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The significance of global nature-based education to ensure a sustainable world: an urgent need for change

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Introduction and objective

Richardson (2023) reminds us that people are part of the natural world, and that the process of birth is a natural phenomenon. He further discusses that present societal construct slowly erodes that connection through the consumerist lifestyles, and ever-advancing technology that supports this throw-away lifestyle.

Some isolated subjects within current global education curricula, strive to re-connect children with nature but do not go far enough to ensure that future global citizens embrace a different way of thinking about our planet. To some extent this may be attributed to attitudes and motivation of teachers to learning in the outdoors, possibly due to lack of personal involvement or exposure to relevant pedagogies (Ray and Jakubec, 2018; Du Plessis, 2023). A curriculum, embedded in the natural world, has the potential to develop this vital connection to drive a sustainable, ecologically balanced future supporting a more equitable, healthy and balanced lifestyle, enhanced rather than hindered by technological development. An example of such a curriculum framework was developed by Northern Christian School (2015), Australia, and evidences the possibilities discussed in this paper. Furthermore, a curriculum based in local communities, including indigenous people's values and approaches, would support children's learning about sustainability in relation to food production and resources, urban development, and the effects of toxic waste. Understanding and acting on these issues would also lead to a positive impact on health and emotional and physical wellbeing (Penetito, 2009).

Theme 1: present lifestyles and attitudes

Globally, urbanization has seen a decline in the frequency of people's interactions with the natural environment (Richardson, 2023), which is partially due to the lack of natural spaces within built-up work and living areas, and partially the more sedentary and technological pastimes embedded within this style of living (Ritchie, 2013; Postlewaight et al., 2023). Disconnect from nature can result in compromising holistic wellbeing, including the physical, mental and spiritual realms (Du Plessis, 2023; Postlewaight et al., 2023). Enabling opportunities for positive connections in the outdoors will confirm and establish relationships with the natural world and sustainability for future generations, thus creating a healthier balance between the natural and human-made environments.

Previous studies undertaken by [Du Plessis \(2023\)](#) and [Postlewaight et al. \(2023\)](#) focus on early childhood teachers and student teachers experiencing and re-connecting with nature. Learning from these experiences enables recognition of the importance of nature and place-based learning as a catalyst for learning in all domains of the curriculum, alongside relationships and personal identity. The approaches described in these studies are just the beginning of possibilities for long-term change.

Current health studies highlight the negative impact that the reliance on technological devices for learning has on children's social interactions, emotional wellbeing, and physical health ([Chung and Seomun, 2021](#)). Conversely, discovery and inquiry-based learning in nature enhance physical development, cognitive development, and risky play, enabling children's agency to drive their own learning ([Northern Christian School, 2015](#)). This is equally applicable to adult learners, student teachers and teachers. Inquiry-based learning encourages and supports problem-solving, independent and divergent thinking, and collaborative learning in a holistic way that is not achievable when learning solely with electronic devices or in a classroom. Holistic learning includes devices as a supportive tool, rather than the context for learning ([Schilhab et al., 2018](#)). Curricula that are fully immersed in nature-based education, model sustainable ways of being in the world ([Louv, 2005](#)). When sustainability is part of your everyday learning, a flow-on effect occurs through children sharing their knowledge and understandings, over time changing societal construct from a disposable consumerist mindset to one that is focused on eco principles and reuse, reduce, repair, recycle resources ([Merewether et al., 2023](#)).

Negative dispositions toward engaging with nature may be attributed to personal experience, upbringing, or adverse incidents ([Du Plessis, 2023](#)). An individual's beliefs and values of learning in the natural world could furthermore influence their attitude ([Postlewaight et al., 2023](#)). For teachers, these attitudes may also be the result of not being exposed to nature-based pedagogical approaches during initial teacher education, or not having access to professional learning and development during years of teaching.

Additionally, one such negative belief pertains to the notion of bureaucracy and regulations, for example, risk management plans, emergency responses, and health and safety protocols, as constricting incentive to change practice ([Postlewaight et al., 2023](#)). It is visible in the [Northern Christian School \(2015\)](#) model that these perceived barriers can be overcome. In order to reverse this trend and authenticate personal pedagogies, teacher education and all education curricula need to be aligned to the natural world.

Theme 2: an evolving curriculum

Te Whāriki, the early childhood education curriculum of Aotearoa New Zealand ([Ministry of Education, 2017](#)) is a holistic framework that is underpinned by the stance that children's learning is enhanced through connection with the natural world. Within the parameters of the framework, learning goals and outcomes are framed to support children's wellbeing and their understanding that they are part of the wider community. The natural world, place-based learning, and all curricula, including mathematics, science, literacy,

the Arts, history and information technology, are embedded in an integrated way enabling children to discover the connections between them rather than each being taught as separate subjects ([Penetito, 2009](#); [Ministry of Education, 2017](#)).

[Penetito \(2009\)](#) asserts that the natural world is the curriculum. Indigenous cultures' stories tell of their spiritual and physical relationship with nature and place ([Ministry of Education, 2009](#)), and sustainable practices cannot be separated from this historical knowledge. For example, [Durie's \(1994\)](#) Te Whare Tapa Whā health model, based on the beliefs and values of Aotearoa New Zealand's indigenous peoples, emphasizes the connection between taha tinana (physical), taha wairua (spiritual), taha whānau (family and community), and taha hinengaro (emotional) wellbeing. These pillars of health are grounded by people's relationship with whenua (land). It is imperative that kaupapa Māori ([Te Ara Encyclopedia of New Zealand, 2007](#), p. 8), and all such global indigenous cultural sustainable principles, are valued and incorporated in all aspects of nature-based approaches and plans for learning and teaching.

Global curricula currently incorporate sustainability as a stand-alone subject or within science learning, admittedly showing merit as a starting place. However, to fulfill the vision of a natural learning environment, these curricula need to be developed to encompass all subjects, and will ultimately enhance wellbeing and develop a sense of connectedness to and belonging in the space/place ([Ministry of Education, 2017](#); [Teton Science Schools, 2023](#)). Forest school movements which evolved in Scandinavia and Germany in the 1950's and 1960's ([The Forest School Foundation, 2020](#)) initiated and consistently follow a learning in nature curriculum that has proven to benefit physical, emotional, social and mental development throughout a child's education. Forest schools, or similar, are now recognized globally as a holistic learning approach. The link between children's emotional wellbeing, physical development, relationship-building, and learning in the natural environment is evident in examples such as Toybox early childhood center on Rawhiti ([Catto, 2023](#)) where everyone participates in growing, harvesting and preparing food that is chosen each day.

Findings/discussion

A possible education model for curriculum, that is embodied within nature would impact societal constructs of holistic learning, sustainability, health and wellbeing, place-based learning, and community. Children who learn that they are part of, rather than owning or controlling the natural world, will grow up with beliefs and values that will support and protect its resources ([Penetito, 2009](#)), as a result of their deepening connectedness with nature and the land. Such an approach needs to be the focus of education going forward.

Rather than the narrow focus of education for sustainability, learning in nature will enable future generations to realize that care of nature is important to human survival. Each of the previously described curriculum foci can be integrated within nature-based learning. For example, a child who has experienced

the bush or the beach environments will learn how plastics are destroying ecosystems and the impact of catastrophic weather events. Mathematics learning could entail collecting rubbish and compiling statistics on how much is present in the area. The child's learning could be documented or presented through the Arts, literacy, or as scientific findings.

Each of the aforementioned changes to curricula development would have a flow on effect on global economy, consumerism, urbanization, food production, toxic waste and a sustainable lifestyle that will ensure a balanced long-term future. However, parallel change needs to occur for initial teacher education alongside the provision of essential professional learning to support teachers' planning and implementation of holistic pedagogies, for example modeling integrated curriculum and opportunities for engaging with experiential learning. Du Plessis (2023) examined and reflected on teacher involvement, values and beliefs, and prior experiences, and how these influenced teacher dispositions toward working with learners in this way. Furthermore, Postlewaight et al. (2023), conducted a pilot study that enabled participants to examine their attitudes, beliefs and experiences. From the initial findings of Postlewaight et al. (2023), Postlewaight has since facilitated professional learning and development to equip the teachers with a range of relevant strategies for working with a holistic curriculum in nature.

The authors' proficiency is in early childhood learning and teaching, and initial teacher education, yet they recognize that it is imperative that a nature-based curriculum underpins learning throughout life. Learning in the natural world needs to assimilate a spiral methodology that keeps progressing through the educational system. A spiral curriculum is not a novel concept since Bruner (1960) advocated for cyclical learning that builds on prior knowledge, adding depth of experience and understanding. He acknowledged how the prior knowledge of learners, and utilizing inquiry-based learning, empowers their agency, deepening their engagement with their learning. For instance, the professional development undertaken by Postlewaight, involved participants contributing to literacy through story-telling in nature, using props from within the environment. Du Plessis (2023), in her autoethnographic narrative, concluded that a combination of spontaneity and planning is the catalyst for problem-solving and agency. Consequently, she intentionally prepared the resources within the natural environment as provocations for engagement by the student teachers.

It is recognized that sustainability encompasses two main concerns, namely sustainable living and protection of the natural world. Present-day consumerism impacts on ecology, partially due to the lack of awareness of the need for consideration, planning, and implementation of sustainable practices in our everyday living. We are informed of the need for greater integration of sustainable energy, transportation, water supply and treatment, building, industrial processes, and the size of our cities (Sodiq et al., 2019). However, the advancement of these is slowly evolving, being ignored, and/or their positive impact is not fully recognized. In order for people to realize the importance of sustainable living, a nature-based curriculum would reveal the effects through learning about the care and protection of nature. For example, one kaupapa

Māori value embraces the concept of kaitiakitanga, that all people are part of, and therefore are guardians of the natural world. Recognition of the importance of community involvement and learning about the place in which we live, is a way of engaging everyone in these undertakings. Initiatives such as (Enviroschools, n.d.) in Aotearoa New Zealand equip learners to become part of the sustainable enterprises within their community. The philosophy of Enviroschools is based on the notion "where young people are empowered to design and lead sustainability projects in their schools, neighborhoods and country" (Enviroschools, n.d., para. 1). Incorporated within working with the community is learning the stories and traditions of place, and historical importance.

Conclusion

While there is urgency in the agreed UNSDG changes, the achievement of longer-term goals requires the assimilation of a societal construct that is based on the balance and relationship between protection of the natural world and technological advancement. This article proposes an alternate way of being in the world through education leading to sustainable awareness, understanding and action, resulting in a balanced lifestyle for people as part of nature.

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