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## Sowing the seeds: education for sustainability within the early years curriculum

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**ABSTRACT:** This article examines the importance of education for sustainability in New Zealand early years curriculum with particular reference to its inclusion in *Te Whāriki*, the national early childhood curriculum. Fieldwork was conducted across two New Zealand early childhood centres during a 12 month period. The major finding was that there is a need for education for sustainability to become an integral part of *Te Whāriki*, and should be incorporated as a core value within early childhood curriculum. This will ensure it becomes a part of everyday practice within early childhood centres in New Zealand. Children have a natural connectedness with nature. Moreover, as children are the decision-makers of the future, the values of sustainable living need to be instilled at an early age through an integrated early years curriculum. Furthermore, through curriculum-based learning experiences and modelling by teachers and parents, children can begin to take the first steps on a lifelong journey of sustainability.

**RÉSUMÉ:** Cet article traite de l'importance de l'éducation au développement durable dans le curriculum pour les jeunes enfants de Nouvelle Zélande, au regard de son inclusion dans le curriculum national *Te Whāriki*. Un travail de terrain a été mené dans deux centres de la petite enfance du pays pendant douze mois. Les principaux résultats indiquent la nécessité d'inclure l'éducation au développement durable dans *Te Whāriki* et ce, comme valeur centrale au sein d'un curriculum de la petite enfance. Cela pourrait garantir sa présence au niveau des pratiques de la vie quotidienne dans les centres de la petite enfance du pays. Les enfants ont une connexion naturelle avec la nature. De plus, dans la mesure où ils seront les décideurs de demain, les valeurs d'une vie durable doivent être transmises dès leur plus jeune âge à travers un curriculum intégré. Plus encore, à travers un curriculum fondé sur des expériences d'apprentissage et modelé par les enseignants et les parents, les enfants peuvent commencer à avancer dans les premières étapes d'un voyage de toute une vie sur le chemin du développement durable.

**ZUSAMMENFASSUNG:** Der Beitrag untersucht die Bedeutung von Bildung und Erziehung zu Nachhaltigkeit im neuseeländischen frühpädagogischen Curriculum mit besonderem Bezug darauf, Bestandteil von *Te Whāriki* zu werden, dem nationalen frühpädagogischen Curriculum. Feldforschung wurde über 12 Monate hinweg in zwei neuseeländischen frühpädagogischen Einrichtungen betrieben. Das Hauptergebnis war, dass es einen Bedarf gibt, die Erziehung zu Nachhaltigkeit im Sinne einer Schlüsselkompetenz als integralen Bestandteil in *Te Whāriki* aufzunehmen. Das wird sicherstellen, dass die Erziehung zur Nachhaltigkeit Teil der Alltagspraxis in neuseeländischen Kindertageseinrichtungen wird. Kinder haben eine unmittelbare Verbundenheit mit der Natur. Weil Kinder die

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Entscheidungsträger der Zukunft sind, muss der Wert eines umweltverträglichen Lebens bereits in frühen Jahren über ein umfassendes frühpädagogisches Curriculum vermittelt werden. Darüber hinaus können über auf einem Curriculum basierende Lernerfahrungen und über Vorbilder von Fachkräften und Eltern die Kinder die ersten Schritte einer lebenslangen Reise zu Nachhaltigkeit tun.

**RESUMEN:** Este artículo examina la importancia de la educación por la sostenibilidad en los planes de estudios para la primera infancia en Nueva Zelanda, con especial referencia a su inclusión en el *Te Whāriki*, el plan nacional de estudios para la primera infancia. Estudio de campo fue realizado en dos centros de primera infancia durante un periodo de doce meses. El mayor resultado indica que existe necesidad de que la educación por la sostenibilidad forme parte integral del *Te Whāriki* y que sea integrado como un valor central en el plan nacional para la primera infancia. Así se garantizaría que sea parte de la práctica diaria dentro de cada centro de educación infantil en Nueva Zelanda. Los niños tienen una relación natural con la naturaleza. Además, puesto que los niños son los tomadores de decisiones del futuro, los valores de una forma de vida sostenible necesitan ser instalados en la primera edad a través de su integración en los planes de estudios. Además, a través de experiencias educacionales curriculares y moldeados por maestros y padres, los niños pueden dar sus primeros pasos en un viaje de por vida en la sostenibilidad.

**Keywords:** sustainability; education; early childhood; curriculum; nature

## Introduction

### *Education for sustainability*

For education for sustainability to be valued and gain recognition in early childhood curriculum, it needs to be a visible and integral part of *Te Whāriki*, the New Zealand early childhood curriculum.

A useful definition of education for sustainability is that offered by the World Commission on Environment and Development (1987, 8) as: 'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. This definition suggests people need to live sustainably now and in harmony with the natural resources of planet earth in order for future generations to live sustainably. Therefore, 'education for sustainability must be characterised by an educational framework that integrates the concepts of human, social and economic development with environmental concerns' (Davis and Elliott 2003, 3). For instance, in the decade of education for sustainable development (2005–2014) Kinsella (2007) alerts us to the concern of the excessive burning of fossil fuels world-wide (for energy) to maintain domestic and industrial needs. The global warming and climate change that results from this human activity are, in her view, urgent environmental issues. She argues children have a right to a sustainable future that has not been compromised by the present generation.

### *From environmental education to education for sustainability*

In the late 1990s, it was more common to refer to environmental education which was education *about* (knowledge and care of the natural environment) education *in* (hands on experience) and education *for* the environment (informed action) (Fleer 1998). However, environmental education was not taken up within the early childhood education curriculum in Australasia. The two exceptions to this were the Davis et al.

(2005) study in Queensland, Australia, and the Prince (2004; Prince 2008) studies in New Zealand. The move from an emphasis on environment to one of sustainability has occurred in the past five years because of a greater awareness of the need to act now to care for planet earth's natural resources for present and future generations. Therefore, children need to be actively involved, both at home and at the early childhood centre, in sustainable practices such as recycling and caring for wormeries. In early childhood centres, education for sustainability is new to the curriculum and the purpose of this paper is to firstly outline the philosophical and then the practical issues associated with its implementation.

### *Children's connectedness with nature*

Much has been written and theories posited about children and their relationships with nature. For instance Mortari (1997) researched children's ideas about nature with school aged children 6 to 10 years. She used children's drawings as a medium to assist the children to express their notions about nature. While children fully identified nature as the plant world and the animal world, it was not so clear how humans fitted into this world.

The concept of the 'ecological self' was examined by Wilson (1996) to explore the child's connection with the natural environment. Wilson argued that development of the ecological self begins before birth and that after birth the need for food, water and air, integral aspects of the natural environment, cements the person-environment relationship. This relationship develops over time through the emotional and psychological aspects of the ecological self. Furthermore, experience of the natural environment through the developmental domains (physical, cognitive, socio-emotional and moral) enhances the process.

Phenice and Griffore (2003) investigated the eco-psychological concept that children are born with a sense of relatedness to their environment, including the natural environment. They argue that through socialisation children are encouraged to be independent of their environment and this leads to a separation from their environment, especially the natural environment. Their findings suggest that children are in the process of constructing their understanding of humans and their relationship to the natural world. Unlike Mortari's (1997) research, over half the children involved in this research (123 children, 62 males, 61 females) believed that people were a part of nature. This result suggests that through educational learning experiences children can strengthen their relatedness with the natural world.

### *Children's disconnectedness with nature*

If children have an innate connectedness with nature it is under threat from today's lifestyles (Thomas and Thompson 2004). For example children are often transported by car when once they would have walked. Rosenow (2008) suggests that research indicates children's disconnectedness from nature and the lack of opportunity to experience the outdoors can lead to obesity and even a fear of the outdoors. Wilson (1997) calls this biophobia. In New Zealand people pride themselves on an outdoor lifestyle and children do have access to beaches, parks and the great outdoors. However, this access is being eroded by the urban lifestyle trends of working parents and indoor entertainment (Rumble 2003). This point has been recently taken up by Rosenow (2008) who suggests child abductions have led parents to discourage their children's

exploration outdoors and instead has led to increased play indoors. Furthermore, she cautions: 'Add to that the indoor seductions of TV, Video, computer games, and DVDs and it is little wonder that young children are growing up more familiar with wireless Blackberries than wild blackberries' (Rosenow 2008, 11).

All of this disconnectedness with nature is encapsulated in Louv's (2005) 'nature deficit disorder'. He believes that it can affect not only individuals but entire communities who lack oneness with the natural environment. One way forward therefore is to re-connect children to the natural environment and promote care for planet earth through their exposure in the early years through early years education for sustainability (Prince 2008).

### **Incorporating education for sustainability with early years education in New Zealand**

The research question posed was: How can education for sustainability become an integral part of *Te Whāriki* the New Zealand national, early childhood curriculum?

#### **Methodology**

Participatory action research was used to underpin this study. Participatory action research is led by the participants (teachers) and studies a social situation (the centre) to bring about change and improvement in practice (Kemmis and McTaggart 2000).

#### **Research design**

The qualitative research occurred in two early childhood centres, one kindergarten and one childcare centre. The two centres were located in a provincial city in the North Island of New Zealand. The kindergarten was licensed for 30 children from 3- to 5-years-old and had four staff members. The childcare centre was licensed for 30 children aged 2- to 5-years-old and had eight staff.

#### **Selection of centres**

In New Zealand there are many different provisions of early childhood education with differing philosophies (Farquhar 2005). Kindergartens in New Zealand are administered by non-profit kindergarten associations located in regional areas and are responsible for managing the kindergartens in their designated area. 'A key philosophy of the kindergarten service is to maintain an accessible, high quality, early childhood care and education service' (Duncan 2001, 11). Childcare in New Zealand has traditionally been considered as the out-of-home care of young children. This early childhood education provision is governed by the Early Childhood Regulations that require a centre to have a licence to operate. A significant change to childcare provision in New Zealand occurred in 1986 when childcare (the responsibility of the Department of Social Welfare) came under the auspices of the Ministry of Education.

#### **Descriptions of centres**

The two research centres were in lower socio-economic areas. This was a deliberate choice. The Strategic Plan for early childhood (Ministry of Education 2002) has, as

one of its goals, increased participation in early childhood education. Targeted areas include high Māori and Pasifika populations, and children from lower socio-economic backgrounds. Both centres met these criteria and that is why they were chosen.

Ocean Kindergarten is a purpose built centre in a suburban location. It has an indoor play area, bathroom, kitchen and office. A large outdoor area is a feature. It is a sessional centre, open five days from 8.30–12.30. They aim ‘to encourage, extend and empower individual learning through a strong resource base’. Furthermore, ‘children are encouraged to learn holistically... extending children’s individual interests’. Ocean believes ‘parents and whānau are valued as equal partners in their children’s learning’.

Sanctuary Childcare had a central city location and was a converted house with an indoor play area, sleep room, bathroom, kitchen, office and outdoor area. It is a full day childcare, open every day from 7.45am–5.15pm. The childcare centre is part of a wider provision of a governing body that caters for the needs of families. The childcare centre started as a small play group and since the time of the research they have moved into a purpose-built centre in a nearby suburb. ‘We offer low cost education and care for children 2–5 years’. Furthermore, ‘we provide programmes which allow children to learn through play... taking into account the strengths and interests of each child’. Sanctuary ‘believe that the centre has to be inviting of parent involvement and inclusive of Māori and different cultures’. Both centres met the Childcare Regulations.

### *Selection of participants*

There were three participant groups: teachers, parents, and focus children. There were four kindergarten teachers and eight childcare staff, all women. In the kindergarten all teachers held a Diploma of Teaching (Early Childhood Education). In the childcare centre, two teachers had a Diploma of Teaching, three were in teacher education while three were not. There were six focus group parents and six focus children at each centre. All the parents were women. The ages of the focus children were between 3- and 5-years-old. At the kindergarten the children were all girls but at the childcare centre there were two girls and four boys. These choices resulted from parental response to taking part in the research. Pseudonyms for the participants were used for confidentiality.

The research design for the qualitative research included a two phase approach (one year duration) involving two early childhood centres (Ocean Kindergarten, Sanctuary Childcare). Table 1 below provides a project outline of the research design.

### *Interview questions*

Three interviews were conducted with teachers, parents and children (see above table).

#### *Teachers and parents, Interviews 1 and 2*

- What does education for sustainability mean to you?
- Do you think it is important to include education for sustainability as part of early childhood curriculum?

Table 1. Project outline.

| Time line of phases and terms                                                                       | Methodology                                               | Tasks: both centres                                                                                                                                                                                                                                                                                                                          | Centre                            | Outcome                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Phase 1 February 2004 – March 2004 Term 1                                                           | Case study                                                | Researcher: Information provided and informed consent gained. First interview with focus children. Focus group interview with teachers and parents. Teachers implemented two week integrated curriculum. Observations of teachers and focus children. Second interview with focus children. Focus group interview with parents and teachers. | Kindergarten                      | Teachers at both centres gain confidence in conducting research in order to transition into participatory action research.                         |
| June 2004 . Decision: transition to participatory action research to create a community of learners |                                                           |                                                                                                                                                                                                                                                                                                                                              |                                   |                                                                                                                                                    |
| Phase 2. July 2004 – September 2004, Term 3<br>October 2004 – December 2004, Term 4                 | Participatory action research (PAR) used at both centres. | Teachers leading the research using the project approach based on children's environmental interests and the emergent curriculum. Researcher: Observations of teachers and focus children. Conversations with teachers and parents. Third interview with children. Third combined focus group interview with teachers and parents.           | Kindergarten and childcare centre | Teachers conduct and lead research process using PAR to create a community of learners to promote education for sustainability in early childhood. |

*Teachers and parents, Interview 3*

- What have you learned about education for sustainability?

*Children Interview 1*

- Children discussed environmental pictures.

*Children Interview 2*

- What did you learn about (topic)?

*Children Interview 3*

- How did you learn about (topic)? Who helped you?

A case study approach occurred in Phase 1. During this phase, a two-week integrated curriculum was implemented, first by Ocean Kindergarten, followed by Sanctuary Childcare. An integrated curriculum means that environmental learning experiences are integrated into core curriculum areas (Arce 2000). This integrated curriculum, implemented by teachers, comprised learning experiences and excursions based on the children's environmental interests. For instance, at both centres children were interested in sea creatures. Learning experiences on the topic were offered and culminated in an excursion to the aquarium. Wormeries and recycling were also shared interests. Two interviews were conducted in Phase 1, before and after the education integrated curriculum, at both centres. The research instruments were semi-structured, audio-taped interviews. The children's interviews were individual while the teacher and parent interviews were focus groups. Narrative observations of focus children and teachers were recorded by the researcher.

In Phase 2 of the research, teachers chose to lead the research and follow a participatory action research (Kemmis and McTaggart 2000) approach during Terms 3 and 4. They documented their project approach (Helm and Katz 2001) to environmental education and the emergent curriculum. The project approach is an in-depth way children can investigate and learn about a topic of environmental interest. On the other hand the emergent curriculum occurs when children's interest on an environmental topic 'emerges' into another related topic (Jones and Nimmo 1994). As the researcher, I observed the focus children and had conversations with teachers, children and parents. These conversations were recorded as field notes. Document analysis for themes such as identified child profiles, occurred at the centres, and continuing data analysis took place. At the conclusion of the second phase of the research the children were interviewed for the third time about their learning using audio-taped, semi-structured interviews. Combined focus group interviews (audio-taped) to discuss the research process, were held with the teachers and parents from both centres.

### **Data analysis**

Data analysis consisted of theoretically based themes and data generated categories (Mutch 2005). Four theoretical themes were applied: knowledge creation (Bereiter 2002), empowerment (MacNaughton and Williams 2004), collaboration (Head 2003), and transformation (Fullan 2003). Additional categories were generated from the four themes (see Table 2).

Table 2. Additional categories to main themes.

| Main theme:                                   |                                             |                                               |                                                                   |
|-----------------------------------------------|---------------------------------------------|-----------------------------------------------|-------------------------------------------------------------------|
| Knowledge creation                            | Empowerment                                 | Collaboration                                 | Transformation                                                    |
| Additional categories                         | Additional categories                       | Additional categories                         | Additional categories                                             |
| Children's environmental knowledge            | Implementing environmental education        | Home-centre link<br>Excursions                | Team approach<br>Greater awareness environmental education issues |
| Hands on experience                           | Integrated curriculum (EEIC)                | Valuing parents' involvement and contribution | Growth in children's knowledge                                    |
| Emergent curriculum                           | Leading participatory action research (PAR) | Learning together                             |                                                                   |
| Environmental education <i>in, about, for</i> | Project approach                            |                                               |                                                                   |

### ***Triangulation of data***

Triangulation was used in the study for validity and reliability reasons and two types of triangulation were employed in this research study, data triangulation and methodological triangulation (Denzin 1978). Data triangulation was assured by collecting data from multiple sources, including personnel groups (children, teachers, parents, researcher), while methodological triangulation was assured by the use of multiple methods (a case study approach, participatory action research, and multiple data collecting tools).

## **Findings**

### ***Parental knowledge about sustainability***

Parents at the two early childhood education centres made specific reference to sustainable practices when referring to the natural environment. At the kindergarten, Angela (parent) raised environmental issues such as the consumer society and pollution. She blamed rampant consumerism for the degradation of the planet and highlighted the issue of disposable nappies 'because they [manufacturers] are making things easier. For example Treasures [disposable nappies] isn't good for the environment and yet they make them. What happened to good old cloth nappies?' This idea has been reinforced in a newspaper article reporting that British parents are being offered subsidies to switch to cloth nappies (Beston 2006).

In New Zealand issues of global warming and the depletion of the ozone layer are discussed in the media. This had made parents acutely aware of the dangers of ultra-violet rays. This was illustrated in an interaction Carol at the kindergarten had with her daughter, Charlotte.

Actually talking about that, Charlotte came up with a question while we were driving along and she said to me 'Mum, the sun burns you, ah?' and I said 'yep' and she said 'how, when it doesn't touch you?' and I had to think... well, and I had to tell her about the UV rays. 'But what's a ray, Mum?'. And it's like, OK [group laughter] and it really made me stop to think, you know. I had to think, 'how am I going to explain this?' because I wasn't sure myself. You know, you get told about UV rays and blah, blah, blah, but you know, a ray. I sort of said 'Oh, a ray is like a blind, a streak you can't see'. And you have a sort of vision in your mind about what these UV rays look like. But how do you explain it to your 4-year-old?

Parents at the Childcare centre were very aware of the need to live sustainably. For instance, Alice highlighted issues surrounding green ecology and social justice (Stanley and Nelson 1986) and the need for political action. This was evident when she stated, 'the ozone layer, the ocean, oil, water, and who's getting oil. Yes, Greenpeace and green fingered people'. Conservation was on Nicola's mind when she highlighted the exploitation of nature's precious resources. She said 'cutting down on power. The way we use nature too much sometimes'. Eve took up on the theme of exploitation and elaborated it further. She highlighted how nature can be exploited for the burgeoning beauty industry: 'I think we really exploit whales. For instance, there's not many left and they are huge animals, but they just get slaughtered all the time for perfumes, soap, for man things. Things we don't really need'.

### ***Teacher knowledge about sustainability***

Education for the environment (Fleer 1998) that takes an informed action approach to sustainable practices was evident in the answer of Megan, a teacher from the

kindergarten. She took personal responsibility for her own environmental knowledge. This was evident in her answer: 'protecting the environment through education... that I was aware of environmental issues. Environmental education like the ray of light, the pollution, the over fishing, possums, under-sized paua. 'Cause things on TV make you aware'. Her response clearly showed she has an awareness and understanding of global environmental issues, in some part gained from the media. She demonstrated knowledge of the environmental crisis facing the world and consequences, if urgent action to address the issues she raised does not occur. Sally, a childcare teacher, epitomised the notion of humankind's oneness and interdependence on planet earth. She saw it as 'unity of us and the world, how we treat the world and how the world treats us'.

### *Children's knowledge about sustainability*

Integral to children's knowledge about sustainability were the learning experiences offered at both early childhood centres. The environmental interest that emerged at the kindergarten was the rocky shore while at the childcare centre the interest was birds and bird life. Excursions played a major role in children's understanding about sustainability and the protection of birdlife.

In preparation for the kindergarten children's visit to the rocky shore the children were made aware of the issues of pollution and conservation. Throughout the integrated curriculum the children were reminded of putting their rubbish in the bins provided. Many anecdotal examples of rubbish in streams, and the need not to pollute our precious waterways were given.

The topic of conservation was made very real to the children through the excursion. Megan had told them 'just use our eyes at the rocky shore' before they went. Furthermore, Megan illustrated the concept of conservation when discussing crayfish.

- Megan: There are special rules about taking these [crayfish] out of the ocean. If we took all the mummies, daddies and babies would there be any left for us to eat?
- Children: No.
- Megan: So we need to take some mummies, some daddies and no babies!

From this response it is clear the children are beginning to understand the concept of living in a sustainable way.

### *A transformation towards sustainability education*

Through the implementation of the integrated curriculum as part of the research study a transformation occurred in attitudes and learning about the environment and sustainable practices. This applied to parents, teachers and children at both centres. Transformative education (Davis and Elliott 2003) aims to educate the human race about how to live sustainably and in harmony with planet earth. Changes to the early childhood curriculum to include an integrated approach to education for sustainability are an important first step.

### *Parents*

A comparison of interview data between the start and conclusion of the research revealed a change in attitudes towards the environment and an awareness of sustainability issues.

Grace (childcare) and Angela's (kindergarten) responses were typical. Grace reported that she now recycled her cans. She enthused 'me and mum recycle cans now. You taught us to recycle'. When asked what she had learned through the research process she confided, 'probably to be more respectful of the environment'. Angela offered a similar response. She said 'you helped me and my child to understand what happens when you don't look after the environment. I knew about it but never really promoted it. I was a bit resistant'.

As part of the project approach at the kindergarten the children devised their own recycling system. It comprised three colour coded plastic buckets (green/paper, red/organic, yellow/plastic). The organic material was used to feed the worms in the kindergarten's wormery. The demonstration of education for sustainability principles at the kindergarten had an impact on Angela. She confided 'but seeing Greta at the kindergarten with all the things labelled [recycling buckets] it has made me more aware'. This is an excellent example of changed attitudes towards the responsible disposal of waste and living sustainably.

### **Teachers**

When the teachers were asked in the final interview what learning had occurred for them, learning new things, researching topics of interest and a greater awareness of sustainability were some examples offered. For instance, Elizabeth (childcare) discovered that the blue whale was the biggest whale. She confided:

I was discussing with the children the biggest whale and I thought the hump back whale was... so I went home and researched it and found that the blue whale is actually the biggest thing on earth. That was huge learning for me.

Henrietta stated, 'Well, I've learned heaps through this really. I've become more positive towards the environment and conservation and it's made me more aware of what we've done'.

### **Children**

A transformation in learning about the environment and sustainable living happened for the children at both the kindergarten and the childcare centre. This was evident in the final interview when they were asked who had helped them learn about their environmental topics of interest and sustainable practices. Four out of five children at the kindergarten stated it was their mother who had helped them to learn. A typical answer was 'My mummy helping me'. The same was true of the childcare centre. Along with their mother helping them to learn, came other members of the child's family such as 'my dad' or 'my uncle told me that'. Bethany from the childcare centre learned through the tools of the culture (Wertsch 1991) and stated she had learned with the help of 'the telly'.

However, the most interesting response came from one child at each centre. Brooke at the kindergarten stated 'I learned it all by myself' while Nicholas from the childcare centre replied in a similar vein by saying 'myself'. This supports Cullen's (1998) view that children develop a sense of themselves as learners.

## Discussion

The limitation of a small scale study such as this where only two early childhood settings in lower socio-economic areas were used is that the findings cannot be generalised to other countries or indeed to all settings within New Zealand. New Zealand is a small country and *Te Whāriki* (Ministry of Education 1996) is our national early childhood curriculum. Therefore, all early childhood centres follow the same curriculum, ensuring a continuity of curriculum provision. Furthermore this could allow for national implementation of education for sustainability in early childhood curriculum. However, this may not be the case in other larger countries or contexts where a variety of early childhood curricula may be in use.

The research highlighted the need for education for sustainability to be an integral part of the early childhood curriculum. Moreover, demonstration of the curriculum innovations at the two participating centres supports this notion and was evident when I visited the centres a year later. It also emphasised the importance of children's connectedness with nature and the need to instill the values of sustainable living at an early age. This could be achieved by incorporating the tenets of education for sustainability into our existing early childhood curriculum *Te Whāriki*. At the centre of *Te Whāriki* (Ministry of Education 1996) are four principles: empowerment, holistic development, family and community, and relationships. Supporting curriculum implementation are five strands: wellbeing, belonging, contribution, communication, and exploration. Goals that highlight children's experience with the early childhood centre environment, and ensure learning outcomes, uphold the strands. Furthermore, examples of reflective questions relating to the strand and associated goals encourage teachers to reflect on their centre practice and make changes.

## Conclusion

If in the future *Te Whāriki* is revised, a unique opportunity exists to foreground education for sustainability. Moreover, suggestions as to how education for sustainability can become an integral part of the early childhood curriculum using the existing document as a guideline is offered here.

For example, a specific goal on sustainability, with the associated learning outcomes, knowledge, skills, and attitudes could be added to each of the current five strands. These suggested additions to the existing curriculum document could offer a workable way to integrate education for sustainability into early childhood curriculum. The process could be assisted through the use of relevant reflective questions about sustainability in early childhood curriculum that encourage teachers to take a questioning stance on their practice. Furthermore, it would give education for sustainability equal status with the other goals under each strand, thus highlighting its importance in early childhood education.

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