children to integrate and extend their local knowledge:

A, C and N had captured the interest of other children with their mountain/volcano making. After observing the girls’ volcano erupting, a larger group of children decided to remake the mountain with them. L, T, C, A and L each got themselves a spade and set about constructing a new maunga (mountain) with the girls.

When I ask ‘The name of your mountain is?’ ‘It doesn’t have a name,’ L said. ‘Oh, what’s the name of some mountains you know?’ ‘Ruapehu, and it has snow on the top of it. The sun will be melting it today,’ was C’s reply.

You were so right in what you said C and I agreed with you that the sun would be melting the snow. I asked if any of you knew of a maunga near Ngaruawahia. No-one could think of one, when I said Taupiri, ‘Oh yes, I go past there,’ C told us.

Then it was time to turn your mountain into a volcano. While the girls had had one ‘eruption’ from their maunga, it was asked if you each could have an ‘eruption’ on the mountain. What a great idea, so we set about to ensure you all could cause an ‘eruption’ with the baking soda and vinegar.

What fun and boy the mountain looked wonderful with all the ‘erupting’ happening around it. This was an awesome group activity, directed by the children, while I made links to our wider environment. Will continue this when children initiate further mountain making. [GB]

The local mountain was also a “grounding force” for another kindergarten. Here, the sense of place develops through practices that focus on the mountain:

The children learn the local legend of our maunga through drama and song. We also take a walk each year around the maunga. This brings this story to life. We feel it is important to link children to the whenua and the whakapapa of our place. [PM]

3.2.3 Growing an awareness of place

For many of the kindergartens and centres, a pedagogy of place began to emerge around growing plants for food and for pleasure. How to look after plants, when to plant and what to plant led to practices with a specific focus on “place” as a site for food production and consumption. “Place” referred to the garden where children and teachers grew plants, but “place” also “rippled” out into children’s homes. Whānau were invited to get involved, as documented in a newsletter:

Kia ora koutou!

You may be aware of our wall display about our current research project (if not, then let us show you!).

So, we’d like you to do a bit of homework for us—you can tell us through your own words and stories, your child’s words and pictures—or even photos from home!

These are the things we are very interested in—and would like to share with other children and whānau if that’s ok with you!

Who has a garden? How do you prepare and look after a garden?

Who ‘stores’ kai/food? Do you freeze food, preserve food (fruit, jam etc.), dry your food?

Who collects kai/food? Do you go to the beach and gather shellfish? Do you go fishing? Collect mushrooms? Anything else?

Who has ‘homemade’ remedies for aches and pains?

We really do want to know about these things!! [HW]

The inclusion of whānau created an emerging sense of the kindergarten as a specific place within the community, where local knowledge is valued. The emerging “pedagogy of place” creates a space where this knowledge can become visible, as documented in this response to a questionnaire given to whānau:

We have a garden ... we water our plants so they can have a drink ... we dig out our weeds and trim our plants. We stew our apples and plums when we have some ... sometimes we freeze it so we can have some another day. [G. and her whānau, HW]

There were moments when teachers realised that they had underestimated children’s ability to care over prolonged periods of time and in different places. Children demonstrated caring attitudes for plants and animals, not only in the centre/kindergarten but also at home. A teacher reported:

M one day brought hyacinth bulbs in jars of water thinking it would be a two-minute wonder, but the interest from one child in particular was immense. And the interest was sustained until the bulbs flowered. This particular child followed his interest at home by planting and growing his hyacinth. His parents documented his interest in gardening and nature and many photographic updates were brought into the centre to be shared. [CK]

3.2.4 Ethics of place: Democratic practice for all

An emerging principle of pedagogies of place in this project is the emphasis on ethics (see section on “Community”). A sense of place in many centres/kindergartens developed through a lens that paid attention to those who are easily pushed to the margins, especially in the busy day-to-day practices of early childhood services. For one of the centres, the question of how to make the research project meaningful for those children who are only beginning to develop a sense of self and other, the youngest members of the centre community, proved to be a rich focus. A pedagogy of place for these children generated careful observations and reflections by the teachers. The following comments highlight that caring for self and others can happen at any age. It begins with paying attention to how infants and toddlers use space, and working with the children to maintain the space:

The main areas we focused on with the infants and toddlers are providing an environment for the children that shows a sense of care for the environment. The area is set up in a way that children are given opportunities to explore independently with caring relationships, and teaching children about the care of the environment, such as tidying, looking after the resources, belonging, putting rubbish into the bins provided. [CK]

Further into the project, teachers reported that under-two-year-olds have no problems with taking on complex task that show care for their environment. Possibly even more surprising to some adults, these very young children demonstrate that agency has no age limit:

The younger children now compost all their food scraps. We’re got a small bin on the kai table and they do this independently. The composting of food scraps has taught the children how much food is being wasted. And one child, while spending time in the over-two area, noticed the large compost bins in the garden and insisted that his parents buy one for them. This was a child who had just turned two years of age, being an advocate for sustainability and having his thoughts and opinions listened to by adults. [CK]

Caring for self, other and the environment with infants and toddlers “rippled” out into the home through teachers’ communication and agency as well as children’s practices of care. This was not a one-way street, as parents reported back about their changing practices at home:

The documentation from home also included regular updates in [their] portfolios about what the family were doing at home. We’ve now got the Infant and Toddler room with about 80 percent recycled, reused toys and a choice of holistic play items that changes and grows with donations from parents. [CK]

Many of the parents offered their responses to the changed practices in “comments from home” sheets. The following comment from parent A is a typical example of the ripple effect of this “pedagogy of place”:

I am admiring and appreciate the effort that is going into recycling, gardening and environmental awareness. This is important, educational and real. It is great to see and think what the children are learning, also it is encouraging—and the eco store order [one of the initiatives was bulk ordering and making this available to parents] is a time and cost saver. [CK]

With the specific focus on agency for all children, teachers paid particular attention to how the youngest children expressed their care for self, other and the environment:

Caring for each other, their little acts of kindness, helping, having high expectations of social conscience. One of the children, just over one, for example, got a tissue for one of her friends when she was asked by an adult for help. It took her a while to process and act on the request and the piece of tissue she got from the box was tiny, but the event was huge. [CK]

3.2.5 Early childhood curriculum knowledge as a foundation for pedagogy of place

Ecological sustainability is not a specific focus of *Te Whāriki* (Ministry of Education, 1996). Many of the teachers referred to the curriculum principles with their emphasis on relationships, empowerment, holistic perspectives and community focus as an important framework for the development of pedagogies of place. For instance, one team identified a core curriculum principle and several strands that were particularly relevant to their developing ethics of care when they began to develop pedagogical approaches:

Empowerment/whakamana: understanding bicultural issues and recognition of the Treaty of Waitangi; Belonging/mana whenua: a respect for Papatūānuku should be promoted; Exploration/mana aotūroa: Māori ways of knowing and making sense of the world and of respecting and appreciating the natural environment. [RH]

For others, curriculum review offered the opportunity to reshape pedagogy: “*A review of the bicultural curriculum we offer (including practices of individual teachers as part of peer review) and ways to improve these. E. will research our marae, mountain and water*” [CK].

With increased awareness of “the local”, curriculum can take unexpected turns when teachers emphasise the opportunity for experiential learning by drawing on the relationship between “places”:

Kaimoana—our emergent curriculum flew in on return from holidays. Donya brought in a puffer fish she had found on our local beach. We all learnt how poisonous they were and children represented their understanding in many forms of art. [PM]

Rethinking curriculum (the content of teaching) enabled some of the teachers to develop a “pedagogy of place” that challenged core beliefs and habits, and thus extended the boundaries of “thinking space”. This was evident in documentation from four different centres/kindergartens (including urban and rural):

Another theory that has intrigued me is that of the ‘bad’ shark, wolf etc. ... and we have been discussing and complicating this idea. Just looking at our own eating habits can be interesting ... Are we really so different from sharks? A few days ago we were gardening outside and paused to look at the bees on the berry bush. I was interested in how different my reaction was to that of the children. I celebrate every bee I see but the children were scared. As we stood, watched and talked their fear dissipated, the danger was not as great as they thought (we did briefly talk risk management—stand still if a bee sits on you). And the work of the bees was so interesting ... [CK]

Like we've got the caterpillars, plastic ones, caterpillars and you know how some of the spiders and all that's creepy, creepy, I reckon it's actually getting them used to creepy crawlies. [GB]

Well I think the creepy thing is learned. Kids are actually quite fascinated by it. Kids are actually quite fascinated by most types of creepy crawlies; they get frightened by ... freaking them out. [RC]

For pedagogical practice, this meant teaching children that "nature" demands respect in all its guises. For experiential learning, this may mean taking risks, such as getting pelted by rain or hail:

We feel it's also important for the children to have an understanding that they can't always control environment or nature ... they can't always control their environment. Nature isn't always nice and can't be controlled by us. For example, during the recent hail storm some children were initially concerned about the noise and were curious as to what was happening. We offered the children containers to place outside and these collected the hail. The children then used the hail as an exploratory tool adding sand and watching the hail turn into water. [CK]

For one of the kindergartens, it took a curriculum review to realise how much their pedagogy had changed as an effect of becoming more aware of interrelationships between "people, places and things" (Ministry of Education, 1996, p. 9). In an interview, the teachers pinpoint that "everything", including their philosophy, changed:

J: That's where you guys actually shifted your curriculum quite a lot didn't you because there's things, like putting your little scraps into the bin to feed the worms and to recycle your paper. These became everyday practices. Changed the shape of the ...

I: ... the garden and looking after the animals ...

R: Yeah, the garden ... I mean that's a huge curriculum shift isn't it in terms of what you do ...

I: ... on a daily basis ...

R: Yeah, and someone talked about the shift from seeing those as activities to seeing those as a way of life, I mean that came up before. [MB]

Letting children have "real" experiences was also a core element of an emerging pedagogy of place in another centre. Instead of sheltering children, teachers, families and children engaged in work, as this interview illustrates:

JR: Instead of that real work thing; kids deciding that, yeah, I can do real work, not dramatic play stuff all the time, I can do real work.

Anne: Instead of digging in the sandpit, they're digging a real garden. And bringing in the big containers at the front for the lemon and mandarin trees, and telling them that that is going to be fruit one day and they were all amazed because the whole morning's adventure shifting the dirt from the trailer to the thing and putting the holes in the bottom so the water can drain out and ... real work, and they did it.

Penelope: Yeah, and they had spades and wheelbarrows and ... [RC]

3.2.6 Care of the self

As outlined in the beginning of this section, care for self was often reflected in care for the kindergarten or centre itself, which included teachers and children. It was less often interpreted as care for the individual self (as self-care). This is an interesting finding that may be partly explained by meanings around care as feminised, and as such dominated by giving to others rather than caring for the self (Woodrow, 2008).

The example of one particular kindergarten highlights how “care for the self” was enacted through an emerging pedagogy of place. Richard Hudson embarked on the project of change with a review of practices to find out “*how green-minded we were as a team*”. They discovered that many of their existing practices could tie in easily with caring for Papatüānuku (see Section 3.2).

Pedagogy of place for Richard Hudson Kindergarten began with story telling (“*a simplified version of the story of Rakinui/Ranginui and Papatüānuku*”). They consulted with their kaumätua “*for guidance, knowledge and inspiration*”. The focus on place became more specific to the locality: “*To add authenticity and depth we arranged for Huata (kaumätua) to come and narrate his southern mythology/stories/pūrākau ... as told to him as a child by his grandmothers and great-grandmothers.*”

Focusing on local stories as a starting point for changed practices proved highly successful. Children, teachers and parents deepened their understanding of “place” by taking increased care of the immediate environment. “*The whenua is of utmost importance in the production of food, which affects us all. It is about our wellbeing. This is empowering the children to become the kaitiaki/guardians of the land.*” Children began to recycle foodscraps and took increased interest in caring for the kindergarten animals. “*As the children give the hens their scraps, they in turn supply them with eggs.*” Interconnectedness becomes experiential as children take part in the food production through gardening, animal care and changed practices around food in general.

We have slowly introduced the concept of litterless lunch boxes ... through our newsletter and via the children with mat time discussions. It is an area where we can see that we can make a change both to our level of rubbish production ... and to help our whānau think about the choices they are making for food storage. [RH]

Similarly, caring for self involved an increased awareness of the interrelationships within places for this urban kindergarten:

I think definitely the children at [this kindergarten] are more aware of recycling and reusing rubbish because of the activities they’ve done for that. They’ve got an understanding of what happens with paper and recycling of papermaking ... so they saw how much paper had to go into making one piece of paper, so that’s an understanding—all that, has to go into that. That’s one thing that they’ve got very well and with food and food waste and all that sort of thing. We’re trying to do recycling on a weekly, fortnightly basis ... they’ve got a wastepaper basket so the paper that was being put in there and then they were shredding it

with the idea that they were making special paper and so they were trying to make that an integral part of the everyday practice ... you know, just like putting dinner. [MB]

Care for self can mean self-care as well, as demonstrated below. Looking after oneself becomes part of daily practice:

We incorporate it into our mat times. This morning Lindy did beautiful, beautiful, just simple stretching, rubbing the hands and putting them over your eyes and doing the ... you know just waking your head up, gorgeous stuff. I mean I think when I say we do yoga it's not a prescribed: "This is the pose that we do"...

... yeah, relaxing, and in the circle in the beginning we do the karakia and then do a bit of stretching and then we sit down and do a welcome song, it's great doing the same thing all the time.

And eating healthy food, I mean they're always talking about like instead of eating your muesli bars first have a sandwich first, you know there's that sort of teaching ... [RC]

3.2.7 Care for others

As discussed in "ethics of place" (Section 3.2.4), emerging pedagogies of place often centred on developing practices that enable participation and contribution for all from within the kindergarten/centre community. "Care for others" was built on the same principles, however, it meant widening the notion of "place" and who belongs to it. For instance, teachers extended the area of focus by emphasising that caring for the environment does not stop at the gate. Caring for "others" meant stepping out of the front gate into the wider community by, for example, "adopting" a local park:

We chose Kew Park because it is close to our kindergarten, and because many of our families use it or walk through it. [RH]

Ten families were involved in the initial clean up, and the plan is to continue this practice once a term. For another centre, learning to care for others meant:

Walks to local parks and reserves spring to mind for me here, as well as our trip to the farm last week. I think this brings children an awareness of the community we live in outside of [the centre] and respect for the environment and keeping ourselves safe when we go out for walks together. [GB]

Caring for others meant visiting a rest home once a term to "*associate with the elderly in our community, and it is within walking distance of [the adopted] park*" [RH]. Care took the form of making interconnections with others, such as the park, the animals, the elderly to include them in what makes this particular "place", as part of the lived kindergarten experience.

Children took photos, told stories and documented their changing understanding of interconnections. Kindergarten documentation illustrates children's engagement with caring for self and others as an aspect of caring for Papatüānuku, the earth:

Knowledge of Rakinui/Ranginui and Papatūānuku gives our tamariki a seed of knowledge and concern about the vulnerability of our world. We must all do what we can to look after [her]. By giving the young learners of our society ecological strategies in a realistic context, we are laying the foundations for a generation of earth users who know to care. [RH]

Care for others at times crossed vast geographical distances. This global aspect of care gave children a sense of global citizenship. *“That was lovely, with Margaret, coming in to talk about the children in Kenya and then everybody sending in all their stuff and sending it over there ...* [RC]

Care for others could also mean extending care for the wider environment through focusing on local events:

An Orca whale was stranded on Papamoa beach on the 27th September. He was refloated after a massive rescue by locals and marine expert. Many of our children went down to the beach and saw this. One of our mums helped to put him back out to sea. We had newspaper articles and watched news coverage on ‘you-tube’ of this. Children talked about their impressions of what happened to the whale and how people wanted to help him get back to the sea. Papamoa Kindergarten has a representation of the three whales legend as a mosaic in the entrance and stylised on our letterhead. [PM]

The relationship between past, present and future comes to life through story telling and research. Caring for the whales means caring for those who share “the place” with us but who are essentially different. A teacher explains how the event generated learning about the many relationships that make a “place”:

We told the children the legend of the three whales and they made props so that we could dramatise it. They did it over and over again. In a short version two whales get caught in the changing tide. They stop to drink at a spring which was magical and they turned into rolling hills. The father whale came to find them and also drank from the spring and became fixed in place. Our children were fascinated with the spring. Where is it? What does it look like? We got maps out of the area and could not find the spot, until a visitor arrived. She knew the legend and helped us find where the spring was. They drew, heard and enacted this story of their local place. Not only did children learn, but many parents had not heard this before. It brought our whenua to life. [PM]

Caring for others meant including relationships with those who are nonhumans in pedagogy. This can lead to a reshifting of fundamental beliefs (Haraway, 2008), both for adults and children:

The children at CK are very interested in animals. When I first suggested to a group of children that we are animals too, they laughed at such a ridiculous idea. Since then we have talked about animal classification and most of the older children now understand and celebrate that we too are mammals. I have been working with infants and toddlers—looking at our pets and animal pictures, pointing out things that we share and that are different (body parts, eating). This often leads to squeals of delight! [CK]

Working with nonhuman others could be a hands-on new experience or it could take the form of looking anew at animals that co-exist in “places”:

Oh, yeah, I brought my puppy in, and L. brought the guinea pigs in, so we have had quite a few animal things, and just looking for animals outside, when they're gardening, there's heaps of animal hunting and the worms, caring for our worm farm ... and our turtles and our ... we've got heaps haven't we ... frogs, fish, turtles. [RC]

Some teachers expressed their concern that although the topic of ecological sustainability may be close to their adult hearts, children may not be interested. However, working with empathy for animals proved to be a point of interest for children that lends itself to further exploration of “big topics”, such as care for others:

If it happens, because we have dreams but the children might not pick up on it at all, and at the moment their gains are social gains, where they fill this whole floor with blocks and cushions; they'll all wearing ears and tails, and they are mum and dog, cats and dogs, and they're looking after each other. And there is this great big whānau thing going on here, or they're wearing wings, and they're wearing wings and they have birds and butterflies and bugs because we have the most amazing family of caterpillars out there on our Swan plants. And everybody's looking at the hundreds of caterpillars that we've got, and the chrysalises, and that's our everyday, that's our huge thing. So the bush thing is kind of ... it's caterpillars ... so we'll see what happens. We try not to push things, but what we'll do is we'll keep ... we'll do the stories, we'll act out the stories, we'll do the rata chopping down, the totara tree and stuff like that. We do that with them; we also do that in lots of ways because we start ... I always did, with blocks and puppets and little cardboard acts, and then they all ask for their acts and they do the story with puppets and blocks. It's the most gorgeous thing, and they bring out all our bugs, and butterflies and they put them around and they're all hiding away. [BM]

Caring for others included collecting food for the SPCA animals and inviting S. from the SPCA to visit the kindergarten with her dog and cat. A visit to the SPCA followed a week later. The pedagogical aim was “*to encourage children to care for animals on a daily basis by caring for our own kindergarten pets*” [RH].

In Western philosophy and policy, especially since the Enlightenment, the relationship between humans and our nonhuman others has given rise to critiques of the fundamental anthropocentrism (human-centred worldview) that continues to dominate these relationships (Lee, 2005; Plumwood, 2000). As indicated in Section 3.1, the ethics that shape these encounters as well as evidence of how these encounters are experienced by children and teachers remain an issue that urgently needs further research, preferably in the context of ecological sustainability and pedagogies of place.

3.3 Summing up with a case study: An emerging pedagogy of place

To conclude this section, a close-up look at one of the participating centres illustrates how a pedagogy of place became essential to learning and teaching how to care for self, others and the environment, both in global and local contexts. The teachers in this centre initiated the research focus, and it is fitting to include their story to illuminate how a pedagogy of place is enacted.

Recycling was a topic that many of the teachers engaged with. This centre decided to act on their concern over global warming by revisiting their existing recycling practices with the children as a starting point for action. Recycling is an issue for ecologically-minded practice, because many children in childcare bring elaborately packaged lunches, and packaging is not always easy to dispose of—plastic containers do not lend themselves to composting. The idea was to integrate recycling into daily pedagogical practices. By doing something on a regular basis and building it into the daily rhythms of the centre, children had time to get used to new ways of doing things. They began to sort their left-overs into compostable, recyclable and nonrecyclable piles and began to take interest in the processes of disposal. The connection between composting and left-over food was an interesting one, and the children could see how one was connected to the other.

The pedagogy of place that the teachers worked with had a strong emphasis on doing/acting and on building up intensities around actions. The plastic recycling left everyone feeling rather flat—it is all very well to know that someone collects the plastic, and it's possible to find out where it goes to be recycled. However, left-over food went into the compost and ended up doing its work for the centre garden. Plastic just disappeared. Instead of sitting down with the children at mat time to talk about plastic rubbish and the difficulty of reusing plastic effectively, teachers and children began to use plastic more consciously. It became a resource, to be used in the centre or to be taken home to be reused. Someone came up with the idea to take part in the nationwide *Junk to Green Funk* competition, organised by TradeAid. The competition provided the opportunity to build relationships between the wider community and children, teachers and parents. The paralysis of the global metanarrative was shaken off by a joyful and vigorous engagement with the project. Children collected plastic containers. Instead of sending plastic off to an unknown destination, plastic was redirected to the centre.

For weeks, the centre was abuzz with plastic curtain making, which involved threading, punching holes, sorting plastic, deciding on design, forming and disbanding teams, talking about and researching where the plastic comes from and where it ends up, and finally, eventually the curtain off as a competition entry. Children went home to their parents to talk about plastic recycling, and parents with their children, and other family members, could go on to the TradeAid website to see the entries. In the process of doing so, they had the opportunity to talk, read and see more of TradeAid's work with communities worldwide. TradeAid became a permanent aspect of weekly centre and home routines when a roster for ordering goods was organised and run by parents. Children, teachers and families are now part of a global network of production and consumption that disrupts the discourse of hyperconsumption by valuing small-scale production and by becoming aware of the preciousness of resources that are used to produce, to consume and, in the case of some of the TradeAid communities involved, to survive.

Adults and children were engaged in conversations that continuously crossed from the global to the local, and in the process created a sense of belonging to "place". "Place" involved the early childcare centre, but also the *Junk to Green Funk* curtain entry, the website, lots of plastic containers and learning about rubbish. It involved at least a fleeting awareness of other families in far away places whose children had to work hard to ensure survival. The local and the global,

adults and children, consumers and producers, the childcare centre and families' homes became entangled in a complex geopolitical encounter. This encounter sits alongside weekly shopping routines to the mall where differences become entrenched again in opposition to each other, or where they become invisible; hyperconsumerism depends on discourses that create the illusion of smoothness, both in relation to consumption and production (Harvey, 1998).

The shaping of relationships between people, places and things is also the shaping of “place” in the context of discourses of globalisation. Collectively Kids becomes the place where subjectivities and practices reshape and emerge, where pedagogy is rethought. The catalyst for change is “the global” in its encounter with the “the local”. New subjectivities and practices in turn create new possibilities for understanding learning and teaching as transformative actions in global times. This is what Ellsworth (2005) refers to as pedagogy as knowledge-in-the-making, based on “experiences of being radically in relation to one’s self, to others, and to the world” (p. 2). Gruenewald and Smith (2008) argue that learning is about increasing awareness of the self–other–world relationships. A pedagogy of place emphasises the relational and embodied nature of learning; with an increasing awareness of global issues, this focus has the potential to produce transformative change. With its focus on effects on self–other–world relationships, it is a pedagogy of situated knowledge in the making. It counters the paralysing effects of meta-narratives of globalisation through its embodied, material engagement with learning and teaching. A pedagogy of place creates complexities, and an awareness of the many layers that unfold when one starts paying attention to the self as deeply embedded in relationships with its many others in the world.

What is beginning to emerge from this project is the significance of developing “pedagogies of place” to ecological sustainability and ethics of care for centres in their specific communities. Further research is needed to address important research questions that emerge from this section, such as: How does an ethics of care for self and others (including nonhuman others) interrelate with global citizenship and democratic practice as an aspect of a pedagogy of place? How do children create meaning of ethics of care for self and others, including the planet? How is a pedagogy of place maintained and strengthened over time? What are the limitations of such a pedagogy; for example, in communities where people struggle to have a sense of belonging? How would a pedagogy of place address issues that arise when people lack access to resources? How can such a pedagogy and an ethics of care support those who may feel excluded (for example, new migrants, or those who live in poverty, or those who experience violence in their communities)? These are big questions, but the emphasis on local specificity as well as the emphasis on integrating “big” issues with local concerns that is embedded in concepts such as a “pedagogy of place” offer potentially robust engagement with the difficult questions. They hold the promise of enabling and supporting local responses to global issues.

3.4. Communities of ecological endeavour

A key focus of the study was to investigate how centres can work with their local communities in a process of producing ecologically sustainable practices, based on an ethic of care for the self, others and the environment. Areas for exploration included the following:

- How did teachers explore sustainability practices with their tamariki, whānau and wider community?
- In what ways were these practices and discourses and resources responsive to an ethic of care for self, others and the environment?
- How did these pedagogies relate to those within the local communities?
- How did these ethics relate to those in the local contexts?
- In what ways were links to the local community developed and/or strengthened?

3.4.1 Community and sustainability

Early childhood centres serve as part of communities, supporting families and children within those communities, but also have great potential to actively foster a sense of community for those involved. The New Zealand early childhood curriculum, *Te Whāriki* (Ministry of Education, 1996), is grounded in a set of four core principles, one of which is that of Family and Community—Whānau Tangata, which recognises that the “wider world of family and community is an integral part of the early childhood curriculum” and that the “well-being of children is interdependent with the well-being and culture of adults in the early childhood education setting; whānau/families; [and] local communities and neighbourhoods” (p. 42). To this end, “The curriculum builds on what children bring to it and makes links with the everyday activities and special events of families, whānau, local communities, and cultures” (p. 42). The curriculum strand of “belonging” reinforces this emphasis on connection with families and community, stating that “Children and their families experience an environment where: connecting links with the family and the wider world are affirmed and extended” (p. 54).

Early childhood centres, through a consciousness focused on building community, can enhance this sense of belonging. Peter Block envisages a future “in which communities—whether in the workplace, neighbourhood, rural town or urban center—create a wider sense of belonging among their citizens” (2008, p. 5). According to Block, “A community’s wellbeing [has] to do with the quality of the relationships, the cohesion that exists amongst its citizens” (p. 5). Cohesion in this sense, does not imply “sameness”, but the facility to work collectively, embracing and encompassing differences. Teachers can be part of enhancing the “social capital” of the centre and community. “Social capital is about acting on and valuing our interdependence and sense of belonging. It is the extent to which we extend hospitality and affection to one another” (Block, 2008, p. 5). This is a credit-based approach, whereby “community is built by focusing on people’s gifts rather than their deficiencies” (p. 12). Transforming our communities involves relationship building focused around an appreciation of what each person chooses to contribute. “If we care about transformation, then we will stay focused on gifts, to such an extent that our work becomes simply to bring the gifts of those on the margins in to the center” (p. 13). Early

childhood centres are ideal sites for community building, since families are already encouraged to participate as part of our curriculum, and early childhood teachers are focused on relationship building with children and their families.

Sustainable Aotearoa New Zealand (SANZ) is the organisation responsible for managing inputs required by the UN Decade of Education for Sustainable Development, in partnership with the New Zealand National Commission for UNESCO. SANZ considers “strong sustainability” to be absolutely fundamental to human wellbeing. It involves the preservation of the integrity of all ecological systems in the biosphere. A strongly sustainable human society operates as an integral part of ecosystems within a construct of ecological integrity whereby the ecosystem has the ability and resilience to maintain stability and diversity (Sustainable Aotearoa New Zealand Inc, 2009). SANZ believes that in order to commit to strong sustainability, our community requires a particular set of societal ethics and values. These include:

1. Placing great importance on non-material sources of happiness.
2. Removing the perceived linkage between economic growth, material possessions, and success.
3. Affirming the deep interdependence of all people. The associated community values include a robust sense of mutual respect, fairness, cooperation, gratitude, compassion, forgiveness, humility, courage, mutual aid, charity, confidence, trust, courtesy, integrity, loyalty, and respectful use of resources.
4. Affirming the value of local community, with associated benefits of reduced environmental footprints and increased cooperation between people.
5. Valuing nature intrinsically through knowing that human society and its political economy are integral and interdependent components of nature and the biosphere. Humans have reverence for nature and know that they are responsible for their impact on the integrity of all ecosystems in the biosphere. These ethics and values are the core of the needed societal understanding about how to live within the Earth’s limits and in harmony with people and all other species. (Sustainable Aotearoa New Zealand Inc, 2009, p. 12)

In this conceptualisation, “Ethics, values and ‘world views’ directly support strong sustainability because people know that they are integral to the ecological systems of the biosphere. Therefore, people desire the integrity of those systems” (Sustainable Aotearoa New Zealand Inc, 2009, p. 1). Interestingly, the professional association for early childhood educators in Australia, Early Childhood Australia (ECA), has included the obligation for early childhood educators to “work with children to help them understand that they are global citizens with shared responsibilities to the environment and humanity” within its recently revised Code of Ethics (cited in Davis, 2009, p. 230).

Consciously fostering a sense of community is at the heart of building strong sustainability. This requires that we as educators focus our efforts on fostering “ways of achieving interpersonal cooperation, trust, respect, and a sense of community, while at the same time being always ready

to challenge and debate assumptions and practices” (Sustainable Aotearoa New Zealand Inc, 2009, p. 22). Education in this view has as its core purpose “to ensure that each citizen has the wisdom, knowledge, and skills that are required to live, contribute, and play in ways that are in harmony with the whole of our strongly sustainable society” (Sustainable Aotearoa New Zealand Inc, 2009, p. 38).

This study, therefore, was part of a conscious movement described by Alvarez (2007, p. 15) as focused on “reinventing the meaning of stewardship, environmental consciousness and community, while trying to rekindle connections to the land, our own and our students”. It arose from our belief that early childhood education, through an enhanced focus on caring for ourselves, others and the environment, can make a contribution to a wider attitudinal shift at the community level, resulting not only in benefits to community wellbeing, but also contributing to the wellbeing of our local and wider environments (Gruenewald, 2003). Crucial to this process is the connectedness of work within centres to their local communities, with children, teachers and parents serving as the conduit for this connection.

3.4.1.1 Teachers exploring sustainability practices with tamariki, whānau and community

Generating a sense of connectedness with the natural world, and a sense of protectiveness towards it, are community-level concerns. With increased urbanisation, many Western children have fewer opportunities to experience nature on a regular basis (Blair, 2009; Davis, 2009; Phenice & Griffore, 2003; Prince, 2008b). Even in Aotearoa, where many people live close to rural, wilderness or beach settings, the long working hours expected of parents are prohibitive of time to be allocated in pursuit of these outdoor experiences, and unfortunately, some early childhood centres have limited outdoor areas available. This can result in a sense of disconnection, which, according to Laura Alvarez “has led us to forget (or prevents us from remembering) that we are embedded within, and are importantly connected, to the world that sustains us” (2007, p. 5). Alvarez considers this disconnectedness of our children’s communities from nature to be “one of the deepest (and largely unnoticed) causes of all the ecological and social adversities that we see in the world today” (p. 5). Therefore, Alvarez believes that “The consequences of this vast and increasing disconnection, loss of direct experience, and loss of enchantment with nature ought to be one of the primary concerns for educators, parents and community members” (p. 6).

Our approach within this study was not one of traditional environmental education, whereby teachers focus on teaching the subject of environmental education (Prince, 2008a). Instead, in line with *Te Whāriki*’s (Ministry of Education, 1996) pedagogical framework, teachers found their own ways to integrate environmental understandings in meaningful ways, relevant to their own centre and community contexts (Basile & White, 2000). As Judith Plant has written, “Home is the theatre of our human ecology, and it is where we can effectively think feelingly. Bioregionalism, essentially, is attempting to rebuild human and natural community” (Plant, 1991, p. 218).

Fundamental to the implementation of pedagogies of sustainability was the articulation of ethics and values underpinning this process. These are discussed further in the following section.

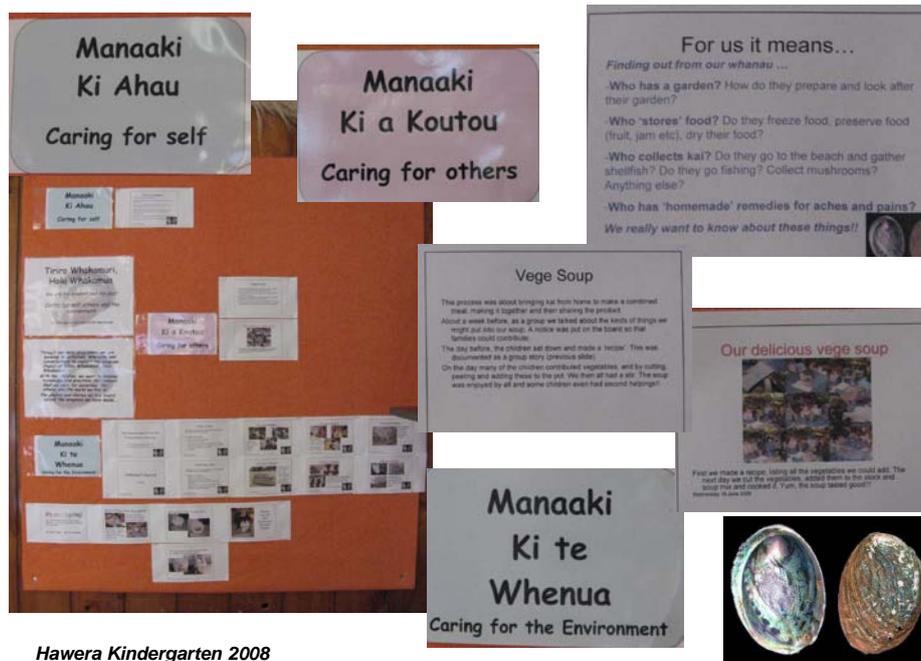
3.4.1.2 Informing and involving whānau and community

Early childhood centres in this study were able to build on already established relationships with families and within their communities in implementing their commitment to the research kaupapa of caring for ourselves, others and the environment. Involving whānau meant firstly informing whānau about the centre's focus. Centres prepared various notices and displays, as well as inviting whānau to meetings:

Hawera Kindergarten, 2008

Pānui mō te whānau

- Judith prepared a display for the wall to provide information and updates for whānau about our project work.
- The display includes documentation of activity so far.
- It was important to briefly remind whānau of what we were doing, how we would reflect this work in our programme and some examples collected so far that illustrated how this looked in practice. [Judith, October 2008, HW]



Hawera Kindergarten 2008

Hawera Kindergarten noticeboard

Gwyneth, teacher at Koromiko Kindergarten in Hawera, reflected on how their kindergarten had embraced the research kaupapa, by indentifying what they were already doing, as well as a pathway forward involving partnership with whānau/community:

Prior to our involvement in the research, we had been introducing Education for Sustainability concepts to our kindergarten for several years. Our philosophy and strategic plan now include these principles. We were making our practices, and the principles behind them, more visible to families by putting up noticeboard displays about Education for

Sustainability and Litterless Lunchboxes. Some practices were already well imbedded in our programme.

The beginning of the research project had an impact in a number of ways:

- We began to think about how Māori values, practices and culture tie in with the principles we wanted to promote. The concept of kaitiakitanga (being guardians over the wellbeing of the environment and the creatures in it—including us—gives a holistic view of what we are doing.
- We began to reflect more on whether the children were understanding the concepts we were introducing and to look for ways to gauge this.
- Asking families to contribute their ideas and their knowledge of their children's involvement in environmental issues gave us a more rounded picture of how much knowledge about, and commitment to, Education for Sustainability there is in the wider community. The ongoing journey begins to feel like a partnership rather than us forging our way ahead and trying to 'educate' others on what we are doing—some of our families are further ahead on the journey than we are and are providing inspiration for us. [Gwyneth, KM]

In response to this invitation, the teachers of Koromiko were invited to visit the garden of a family whose daughter attended the kindergarten, and who were very committed to sustainable practices.

Sinead – Living The Principles

When we began the Education For Sustainability journey, we put out a newsletter explaining what we had already implemented, our plans for the future and the reasons behind going in this direction. We invited whanau to give their ideas, comments and suggestions. Sinead's family were fully supportive of what we were doing and gave us lots of suggestions about other things we could do in the future. We soon found that this is a family that lives the principles of reduce, reuse, recycle and conserve. Along with recycling, composting and reducing litter, they use a cent-o-metre to measure and, therefore, conserve power and use environmentally friendly cleaning products in the household. When they created no-dig vegetable and fruit gardens, we were invited to come round to see these and find out what was involved in creating and maintaining them.



We had a guided tour with Sinead and Debbie, Sinead's mother. Sinead knew that the no-dig gardens had chicken poo in them and, with some prompting, remembered the straw and "some bit of little stripey paper" (shredded paper). Debbie added that there are layers and layers of cardboard as well. The straw and shredded paper has to be replaced frequently as bird activity displaces it from around the plants. As the layers break down and turn into mulch, the level of the garden sinks so the layers are topped up continuously.



Sinead shares her family's sustainable gardening practices, Koromiko Kindergarten

Here are some written responses from Sinead's family:

Life in New Zealand and especially Hawera can be classed as luxury living compared to life in Wales. Many houses have very little and often no garden, people tend to gather in parks and beaches to be able to enjoy games and freedom. Fruit and vegetable growing is a dying art. Composting would be seen as a potential area for attracting unwanted vermin. Children have very little concept of sustainability and what is involved to keep us fed, warm and dry. Why we would need to be kind to the environment has very little meaning when the supermarket sells everything and rubbish is taken away. We are very lucky to have a garden and for the land to provide us with food, heat and shelter, but the joy of being able to give back to the land is a much bigger reward again.

- 1) We have a worm farm to collect the worm juice which Sinead helps with.
- 2) We collect rainwater to help water the garden.
- 3) Anything the birds will eat is given to them rather than the bin.
- 4) Like most we recycle.
- 5) We use a centimetre to keep a check on which appliances are using most electricity and as a consequence we are much more religious in the minimal use of electricity.
- 6) The children are able to pick lots of different fruit from the garden.
- 7) We compost all fresh produce waste.
- 8) Sinead has helped to plant the no dig garden which is layers of cardboard, chicken manure, straw or shredded paper and compost to encourage worm activity and eliminates digging as weeds do not grow.
- 9) Sinead is always aware to turn off taps while washing hands and cleaning teeth.
- 10) Sinead enjoys playing in our wood pile and she has helped to chop up the wood which has been taken from our land. We are replanting with willow due to the ability to re-grow after cutting. Our children love to collect the wood and we show them how to stack a fire and how to respect it too.
- 11) We take an active part in growing vegetables. Sinead helps with the cooking of some things and they love to pick rhubarb and they make the crumble topping.
- 12) Most of our cleaning products are now eco friendly.
- 13) Our main future plan is to get chickens after Christmas so that more scraps can be fed to them.

What kindly has taught us:

- 1) Koromiko has encouraged us to think about how we package food. The trend now continues for school as well as kindly lunches—we are rarely using nonbiodegradable packaging.
- 2) Koromiko philosophies have encouraged us as a family to question how we can continue to be more self-sufficient and environmentally friendly.
- 3) Koromiko has encouraged us to talk to the children about why we chop wood, plant food, recycle and reduce the things we are putting into the bin. [KM]

The Koromiko teachers were intrigued with the “centimetre”/“cent-o-meter”, and subsequently considered purchasing several to use within the community, and loan to interested families.

At the initial collective hui, teachers across the ten centres had shared ideas for implementation. One of these was the notion of “litterless lunchboxes”. Raglan Childcare and Education Centre sent the following letter home:

LITTERLESS LUNCH CHALLENGE

Dear Parents,

Would you like to join us in the 'Litterless Lunchbox' challenge?

Here at Raglan Childcare in our recycle corner we have set up boxes for the children to put in plastic, paper and other recyclables from their lunchboxes. We have a worm farm and Merren's pig for composting fruit and vegetable scraps.

A litterless lunch is one where nothing needs to be thrown away. Did you know that on average a school-age child using disposable lunch generates 67 pounds of waste per school year (www.wastefreelunches.org)? Things like plastic yoghurt containers and spoons, plastic clingwrap and plastic bags, individually packaged snacks.

Ideas for a litterless lunch is to choose:

- Reusable lunchbox or cloth bag
- Reusable plastic containers: divide larger batch of snacks, e.g., raisins, crackers or large container of yoghurt, into single servings
- Reusable drink bottles
- Snacks in minimal wrapping

It's true we are all very busy and it's convenient and fast to use prepackaged food but maybe we could all start by changing one thing and together that would make a big difference to our environment. [RC]

Children and parents responded to these challenges, as is evident in the following sections.

3.4.2 Responsiveness of these practices and discourses to an ethic of care for self, others and the environment

Underpinning relationships within early childhood practice we can identify the philosophy of an ethic of care (Noddings, 1994, 1995, 2005). For Nel Noddings (1995), an ethic of care does not require an elaborate rationale, "to explain why human beings ought to treat one another as positively as our situation permits. Ethical life is not separate from and alien to the physical world. Because we human beings are in the world, not merely spectators watching from outside it, our social instincts and the reflective elaboration of them are also in the world" (p. 186). She considers that having been cared for as an infant and young child "is the root of our responsibility to one another" (p. 187). Ethical caring is distinguished from spontaneous natural caring in that it is motivated by duty or a sense of ideals. Ethical caring holds great promise, in its potential to "guide action long enough for natural caring to be restored and for people once again to interact with mutual and spontaneous regard" (p. 187). Rather than relying on moral guidance, an ethic of care approach, "insists instead that ethical discussion must be made in caring interactions with those affected by the discussion" (p. 187), although a fundamental principle might be identified as "Always act so as to establish, maintain, or enhance caring relations"(p. 188). Noddings' ethic of care is mindful of alterity, seeking to enhance the other's growth, whilst respecting "Otherness". It also rejects the notion of totally autonomous agency, and accepts instead the reality of our moral interdependence, recognising that "Our goodness and our growth are inextricably bound to that of others we encounter" (p. 196). An ethic of care is founded in an understanding of people

as relational beings, and can be seen as comprising three central components: “conceptual and emotive understanding; deep respect and intrinsic worth of others; and a willingness to act for the other” (Martin, 2007, p. 57).

Peter Martin (2007) draws upon the work of Noddings (2005) to point out that in order to foster a genuine relational sense of caring for the natural world, educators can focus on encouraging children to care *for* aspects of the environment in an intimate relationship, such as that seen in our study where children actively cared for local beaches by planting trees (Papamoa Kindergarten, Tauranga) or doing a beach clean-up (Meadowbank Kindergarten, Auckland, and Richard Hudson Kindergarten in Dunedin), rather than the more removed caring *about* a distant river for example. Martin considers that, “For educators interested in encouraging an ethic of care the capacity to think with the heart as well as the head is vital” (p. 61). David Gruenewald (2003, p. 8) asks us to consider, “Where in a community ... might students and teachers witness and develop forms of empathetic connection with other human beings?” As early childhood educators we can certainly respond that early childhood services are clearly sites in which this empathetic connection can be facilitated. Gruenewald further enquires as to “How might these connections lead to exploration, inquiry, and social action?” (2003, p. 8). Again, the data from this study provide examples of these connections leading to such actions within early childhood education programmes in Aotearoa.

Nurturing respect has been identified as a major objective of environmental education, this sense of respect emanating towards “both living and non-living elements of the natural world” according to Basile and White (2000, p. 203). They consider that “This ground rule for working with children in the environment will go a long way toward establishing children’s basic relationships with the world” (p. 203). This idea of interrelated respect for others and the environment resonates within *Te Whāriki*’s strand of “Exploration”, which lists the following as learning outcomes:

- theories about social relationships and social concepts, such as friendship, authority, and social rules and understandings;
- a relationship with the natural environment and a knowledge of their own place in the environment;
- respect and a developing sense of responsibility for the well-being of both the living and the non living environment;
- working theories about the living world and knowledge of how to care for it (Ministry of Education, 1996, p. 90).

It must be noted that indigenous peoples, including Māori, do not necessarily make a distinction between “living” and “nonliving” elements. To Māori, the mauri, or life force, is ever present and of central importance (Hohepa, in Moon, 2003). “Māori do not share the Western concept of animate and inanimate in the natural world. For Māori, all things have a mauri, or life force, and a wairua, or spirit. This is part of why Māori conceive their world in different ways from Westerners. The land, sea, sky, and waters are seen as indivisible” (Waitangi Tribunal, 2004, p. 4).

Teachers in this study were able to articulate values that underpinned their pedagogies. In the following section, data from the study are used to illustrate notions of caring for ourselves and others as they were articulated and enacted within the early childhood centres concerned. Papamoa Kindergarten near Tauranga has developed an Education for Sustainability Policy, the rationale of which states, in part, that:

We believe that it is important for children to respect and develop skills and knowledge to look after their environment and use environmentally friendly practices. To achieve this we believe it is necessary for parents and teachers to contribute and learn alongside their children and embrace practices that they can use throughout life. [PM]

This brief excerpt positions respect as central to their collective endeavour. Papamoa Kindergarten also integrates the following “Māori ecological principles” into their programme, which they describe as “informing our kaupapa”:

- Nourish all aspects of the tamariki/whānau and kaiako—healthy food and water, beautiful places and connection with nature, eg. tapa whā model.
- Te reo another way to integrate te reo and Māori concepts into everything we do.
- The long term view that what we do now affects many generations to come.
- Whakawhanaungatanga—working together.
- Puna Matauranga—growing a pool of knowledge.
- Whakamana—Respect—mutual respect between tamariki and the environment.
- Whaikōrero—about our place local legends.
- Tūrangawaewae—creating beautiful special places where people feel at home.
- Creating our own wairua.
- Conservation of Papatūānuku and Ranginui.
- Ako—co-constructing learners as teachers, teachers as learners.
- Pepeha— importance of whānau connections.
- Manaakitanga—care for people and our environment.
- Tuakana/Teina—reciprocal learning and sharing of knowledge. [PM]

4.2.1 Manaakitanga—an ethic of care

Manaakitanga is a term that invokes a range of interpretations. It has been defined as “The process of showing and receiving care, respect, kindness hospitality” and implies “that the giving and acceptance of kindness and hospitality bestows mana on both host and guest” (Benton et al., 2007, p. 186). Inherent within the notion of manaakitanga is the concept of mutual respect (Benton et al., 2007). Aroha, a component of manaakitanga, is associated with the obligation to care for others, including not only whānau but is also demonstrated through charity towards strangers. The need to retain and enhance mana dictates that manaakitanga involves an ongoing cycle of reciprocity:

Reciprocity is also involved in the concept or value of manaakitanga, which involves nurturing relationships, looking after people, and being very careful of how people are treated, and expecting the same care in return. This includes relatives but also extends beyond them to all manuhiri. It is one of the key regulators in the interaction of Māori communities, and of Māori and Pākehā (from a Māori point of view). (Waitangi Tribunal, 2004, p. 11)

In their first set of data, Richard Hudson Kindergarten from Dunedin identified their kindergarten treaty as an aspect of generating an ethic of caring that they already had in place at their centre. This idea was picked up by Maungatapu Kindergarten in Tauranga:

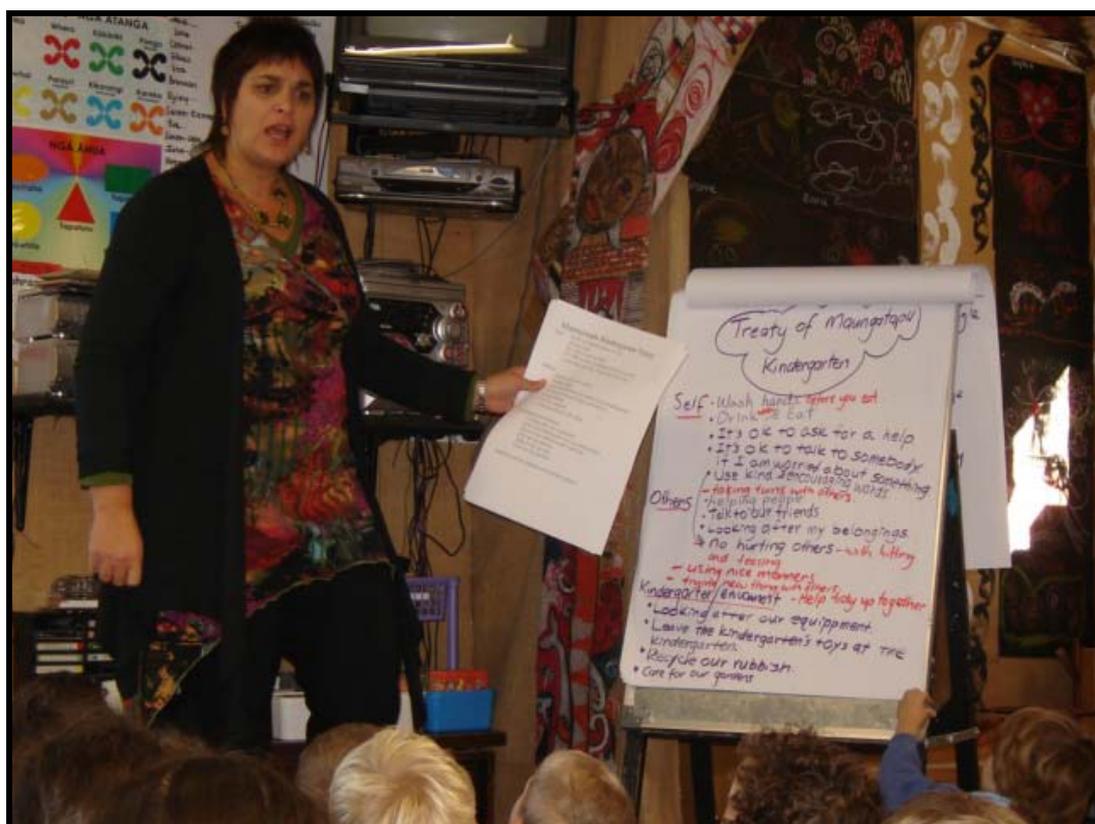
2/5/08 Ideas and Thoughts for our Treaty

Developing a Treaty

We were keen to explore the concepts of manaakitanga through the kindergarten environment by using the Treaty concepts to share ideas such as: care for self/others and the environment. Through honouring Te Tiriti o Waitangi, Article 2, talks about the care for lands, forests and fisheries.

As a team, at the beginning of each new term we talk with the children about a contract which allows them to think about what is okay and not okay behaviour. The children understood the notion of a 'deal' together to keep yourself/others safe, and respecting our environment. Quickly we were able to establish an agreement.

Signing the Treaty allowed the children to take ownership to this process and intention of the content, empowering the children to self and peer monitor. We talked with the children about 'What is a Treaty?' and 'Why is it important to have one?' [MT]



Marion Dekker and tamariki of Maungatapu Kindergarten discuss their kindergarten treaty

These were some of the children's thoughts:

What is a Treaty?

- R: It's about, so we do not hurt people, it's about sharing.
- T: Being nice caring for the kids.
- R: We need to look after the animals.
- K: We look after our toys and the animals, we feed them.
- G: So we know all the safe things.
- M: It is a deal.

Why do we have one?

- I: So that things are fair.
- R: So everyone is happy.
- R: So that the Māori people are fair. They went to the top of Mauao. They had songs and spears (part of the Waitangi Day celebration in Tauranga).
- K: So we all know what to know.
- M: So we all know the rules so it is fair. [MT]



Maungatapu Kindergarten—creating our treaty

At Belmont Kindergarten Te Kupenga in Hamilton, teachers Pat and Pera are very much focused on implementing their centre philosophy which they describe as operating under the cloak of whanaungatanga (including families) which embraces: whakapiripiri mai—coming together; manaakitanga—caring and sharing, making people feel at ease; and rangimarie—peace. During

this study, Pat articulated ways in which this philosophy is enacted in practice which are very much in keeping with Noddings' ethic of care explained previously:

It's about what suits these families. How can we make their lives easier? Because being a parent is so hard and if you've got babies and toddlers and kindergarten-aged children and children to get to school, why are we going to make it harder for them being rigid [about session] times? And also we want them to be able to spend time here and know their toddler is safe, the baby is safe and the mum who's breastfeeding a baby who hasn't slept all night because the baby's crying so she comes and sits on your sofa. We take the baby, and we're around with the baby while the mum has five minutes' peace. Sometimes it's all the mother needs for her personal sanity. So yes we carry babies around. Pera's really good at that. And it's about being there for people and if we want to be true to our philosophy then we have to do those things and it's not about 'have to' do them, we actually 'want to' do those things because it feels so right and the more we do those things, the more we get back in the love, the people coming, the support that we get and so it's the basic thing of human life. You get back what you give out. [BM]

Pat also explained how the teachers' commitment to supporting families has meant that they no longer adhere rigidly to "official" session times:

So because we have whanaungatanga on the wall and it's our philosophy, we've totally gone loose on time and yes, so there's no starting time and finish time. We're very flexible about this. If someone has to drop their child early, they come early no matter what. If they want to stay for lunch because the parents are going to be late, they stay for lunch. We're not phoning up saying, if you don't come within an hour we're going to phone Child, Youth and Family Service because you haven't fetched your child because the policy says stuff like that. It's unbelievable. So we've just loosened up on all those things. So that's about me the Pākehā letting go of things and making this more marae-like so that time is okay, yes it's important but there's also time constraints on parents for all sorts of reasons and people generally are not early because they want to be early and they want to get rid of their child, they've actually got somewhere to go to that's really important ... [BM]

Pat and Pera from Bellmont Kindergarten Te Kupenga provided a tangible example of teachers caring for each other:

Pat: One of the special things about here, Pera and I do not leave each other at the end of the day without a hug. We don't just walk out of here. We give each other a hug and we thank each other for the day. And then off we go again āpōpō.

Pera: They're special to us. If we can teach them or touch in any way we're doing okay I believe. And like Pat says we never go without hugging one another and thanking one another and I think that shows respect. It shows the love and that just shows our true philosophy of whanaungatanga because we're one people and we stand together tūturu ki te kaupapa and at the end of the day, who's it for? Our tamariki. Who brings those tamariki to kindergarten? Our parents. Because without our parents where would we be? So I think this is where we're really special. It really shows in our appraisals. The words that we write, the mahi that we talk about and just the strength that we combine together, Pat, eh, that make our team so I love it. You know I love it. [BM]

Collectively Kids' teachers wrote of their awareness of "*Caring for each other—little acts of kindness, helping, having high expectations of social competence.*" Here is one instance:

After watering the mint plant N picked some mint to smell. A was close by so she passed him some too. N sniffed the mint and held it under A's nose too, so he knew what to do with it. They both looked at each other with great thoughtfulness. [E, CK]

Caring for ourselves was another aspect of our research kaupapa. Michael Bonnett (2006, p. 271) views "alienation from nature and from self" as being "highly interrelated and key to our ability to knowingly despoil the environment". He suggests therefore, that "If we love (value) ourselves, we will love (value) [the environment] which we believe supports us" (p. 271). This means that an important aspect of "education for sustainability as a frame of mind will be to reconnect people with their origins and what sustains them and to develop their love of themselves" (p. 271). Encouraging self-care is a routine aspect of early childhood care and education. At Richard Hudson Kindergarten, this focus was extended more widely in their concern to include families in exercise sessions such as aerobics conducted by one of the teachers, Grace:

Caring for Self—Push Play

We have a strong ethic of caring for self. We educate the children on ways to keep safe, healthy and happy. This term we have celebrated Push Play. We embarked on the Hillary Challenge for a second time, and Grace gently encouraged the whānau to join in, in her very persuasive way! We had a Push Play morning where we all went around an inside and outside circuit of nine stations to get fit. [RH]

3.4.2.2 Healing as caring

Often present in our work as early childhood educators is an unspoken spiritual level of being where emotional and spiritual healing takes place. Jane Bone (2008) describes how teachers generate a climate of spiritual interconnectedness which is nurturing of children's emotional, physical and spiritual wellbeing. She considers the practice of what she describes as "everyday spirituality" to be "protective, restorative and healing" (p. 267). Gardening is an everyday practice that enabled children, teachers and parents to experience a healing sense of spiritual interconnectedness with the natural world.

As reported in the Te Ao Māori section (Section 3.2), Joy and Judith, teachers at Hawera Kindergarten, used the book *Koro's Medicine* (Drewery, 2004) with the tamariki:

Joy talked about native plants and how Koro used them. For the children at Hawera Kindergarten, we looked in our playground and found native plants and learnt some of their healing properties. We used an illustrated book called *Wai Rākau. Essence of the Forest. Māori Herbal Remedies*, about rongoa from native plants. The children took photos and were curious to know what they were for. While harakeke was used for Tama's blisters, it was also used to make kete, whāriki and kākahu. Plants we found included pohutukawa, tī kauka, kōwhai, kawakawa, harakeke, koromiko, puawānaga and rahurahu. We also looked at edible plants which included pūhā, and the vegetables in our gardens, carrots, peas, lettuce, tomato, parsley, coriander. Joy shared some personal experiences her mum used, such as applying pūhā sap to warts ...

The children were able to identify with this ... and engaged in discussion to share their experiences ... Some children and their families go to the beach to play in the sea and rock pools, gather kai moana, go fishing at the beach or in a boat, plant their own gardens, make compost and also take an interest their grandparents' gardens, especially their tomatoes.

In sharing these stories with the children, rongoa comes in many forms as one adapts to the environment they live in. November 2008 [HW]

At Maungatapu Kindergarten, a mother, K, had just facilitated a yoga session with the children. She described how the children had responded:

They had fun, they found it fun. It's all about round the story. It's not about this is this pose or this pose. It's just about let's have fun. So we're being animals. We would be off on a trip in the jungle. So we got in our cars and off we went and then we rode up the river and then we put up our tent and then we were, 'Listen there's an elephant' or 'What can you hear?' 'Monkeys in the trees.' So we were monkeys and then we were trees and then the lion ... 'Oops let's race home!' and we raced home ... and then 'Oh back to bed and you feel really safe in your bed and lie down, close your eyes.' One thing I found really interesting that they respond to in amongst that is trying to teach them to relax and then going round and testing them, 'Are you like jelly?', and the kids that just hold themselves and then teaching them, 'No, no, no, let's just relax and be jelly. Just pretend you're in bed, and this is relaxing and this is going to help you go to sleep if you find that you need to' ... I know for a fact there's one little boy, the mum was saying, he's her little worrywart at four years old! So it's like can you teach them techniques to help them breathe or make them aware that their thoughts, you're not your thoughts. How you can deal with them. [MT]

At Raglan Childcare and Education Centre, eating outside in the winter sunlight is an everyday spiritual practice that is a source of wellbeing:

Sitting in the sun

What do we do when the sunshine comes out in winter?

We follow it! It was such a beautiful day we decided we wanted to eat our lunch outside. The teachers moved the big kai table out and it felt like a party. The sparrows enjoyed our crumbs afterwards and the teachers didn't have to mop the floor! We wanted to have a really long lunch outside and eat all our food. Then it was back inside for a lie down on our beds, then outside for more playing in the sun!

Learning outcomes:

We discuss the weather and how sunshine makes you feel. We discuss how living things need sun to grow. We discuss eating healthy food and resting to help look after ourselves so we don't get sick. The children cope with a degree of change in the daily routine.



Raglan Childcare and Education children eating lunch in the winter sun

Educators can consciously seek wellbeing-enhancing opportunities, integrating them as part of everyday spiritual practices. These can be as simple as moving our lunch table outside on a winter's day! Lourdes diaz Soto and Beth Swadener have envisaged an early childhood pedagogy in which early childhood educators serve as “cultural workers invested in healing” (Soto & Swadener, 2002, p. 58).

3.4.2.3 Wairua—early childhood care and education as sanctuary

Wairua, the spiritual dimension, has great significance within a Māori worldview. In Part B of *Te Whāriki*, the Māori text provides an explanation of the centrality of wairua to caring for our environment:

E ai ki ta te Māori, ka whānau mai te mokopuna ka tapahia tona pito, ka tanumia ki tona whenua. Ka huaina ano nga parapara, he ‘whenua’. Na enei tikanga ka tuhono te wairua o te mokopuna ki te whenua, ki tona iwi, me te taiao. Na enei tikanga ka poua te mana turangawaewae o te mokopuna mo tona whenua ki tona ngakau. Ka aroha hoki ia ki te taiao. Ka noho pumau te mokopuna ki te wairua o te whenua, ka noho pumau te wairua o te whenua ki te mokopuna ...

This is the development of personal autonomy, identity and belonging ... According to the Māori when a child is born its umbilical cord is cut and its placenta is buried. The placenta is referred to as ‘whenua’. Through this act the spirit of the child is joined with the land, with its people and with the environment. Through this custom, the association of the child with his land is established within his heart. [He/she] shall care for the environment. The child and the spirit of the land shall be as one. (Ministry of Education, 1996, p. 36; translated in Benton et al., 2007, p. 178)

Teachers in this study sometimes referred to wairua as something that they were aware of within their practice:

They keep coming back and coming back. The wairua that you feel when you enter the kindergarten is so special for them because they don't feel it anywhere else that they go into so it's like this, we always say 'We're a unique little kindergarten.' It's all about sharing love. Respecting people and children as well. So they're like our mokopuna eh Pat. [Pera, BM]

I thought, wow there's our wairua right there, our harakeke. Because it's that hutia of te rito, it spreads out and those are our families. That's our whānau. And I looked and thought, we're so fortunate, we're so lucky to have something like that and we also say to the parents, come and pick some harakeke if you want. [Pera, BM]

Hawera Kindergarten reported on "Some ways our environment nurtures our Wairua":

Papatūānuku (Earth Mother) and Ranginui (Sky Father) look after all of us. The sun, wind, rain and air look after the plants that look after us. We are nurturing our tamariki to look after their environment. In caring for our natural environment, the tamariki are developing respectful relationships with nature whilst nurturing their health, wellbeing and wairua (spirituality/soul) within. [HK]

They demonstrate this spiritual nurturing by regularly having karakia before kai. And for Papamoa Kindergarten, "*Wairua is what we believe is very special about our kindergarten, a sense of belonging and aroha.*"

3.4.2.4 Manaakitanga through provision of kai (food)

Provision of kai (food) is an important aspect of manaakitanga. Jane Bone points to the social, cultural and symbolic meanings surrounding the provision of food within early childhood settings, suggesting that this requires mindfulness on the part of teachers: "It is part of teacher decision making to emphasise one food or another, to introduce ritual or not, and to choose how to give continuity to children as they move between contexts" (Bone, 2005, p. 308).

Pat explains how their kindergarten, Belmont Kindergarten Te Kupenga, operates around the provision of kai:

The other thing I think we need to comment on is that 'kai' is really important in this kindergarten and feeding people and making it simple for people so our kai philosophy here is, they don't bring lunchboxes, they don't bring juice bottles, they bring kai to share. So we have shared fruit. People donate bread and spreads so there's those people who can afford to do it, those people who can't. No one's counting. No one's looking. The food just comes in and the children get fed. Simple, healthy food, water in the tap and people pick up on that and it's so much simpler than everyone bringing in their own individual lunch boxes and ... Because we're here longer on a Monday and a Friday, we have a picnic together with the children. We have sandwiches, popcorn and fruit on a Monday and pizza and fruit on Friday afternoon. We sit together as a whānau and have a kai and we're always either making something with the children or encouraging them to try things and we grow food in our gardens. Broccoli is our favourite food and it's amazing the children who will eat the

kindergarten broccoli but won't touch it at home because it doesn't taste the same but because they've planted it, they've cut it, they've washed it, they can smell it cooking. And it's just a tiny little sprig sometimes but they eat it and we had some lettuce out there and there was a little boy who would pick his lettuce and make his lettuce and marmite sandwiches when he made his marmite sandwich for morning tea. I just brought some potatoes in the car. We're going to plant potatoes and new silverbeet. And so we're renewing our gardens all the time and we've got fruit trees out there that are starting to all get fruit. A mum gave us a black raspberry plant so we've got raspberries and the children can go and pick them and we must encourage them to pick them because they've got raspberries on there now. Our feijoa tree—last year was our first fruit. This year we're going to have heaps of fruit and they go out and pick the food off the ground and bring them in so we can share them. The tomatoes are growing. [BM]

Jane Bone considers that “It is an equitable practice to make sure that children know that food is available and that they will not be judged or made to feel a nuisance for eating and drinking” (2005, p. 312).

Whaea Pera related a situation in which a mother had been certain that Pera had a special recipe for the pizza dough she makes each week with the children. Pera explained to the mother that in fact she used a very basic recipe. The secret ingredient was, according to Whaea Pera, that she kneads the dough with love:

There was a good one the other day, she said to me, ‘Pera ...’ I said, ‘What...’ She goes, ‘How do you make your pizza?’ I said, ‘Oh, just flour, baking powder and milk...’ and I said, ‘Why?’ She said, ‘I make pizza. It’s not the same as kindergarten’s. It must be something special Pera.’ I said ‘No. You knead it with love.’ [BM]

This is similar to the experience reported by Jane Bone, during her observations of a Steiner Kindergarten:

A teacher told me that she is often asked for the recipe for bread or biscuits and the parent follows it faithfully but then reports that the child has said ‘it does not taste the same’. This teacher explains that this is because in the kindergarten there is: ‘physical digestion and spiritual digestion, we sit and acknowledge the source of food, grace is not a religious expression but a process of inner appreciation to support the presence of that ... it’s the way it’s made and the way it’s eaten together, not the bread.’ (Bone, 2005, p. 310)

At Bellmont Kindergarten Te Kupenga, relationships with parents enabled a shared focus of preparing a collective end-of-year meal amongst their diverse urban community. Pat explained that Pera had been organising whānau regarding the preparations:

Pat: Pera talk about, you’ve been proactive about talking to people about the kai.

Pera: I think it’s just about empowering people. Giving them a voice. Giving them [a sense of being] part of our whānau. Making them feel special and included and that’s what F. said, ‘Oh why don’t we have a hāngi?’ I said, ‘Right, let’s get cracking!’ So away we went. You know we had M., one of our students here, he’s from the Solomon Islands. Oh well, I can get him to make coconut bread and cassava rolls. And then M. from the Congo. You know

we're going to have 'fufu'. And then we have all our Indian whānau as well, butter chicken, naan bread.

Pat: And we have one family who's vegetarian. Very vegetarian. And they bring in vegetarian. One of our Indian families. One of the main reasons we changed, we've got a lot of Somali families who come here now and they choose to come here and they never come to our end-of-year functions.

Jenny: Because it's Christian associated?

Pat: But, well we never talk about Christian but Father Christmas is there and I just think, that's not part of their culture, so this year, so I'm starting to talk to them, giving them pānui, telling them about it and one of the mums came up to me quietly and she said, 'In our religion there's prayer days and I'm not sure if it's the 9th or the 10th of December is our prayer day.' (Our party's the 10th of December), so she said 'I'll let you know. If it's the 10th we'll all be praying.' So that's another thing for us to learn. We need to get their calendar and find out when their big festivals or whatever, their special things are so we can fit in with that too so we're not worried but there might be a chance that they won't be coming because it might be their prayer day. And that's the difference between how you operate a place and how you don't operate a place. [BM]

3.4.2.5 Growing and preparing kai as manaakitanga: Gardening as caring and sustenance

Gardening has been a feature of children's experiences in traditional cultures, whereby children are apprenticed from a very young age into culturally valued skills (Rogoff, 1990), and also historically within the construction of early childhood education contexts as promoted by Rousseau, Froebel, Gandhi, Montessori and Dewey (Blair, 2009; Davis, 2009; May, 1997). Gardening also formed a key part of the education of Māori children within the Native Schools system in Aotearoa (Simon & Smith, 2001). However, as childhood experiences have become more structured around regulatory convenience and surveillance, the spaces available for children to play in are open, often stark and bland and lacking "the appeal of intimate spaces grounded in the natural environment" (Blair, 2009, p. 17). Blair points out that "Whether urban or rural, the landscape in which children find themselves is the staging ground for their imagination, their story, their sense of the world" (2009, p. 17).

Participation in gardening "can readily improve on the complexity of that experience and provide the repetitive access, meanings, and associations needed to create a bond with a place" (Blair, 2009, p. 17). The regular experience of a garden with its cycles of seasonal change, and intimacy with plants and other living creatures, offers children a grounding in understandings and experiences of "growth and decay, predator-prey relations, pollination, carbon cycles, soil morphology, and microbial life: the simple and the complex simultaneously. Gardens are intensely local" (Blair, 2009, p. 17). Gardening, therefore, is a microcosm of local and cultural knowledge, and "Seeds and gardening styles are the stuff of history, culture, ethnobotany, and literature" (Blair, 2009, p. 17). Children are deeply engaged in their gardening activities. "The act of growing food from seeds is exciting, even miraculous; the product is something special to be taken home to share" (Blair, 2009, p. 18).

The use by Hawera Kindergarten of the Maramataka, the Māori seasonal calendar as described in “Te Ao Māori” (Section 3.2.4) demonstrates a resonance with traditional times in the sensitivity to the seasonal changes, and also in the continuity of practices such as karakia, a prayer said in recognition of the sources of foods, which in traditional times were the Māori Atua, the departmental Gods of the domains of Tangaroa (the sea), Rongomātāne (agriculture, cultivated foods such as kūmara, and also peace) and Haumiatiketike (uncultivated foods such as fern root) (Williams, 1997).

As a result of mat time discussions, the children at Hawera Kindergarten chose to grow vegetables for themselves and their whānau:

- At mat time I talked to the children about gardening and growing plants. I asked, ‘Shall we grow veggies for the rabbit or veggies to share with all the children and their whānau?’ The children decided that sharing the veggies was what we should do. I told them I would need their help someday soon to get the gardens ready—weeding etc. I also explained that we were going use the Māori gardening calendar to help us with our gardening work. We made a list of veggies we might like to grow.
- Madeline and her mum brought in an egg tray, seeds (carrot, broad beans and peas) and a bag of seed raising mix. Madeline explained really well what we needed to do. Later in the morning several children helped to plant the seeds in the egg trays. Now we have to take care of them and wait!
- The children and Judith got outdoors between showers and began weeding the raised garden beds. We talked about getting the gardens ready for planting, and about putting good things back into the soil so our plants will grow well.



Soup making at Hawera Kindergarten

During this time also, teacher Joy shared with the children a story, *Nanny Mihi's Garden* (Drewery, 2002), to reinforce the cycle of growing and sharing food:

Joy read *Nanny Mihi's Garden* to the children. They planted their kai from seeds and had enough kai for a year. Nanny Mihi had both fresh kai and preserved some of the vegetables.

Joy shared one of her whakapapa books and showed photos of Kui Milly and her whānau. She talked about Kui Milly growing kai with her moko and some of the tikanga around gardening such as karakia, planting and growing the kai, and remembering to give the first of her crops to Maru. Similarities included growing enough kai to share with the whānau. The children shared their own stories about gardening at home and in the kindergarten, and sharing their kai with friends and family. [HW]

As children in this study participated in growing and preparing their own food, they were empowered to find ways of meeting their needs for nutrition and satisfaction, without recourse to instant gratification of fast-food takeaways or two-minute noodles. "Anonymous prepackaged food arrives at supermarkets from energy-intensive, polluting, and often obesity-promoting industrial food-manufacturing systems" (Blair, 2009, p. 18). Through involvement in growing their own fruit and vegetables, "Children can develop a powerful (re)connection to land, food and community with which they become intimately acquainted and can thoroughly relate to some of the essential elements of everyday life" (Alvarez, 2007, p. 32). This serves as a tangible contrast to the disconnection with nature whereby food is seen as constantly available and instantly sourced from the supermarket or fast-food suppliers. Alvarez considers that "It is essential that they understand the importance of linking food to a healthy human and ecological environment" (2007, p. 33). Papamoa Kindergarten explained how this operates at their centre:

Harvesting, cleaning and preparing kai is a great way to show where kai comes from (not the supermarket). We make springrolls and 'crabby patties'. Sometimes we just eat the vegetables raw. We made a decision to bring more vegetables in to our outdoor area as we have two separate garden areas. Now we have mandarin, feijoas and a berry garden. We have been talking about waiting until our strawberries and tomatoes are red before we eat them as then they are ripe and tasty. A child comes running in from the garden with a handful of red berries and shows us they are ready. Unfortunately they were blackberries, another learning opportunity. [PM]

As centres sent excess garden produce home with the children, so also were parents and community generous in their contributions to the centres. In discussion with Hinemania, a teacher at Raglan Childcare and Education Centre, Jenny asked her about this reciprocity:

Hinemania: So we've had all the tomato plants self seed and they've gone home. The strawberries have gone home. Even the sunflowers went home and the lettuces have gone home.

Jenny: And parents keep sending things in like more seeds?

Hinemania: Yeah, so we've just received this week corn, tomatoes, beans and I think someone brought in a swan plant as well.

Jenny: Wow, all in one week?

Hinemanina: Yeah!

Also occurring at this centre was a reciprocal cycle whereby seedlings generated in the centre were taken home by children and then grown at home, with some of this harvest then being returned back to the centre, such as lettuces which were shared in sandwich making for a lunch:

Raglan Childcare and Education Centre

August 1st, 2008

L brought her lettuce plants in for news. These were seedlings from childcare and have now grown to a good-sized lettuce. L says we can use the leaves to make sandwiches. At morning tea time Hine helps some children to wash lettuce leaves and put them in their sandwiches.

Children develop:

- Appreciation and respect of living environment
- Awareness of physical elements and change
- A sense of wonder for nature

Children experience:

- Hands on sensory experience textures, colours, smell of soil, seeds and plants
- Link care of plants by their actions of watering, watching and investigating changes over time, by revisiting develop a sense of belonging

Have opportunities to:

- Link care of Papatüānuku, our earth, science/nature, food from plants
- Share experiences from home—develop links with the home environment



Merren and L talk about lettuces

This aspect of manaakitanga, of “an endless cycle of reciprocity” (Waitangi Tribunal, 2004, p. 4) emerged in centres that established reciprocal sharing schemes, such as Raglan Childcare and Education centre’s “OOOBY” (out of our own back yards) bowl:

15 March 09

During the week of 16 Feb, I noticed an ad in the Waiheke local newspaper about a new initiative on the island to bring together people interested in growing and eating out of our own back yards (OOOBY Store). We have been harvesting tomatoes and cape gooseberries from our own garden here at Raglan Childcare. I introduced an OOOBY bowl to see if parents wanted to join in and contribute from home. Over the next month we received some yummy fruit and vegetables. A memorable-sized watermelon from E's family was shared upstairs with under twos and downstairs with over twos. An enormous marrow was carved into a whale. The OOOBY bowl has sparked off different activities like juicing and experimenting with taste and colour. Making our own tomato sandwiches at kai time, cooking and eating sweetcorn. Tasting and identifying new things like pepino from Merryyn's garden. At mat time we sat in a circle and passed different fruit around for everyone to hold, touch and smell. We cut a marrow open to look at the seeds inside, and we tasted the yummy plums and apples and peaches from R's orchard. [Penelope, RC]



Raglan Childcare and Education OOOBY bowl, and sharing sweetcorn from the bowl

[Later] Our OOOBY bowl at Raglan Childcare is overflowing! We have harvested our tomatoes as they come ripe and parents and teachers are bringing in fruit and vegetables from their own back yards. Today we enjoyed sweet-corn from E's garden. C left an enormous watermelon on the kitchen bench—much too big for the OOOBY bowl, but big enough to share half upstairs with the under twos and half downstairs—delicious! [Penelope, RC]

The team at Richard Hudson Kindergarten set up a “free shelf”, which expanded to include clothes, toys, books, plants, cuttings and so on:

It was decided to introduce a ‘free shelf’ to encourage reuse. The idea was to have a permanent shelf where any sort of goods could be exchanged for no cost. At first it was only the staff putting things on the shelf, but gradually whānau have begun giving and taking from the table. Recently someone brought food items. The flow of give and take is beginning to happen. Kindergarten children and their siblings are noticing toys on the shelf and enjoying the free aspect. It is hoped that they will bring in their unwanted toys for someone else to use. Used clothing is a popular free item. [RH]

[Later] The free shelf remains very popular. It has been going for seven months. It is a great way of reusing and recycling goods. Recently we had three boxes of children's books donated. They found homes very quickly. Tino pai. [RH]

Similarly, at Bellmont Kindergarten Te Kupenga there is a "community basket" which was instigated by a parent:

The other thing we've got is the basket. The community basket out there, a parent said, 'Can we hang up a basket and if we've got any extra produce at home I'll bring it and put it in there?' Because they grow their own stuff and so people bring things and put them in the community basket and there's a bag and packets and people come and help themselves. And at the end of the citrus season we just said to people, "Anyone got lots of citrus at their place that's just lying around wasting?" and one little girl's grandparents brought in bags and bags of oranges, lemons, mandarins, whatever and we just shared it with all the whānau so it's just things like that because some of the families here really struggle. We're in an interesting mix of families and so from that point of view part of our philosophy is just sharing kai, growing kai for us all to enjoy. Just saying that actually it's quite simple to grow stuff. It's not as hard as you think it is. You've just got to spend a little time [Pat, BM]

Many centres experienced families bringing food in to share, as in this narrative from Galbraith Kindergarten in Ngaruawahia:

Veges from home. 9th February 2009

Galbraith Kindergarten

By Diane

For news this morning, E brought some vegetables that you and your family have grown in the garden at home. What wonderful news to hear about an interest you have at home. After mat time I asked if you would like to cut up your vegetables and it was suggested that we could make coleslaw with a cabbage out of our kindergarten garden. Yes, you agreed. Off to the kitchen we head with a group of interested friends to collect the equipment we needed. When I asked what we would need to first do with the vegetables, I was told we would need to wash them. Why? Everyone said they (carrots) had dirt on them. How did they get dirt on them? 'Carrots grow in the ground' E told us. Wonderful knowledge you have E. Once washed the group set to work grating up the carrots.



Galbraith Kindergarten veges from home

You asked if you could grate some apple for the coleslaw. Yummy that will be nice in it. We collected a cabbage from our garden which also needed to be washed and some apples from our tree. While I cut up the cabbage and tomatoes, you all worked hard at grating. When you decided that there was enough grated carrot and apple for the coleslaw, everyone added it to the bowl of cabbage, mixing it as they did this. D told us that we needed some sauce. So off to the kitchen for her to show us what she was suggesting. D went straight to the dressing in the fridge. Wonderful idea that will finish the coleslaw off nicely D, thank you.



Galbraith Kindergarten making coleslaw

Ka rawe tou mahi! Awesome work everyone!

Learning:

- The children have knowledge about the growing of food and how it can be used for eating. They are also aware of the process of preparing food and actively take part in this. They were using prior experiences to achieve this task.
- We will provide further opportunities for growing and eating a range of food within our environment and from home. [GB]

Galbraith Kindergarten is one of many that celebrates the seasonal festival of Matariki, the Māori New Year. Paul Meredith explains the background to this celebration:

Once a year, twinkling in the winter sky just before dawn, Matariki (the Pleiades) signals the Māori New Year. Traditionally, it was a time for remembering the dead, and celebrating new life. In the 21st century, observing Matariki has become popular again. Heaven-bound kites, hot-air balloons and fireworks help mark the occasion. Matariki is the Māori name for the small cluster of stars also known as the Pleiades or the Seven Sisters, in the Taurus constellation. In New Zealand it comes into view low on the north-eastern horizon, appearing in the tail of the Milky Way in the last days of May or in early June, just before dawn. This heralds the Māori New Year. Various Māori tribes celebrated Matariki at different times. Some held festivities when Matariki was first seen in the dawn sky; others celebrated after the full moon rose or at the beginning of the next new moon. For all tribes, the importance of Matariki has been captured in proverbs and songs, which link it with the bright star Whānui (Vega):

Ka puta Matariki ka rere Whānui.
Ko te tohu tēnā o te tau e!
Matariki re-appears, Whānui starts its flight.
Being the sign of the [new] year!

Matariki is also associated with the winter solstice. It appears when the sun, drifting north on the shortest day in winter, reaches the north-eastern end of the horizon. The sun then turns around and begins its journey south. (Meredith, 2009, p. 1)

Jane Bone's work has explored how rites and rituals can punctuate the seasonal and daily events within early childhood settings. "Early childhood settings have their own rites and rituals. Rituals give shape to the year, and rites shape the day. They make cultural practices visible" (Bone, 2008, p. 272). At Galbraith Kindergarten, Matariki is marked by seasonal recognition of the preparation of the gardens for replanting:

Galbraith Kindergarten Matariki—Weeding
27 May 2008

As part of our Matariki (Māori New Year, 5 June) celebrations this year, we are focusing on planting, especially the vegetable garden at kindergarten. This morning a large group of children became fully involved in the weeding and tidying up of our vegetable garden ready for replanting.

Look at all the keen workers we had!



Matariki weeding at Galbraith Kindergarten

In no time these hard-working gardeners had the weeds removed. Each 'gardener' had their area to tidy up. M ensured the weeds were put into the wheelbarrow and when full she took it over to be emptied into the garden bin with help from others. Thanks M, that was an important role you were doing.

Learning: Caring for and being involved in our environment provides the children with an understanding of the importance of Papatüānuku (Mother Earth) in our lives and the concept of whanaungatanga, relationship with the environment. We will continue extending this interest by planting up the garden.

Galbraith 28 May 2008

Matariki—Planting

By Diane, Part 2.

Yesterday we started preparing our vegetable gardens by weeding them ready for planting. This is part of our focus in celebrating Matariki at kindergarten.

Today it was time to plant the vegetables, lettuces, cauliflower and silverbeet plants. The soil was very dry so we decided to water it first. Everyone set to filling buckets or watering cans at the sandpit hose and emptying them on the garden. Next step was mixing the water in.

All the children worked so hard on this task.

Awesome work everyone.

With the soil all wet it was time for the plants to go in. What wonderful gardeners we have. The children skilfully made a hole and in went the plants. Many of them knew to move the soil around their plant to make it firm in the ground. Well done tamariki.



Galbraith children prepare the soil for planting

We had lots of discussion around:

- How we will need to care for our plants as they grow.
- What vegetables are and which types they like to eat. Some said that carrots and corn were their favourite vegetables. We will plant these in the spring.
- What plants need to grow, sun, water, no weeds.

Learning:

- Co-operating and working together to achieve the goal of planting the vegetable garden.
- The cycle of gardening, weeding and planting, then harvesting the crop.
- What plants need to help them to grow—sun and water.
- The ongoing need to care for the plants.
- The children understood that the plants will grow into food for them to eat.
- What plants are vegetables.

Let's continue this interest in gardening by supporting the children to care for their vegetable garden and have other opportunities to plant and grow various plants.

Galbraith Kindergarten, Māori New Year

Thurs 6 June, 2008

Over the past two weeks, leading up to Matariki the children have been weeding and planting in our gardens (particularly the vegetable garden) and pots, for the new year. They have planted two native trees and flax plants in the large tyres at the end of the kindergarten grounds. The children have also been busy tidying up the environment. The tamariki have also established our own star cluster around the story of Matariki and her six daughters inside the centre. They have enjoyed hearing and learning the stories and songs around Matariki.

Today we celebrated the showing of the stars Matariki and her daughters in the morning sky with a pyjama party and breakfast at kindergarten. What fun we had, showing off our pjs, singing, having a shared breakfast and sharing the story of Matariki.



Matariki pyjama party at Galbraith Kindergarten

At Galbraith Kindergarten, children demonstrated their gardening competence on a daily basis:

Caring for plants—Planting and Potting

30th April 2009

By Diane

T, P and D thank you all for helping me plant our gift from T and his whānau, two pohutukawa trees. ‘What can we plant now?’ T and I showed you all the various seed packets we have. You all choose to plant up some sunflower seeds into pots.

P, T and D, you all knew the steps involved when planting the seeds into pots. Girls, I enjoyed listening to your discussion about what you needed to do next, soil into the pot using small containers, holes for seeds, put in the seeds (checking with me that you only put in two seeds each for your individual pots), cover the seed with soil.

The next step was to write your own name on an ice block stick so that you would know which one was your pot.

A good drink of water and the task was completed.



Planting seeds at Galbraith



Watering the seeds



Naming the pots

Ka rawe tou mahi! Awesome work, girls!

Learning:

- The children have a real interest in being part of the plant world.
- They have an understanding and knowledge of the steps required for plants to grow.
- The children are very confident in planting up seeds in pots and will initiate this activity themselves.

Ongoing:

Continue this interest with following through on the care of their pots to ensure the seeds grow. Assist the children to plant out their plants once big enough. Extend the range of pots, seed trays, plant baskets. [GB]

The children at Koromiko Kindergarten demonstrated their understandings of the importance of providing plants with water during their gardening time.



Koromiko Kindergarten children explain watering their garden

Gardening can be seen as a source of meaning making for children, serving as “a complex ecology of idea, place and action” (Francis, 1995, p. 8, cited in Blair, 2009, p. 19). “[W]hen children become involved as gardeners or farmers rather than as passive observers of gardens, a deeper significance and meaning is established. Gardens that operate on all levels simultaneously—as idea, place and activity—can become sacred places (Francis, 1995, p. 8, cited in Blair, 2009, p. 19).

At Galbraith as well as in the other centres, it was common for children to take responsibility for caring for the gardens, such as noticing that the plants needed to be watered and following up on this:

18 February 2009

By Diane

C and T, thank you for watering our gardens this afternoon. You initiated this task yourself, asking me if you could give the plants some water. What a wonderful idea. You both found yourselves a watering can and collected water from the hose in the sandpit than set to giving each of the new flower plants a good watering. Thank you both. The plants sure needed a drink in this heat this afternoon.



Watering new flower plants at Galbraith

Ka rawe tou mahi!
Awesome work, T and C

Learning:

- Water assists plants to grow and the need for us to provide this for them.
- Understanding and enjoyment of nature.
- Persisting with the task until all plants were watered. [GB]

During the course of this study, Richard Hudson Kindergarten in Dunedin obtained a grant from the Otago Health Board to establish a vegetable garden “to encourage healthy eating and healthy action”. In their third set of data they were able to report the following progress:

The vegetable garden is a reality. One of our Dads had it built in a couple of hours. We had some soil delivered—unfortunately about five metres short of its final destination—so the children and teachers had a morning’s hard work and got it in. We had seedlings as well as seeds we had sprouted to plant. They are doing very well. It is hoped that it may inspire some of the whānau to have a go at gardening at home. Everyone comments on how well the garden is growing. We have added compost to it and we water it regularly with the children. We finally eat the product! Spinach and radish! [RH]

Richard Hudson Kindergarten was also working to establish an orchard of fruit trees, and children welcomed their new fruit trees with waiata:

Fruit Trees

We have several fruit trees/shrubs planted now. We have a lemon, an orange, an apple, and a feijoa tree, a grape vine and a blueberry bush to date. We have included the children in their planting—wishing the tree well with a waiata. The children love bucketing water around to the back yard where most of the trees are, as we do not have a tap around there. The lemon tree has small green lemons, and the children watch them and talk about them with anticipation. [RH]

At the early childhood centres in this project, the children were involved in a wide range of food preparation, often using produce from their own centre gardens. They made soups, fruit and vegetable juices, pizzas and chutney, which were all shared within the centre community. Jane Bone notes that this shared process defies “the health and safety restrictions that ensure many children in early childhood settings receive food from tongs, food that is often dropped unceremoniously onto plates, ‘untouched’, as it were, by human hand, sterile and rendered harmless and ‘dead’” (2005, p. 310).

3.4.2.6 Caring for Papatūānuku

The team of teachers at Richard Hudson Kindergarten had formulated their own research question as their focus for participation in this study: “By learning about Rakinui/Ranginui and Papatūānuku can we inspire our children and whānau to consider making ecologically sustainable choices?” In their third and final set of data they reported on ways in which they had sustained children’s interest in this kaupapa. In revisiting the story of Rangi and Papa, they now focused on the perspective of the children of Rangi and Papa, which proved to captivate their children:

We began this period of data collection by revisiting the creation story of Aotearoa. Much of our shared understanding (the teachers and children) concerning this research project is centred around our responsibility to our earth mother, Papatūānuku.

Our older children could easily tell the story of ‘Rangi and Papa’ and relate it to their lives. Some of our younger children had some knowledge of the story and some of the most recent children who have begun in our morning session had almost no knowledge of this story. This time we told the story more from the perspective of the children of Ranginui and Papatūānuku, rather than Ranginui and Papatūānuku themselves. This was to be able to extend the complexity of the story for the children who had some knowledge, yet to introduce the story on an introductory level to the younger children. We used a poster, books, the teachers’ knowledge and a section of the video, *Te Ao Hurihuri*, which Huata, our kaumātua, has shared with us to support our teaching. The children were completely spellbound by the story. The video, *Te Ao Hurihuri*, was totally in te reo Māori—but the children knew the story well enough to view the selected four minutes of the dramatisation with total concentration. Many knew that Tāne had pushed his parents apart with his feet, but they didn’t know about the other children. They were most interested in, and intrigued by, Ruaūmoko, the baby under the ground with his mother, who is responsible for earthquakes and volcanoes. This was after one child noticed the fire from the volcano on the poster. One child even requested we do ‘an earthquake’ (an earthquake drill—a monthly requirement for our kindergarten), relating this ancient story to his contemporary life—what a great connection. The emotional Tāwhirimātea was also of considerable interest to the

children—they were able to identify with his occasional feelings of anger, and the strong winds we sometimes experience. [RH]

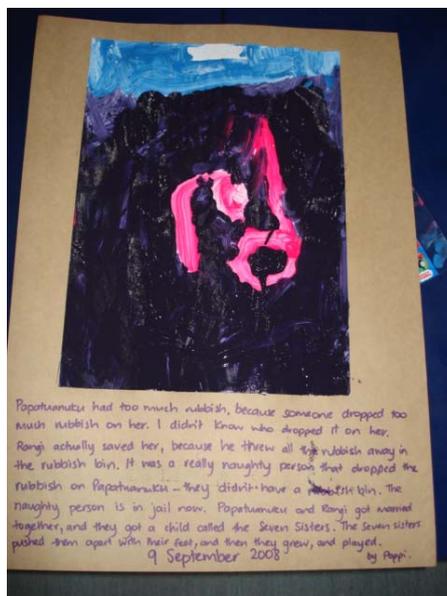
Children at Richard Hudson Kindergarten demonstrated their understandings in various ways. At this kindergarten, as a result of children’s critique, the term “sadwrap” was adopted to describe plastic lunch wrap:

Petra has used the information given to her at mat times to add depth and concern to what she knows of the world. She has spontaneously decided to pick up rubbish in her neighbourhood because of her concern for the earth mother. The personification has allowed her to deduce that the smoke from chimneys would not be beneficial to Rangi’s lungs, making it hard for him to breathe. Petra is thinking further afield too. She wants to go to the beach and do a clean up with her family. She has thought a lot about these things. She has also talked about ‘Sad Wrap’ at kindergarten recently, [saying as she considered her lunch wrapping] ‘I have sadwrap. This is not good for Mother Earth.’ [RH]

The children’s interest and fascination with Ranginui and Papatüānuku emerged in their artwork, story writing and play.

P-C dictated the following story to explain her painting:

Papatüānuku had too much rubbish, because someone had dropped too much rubbish on her. I didn’t know who dropped it on her. Rangi actually saved her, because he threw all the rubbish away in the rubbish bin. It was a really naughty person that dropped the rubbish on Papatüānuku—they didn’t have a rubbish bin. The naughty person is in jail now. [RH]



P-C’s picture and story

Another child, Lily, wrote her own story to accompany her artwork, portraying the pain of Rangi and Papa's separation: "Rangi is at the top. He is really, really close to the children. You can't see the baby because he's in the ground with his mother. They pushed them apart. The earth mother wasn't close to Rangi anymore. So. So. So. So. Sad" [RH].



Lily's painting of Rangi and Papa

Here is a report from a conversation with a child, Azaria:

We had an interesting discussion about caring for Papatüānuku. You told me: 'Don't throw rubbish because Papatüānuku will be sad. Lots of people throw rubbish in my garden and I feel a wee bit sad and it doesn't look pretty.' Azaria, it is obvious that you have developed a strong connection with Papatüānuku and a feeling of responsibility that we have for her wellbeing. The familiarity you have of the myth has been integral into this development and understanding that if we do not care for our earth—it will be sad! [RH]

As part of this kaupapa focusing on caring for Ranginui and Papatüānuku, Adele, of Richard Hudson Kindergarten, decided to explore these concepts with a Māori father of a child at the kindergarten. She reported his explanations:

November 2008

S is the father of X at kindergarten. He has chosen to participate in both of our Kew Park Tidies so far. Kia ora S, and X, for this. S has a very strong link to Papatüānuku. This has increased as he has gotten older, and as his thinking around, desire for and knowledge of Te Ao Māori have grown. When S heard the overview of our kindergarten's Te Ao Māori research focus on Ranginui, and particularly Papatüānuku, he stated that he sees Papatüānuku as a living being. She is of utmost importance to him because we come from our mother, then go back to Papa. Further, he stated that Papatüānuku is 'the most beautiful person in the world' and that looking after her is, without a doubt, the right thing to do. S believes that we not only need to look after Papa, but that caring for 'Tāne's turf' was very

important too ... X already articulates rich kōrero of the stories of this whenua, that he is learning from his father. Kia ora kōrua.

Adele then reflected on ways in which her own perspective differed from that of this Māori parent:

The interview with S. has really helped the depth of my understandings of the place of Papatūānuku in our lives. S.'s words and wisdom have helped deepen and fine tune my appreciation and awareness of her significance in our country. S. articulates his understandings of Papa so passionately, so genuinely and in such a heartfelt manner. The difference in S.'s conception, connection and sensitivity to the story is probably that his has been learnt aurally, over a lifetime, taught to him by people who have also learnt it passionately as a 'fact of life', an absolute reality, and shared it with their next generation. My knowledge has been learnt; as an adult, mainly from books, then by adding bits to the body of knowledge over time. Mine lacks the aroha, empathy, true identity, connection, whakawhanaungatanga and scope of the tangata whenua. This provides some challenge when, as a Pākehā teacher in Aotearoa/New Zealand, I share the creation story with the children I teach.

But challenge is good! [RH]

Whaea Pera, of Belmont Kindergarten Te Kupenga, described children's connection with Papatūānuku, her own manner of expression also demonstrating reverence for Papatūānuku:

The children love it too. They love being in Papatūānuku. They love toiling her and tending her and nurturing her and then comes the kai if you know what I mean and to eat it, eat away there and they love it. [BM]

At Raglan Childcare and Education Centre, teacher Penelope supported children's respect for Papanuku, as she reports here:

February 3rd 2009

Teacher: Penelope

T, I loved the way you found the enormous tomatoes growing next to the sandpit. These are the plants you helped to grow when you put the tiny seed in the pot and covered it with soil last October. You also helped Hinemania put the compost into the wooden planter box and you helped Merren build the wooden trellis for the plants to lean against as they grow. That was cool. You wanted to pick the big green tomato and when you tasted it you made a face! What did it taste like? I'm glad we had some strawberry plants close by and we went to have a look at the different colours to work out which ones tasted the best—the red one or the green one. You picked the red ones and then found heaps more. I'm guessing the red ones are yummiier than the green.



Studying a tomato at Raglan Childcare and Education Centre

We found a place for the green tomato on the windowsill in the sun in the nature corner. We can check it in a few days to see if it turns red.

What learning is happening here? T, by his actions of watering, watching and investigating changes over time, is linking food from our plants and care and respect for Papatūānuku. [RC]

As discussed in Section 3.2.7, *kaitiakitanga* is a Māori construct meaning guardianship or protection. According to the Waitangi Tribunal, *kaitiakitanga* includes the obligation to proactively *care for* the environment rather than merely taking a more passive caretaking role. “*Kaitiakitanga* best explains the mutual nurturing and protection of people and their natural world” (Waitangi Tribunal, 2004, p. 8). Teachers, in this view, can be considered to be *kaitiaki* of the *mauri* of their early childhood centre. Carolyn, a teacher at Papamoa Kindergarten, explained how the concept of *kaitiakitanga* applies in her setting:

Kaitiakitanga is looking after places, things and people. We have observed our children gain a sense of pride and respect for our kindergarten environment. We believe that when children have the opportunity to engage and care for the natural environment they will gain the skills, knowledge and desire to care for it in the future. The environment is the third teacher. There is a learning opportunity in every space. We have gardens that are sensory, edible, native and flowering. We have composting and recycling systems, including water conservation and ecosystems. Children are having a shared responsibility to look after our place and this is valued as real work, so everything we do in the kindergarten here is included with the children. [PM]

The teachers of Koromiko Kindergarten introduced the notion of *kaitiakitanga* within their programme, and reported children’s understandings of this concept:

- Teacher: Remember, we've talked about this before. [kaitiakitanga] is a Māori concept about looking after and protecting things. What sort of things do we need to look after and protect? Have a look around you. What do we need to look after and protect at kindergarten?
- Child: Look after stuff.
- Teacher: What sort of things, though?
- Child: Litterless lunchbox.
- Teacher: The litterless lunchboxes help us to look after the environment, don't they? But we have certain things here that we have to look after and if we don't look after them, they would die. Can you think what that would be?
- Child: Animals.
- Teacher: Yeah, our animals, we have to look after them. So what do we have to do to look after them?
- Child 1: Give them food.
- Child 2: Feed them.
- Teacher: Yep, feed them. What else do we have to do for them?
- Child 1: Milk.
- Child 2: Water.

Looking after animals was a feature in many centres as part of their focus on “caring for others”, as shown in the following section.

3.4.2.7 Caring for animals

Western thinking has positioned animals as “other”, available for exploitation by humans for profit and pleasure. Despite the efforts of organisations that aim to raise our awareness of various forms of animal exploitation, this human-centred approach prevails (Andrzejewski, Pedersen, & Wicklund, 2009). Indigenous traditions are respectful of animals, aware of their role in providing sustenance, but more than that, recognising their unique models of living within that particular place. Indigenous Australians recognise that “The autonomy of country, species, and people is sustained by intense interdependence” (Rose, 2000, p. 105). They also view it as their responsibility to care for and protect species that reside in their country. Environmentalist scientists such as David Suzuki point out that “all species make up one immense web of interconnections that binds all beings to each other and to the physical components of this planet” (Suzuki, McConnell, & Mason, 2007, p. 186).

An educational kaupapa focused on caring for ourselves, others and the environment recognises our interdependence and interrelatedness with animals. According to Andrzejewski et al., (2009, p. 148), educators can provide opportunities for children to “Explore and appreciate the lives, abilities, intelligences, uniqueness, personalities, [and] emotions” of animals, in order to foster an understanding of “the inherent and independent value of animals and their roles within natural ecosystems”, as well an understandings of indigenous perspectives which may have particular spiritual connections with animals. Children can, through closely observing and relating to animals, gain a sense of reverence for our interdependence as shared residents of this planet. We found many examples of this occurring during our study:

Raglan Childcare Turtles 2009

With the hot weather our turtles are needing lots of fresh clean water.

A is watching and helping M, E and Penelope move the turtles into a temporary pool. We clean out the green coloured water, scrub the concrete and put the fresh water and the turtles back in.



Caring for turtles at Raglan Childcare and Education Centre

‘Look!’ says A, ‘tail’. We notice the big one is wagging its tail looking like it’s happy to be in cool clean water. A moves closer, keeping very still and watching. ‘Mouth’ says A. ‘What is it doing?’ asks Penelope. ‘Open, shut’ says A. The turtle swims towards us and slowly pulls itself up on the edge of the pool. ‘It’s slippery!’ says A. ‘Let’s go and find some turtle food’ says Penelope.

What learning is going on here?

A, I love the way you stop and very quietly observe. Using heaps of new words you are finding ways to describe and make sense of what you see. You are learning about how to take care of our physical world and our animals here at childcare.



Observing turtles at Raglan Childcare and Education Centre

Today was such a lovely sunny day we decided the turtles would like to stretch their legs and bask in the sun. We made a tyre enclosure for them to roam so we could watch them closely. This was a very popular activity, 'turtle watching'!, although they didn't move a lot until we all went inside for lunch. It was a great opportunity for us to touch the turtles' hard shell and see what they feel like. K and K saw this as a good opportunity to measure them. C, E and M spent a long time watching, touching their shells and laughing.

Learning outcomes:

- The children learn through watching, discussing their theories, listening and touching.
- The children discuss how to care for the turtles and their environment.
- The children learn they need to wash their hands after touching animals.
- The children strengthen friendships (there was lots of laughter) as they watch the turtles and cope with the change of having them outside their enclosure.

What next?

Continue to learn about how to care for the natural environment. Work out how to weigh them?! [RC]

Richard Hudson Kindergarten in Dunedin reported that:

We encourage the children to care for animals on a daily basis by caring for our own kindergarten pets (hens, rabbit, guinea pigs, fish). The children are now categorising their food scraps and placing them in the appropriate bin. As the children give the hens their scraps, they in turn supply them with eggs. We often have new pets come to kindergarten with our families for a mat time visit. [RH]

As mentioned in Section 3.2.7, the team at Richard Hudson initiated a collection of donated food to take to the SPCA, followed by visits from and to the local SPCA.



Richard Hudson Kindergarten children with friends from the SPCA

Later in the study, a parent decided to take responsibility for a follow-up collection for the SPCA:

SPCA Collection 2

Another collection of food for the SPCA has been suggested and organised by a member of our committee, after our very successful collection mid-year. She saw it as an opportunity for our community to give and not just receive at the end of the year. Her two older children attend a local school, so she has organised a collection bin there for ex–RH whānau and others to support. It has been advertised in the school newsletter. Kia ora, S. [RH]

Respect for animals also involves learning that they are not always tame, cute and cuddly:

Engaging with nature in concrete ways—this to me is fundamental in children developing understandings of nature (something we seem to have forgotten). It is about the nice relationships—caring for pets, engaging with plants and flowers but also about finding out that nature is not always nice and can't be controlled by us—the cute little piglets and lovely large sows at Mt Albert farm park gave us all a huge fright when they leapt up against the fence and made a lot of noise when they saw the food coming! [MB, CK]

3.4.3 Community empathy

In their first set of data provided for this study, Richard Hudson Kindergarten introduced the term “community empathy” in relation to their kindergarten programme’s consciousness in organising activities aimed at fostering caring relationships within their wider community:

Our kindergarten is genuinely focused on community empathy. The children had their termly visit to St Andrews Rest Home, in line with caring for others. It is a good chance to associate with the elderly in our community, and is within walking distance through Kew Park. [Family and Community/Whānau Tangata]

We participated in ‘Wacky Hair Day’, a fundraiser for Otago Children’s Autism Support Group. We chose to support these supporters when invited to because of a family who are highly involved with this group who have an autistic child who attended our kindergarten last year. In addition, we currently have a family with an autistic child. We raised \$60 and had lots of fun. [RH]

Staff at Collectively Kids Childcare and Education Centre were strongly committed to building a sense of connection with their local community after shifting to their new location. A neighbour,

“Clarke” who was confined to a wheelchair due to cerebral palsy, had offered to oversee the property during initial renovations. He was, however, reluctant at first to enter the centre once it opened, as he had been worried about the children’s reaction to his disability. Staff were reassuring, and eventually the relationship blossomed:

Clarke pops in to visit regularly now and often brings in fruit to sell. This fruit comes from his sister’s place as well as neighbours when they have surplus.... He accompanied children, staff and family members recently on a bike ride up the street and pops in on his way to the shops to see if we need anything (which we sometimes do). [Kate, CK]

Kate wrote that that their relationship with Clarke “epitomises what *we* see as one of the fundamental aspects of this research project: That is: relationships, the care of others and for *us* the celebration of diversity and gaining a real understanding of difference”. For Marina, developing this relationship with Clarke, represents

Our biggest, riskiest and most important success in terms of sustainable (ethical, resilient and inclusive) communities. To me it provides a good example of stepping outside comfort zones which is very important in terms of addressing global warming in ethical ways. It is a local representation of the challenges (including empathy and hard work) required for global justice. [CK]

At Raglan Childcare, a sense of being part of a global community became possible with the visit of Margaret Ouku-Mowbray from Kenya:

Our Visitor from Kenya 2008

Margaret Ouku-Mowbray came to talk to the children about Kenya. The children made up a range of questions to ask her:

- Where is Kenya?
- How do you get from Kenya to NZ?
- What do the people eat?
- What animals are there?

Margaret told them about all the different wild animals to be found in Kenya, then S asked ‘Are the children scared?’ Margaret said they are not because the wild animals do not live in the town.

Margaret sang a song to us in Swahili and we sang back to her. M, S and K did a haka for her.

We learnt that people in Kenya are just like us—they eat the same sorts of food, their bodies are like ours but their skin is darker. They are poorer than us so we are going to collect our old shoes, clothes and books to send to the Kenyan children.

Learning outcomes:

- Children learn about people and cultures that are different from their own.
- Children learn about ways that they can help others.
- Children have opportunities to learn about languages.

What next?

We will continue to foster children's understanding of the wider world and ways in which they can contribute to the wellbeing of others. [RC]



Children at Raglan Childcare and Education Centre compare feet with Margaret Ouku-Mowbray

Later the children and families donated used books, clothing and toys and Margaret arranged for these to be transported to her village in Kenya.

3.4.3.1 How did these pedagogies relate to those within the local communities?

There were many examples of strategies teachers were implementing that demonstrated resonance with philosophies and practices within children's homes and the community. The data gathered by teachers at Koromiko Kindergarten offer many examples of this synergy. Here is a report of a conversation with a child, Conal:

Conal's Recycling

I had been reading stories to a group of children but all of them had left, except Conal. Conal turned to me and said 'Do you know what job I do?' When I told him I didn't know, he proceeded to tell me that his job at home was 'cycling'. I wasn't sure what to make of this so I asked some questions to find out what he meant. He went on to say that he 'sorted the rubbish' and put the 'bottles, cans and paper into the bags outside the door for cycling'.

Conal was proud that this was his job to do—all of his brothers and his sister had their weekly jobs as well. I went on to talk to Conal about what his understanding of recycling is.

Teacher: Why do you think we should recycle?

Conal: So we don't have to put much in the bins.

Teacher: Ok, so that's to keep our rubbish down? Do you know where all the rubbish in the bins goes to?

Conal: Oh ... No.

Teacher: I think it goes to the tip, doesn't it? It goes to the big rubbish dumps in the ground.

Conal: There's a thing that [illegible] takes it down and ... a forklift.

Teacher: Mm, could well be. I wonder what all the stuff that goes out for recycling does? What happens to that?

Conal: It goes in rubbish bins.

Teacher: It goes in the rubbish bin to get collected by the Council, doesn't it?

Conal: Yeah.

Teacher: Do you do compost bins too?

Conal: Ah, no.

Teacher: What about, you know how we do the Bokashi bin at kindergarten, where we put our food scraps in that? Do you have anywhere where you put your food scraps?

Conal: At the hedge and chickens.

Teacher: Ok, you feed the chickens with it. That's a good idea.

Conal: Yeah and I take it to the hedge sometimes too.

Conal's parents commented that:

In our family Shanelle, Reon, Todd and Conal all have daily jobs to do. The others rotate their jobs each day, whereas Conal's job is to do the recycling every day. Each morning Conal has to take the recyclable items (bread bags, paper, cardboard boxes, milk bottles, tins, jars etc.) out to the car shed and put them in their appropriate sacks. When the sacks get full, Bevan (Dad) and the children take them into town to the Egmont refuse recycling depot in Scott St and put them all into the appropriate bins.

We collect our food scraps in a bucket under the kitchen sink. Periodically, Shanelle, Reon or Todd takes the bucket and empties it on a pile under a boxthorn hedge in our paddock or else takes it to the chickens. Conal is usually keen to accompany whoever is emptying the scrap bucket. [KM]

3.4.3.2 How did these ethics relate to those in the local contexts?

Each centre developed their own response to their local contexts. (For further examples, see Section 3.3 of this report on "Pedagogies of place".) Briefly noted in this section are two aspects of ways in which the ethic of care being fostered in the centre had resonance within the centre community. Firstly, there were examples of synergies between a growing national awareness of

sustainability being promoted within some communities, and secondly, children demonstrated advocacy in taking messages of caring for Papatūānuku home, and relaying these messages to adult visitors to their centre.

Raglan Childcare and Education Centre is an interesting example of a centre in which the ethic of caring for the environment is very much a part of the wider community of the small North Island rural coastal town of Raglan. There is a strong movement working towards making Raglan part of the national Transition Town network (see <http://www.transitiontowns.org.nz/raglan>). This meant that for Raglan Childcare and Education staff, there was an enormous synergy as they were located in a setting with such a community-wide focus on sustainability. They began their involvement in this study with a trip to the local recycling centre, Xtreme Waste (see <http://www.xtremewaste.org.nz/>), and the children and teachers were delighted to find that they were greeted on arrival by three parents of children in the centre, who were also workers at Xtreme.



Raglan Childcare and Education Centre visits Xtreme Waste, 2008

In a very different urban context, some of teachers from Collectively Kids were also involved in the Transition Towns movement. At this centre also, teachers had noticed the agency of children in generating a sense of caring for others and for the environment:

I think children are more aware of issues and are willing to talk about/engage with them. They are not afraid to discuss these and come up with suggestions (e.g., about everyday things like use/wastage of paper towels, care of toys and books). They seem confident and (dare I say!) powerful when addressing issues (both in the centre and when discussing more global ones). I think activities such as the letter writing to the local supermarket, banner for

election, participation in gardening and harvesting have all helped children learn they have the ability to take an active part in important aspects of day-to-day living connected to themselves and the 'environment'. I think children are taking this into their homes as well and seeing their parents make changes too which helps. [KH, CK]

We have gained a general awareness with teachers, whānau, children and the community by showing that eco issues are important to us as a community but also as issues to educate our children about. When educating children about eco issues and what they can do to help, children take this on very seriously because it's meaningful to them. When children are able to find confidence in the information and their own understanding they are amazing advocates to everyone they know about what is good for the environment. [EM, CK]

Children at Richard Hudson Kindergarten were also observed to be generating an ethic of care and manakitanga towards Papatüānuku within their homes and community:

And they're also taking that home. Like, K's mum was telling me the other day that at home, they actually have to save her ice cream block sticks and things like that because you know it makes Papa[tüānuku] sad and so now they are in turn training their parents and visitors who come in and tell about it and the Glad Wrap because it's sadwrap and it hurts Papa[tüānuku] and they are always telling others who come into the kindergarten. It's cool! [RH]

This centre arranged regular trips to do a clean-up at the local park, inviting elders from the nearby rest home, whom they also visit on a regular basis:

Kew Park Tidy and Picnic

We had looked forward to our picnic to celebrate all our learning, and doing, about Papatüānuku for some time. We had a great time at the park. First we ate from our (mostly) litterless lunchboxes—we had taken the compost and hen food buckets with us. Then we played on the play equipment. Spontaneous running races on Papatüānuku were next, followed by rolling down the bank. Then it was time to clean up the park. It looked like there was no rubbish when we arrived at the park—but it was amazing how much we found. We had invited both St Andrews Rest Home, who pulled out on the day, and *The Star Community Newspaper*, who didn't come. This was a little disappointing, but we celebrated regardless. [RH]

As a result of a parent's suggestion, Richard Hudson Kindergarten staff also worked to raise awareness of the kaupapa of caring for Papatüānuku by sending a letter to the local schools:

Letter to Schools

The idea to share our journey with our local schools came from an interview with Tiffany in the second set of data. This letter has been sent to our three nearest schools. One school's principal visits us regularly and ecological sustainability is a frequent topic. His school is an Enviroschool and they have an edible garden, including a recently added potato patch. To date we have not heard from the other two schools. [RH]

3.4.3.3 In what ways were links to the local community developed and/or strengthened?

As described in the previous section, the work within the centres had a wider resonance within their communities. The core philosophy at Belmont Kindergarten Te Kupenga resonates with Māori families in their local community:

Once you've opened up one heart, you'll open up many and the children who come here, the parents, everybody and then you extend out to the grandparents and they feel that they have a special place here. The mihi too every morning that empowers that kuia to know that, yeah I feel special here, this is my tūrangawaewae and I'm proud to be here. So they bring more mokopuna! The word gets out. They keep coming back, coming back. It's that puna of love. Love, respect, rangimarie. Everything our philosophy's all about. [Pera, BM]

Meadowbank Kindergarten teachers and families participated in a community day of tree planting at Orākei Marae, and now *“hope to make this an annual event with more families coming along next year”*. They also arranged a kindergarten trip to Orākei Marae: *“We sang the song we had been practising at kindergarten. We learnt some of the carvings and that the Orākei Marae is a national marae for everyone. The boys were taught a haka.”* Teachers from Meadowbank also participated in a professional learning “beach clean-up” event in the community with other teachers from central areas.

The team at Collectively Kids Childcare and Education Centre was very much focused on generating stronger links with their centre community, within their particular urban context:

At CK we also have a strong sense of community—with high expectations of care for others for everyone of all age groups. Of course we do look at individuals but to me a more community-minded approach (always weighing up individual rights against those of the community) is essential for us to become more sustainable. A focus on individuals (pretty common now in our competitive society and likely to be accentuated over the next three years) makes people selfish and less likely to see the big picture. Living more sustainably involves individual and collective sacrifices. [MB, CK]

Physically we have made efforts to integrate ourselves into the community, going on walks all over, having an open day and inviting the community, writing letters to businesses in the community and politicians. I think our centre is unique in the fact we don't have any signage and we look like a house which makes us look like a part of the community, not an institution. I think that we could do tidy-up walks, letters and awareness of rubbish along Carrington Road, beaches parks etc. We could have a notice board for the community to tell them what we are doing, what help people could give, how we could contribute and ideas for the community. [EM, CK]

There was evidence that some parents chose a particular early childhood centre for their children because of their appreciation of the philosophy demonstrated at that centre. At Maungatapu Kindergarten in Tauranga, a mother, K, was clear that this was the case for her. She valued the relationships with the teachers, and the sense of community evident in that kindergarten:

K: I suppose I'm quite an alternative type of person so I was looking at Steiner and we initially were going to a Steiner playgroup and I felt quite at home with those people as far as being like-minded. I was also looking because my husband's mother's Māori. I was looking at kōhanga and those as options as well so I really was looking around. I put L's name down here and came in and really they covered all the bases as far as, one of the teachers, S does lots of animals, the gardens, there's all the beauty. The flowers and all that sort of thing around the place, so I found that, which was really nice. M is passionate with the Māori side of it. J, at the time when we were looking at if I was giving the kids homeopathic, medically, seemed to be on par ... I resonated with her with that so, yeah ...

JR: So you could sort of sense that the things you were being offered here, they resonated with your key core values about how you wanted to care for your children and how you wanted your children to be surrounded, the kind of environment?

K: The big thing was how those three [teachers], how they worked together as a team too. And the whole atmosphere that they create between themselves.

JR: So you sense the teachers have a common empathy of how they work together? A common philosophy or something?

K: It's a common comment between parents, 'Aren't we lucky.' You know, it's not uncommon to hear people—*everyone* speaks really highly of everybody here.

JR: So the community of parents really appreciate what the children are receiving here?

K: Yeah. Absolutely.

JR: Can you give me an example of how you see that common philosophy coming out for you?

K: I suppose through the teachers. The relationship with the teachers. And you watch them with the kids and they make you feel that you're part of this community and they acknowledge you. They're busy and yet they will take that moment just to connect with you and make you feel like what you've got to ask them is valid. Yeah, everybody feels like that I think. That's what I'm saying, the parents. Maybe that's because I came from Australia and I didn't have a lot of people here with children the same age and then started coming to kindy and all of a sudden it was like, there's actually people who have offered to help with different things. There's a bit of a car-pooling thing. Is that normal in kindies? [MT]

K went on to describe how the children at the centre had been inspired by being taken to visit an exhibition of recycled art, and then responded with their own exhibition:

The kids really have taken on recycling and then following on from that they did a full recycling art and then they took the kids down to the art gallery where there was a big recycled art thing on and then the kids put on an art, they created an art gallery in here and the kids in turn were saying, 'I'm doing art, aren't it?' It wasn't just their creative stuff and just playing at kindy and all of a sudden they realised, I am doing art and this has a meaning, this is something I've created and this is art! And the parents came through. We had an art gallery day. The kids were so proud of the work they'd done. And it was really special. And because one of the pieces of art that was up on the wall in the gallery was a chair, the kids

would say, ‘Oh that’s actually a chair that’s been pulled apart and put together in another way’, then what they’re doing, is art. They’re artists. Head high. [MT]

This recycled art exhibition prepared by the Maungatapu children has resonance with that of the REMIDA project of the municipality of Reggio Emilia in Italy (AGAC Friends of Reggio Children Association, 2005). In this project, discarded materials are gathered from 170 different companies and made available at the REMIDA headquarters to over 300 early childhood centres and schools, sheltered workshops and senior citizens centres. The annual REMIDA day is a festival celebrating art utilising recycled materials, and includes a conference on environmental issues. The former mayor of the Municipality of Reggio Emilia, Antonio Spaggiari, writes that this project has provided a means whereby formerly discarded materials:

increasingly abandoned and spurned by the society of opulence became the seed and driving force of collaborative projects and creativity. They have given back to us the vision of children, who see creative potentials and unsuspected treasures in every discard, in every material, in every object. (Spaggiari, A., cited in AGAC Friends of Reggio Children Association, 2005, p. 4)

Recycling here is a community-owned and driven initiative, reframed to be more than just “a necessity or obligation, but is first and foremost an opportunity for cultural change and expressive creativity” (Spaggiari, S., cited in AGAC Friends of Reggio Children Association, 2005, p. 6). This is a direct challenge to the consumerist culture of planned obsolescence, and glorification of the latest and newest. According to Sergio Spaggiari, Directo Isituzione Scuole e Nidi d’Infanzia, Municipality of Reggio Emilia, the REMIDA project makes it possible to recognise that waste materials possess a “generative force, this sort of maieutic energy, which has the extraordinary ability to produce new resources and new potentials, and to creatively transform even the most ‘bothersome’ materials of everyday life” (Spaggiari, S., cited in AGAC Friends of Reggio Children Association, 2005, p. 6). Thus, activities such as that undertaken by Maungatapu Kindergarten, and the REMIDA project, offer a range of transformative possibilities—to the previously discarded objects now reinscribed with dignity and purpose, for the children empowered as creative and visionary artists and to the community coming together in meaningful shared purpose and celebration.

Papamoa Kindergarten has been an “Enviroschools” kindergarten for several years:

The kaupapa of Enviroschools/Kura Taiao is about the well-being of the whole school, community and eco-system. It’s about working out how to live so that our society and economy nourishes the natural systems that give us life. Enviroschools gives young people an opportunity to explore real life challenges and to apply their abundance of energy and ideas. The approach is to build a network of schools/kura committed to environmental learning, action and creating sustainable communities (Enviroschools/Kura Taiao, 2009, p. 1).

Papamoa regularly joins with Te Akau Ki Papamoa School, which is next door to their kindergarten, and also an Envrioschool, in activities:

Papamoa

Working with the local community we joined the new entrants class from Te Akau Ki Papamoa to collect spinifex seeds so they can be propagated and then planted to save the sand dunes. The kindergarten children who helped with this moved on to school and were able to take part in the planting process as new entrants.

Ra whakangāhau

December 08

Ra Whakangāhau is a celebration of Kapa Haka and was hosted by Te Akau Ki Papamoa School that is located next to our kindergarten. We were invited to participate and supported by providing a food stall. We reflected on this event and felt that it was an invaluable experience to be part of the wider community. It was about sharing, being involved, feeling pride, helping out, feeling the ihi and wehi (feeling of excitement and anticipation) and the utmost aroha that came from this event. Kindergarten families worked together with families from the school. A collective effort, ka mahi tahi tātou. [PM]

Julie Sullivan, of Papamoa Kindergarten, explains how in keeping with their philosophy of “ako” and community involvement, the teaching team set up an “Enviro Group” of supportive parents:

Ako is the concept of co-constructing; teachers as learners and learners as teachers. We continue to explore and gain knowledge to implement new ways to reduce waste, conserve water and involve family and community at different levels. We value the opportunities to network with colleagues and the wider community. We’ve also developed an enviro group in our kindergarten which is part of a group that we ask families if they’re interested in coming along to meetings that give them information about things we’re doing in the kindergarten and also we work on projects and we give them information on things maybe that they could be doing at home or things that we need at the kindergarten. We’ve found it a wonderful group because people have become inspired to help us. They’ve also become really resourceful because you say, ‘Oh, we need maybe to ... make a water system in the sandpit’ and so we’ve got fathers coming along, putting their barrels in and connecting things ... this water system. [PM]

Here are the minutes from one of the enviro group meetings:

Enviro group meeting 11th February 2009

Everyone welcomed and appreciated for coming in the heat

Present: Parents and children—(list of names); Teachers Donya and Carolyn

We had a brief explanation to new people about our involvement with Enviroschools and handed out newsletters and calendars to everyone.

Sea-week coming up—will look at having special day for children to dress up with sea theme, making people aware it is important for our community, being by the sea. We will reinforce safety and the sea with children.

We talked about enviro group helping around the kindergarten with garden and enviro projects.

J [a father] helped fix the water system so that it worked efficiently.

Children in the hot weather are being taught about water conservation.

We are looking at options for reticulation and water collection for the kindergarten, e.g., bore versus water tank system.

Need to ring council to see if permission needed.

J has a bore pump 40 ft long. We discussed that Papamoa Coast has a water system there.

To raise funds for this project we discussed having a walk around Mauao with children being sponsored.

Concerns about the heat were brought up. Jason recommended before lunch.

Carolyn was talking about how sponsorship can be more effective. S [a mother] suggested that parents are given a realistic target to achieve to promote sponsorship.

Notice to be sent out about trip.

We need bench outside for hand-washing and paper recycling centre. We are looking for a bench and plumber to help put it in.

The group was asked to support bringing in pictures of children in their gardens at home so that there is a connection between the kindergarten and home.

Sandpit redevelopment—can we collect sticks and shells for the boxes in the sandpit so children can have more natural resources to be creative with?

We have discontinued the wool sack and will now be using the large recycle bin to dispose of excess paper.

Anyone keen to help out with our gardens in any way is more than welcome to come in and spend some time with us.

We would love it if anyone had some seeds to donate for the gardens around our sandpit. That would be great.

If any parents have any cool ideas regarding our kindy and the environment group, we would love to hear them.

Could we all please keep an eye out for resources such as pots, diggers and ladles.

Last, but not least, Carolyn [teacher] talked about our wonderful front garden. It's easy to miss but an important part of our kindy. Out there is a touch and feel garden full of herbs and other interesting plants. We have a vegetable garden and beautiful roses and things. These gardens need a bit of tending to. We would love it if someone had a spare 15 minutes if they could weed and help tend to these gardens. We also talked about our fruit trees. They are in barrels on the deck by the imagination room. These are starting to produce fruit and we also have a passion fruit vine out the front.

The meeting ended. [PM]

The Papamoa Kindergarten Enviro Group planned a market day to share the surplus produce from the kindergarten garden. The teachers reported that:

Just seeing children with big smiles was wonderful. 'Do you want to buy our produce?' Numeracy skills, learning about vegetables, what a great day. At the end of the day we moved our market on to the front lawn so that school parents could take advantage of the bargains. The money went back into our environmental programme where the aim was to remove plastics from our environment and purchase natural resources for children to work with. [PM]

The teachers at Papamoa reflected on how their efforts have fostered a sense of community, or whanaungatanga:

A sense of community 'whakawhanaungatanga' with our families learning alongside their children has been achieved. As teachers we have continued to learn and improve our practice. We have broadened our outlook. We have a great relationship with our neighbouring school. We access our community more. We link with children's homes and this has deepened our relationships. We were very pleased that our Education Review Office review last year that reflected how important relationships with our children and whānau are, and that this was evident in the kindergarten 'vibe' the wairua of our place. We also realise that things take time. We continue to review, discuss and implement new plans with both a bicultural and environmental influence. It is about taking small steps, learning with children and families. Empowering people with many different skills and ideas to come on the journey with us. [PM]

The community links being forged by these centres provide a sense of possibility, demonstrating the transformative potential of the collective. This paradigm shift from individualistic to collective, critically conscious education is both participatory and democratic (Kemmis, 2009).

4. Limitations of the project

In Section 2 we discussed the contextual nature of the research project, and Section 3.3 emphasises the specificity of place and community in detail. A project that investigates practices and knowledges with an analytical lens on context does not produce research results that are easily transferable to other contexts. Our work is not generalisable in terms of creating models that work for early childhood education across New Zealand, or internationally. We have, however, identified principles that underpin knowledges and practices and further time and funding would have enabled us to generate detailed evidence of how these principles affect teachers' work in the context of the wider community.

5. Project team and contributions to building capability and capacity

Project team

Co-directors:

Jenny Ritchie, Te Whare Wānanga o Wairaka—Unitec Institute of Technology

Iris Duhn, The University of Auckland

Cheryl Rau, Te Whare Wānanga o Wairaka—Unitec Institute of Technology

Janita Crow, Auckland University of Technology

Research facilitator (Dunedin): Lee Blackie

Kuia: Raheera Barrett-Douglas

Kaumātua: Huata Holmes

Teachers, children and families of the following early childhood centres:

Bellmont Kindergarten Te Kupenga, Hamilton

Collectively Kids Childcare and Education Centre, Auckland

Kate Harris, Julia Smith, Vanessa Brittain, Marina Bachmann, Esther McDonald

Galbraith Kindergarten, Ngāruawāhia

Hawera Kindergarten, Hawera

Koromiko Kindergarten, Hawera

Maungatapu Kindergarten, Tauranga

Meadowbank Kindergarten, Auckland

Raglan Childcare and Education Centre, Raglan

Papamoa Kindergarten, Tauranga

Richard Hudson Kindergarten, Dunedin

Grace Olinga-Manins, Adele Ellwood, Miriam Rose, Jan Fairweather, Charlotte Hanley

Teachers in this study were positioned as kairangahau, co-researchers, involved from the outset in designing their own application of research methodology within their specific contexts. A supportive, collaborative, collective culture was facilitated in which teachers with previous research involvement shared ideas about both the research kaupapa and methodological strategies. Leadership and a sense of responsibility to share knowledge and support others can be seen in some recent events. Carolyn O'Connor of Papamoa Kindergarten was recently awarded a \$5,000 NZEI "Support Staff" scholarship to develop a network and resource for early childhood educators involved in ecological sustainability. Along with her Papamoa Kindergarten colleague, Julie Sullivan, Carolyn also presented at the Engage Empower Enact, Sustainability and the Early Years Conference, 22–24 October 2009, in Melbourne. Adele Ellwood and Grace Olinga-Manins,

two of the teachers from Richard Hudson Kindergarten, presented at the New Zealand Kindergarten Inc's Winter Wonderland Conference, in Queenstown, 7–9 August 2009. Marina Bachman and Kate Harris from Collectively Kids Childcare and Education Centre in Auckland presented, with Iris Duhn, at the Centre for Equity and Innovation in Early Childhood Conference, "Honoring the child, honouring equity: Children's rights in research, policy and practice", in Melbourne, November 2009. Cheryl Rau and Jenny Ritchie also presented at this conference. All four co-directors presented a collective symposium at the NZARE Conference in Rotorua in December 2009.

Teachers Adele Ellwood and Gwyneth Barker each had papers published in the journal *Early Education*, 47(winter), 2010.

6. Conclusions

The 10 centres joined the study with a range of background interests and depths of pedagogical experience across the dual spectrums of kaupapa Māori and ecological sustainability. All chose their own pathways into broadening their commitment to the research kaupapa, enhancing and deepening pedagogies in specific relation to their own contexts and communities. A range of principles have become visible across the project. Some of these were: the grounding of place-based pedagogies in the home/community nexus of the centre; that indigenous pedagogies are central to conceptualisations of these place-based pedagogies for ecological sustainability in the context of Aotearoa; that engagement in this project stimulated new thinking and modes of pedagogical practice; and that this process generated responsiveness and reciprocity amongst children, whānau and the wider community of each early childhood centre.

“Place-based pedagogies” radiate out from the centre. A sense of place starts with paying attention to the “here” and “now”, and has a “*ripple effect*”, as one of the teachers pointed out. In the context of caring for self, others and the environment, “self” stands for more than the “I”: caring for self means caring for those who are part of the immediate, day-to-day kindergarten/centre community, fostering “reciprocal and responsive relationships for children with people, places, and things” (Ministry of Education, 1996, p. 9).

Although all kindergartens and centres were committed to implementing the Tiriti-based practices required by *Te Whāriki* (Ministry of Education, 1996), for some of the kindergartens and centres, indigenous knowledges and ways of being were an essential aspect of their engagement with the global issues of ecological sustainability from the outset of their involvement in this study. Initially, it was not “the global” that seemed particularly challenging to some of the teachers. Caring for self generally meant caring for the immediate environment, and for the teachers the journey had to start “at home”. Thinking about what constituted their own pedagogy of place included an awareness of indigenous knowledges because these are specific and unique to Aotearoa. Focusing on “place” created an awareness of the significance of local Māori knowledges, as well as a sensitivity towards and respect for kaupapa Māori.

The teachers within each early childhood centre community embarked on journeys that contributed to their reconceptualising the “activities” that happen in these different settings in support of ecological sustainability—in the everyday lives of children, their families/whānau. The drive and commitment to enact different philosophical and theoretical knowledge/s in support of ecological sustainability was often as a result of a range of different desires. These included, for example, being actively involved in practices that considered and took action to alleviate climate warming, enacting indigenous knowledge/s, performing everyday practices that enabled children, their family/whānau and teachers opportunities to (re)connect with the natural world and/or to

work with the natural world with processes of sustainable (hand-made) production (e.g., vegetable/other gardening was a strong focus, paper recycling). At the heart of these practices, the teachers/teaching teams were constantly challenged to consider the key “question of provocation”; that is, what makes these practices ethical, and in what ways does “being/becoming ethical” contribute to the principles and practices for (local/global) ecological sustainability.

Children and their families demonstrated their reciprocal engagement with the research kaupapa, as evidenced by the widespread participation in collective endeavours such as the OOOBY (out of our own back yards) fruit and vegetable bowl, “free shelf” and “community basket”, whereby surpluses were freely shared with others. Participation within the wider community included beach clean-ups, tree planting, fundraising for the SPCA and other local and international community causes, visits to elders in a local rest home and aerobics classes offered for whānau participation at the centre. One centre described these practices as building “community empathy”.

Kairangahau (researchers) from across the services configured possibilities for enhanced global environmental sustainability through integrating Māori ecological knowledge beliefs, values and systems within centres. The constructs of kaitiakitanga (guardianship), wairuatanga (spiritual interconnectedness) and manaakitanga (care) were central overarching constructs employed by centres. Narratives gathered from co-researchers, tamariki and whānau are reflective of this throughout the preceding sections of this report. The project has highlighted ways in which teachers, tamariki and whānau have made effective use of complex knowledges and skills to address global issues in their local contexts. We have seen the emergence of “pedagogies of place” that differ for each centre and its specific communities. Te Ao Māori understandings have been integral to this process.

This report endeavours to draw out as much as possible of what sometimes seems to be “a tiny little event” (Olsson, 2009, p. 120) as a way making visible the complexity of possibilities that occur in the encounters between theory and practice (Olsson, 2009); it’s the little things that matter. It offers a glimmer of the materialisation (Lenz Taguchi, 2010) of particular philosophical/theoretical knowledge/s (indigenous, scientific, folk knowledge/s or otherwise) that informed—and often transformed—the practices teachers endeavoured to develop and enact in support of ecological sustainability—in early childhood education. It was evident that having access to (as well as the means of accessing) a diversity of philosophical and theoretical knowledge/s (and know-ing how) was important to enabling teachers to develop a (deeper) culture of ecological sustainability practices—as a way of living (everyday) life—in the particular settings in which they worked and lived. This access enabled them to develop policies and enact practices that highlighted the increasingly complex ethical relationships between self, others and the (local/global) community environments.

This study offers an indication of the dynamic ways that teachers/teaching teams accessed different knowledge/s and how these ways challenged them to (re)think and make changes in response to the everyday policies and practices that occur in their unique setting. The teachers and

their teaching teams embarked on journeys that contributed to their reconceptualising the “activities” that happen in these different settings in support of ecological sustainability—in the everyday lives of children, their families/whānau. The drive and commitment to enact different philosophical and theoretical knowledge/s in support of ecological sustainability was often as a result of a range of different desires. These included, for example, being actively involved in practices that considered and took action to alleviate climate warming, enacting indigenous knowledge/s, enacting everyday practices that enabled children, their family/whānau and teachers, opportunities to (re)connect with the natural world and/or to work with the natural world with processes of sustainable (hand-made) production. At the heart of these practices, the teachers/teaching teams were constantly challenged to consider the key “question of provocation”; that is, what makes these practices ethical, and in what ways does “being/becoming ethical” contribute to the principles and practices for (local/global) ecological sustainability.

Recommendations

Lenz Taguchi (2010) questions how we might understand an event (that is, for example, this research project) from an onto-epistemological perspective. This perspective offers a way of understanding this research project (and all its activity) as an intra-active pedagogy that opens up possibilities of trying “to read this event anew, re-live it and try to imagine the different map drawings as materialised actualisations of the question(s)” (Lenz, 2010, p. 171)—questions that were posed to teachers, children, their parents/whānau and the researchers themselves in this research are questions that must be constantly asked of all inside/outside education. It is hoped that the documentation of this research project opens up different possibilities of new realities and of new actors—it operates as an invitation for others to be actively involved in the bigger project, the one that does something about caring for ourselves, others (both human and nonhuman) as well as the environment.

Implications

For many teachers/teaching teams, this research was a beginning point in one way or another—although these beginning points differed considerably. Consequently, further research that tracks the events that unfold as a result of teachers’ intentions to grow ecologically sustainable policies and practices—at a number of levels that involve the early childhood setting and their communities. Such research would provide a useful resource for researchers, teacher educators, teachers in the field and others interested in the potential for young children, their whānau and communities to be actively involved in and making sense of alternative ecologically sustainable ways of life and living. It continues to challenge the very nature of the way that early childhood education as a (social cultural) space for children living life with and alongside others is understood (Moss & Petrie, 2002).

Further research is needed to address important research questions that have emerged during this study such as:

- How does an ethic of care for self and others (including nonhuman others) interrelate with global citizenship and democratic practice as an aspect of a pedagogy of place?
- How do children create meaning of ethics of care for self and other, including the planet?
- How is a pedagogy of place maintained and strengthened over time? What are the limitations of such a pedagogy; for example, in communities where people struggle to have a sense of belonging?
- How would a pedagogy of place address issues that arise when people lack access to resources?
- How can such a pedagogy and an ethic of care support those who may feel excluded (for example new migrants, or those who live in poverty, or those who experience violence in their communities)?

The emphasis on local specificity integrated alongside global concerns as embedded within the notion of “pedagogies of place” offer potentially robust engagement with the promise of enabling and supporting local responses to global issues.

It is this kind of research that puts Aotearoa New Zealand on the (local/global) map—it offers Aotearoa New Zealand researchers, teachers and their communities opportunities to be involved in cutting edge, innovative research that makes a difference to our lives, the lives of others and the environment.

7. Publications

Publications based on this project

- Barker, G. (2010). Building sustainable communities Manaaki whenua. Manaaki tangata. Haere whakamua. *Early Education*, 47(winter), 15–18.
- Duhn, I. (2010). Mapping globalization and childhood: Possibilities for curriculum and pedagogy. In G. S. Cannella & L. Diaz Soto (Eds.), *Childhoods: A handbook* (pp. 309–319). New York: Peter Lang.
- Duhn, I. (2010). ‘The centre is my business’: Neoliberal politics, privatization and discourses of professionalism in New Zealand. *Contemporary Issues in Early Childhood*, 11(1), 49–60.
- Duhn, I. (in press). Towards professionalism/s. In L. Miller & C. Cable (Eds.), *Professionalization, leadership and management in the early years* (pp. 133–146). London: Sage.
- Duhn, I., (with Bachmann, M., & Harris, K.). (2010). Becoming ecologically sustainable in early childhood education. *Early Childhood Folio*, 14(1), 2–7.
- Ellwood, E. (2010). Caring for Papatüānuku. Yesterday, today and tomorrow. *Early Education*, 47(winter), 19–22.
- Ritchie, J. (2009). *Narratives of relatedness in ecological sustainability in early childhood education in Aotearoa*. Refereed conference proceedings of the annual conference of the New Zealand Association for Research in Education, Rotorua, 1–4 December.
- Ritchie, J. (2010). Fostering communities. Ecological sustainability within early childhood education. *Early Education*, 47(winter), 10–14.
- Ritchie, J. (2010, May). *Notions of well-being and interdependence embedded within ecologically sustainable early childhood pedagogies in Aotearoa*. Paper presented at the annual meeting of the American Educational Research Association, Denver.
- Ritchie, J., & Rau, C. (2010). Kia mau ki te wairuatanga: Counter-colonial narratives of early childhood education in Aotearoa. In G. S. Cannella & L. Diaz Soto (Eds.), *Childhoods: A handbook* (pp. 365–374). New York: Peter Lang.

8. Glossary

Glossary

Ao	world
Aotearoa	land of the Long White Cloud, Māori name for New Zealand (pre-European arrival)
Aroha	expression of love, care
Atua	god, deity, spirit, supernatural being
Awa	river
Hapū	subtribe, descent group, wider kin than whānau
Harakeke	flax
Hau	spirit, vitality of human life, essence of land
Hauora	wellbeing
Hawaiiki	ancestral homeland of the Māori people
Hui	gathering, meeting
Iwi	tribe, collection of hapu, people
Kahikatea	tree
Kai	food to eat
Kaimoana	seafood
Kainga	home, settlement
Kairangahau	researcher
Kaitiaki	guardian, trustee, protector, spirit guardians
Kaitiakitanga	ethic of guardianship, stewardship, protection
Kaituhi	writer
Kanohi ki te kanohi	face-to-face

Karakia	incantation, chant, prayer, ritual
Karanga	call, wail to invoke ancestors and to welcome visitors and in response to hosts during ritual encounters performed by women
Kaumātua	elders, male elders
Kaupapa	plan, theoretical framework, philosophy
Kete	basket
Kikokiko	the material, physical
Kiingitanga	King movement
Kina	sea egg
Koha	gift
Kōrero	discussion, speech, to speak
Koro	male elder
Kuia	older woman
Kupu	word
Mana	prestige, power (metaphysical concept), authority, prestige, influence
Mana Atua	authority of the gods
Mana Tangata	authority over people
Mana Tipuna	authority of the ancestors
Mana Whenua	authority over land
Manaaki	hospitality, generosity, compassion, respect, kindness
Manaakitanga	ethic of hospitality, generosity, care
Māoritanga	Māori world-view
Marae	complex of buildings used for traditional gatherings for Māori
Maramataka	Māori calendar
Matariki	Māori New Year
Maunga	mountain
Mauri	life essence, life principle (metaphysical concept)

Mihimihi	oral greeting, oral introduction, a speech
Moana	sea, lake
Mokopuna	grandchild
Ngā rā o mua	days in front, refers to the past
Noa	state of neutrality, common, opposite of Tapu
Papa	Mother Earth
Papamoana	seabed
Papatūānuku	Mother Earth
Paua	(Genus haliotis), a common New Zealand shellfish
Pepeha	a pepeha is a proverb, aphorism, local saying
Pipi	(Paphies australe), a common New Zealand shellfish
Pou	carved wooden post, upright post, support, pole, sustenance
Pōwhiri	ritual encounter, formal welcome ceremony
Pūrākau	stories, oral histories
Rāhui tapu	restriction, sacred
Rangatira	Māori chiefs
Rongoa	medicine, remedy
Tangata whenua	people of the land, locals
Tamaiti	child
Tamariki	children
Tāne Mahuta	God of the forests, plants
Taniwhā	mythical monster in traditional Māori stories, guardian spirit, guardian
Taonga	valued possession, something tangible or intangible that is highly valued
Tapu	sacred (metaphysical)
Tauīwi	refers to non-Māori
Te reo	Māori language

Teina	younger sibling, cousin, same gender
Tika	correct, proper, fair, just, according to traditional ways
Tikanga	Māori customary practice
Tīpuna	ancestors
Tohunga	high priest, specialist, expert
Tuakana	elder sibling cousin, same gender
Tuku iho	from the past
Tūpuna	ancestors
Tūrangawaewae	land ties, a place to stand
Wai	water
Waiata	songs
Waiora	water as life giving
Waka	canoe
Whaikōrero	formal speaking
Whakaaro	ideas, thinking
Whakamana	uphold prestige
Whakangāhau	entertainment, humour
Whakapapa	origins, oral narrative history of genealogy
Whakamua	look ahead to the future
Whakamuri	look to the past
Whakatauki	proverb
Whakawhanaungatanga	relating to others as you would a member of your family, as kin
Whanau	family
Whare	house, building
Whāriki	woven mat
Whenua	land, the natural environment, also refers to the placenta

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