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## Bicultural approaches to sustainability within early childhood settings in Aotearoa / New Zealand

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*This article presents a case for advocacy that calls for early childhood teachers to consider their role in promoting and creating sustainability within early childhood educational settings in Aotearoa/New Zealand. Drawing from the early childhood curriculum Te Whāriki (Ministry of Education [MoE], 2017) and given its bicultural approach to children's learning and development, the inclusion of a Māori world-view towards sustainability is proposed. The principles of Whanau Tangata—Family and Community and Ngā Hononga—Relationships are utilised to demonstrate how teachers can make important connections in raising an awareness of Education for Sustainability (EfS). Education has been recognised as a powerful agent for change in introducing and maintaining sustainable attitudes and practices (UNESCO, 2017), while culture is presented as the basis for all decision making (Dessein, Soini, Fairclough, & Horlings, 2015). By connecting EfS to Māori values of kaitiakitanga teachers promote values of care and protection that influence children, families, and the community.*

### Global and local influences of Education for Sustainability: Implications and challenges

While the United Nations Decade of Education for Sustainability ended in 2015, its strength lay in highlighting, supporting, and providing impetus for sustainable practice, particularly imbedding them into the education sector (German Commission for UNESCO, 2014). While this, globally shaped government attitudes and policies on EfS, the importance of the early childhood sector in actioning environmental and sustainable change was minimised. However, the 2007 international workshop brought to the world's attention the key role of early childhood education in shaping active citizens and affecting change (Croft, 2017). Sustainability has been defined as the practice of ensuring development meets the needs of the present generation without compromising the needs of all future generations (Brundtland, 1967, cited in Maxwell & Mawson, 2015).

Within Aotearoa/New Zealand many early childhood teachers decided individually and collectively to action sustainability within their learning centres. Over the decade, practical hands-on learning through building and maintaining resources such as worm farms, compost bins, and vegetable gardens imbedded sustainability into early childhood culture and practices as they connected children to nature, seasonal cycles, and developed an awareness of eco-systems (Pramling Samuelsson & Kaga, as cited in Croft, 2017). These actions were primarily based on values and beliefs of connectedness with the natural environment and ensuring a world that was sustainable for children and further generations (Croft, 2017; Ritchie, 2010, Maxwell & Mawson, 2015).

This value of connectedness has created contention between 21<sup>st</sup> century western society and sustainable practices. Sustainability can be viewed as 'having less' and therefore appears to be at odds with economic trends, western culture and societal values (Dessein, Soini, Fairclough & Horlings, 2015). An example of this can be seen in the marketing techniques used to generate dissatisfaction and increase sales of new generation mobile phones. While these sales increase the nation's Gross Domestic Product (GDP), mobile phones leach a toxic mix of mercury, lead, and arsenic into the soil when they enter landfills. With 3.5 million mobile phones imported into New Zealand annually and these being updated, on the average, within two years, the waste and toxic impact makes this an unsustainable practice (Sustainable Business Network, 2015). To engage in sustainable practices, and ensure an uncompromised environment for future generations, a shift of personal and societal values is required. There is a need to adapt and adopt new and

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different ways of doing and being (Auclair & Fairclough, 2015). Yet, when conflicting values are at the heart of sustainability, conflict will occur. Consider this scenario; A mother pushes open the classroom door, bags in hand and child in tow. Her car is hastily parked outside as she drops the child off on her way to work. The tension of a late start to the day was significantly accelerated when the child demanded to walk to her centre and, thereby engage in sustainable practices (Duhn, 2012). Here, the values of the teaching team conflicted with the values of the parent, and economical and societal values.

In 2007, the UNESCO Paris workshop, emphasised the role of individual, cultural perspectives, and life styles in tackling issues of sustainability, provoking participants to consider alternative values and ways of being and doing. Thought provoking questions challenged concepts of enough, and recognition of it within their individual lives, as well as society (Pramling Samuelsson, & Kaga, 2008). Participants recognised the importance of beginning EfS within the early childhood period when children began to develop their personal values and learnt to embrace concepts of care and protection as well as cultural diversity. Holistic, place based, experiential learning was promoted and, and a return to traditional practices was suggested. Participants believed that recognising and engaging in past positive practices would foster an understanding of sustainability, seasonality, and avoid over-exploitation of resources. Yet, has 21<sup>st</sup> century western society become too technical, too removed from nature to return to traditional methods?

Ritchie (2010) believes so, claiming that urbanisation, along with the ever-increasing dependence on technology, has created a sense of separation, even domination, over the natural world. This belief highlights the wide gulf of disparity between western anthropocentric perspectives and the biocentric perspective of many indigenous cultures. The 2007 Paris Workshop called for a shift from western perspectives to embracing biocentric ways that recognise the interconnection between people and nature (Pramling Samuelsson, & Kaga, 2008). Within New Zealand, the call to sustainability is a call to return the sense of connection and protection evident in te ao Māori and the value and practice of kaitiakitanga.

**Contextualising education for sustainability within the context of teaching and learning in ECE: A bicultural approach**

While the dominant western anthropocentric perspective has led to a vast depletion of the earth's natural resources, it has also depleted the strength and resilience of 21<sup>st</sup> century children. While the call to sustainable practices focuses on ensuring an ecologically and environmentally rich, healthy planet for future generations, the current generation of children is at risk of *Nature Deficit Disorder*; a description of the effect of children disconnecting from the natural environment that education for sustainability is working to repair. This disconnection is believed to be profoundly affecting children's psychological, spiritual, and emotional well-being and significantly contributing to conditions such as anxiety, depression, obesity, low resilience and poor academic achievement (Linke, 2016).

In Aotearoa/New Zealand, the bicultural early childhood curriculum, *Te Whāriki* (Ministry of Education [MoE], 2017), supports holistic, inclusive, play based learning based on four principles; Whakamana/Empowerment, Kotahitanga/Holistic development, Whānau tangata/Family and community, and Ngā Hononga /relationships. These principles are underpinned by Vygotsky's socio-cultural theory where children's learning is socially mediated and involves relationships between the individual child and people, places, culture, and resources. Bronfenbrenner's ecological theory also recognises the importance of relationships, placing children at the centre of reciprocal, interconnecting influences. In other words, relationships are at the heart of curriculum and therefore at the heart of early childhood pedagogy.

Relationships are also centred at the heart of te ao Māori. This is evident in traditions such as pepeha (introductions) and mihimihi (greetings). Within the pepeha the individual recognises their connections to not only people (whānau) but to their land, mountain and river, sea, or lake (Thomas, Rokx & Keelan, 2017). This creates a strong sense of identity

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and connection to the land and generates a deep-seated responsibility to care for and protect it (Thomas, Rokx & Keelan, 2017).

For Māori, their relationship with the land is deeply personal and spiritual. Papatuanuku (earth mother), Ranginui (sky father) and their offspring, amongst others, Tane Mahuta (the forest guardian), Tangaroa (guardian of the sea), Haumietiketike (wild foods) and Rongomatane (cultivated crops), are ancestors. The first human was infused with life through Tane Mahuta breathing into the earth (Miller, n.d). These atua (gods) form part of Māori individual and collective genealogy (whakapapa), which is shared with the creatures and plants that inhabit the earth. This interconnectivity ensures an ethic of care for those to whom they are spiritually bound and entwines their destinies (Duhn, 2012).

The Māori value of kaitiakitanga establishes relationships between people as well as a persons' relationship with the spiritual realm, and the environment. Kaitiakitanga has a strong focus on rights, responsibilities, relationships, and the role of kaitiaki (guardian) over the natural environment. An important aspect of this is reciprocity between the kaitiaki and the land. The kaitiaki cares for the land ensuring its sustainability and the resource sustains the kaitiaki (Miller, n.d).

When young children learn kaitiakitanga, they learn to respect, care for, and protect people, places, and things. When they care for the natural environment, in the daily flow of centre life, they develop skills and knowledge that support them in caring for nature throughout their life (Ritchie, Duhn, Rau, & Craw, 2010). The role of kaitiaki is found within the Belonging and Exploration strands of Te Whāriki, where teachers are required to support children in their love, care, and guardianship of the land (MoE, 2017). In Aotearoa/New Zealand, there is an emerging interest in children's experiential learning through engaging with nature in their local bush and forest. This facilitates deep learning through real time connections with nature while building on children's dispositions of curiosity, playfulness and exploration. Place based learning, within the child's immediate environment, also supports their sense of connection, relationship and responsiveness to the land, including its rivers and streams (Kelly & White, 2013). Wilson (2011) believes that direct experiences, hands-on learning and the teacher's ability to integrate indoor and outdoor learning experiences also ensures strong, sustainable, environmental education for children (Wilson, 2011). These *beyond-the-gate* experiences also support children's sense of identity, as stated in their pepeha, and their role as kaitiaki.

Children learning kaitiakitanga is crucial in counteracting the damaging effect of the nation's economic exploitation of the environment. According to the OECD one of the major environment issues Aotearoa/New Zealand faces is water pollution. Decades of intensive farming, forestry, and urbanisation have affected the quality and mauri (life force) of fresh water to the point where three quarters of native freshwater fish and one third of native freshwater plants and invertebrates are now threatened or at risk of extinction (Ministry for the Environment, 2017). In 2016 fresh water contamination was highlighted by an outbreak of gastroenteritis affecting over five thousand residents of Havelock North. This was preceded by an outbreak in 1998 (Department of Internal Affairs, 2017). In response to this the OECD advise a nationwide focus on the protection, care and efficient use of water (OECD, 2017).

For Māori, fresh water is regarded as a treasure (taonga) that supports their values and practices and they, in turn, act as kaitiaki over the waterways (Ministry for the Environment, 2017). In te ao Māori, atua release mauri (a life force) that connects the physical with the spiritual realms (Miller, n.d). Mauri strongly resides in water and effects the life of all it connects to. The strength of the mauri effects the waters ability to provide for and nourish its people, flora, and fauna. The purity of water is so important in te ao Māori that a range of categories have been created to define it's spiritual and physical wellbeing. These range from waiora, the purest form of water, to wai māori, ordinary water that is no longer sacred but still contains mauri, to waimate, polluted water that has lost its life force and contaminates the environment around it (Miller, n.d). Graham (2015) believes that both Māori and Pākēha share significant concerns

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over environmental and ecological issues including water purity levels, and he predicts an increased acknowledgement of Māori values and beliefs over the years ahead. Māori ecological values must become evident within early childhood environments. The care and protection of water must be included in sustainable practices to ensure its life-giving strength is made sustainable for current and future generations.

**Examples of promising practices in ECE**

Planting, watering, and maintaining gardens is a regular part of children's learning within many early childhood centres. However, replanting the lawn, or berm, as an ecologically sustainable environment that reduces water consumption and nurtures biodiversity moves gardening to a new environmental level (Water Corporation of Western Australia, 2016). Planting a water-wise garden cools the environment, creates textured, living corridors of play and reduces water consumption. Teachers can involve children in surveying plants in their local environment, research and design, as well as planting and garden maintenance. Low growing, native plants, best suited to the local environment, increase the children's recognition and care for native flora and provide opportunities for them to discover, and tend to endemic insects such as wetas and peloridiidae. Children can discover their garden's green score by completing the Department of Conservation's garden checklist. Their website also supports biodiversity with plans to build and sustain weta motels, attract lizards, and even build a rat trap. For each completed challenge or task, children are eligible to collect kiwi guardian medals (Department of Conservation Te Papa Atawahi, n.d.).

The Cool Cubbies project (Boyd, 2015), was instigated to increase awareness of sustainable living for children, teachers, parents, and local communities around Lismore, New South Wales, Australia. Focused on water and energy conservation, biodiversity, and waste management, a sustainable environment was constructed around play houses in five early childhood centres. The play houses were fitted with a solar panel and interior light to teach renewable, sustainable energy. Guttering and a water tank supported the children's learning on water care and conservation. A native garden provided an environment for inquiry and exploring biodiversity and a weather vane, worm farm and vegetable garden supported healthy, sustainable food habits. This innovative approach to teaching and learning sustainability involved play and place based learning, along with place responsive teaching. In this environment children and teachers discussed their current environment, care for the planet, and the world they wanted to live in, as evidenced below:

*Child* – Don't put rubbish in the water.

*Educator* – No that's right. We don't put rubbish in the water.

*Child* – Fish might eat it...

*Child* – If you put it in the water you might make animals in the water sick

(Boyd, 2015. p. 37).

This project highlighted the importance of teachers' values in ensuring the project's sustainability (Boyd (2015). Staff turnover and conflicting values lessened the effectiveness of children's learning and corporate knowledge regarding the project's purpose, was lost or diminished each time a teacher left the centre (Boyd, 2015). The importance of on-going professional development, shared leadership, and the key role of centre owners and managers in employing environmentally aware teachers was highlighted (Croft, 2017; Boyd, 2105).

In The Cool Cubbies project, teachers stressed the importance of caring for the planet, however, their focus appeared to be ensuring the planet's ability to sustain future lives and needs. In Aotearoa/New Zealand, children as kaitiaki are taught to care for and protect the land as a living entity with whom they build a reciprocal, responsive, and mindful relationship. This indicates a significant difference in values and perspectives and highlights the importance of culture

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in action and decision making. Recognition of this has recently promoted culture to the fourth pillar of sustainability, equal to the environment, economic, and social pillars (Dessein, et al., 2015).

Cultural traditions of language, storytelling, songs, introductions and greetings can be used in early childhood centres to teach children Māori values such as kaitiakitanga and sustainability. Stories and songs include local environments and connect children to the significance and meaning of the natural and spiritual world around them (Thomas, Rokz, & Keelan, 2017). For example, the legend of *Rata and the Waka* portrays the importance of respectful and mindful actions and interactions when engaging with nature. It provides children with an understanding of nature and their strong connections to the land (Kelly & White, 2015).

While Ritchie (2010) recognises a sense of separation from the natural world, culture enables teachers to revisit successful sustainable practices from the past, modify them if necessary, and apply them in a post-industrialised world. Rather than *bigger is better*, the *less is more* value can be taught, highlighting Aotearoa/New Zealand's clean, green reputation in an authentic way. This involves teachers sharing their environmental and cultural values through their teaching, supporting the next generation to experience the wonder of nature and engage in ethics of care. It includes place based experiential learning and place responsive teaching practices and environments. It also involves recognising the value of culture and reconnecting to the land in meaningful ways. This is further supported by the learning and telling of legends that connect people to nature (Henare, as cited in Kelly & White, 2013). The knowledge of both Māori and Pākēha concepts and history of the local environment and its features enriches teachers' understanding and sensitivity towards the locale, which then extended and supported the children's learning.

### Conclusion

When culture becomes the fourth pillar to uphold sustainability and ensure healthy, reciprocal relationships between people and the land, a balanced, solid, foundation is formed. By recognising and valuing Māori biocentric perspectives, strong bonds are forged between people and the land, ensuring sustainable development and practices. Teachers within early childhood settings have a unique and powerful role in connecting children to the people, creatures, and land that forms their identity. By promoting children as kaitiaki who care for their land and all within it, a rich, authentic, clean, green environment assures the land is protected and nurtured as the taonga (treasure) it is.

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