Using nature sanctuaries to consider sustainable futures

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KEY POINTS

Effective sustainability education outside the classroom:

- connects learners' experiences in the outdoors to complex sustainability concerns
- harnesses and responds to children and young people's lived experiences and emotions
- provides opportunities to think critically about sustainable futures.

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When children and young people participate in education visits to green spaces such as parks, zoos, and nature reserves, little is known about the connections they make to sustainability issues or how they conceptualise sustainable futures. This article uses insights from interviews with children and young people who visited Zealandia Te Māra a Tāne, a predator-free conservation environment in the heart of Wellington, New Zealand. It suggests three place-based approaches to using nature sanctuaries and other learning environments to enrich sustainability education outside the classroom.

Sustainability education outside the classroom

Learning environments such as zoos, aquaria, and botanic gardens can support people's engagement with sustainability issues. They often provide unique experiences to children and young people and valued opportunities to extend curriculum-linked learning (e.g., Clayton et al., 2013; Hill et al., 2020; Packer & Ballantyne, 2016; Sattler & Bogner, 2017; Sellmann & Bogner, 2013). Sanctuaries, the example of a learning environment that is explored in this article, offer educational and advocacy opportunities to large numbers of New Zealanders (Campbell-Hunt & Campbell-Hunt, 2013; Innes et al., 2012). There are currently more than 80 terrestrial biodiversity sanctuaries in New Zealand, including coastal islands and inland environments, where pest management and eradication is being undertaken with and without the use of predator-proof fences (Sanctuaries New Zealand, 2021).

This article considers how teachers can leverage the educative potential of visits to Zealandia Te Māra a Tāne, a fully-fenced suburban valley sanctuary within walking distance of Wellington's central business district. A pest-exclusion fence has enabled the reintroduction of 18 native species of wildlife, six of which had not been seen on mainland New Zealand for over 100 years. In recent years, Zealandia Te Māra a Tāne has welcomed around 140,000 visitors annually, including over 11,700 education visits from 2018 to 2019 (Karori Sanctuary Trust, 2020). A quotation attributed to Henri Bergson that greets visitors at the entrance to Zealandia Te Māra a Tāne prompts attention to pressing matters of local and global concern: "The future can no longer be what is going to happen, it is what are we going to do?" It calls for active, imaginative responses both within and beyond the predator-proof fence.

Zealandia Te Māra a Tāne is an important site within Wellington for safeguarding biodiversity against the pressures of climate change (Rastandeh et al., 2018). The organisation aims to contribute to meeting the United Nations' Sustainable Development Goals by inspiring societal change and life-long learning by "leading through example" and being "a hub where people can learn, create and share new knowledge" (Karori Sanctuary Trust, 2020, pp. 8–9). Site visit and outreach education programmes offered by Zealandia Te Māra a Tāne emphasise the connections between the sanctuary, conservation issues, and actions that children and young people can take. *Don't feed the kākā*,[1] for example, tasks students with developing a local social marketing campaign.

Despite the opportunities that sanctuaries and other learning environments offer, and in the case of Zealandia Te Māra a Tāne the extensive use by schools, there is little research that examines how children and young people encounter sustainability issues and conceptualise a sustainable future in relation to their visits. To explore how teachers can get the most out of visits to nature sanctuaries and other natural environments, even in the circumstance of a single visit, this article draws on an analysis of children and young people's meaning-making after visiting Zealandia Te Māra a Tāne. The article suggests three place-based (Penetito, 2008) strategies for supporting children and young people to conceptualise and extend their engagement with sustainable futures, arising from connections that the participants in our study did and did not make to wider sustainability concerns "beyond the fence".

Listening to children and young people's experiences

The research question that this article addresses is: How do children and young people connect their experiences at Zealandia Te Māra a Tāne to their engagement with environmental, social, cultural, and political issues that face this world? The study[2] was conducted by five researchers from Te Herenga Waka Victoria University of Wellington's School of Education. All were former teachers whose experience ranged across early childhood, primary, and secondary education. The team shared an interest in education for sustainability and drew on a range of education research including science and the social sciences, sustainability education, physical education, and kaupapa Māori.

In light of calls for sustainability education research to be conducted in urban and diverse communities (Ardoin et al., 2013; Gough, 2013), the study sought to include participants from a wide range of ethnicities and who were, for social, geographic, and/or financial reasons, unlikely to have visited a nature sanctuary. A university research grant, and free entry funded by Zealandia, enabled us to support travel and admission costs. In this article, we explore how 94 early childhood, primary, and secondary school participants envisioned possibilities for environmental and societal transformation through their experiences in Zealandia Te Māra a Tāne. These were research-related visits, not necessarily constructed by teachers as part of their educational programme.

Within 2 weeks of each visit, 17 focus-group interviews, with five to eight children and young people in each, were completed at their school or centre. Each took approximately an hour and participants were invited to share their impressions of the visit, explore ways in which their life experiences connected to Zealandia Te Māra a Tāne, and consider any other ideas the visit had generated for them. After initial focus groups were conducted and reflecting on children and young people's initial reticence to make wider connections, we decided to support this process by employing a photo-cued elicitation methodology (Barton, 2015). Towards the end of each focus-group discussion, we acknowledged some of the sustainability challenges for people on Earth (such as climate change, poverty, and conflict) and asked the children and young people about their feelings and thoughts about such challenges. To prompt further discussion, we introduced visual images depicting local and global issues, such as protests, traffic congestion, homelessness, and pollution. Our approach was one of empathy and care (Noddings, 2005, 2013), and conducted with the support of teachers and with whānau in the case of the early childhood setting.

How did children and young people connect Zealandia to sustainable futures?

A thematic analysis (Braun & Clarke, 2006) of the focus groups found that the children and young people highly valued their visits, with almost all the discussions highlighting that the experience was surprising or awe-inspiring. The children and young people made a wide variety of rich connections and distinctions between their school or centre and Zealandia Te Māra a Tāne (for example, noticing differences in flora and fauna). For many, the visit stimulated positive, felt connections. Participants in 13 focus groups shared feelings of peace and tranquillity, reverence, and mourning environmental loss. Some emphasised the sensory nature of the experience, including the physical demands of the walk, or identified that the visit had evoked strong emotional, relational, and identity responses. For example, Manawa, a secondary school student, was saddened that they "didn't know anything about the Māori trees and the stories behind [Zealandia]". At the same time, Manawa felt that their identity as Māori was particularly affirmed when the educator spent time talking about Te Ao Māori and how the mauri of the ngāhere and taonga species may be being uplifted within Zealandia Te Māra a Tāne.

Significantly, in relation to our research question, children and young people in all the focus-group discussions made connections between the site and wider sustainability concerns, including understanding Zealandia Te Māra a Tāne as a place of protection in response to long-standing environmental degradation. Issues of poverty, pollution, conflict, and the impact of modern life generated the most discussion. Jess, an intermediate school student, commented for example:

> Zealandia links to outside of the community. I think that if people visited, like because now New Zealand's getting more polluted and things and the air isn't quite clean and go into Zealandia and having fresh air and seeing the unpolluted streams and things. Yeah, it kind of makes you wish that it was like that outside as well to people and then people might act on that.

In all but one of the focus groups, the children and young people connected their experiences in Zealandia Te Māra a Tāne to personal sustainability actions that they had taken (for instance, making compost and donating money) and collective actions such as service projects, recycling, and school contributions to riparian planting. The visit stimulated consideration of their future environmental practices for a few participants, including two children were looking forward to translating their newfound knowledge of native species into their school's garden. There was also a strong sense of desire for change.

Using language such as "inspiration" and "care", children and young people in seven focus groups stressed that environmental degradation needed to matter more to others and that Zealandia Te Māra a Tāne presented a compelling vision for change. Avery, a high school student, was impressed that "even with the small part that they have … it's encouraging people to actually try and make a difference". Alex also stressed that:

> One of the things is it sets an example, I mean if one place that's so amazing and it's such a great place if they can do it it's kind of like why can't someone else do it, why can't someone else set up another area like that?

Taking it further: A place-based approach to enhancing learning in nature sanctuaries

Place-based education can enrich children and young people's learning through familiar places and through less familiar environments (Gruenwald, 2003a, 2003b; Papprill, 2018; Smith, 2002, 2013; Sobel, 2004), the latter being the case for the children and young people in our study. Leading Māori educationalist Wally Penetito (2008) argues that, by learning through culture and locality, place-based education promotes ecological consciousness, a deep understanding of community concerns, and brings alive Aotearoa New Zealand histories. As Alaskan place-based educators, Ray Barnhardt and Angayuqaq Oscar Kawagley (2005) urge, "the depth of indigenous knowledge rooted in the long inhabitation of a particular place offers lessons to everyone" (p. 9). Penetito (2008) suggests that prompting children and young people to ask, "What is this place and how do I fit in?" (p. 9) is central to place-based education. We contend that asking these questions, directly or indirectly, can enhance learning in nature sanctuaries such as Zealandia Te Māra a Tāne in four ways, through building understanding about and engagement in: relationships; politics; complexity; and critical action.

First, Penetito's questions highlight *relationships* between people, especially tangata whenua, and the dynamic and changing environment. This includes an understanding that nature sanctuaries are socially produced places; that is, conservation efforts that involve people's actions and ongoing decision-making processes. Second, to ask the question draws attention to the *political dimensions* of places. It brings together the politics of location (what is this place?) and identity (how do I fit in?) and invites a conversation about "contestation, power relations, and negotiation" (Penetito, 2008, p. 9). Indeed, Zealandia can be understood as a response to the ongoing effects of colonisation on the environment and tangata whenua (Hatton et al., 2017; Michel et al., 2019), as is portrayed in the visitor centre's deforestation presentation. Third, to ask "What is this place and how do I fit in?" can help children and young people to understand the *complexities* of places. Nature sanctuaries like Zealandia entwine local and global scales by dealing "with both sense of planet and sense of place at the same time" (Nakagawa & Payne, 2015, p. 151). Sanctuaries are a response to interconnected, contested "wicked" issues, such as climate change, where there are no simple solutions, yet action is urgent (Block et al., 2019). Fourth, Penetito's (2008) question lastly encourages them to *critically consider their own actions*, responsibility, and accountability. This includes an examination of their own taken-for-granted assumptions (Ministry of Education, 2021) in light of differing values and visions for change.

How to explore "What is this place and how do I fit in?" in practice

This section discusses how teachers could explore relationships, politics, complexity, and critical action with their students in a visit to a nature sanctuary such as Zealandia Te Māra a Tāne. While we are cautious about extrapolating from our study's findings, we suggest three interconnected place-based practices that teachers could do to support children and young people to explore the questions "What is this place and how do I fit in?" The suggestions build from connections that our young participants did and did not make to wider sustainability concerns, and avenues that appeared to enable them to "transcend" the pest-exclusion fence; that is, to link experiences within Zealandia Te Māra a Tāne to prior learning and experiences outside of the fence. It was interesting to note, for example, that the sensory, restorative, and emotional dimensions of the Zealandia Te Māra a Tāne experience enabled some of the participants to re/consider what was important in the world, for their communities, and generations ahead. Themes of care for the environment, in relationship with others, also brought together the "in here" with the "out there" for some participants and these children and young people.

1) Scaffold students to make explicit connections between nature sanctuaries and complex sustainability concerns

Noticing that nature sanctuaries are connected to sustainability issues is vital if children and young people are to consider and engage with a sustainable future. Children and young people in all focus groups were aware that something was at stake *here* in Zealandia Te Māra a Tāne*;* that native flora and fauna are at risk or that real-world issues pertain to this place, for example. However,

the findings from this study also suggest that *stronger* connections between nature sanctuaries and complex sustainability concerns can be made when teachers scaffold children and young people's learning in three ways:

1. Discuss the similarities and differences between Zealandia Te Māra a Tāne and other green spaces with which they are familiar. Perhaps because this was their first visit, many grappled with understanding what this place was, and it felt nothing like "their place". For participants in eight focus groups, Te Māra a Tāne was a foreign "other world" like a theme park or zoo, very unlike their own neighbourhoods, or intriguingly different from nature parks in other countries with which they were familiar.
2. Lift up from the immediacy of the visit experience. Many children and young people were, for example, excited and intrigued by the takahē, tuatara, and the "wibbly-wobbly" bridge, or focused on scientific knowledge for the purposes of their secondary school assessment. Greater learning gains about sustainability concerns can be made when such experiences are linked to the issues that Zealandia Te Māra a Tāne responds to, and/or issues in the school's locality and community. Evidence from another study involving Zealandia Te Māra a Tāne (Milligan & Rusholme, 2021) offers an example of this. Planning for a Year 10 visit, focused on the inquiry question "What makes kaitiakitanga hard?", focused on how aspects of Zealandia's built environment (such as the fence, lake dam, and visitor centre) involve relationships between conservation issues, contemporary debates about urbanisation, the ongoing legacy of colonisation, and economic considerations.
3. Take up Wally Penetito's (2008) invitation to explore the political dimensions of locality and identity. For example, two international students, Avila (pseudonyms used throughout) and Ari, made cogent connections between their experience in Zealandia Te Māra a Tāne, their cultural identities, and the politics of sustainability concerns. Avila shared a sense of sorrow about a fire that destroyed mountainous forest in her South American homeland, a suspicion that this event was linked to political and economic imperatives including the subsequent building of a major highway, and concern for the deep emotional impact on the local community. Ari similarly noted competing interests related to sustainability challenges:

   > I think there might be some conflicts between preserving the environment and the economic world. I'm not sure about the case here, because in New Zealand there are plenty of land, but in Hong Kong the space is very small and if you have to preserve the natural and farm lands then you have to sacrifice other things. Like, you can't build something there and you have to invest a lot of money to preserve it. So I think there might be some conflict between the two, the people of different perspectives.

4. An example of how teachers can explore the political dimensions of locality and identity can be found in the study mentioned above (Milligan & Rusholme, 2021). To enable students to explore the challenges of kaitiakitanga within and beyond Zealandia Te Māra a Tāne, the visit planning focused on the political concept of decision making. Questions such as "How does Zealandia link us to past and future decisions related to tiaki? What other decisions might be needed to get communities to support initiatives like Zealandia who take on a tiaki role?" prompted attention to the concept of decision making. Taking the political dimension further could also have involved making connections to issues in the children and young people's communities and questions about decision-making processes, power relationships, and Te Tiriti o Waitangi partnership.

2) Tune in to children and young people's identities, lived experiences, and emotional responses

For many of the children and young people in this study, there seemed to be a disconnection between their daily lived realities and a sense of oneness with the trees, birds, and other creatures that are present in the sanctuary of Zealandia. The visit did not appear to prompt cultural and historical connections for tamariki Māori. Furthermore, some secondary school students felt that inequality was more pressing than ecological issues. Justice, for example, felt that Zealandia lacked relevance to her lived experiences of injustice:

> I'd probably say Zealandia's a wonderful place and when people visit there you learn heaps … it's good knowledge and stuff but when you, the connection between here like you go to Zealandia and you know heaps about it but when you come here it doesn't benefit us, the knowledge doesn't benefit us because we're not in the right environment.

The diversity of the children and young people's identities, experiences, and emotional responses are fruitful resources for enriching their engagement with conceptualising sustainable futures. As mentioned earlier in this article, for many of the participants, the trip to Zealandia Te Māra a Tāne was their first. One student, Jordan, from an outlying suburb of Wellington noted that the green spaces in their neighbourhood were dominated by gorse:

> There's all this land and even in [our suburb] that's like gorse and gross plants and we could like just get rid of that and plant some native trees and make that a sanctuary like any spare place with land.

This suggests a recognition of the value of the "wilderness" space and a yearning for this to be accessible within their own community.

Many New Zealand schools and early childhood centres acknowledge local Māori knowledge, stories, and history through the teaching and learning of pēpeha, an oral introduction of oneself through sharing one's geographical boundaries. Using pēpeha acknowledges how many Māori intimately connect with the physical environment and models a practice of maintaining and sustaining the important reciprocal relationship between land and people. Accompanying visits to nature sanctuaries with explorations into rongoā and te ao Māori sustainability knowledges could be useful in fostering connections to wider social, cultural, and ecological issues. This is because having a strong sense of tūrangawaewae and place and identity could encourage a sense of kaitiakitanga and care for places important to children and young people. Knowing that they can return to places such as Zealandia Te Māra a Tāne, revisit green spaces over time, and continue to explore common issues in their local environment is central to a relational understanding of place and knowing how they fit in.

3) Provide opportunities for students to critically evaluate perspectives and sustainable futures

Most children and young people in our study shared generalised visions for a sustainable future and implicitly assumed that certain "right" actions would produce positive results. For example, participants in one focus group suggested that education should involve "teaching our children to respect their environment", "to give back", and "taking the kids out to those kinds of places more, just around here and just teaching them the dos and don'ts". These responses suggest that children and young people need opportunities to consider alternative responses and, indeed, some students expressed a sense of frustration about wanting to know more about the actions they could take. For example, Eddie, one of the international students, wanted the visitor centre exhibition to do more to explicitly connect Zealandia Te Māra a Tāne to strategies for change, "to teach the next generation what they can actually do to reduce the damage to our Earth".

Additionally, teachers could highlight how people can work together to drive systemic change. Of the 11 focus-group discussions that considered sustainability action, participants in four groups suggested political opportunities for change, and low levels of political efficacy were evident in five groups. For example, a group of international students argued that collective, localised efforts could be undermined by government policy, and another group of secondary students shared a profound distrust of the ethics of political leadership. River, for example, stressed that:

> That happens so much, the people they just trust the lies they [the politicians] say, like they promise you the sky, the heaven … like, all that they say won't be what they do, so yeah that's a big part of changing the world.

Many educators (e.g., Hasslöf & Malmburg, 2015; Öhman, 2016; Paulus, 2016) have argued that inspiring well-informed and active responses to sustainability issues is dependent on supporting learners to critically explore different values, interests, and knowledges. This involves looking to the past to ask "How-come …?" and looking forward to ask "How-could …?" in green spaces, as well as appreciating experiences in nature (Derby et al., 2015; Dunkley, 2016; Lundholm, 2019). Prolific place-based education commentator David Gruenewald (2003a), for example, urges that we "ground place-based education in a pedagogy that is socially and ecologically critical" (p. 9). Jordan's concern, described in the previous section, is an example of where a critical orientation could enable children and young people to explore their yearning for "wilderness" and ask "how come" this is less accessible to them. To richly explore alternative sustainability actions, teachers could support young people such as Jordan to explore and evaluate different values and perspectives about the local environment, approaches to and outcomes of decision making, and possibilities for their leadership and advocacy. Contextualising this learning in relation to Te Tiriti o Waitangi partnership is vitally important in terms of understanding "how come?" and asking, "how could?" in Aotearoa New Zealand.

Concluding thoughts: Sustainable futures "within" and "beyond" the fence

Place-based approaches using nature sanctuaries and other natural environments, including green spaces within the school or centre environs, can be an expression of teachers' commitment to sustainability, Te Tiriti o Waitangi, and "fostering learners to be active participants in community life and engaged in issues important to the wellbeing of society" (Education Council, 2017, p. 12). This article has suggested three strategies that teachers could use to enhance children and young people's attention and responsiveness to sustainability concerns and enrich their engagement with conceptualising sustainable futures. The voices of children and young people in this study suggest that getting more out of sustainability education outside the classroom rests on connecting the immediate experience with their felt concerns, capacities for critical thought, and lived, diverse realities in their own localities. Teachers could consider leveraging the valued nature of the visit, and the sheaf

of connections likely made within and beyond nature sanctuaries, by supporting children and young people to "read" Zealandia Te Māra a Tāne as a relational, political, and complex place that holds possibilities for critically considering alternative sustainability actions. Additionally, our findings suggest that teachers could focus on the connections between sustainability concerns in nature sanctuaries and those in places with which children and young people are familiar. In this respect, we suggest that asking "What is this place and how do I fit in?" in Aotearoa New Zealand is intimately connected with understandings of the relationship between kaitiakitanga and tūrangawaewae.

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Notes

1 https://www.visitzealandia.com/Education#programmes
2 With ethical approval from Te Herenga Waka Victoria University of Wellington Human Ethics Committee #21662.

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