

ARTICLE

The leadership role of teachers and environment club coordinators in promoting ecocentrism in secondary schools: Teachers as exemplars of environmental education

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Abstract

This study of Naessian ecocentrism and anthropocentrism in three environment club coordinators/science teachers, their colleagues and some parents at three secondary schools uses deep ecology and relational fields as primary frameworks for open-ended interviews. The findings reveal new insights into the affective, cognitive and behavioural characteristics of coordinators who enhance environmental education in their schools. The work presents preliminary data on leadership among sustainability coordinators who run environment clubs. It fills a gap in the literature by showing that in addition to environmental educators requiring knowledge and attitudes regarding sustainability practices, affective qualities like connectedness and love for the environment may be important to their success as *sustainability exemplars*. Teachers emerge as sustainability exemplars in a relational field to implement sustainability across the secondary curriculum, galvanise students, teachers and parents to connect to the Earth, and help students, teachers and parents move away from anthropocentrism. Findings suggest that if schools commit resources and time to the coordinator's role, students experience significant benefits by becoming closer to the Earth and more empowered to act for the environment in ways consistent with deep ecology.

Keywords: teacher exemplar; environment club; anthropocentrism; ecocentrism; deep ecology; education for sustainability

Background and Literature

This article reports preliminary findings from a study of environment clubs in three secondary schools in metropolitan Melbourne, Victoria, Australia. The study presents data generated from interviews with sustainability coordinators who were also classroom teachers, other teachers, and parents of the environment club students. The findings here were part of a larger study of deep ecology in environmental education involving student members of the environment club in these schools (Smith, 2019).

Nearly half a century ago, Naess (1973) challenged humans to address the problem of anthropocentrism, a call for ecocentrism reasserted in the new journal *The Ecological Citizen*: 'We are now looking [at] global environmental collapse in the face, as our actions tear into the natural ecosystems that sustain all life, including our own, and inflict untold suffering on our fellow creatures' (Curry, 2017, p. 2). Ecocentrism is an ideology where the Earth is the focus of our ecological considerations (Pepper, 1996), and where the Earth's needs are placed before human needs (Naess & Rothenberg, 1989). Anthropocentrism holds the opposite view (human-centredness) that the Earth only has instrumental value to present and future humans (Naess, 1973). Some see anthropocentrism as the root cause of the environmental crisis (White, 1967).

This article draws its theoretical framework from Naessian ecosophy, modified as a posthumanist/relational materialist/radical ideology (Smith, 2017) to investigate environmental education in the study cohort. N. Gough (2015) explains the importance of relational ideology:

Holding the idea of ‘human’ under erasure, I suggest that challenging hierarchical anthropocentrism (i.e., challenging the assumption of human superiority) does not prevent us from acknowledging ‘irreducible anthropocentrism,’ that is, accepting that we necessarily experience the world with species-specific biophysical limitations and possibilities. However, we must also consider how an understanding of irreducible anthropocentrism might be changed by accepting that we increasingly experience the world as posthumans, with perhaps (eventually) fewer species-specific biophysical limitations and with further possibilities provided by biophysical extensions and enhancements. (p. 8)

The relational ideology used here was also developed as interconnectedness (or connectedness) with nature, borrowed from the ‘connecting to country’ principle widely accepted as part of Australian First Nations Peoples’ spiritual, ceremonial and cultural practices (Rose, 2002, 2011). The Dreaming is a spiritual and cultural practice that leads to practical and logical benefits in terms of land care (Gammage, 2011), so it was appropriate to embrace the metaphysics of connectedness in this study of environmental education (Smith, 2017).

The study reviews the small body of literature on sustainability coordinators in secondary schools for the analysis. Given that there were few studies of environment clubs upon which to build the research design, the findings here are preliminary and require confirmation from future studies of secondary school environment clubs.

Deep ecology, relational fields and environmental education

Scholars have argued for a radical, nonanthropocentric approach to environmental education that challenges Education for Sustainable Development (ESD; Bonnett, 2002; Li, 1996). There is strong argument for studying ecocentrism and anthropocentrism in environmental education because ESD conceals an anthropocentric agenda (Kopnina, 2014). The problem of anthropocentrism is central to the emerging literature on ecocentrism (e.g., see Gray, Whyte, & Curry, 2018; Noss, 2017; Steffen, 2019; Washington, Taylor, Kopnina, Cryer, & Picollo, 2017). Considering that deep ecology is one of the most important ecological philosophies promoting the nonanthropocentric worldview of the environment (Naess, 1973), it is notable that there is only a handful of literature on deep ecology in primary or secondary school teaching and learning (Byrnes, 1997; Naess & Jickling, 2000). There has, however, been some important critiques of Naess’s deep ecology from ecofeminist writers (Salleh, 1992; Zimmerman, 1990) and social ecologists (Bookchin, 1993), and both debates have been extensively reviewed (McLaughlin, 1993; Sessions, 1995; Slocombe, 2002). The author is familiar with the literature above but considers them beyond the scope of the work presented here.

There is a call in the literature to embrace a more radical ecology commensurate with the deep ecology paradigm (Kopnina, 2012a; 2012b). This task was taken up in a special issue of *The Trumpeter: Journal of Ecosophy* in 2014, ‘Whatever happened to deep ecology?’, by Hawkins (2014), Kowalsky (2014) and Sessions (2014). In that issue of *The Trumpeter*, the authors concluded that deep ecology had evolved into a relational field of thought that connects us all with nature (Clark, 2014, p. 156). Addressing a posthumanist/relational materialist/radical view of environmental education derives from the need to embrace recent educational ideologies that ‘challenge the habitual anthropocentric gaze we use when analysing educational data’ (Hultman & Lenz Taguchi, 2010, p. 525). ‘We put to work concepts that open up possibilities to understand the child as *emergent in a relational field*: a space in which *non-human* forces are equally at play and work as constitutive factors in children’s learning and becomings’ (Hultman & Lenz Taguchi, 2010, p. 527).

Relational/material ideology has more recently emerged from ecofeminist literature as *new materialism* (Cudworth & Hobden, 2015; A. Gough & Whitehouse, 2018; Höppner, 2017; Monforte, 2018).

Deep ecology was used in the study to formulate the interview questions and conduct the analysis of findings. It was also used to determine cognitive, behavioural and emotional/spiritual traits (encompassing praxis in most forms relating to anthropocentrism and ecocentrism in the interviewees). It is notable that the deep ecology philosophy is consistent with the Tbilisi Declaration ('Tbilisi'; UNESCO, 1977): 'By adopting a holistic approach, rooted in a broad interdisciplinary base, [environmental education] recreates an overall perspective [that] acknowledges the fact that natural environment and manmade environment are profoundly interdependent' (pp. 13–14).

Tbilisi aligns with the deep ecology platform by foregrounding environmental ethics and human-nature interactions. The Declaration supports the notion that while scientific and technocratic approaches to environmental problems are important, humans need to connect with nature (interdependence) — a position consistent with the deep ecology worldview. In this article, the author shows that coordinators, teachers and parents are capable of higher order philosophical thinking about the environment, and that ecological philosophy — 'ecosophy' — could enhance environmental education programs in schools.

Research in schools using a deep ecology lens shows that individuals identify with a 'location' along a spectrum from anthropocentrism to ecocentrism (Smith, 2017). This approach fits with the new materialism rejection of human-nature dualism (A. Gough & Whitehouse, 2018) where new ways of thinking are required to reveal the problems of the binary. Other cornerstones of deep ecology include biospherical egalitarianism and the rejection of environmental solutions that cause class differences. Deep ecology underpins some core aspects of contemporary conservation and sustainability ideals, such as biodiversity, fighting against pollution and resource depletion, protecting endangered species, and minimising our ecological footprint.

The problem of anthropocentrism in environmental education

There is a continuing problem of anthropocentrism in teaching (Quinn, Castéra, & Clément, 2016), as demonstrated in this example: 'Teaching young people about sustainability has never been more important. It develops the knowledge, values and worldviews required to make certain that there's enough for everyone, forever'. (Cool Australia, 2017).

In a study of 201 preservice and inservice teachers, Quinn et al. (2016) found that anthropocentrism was associated with negative attitudes to nature and non-anthropocentrism was good for nature and the environment. N. Gough (2015) highlighted a problem where 'On the one hand, many environmental activists, philosophers, and educators view anthropocentrism as an undesirable ethical position. On the other hand, most reports of environmental education research privilege an anthropocentric gaze' (pp. 7–8). The words from Cool Australia above — 'for everyone, forever' — carry an anthropocentric message that the Earth can be plundered for natural resources indefinitely, regardless of how many humans there are or how badly humans degrade the environment. This message is also contrary to the limits to growth research, which shows that natural resources are limited, and therefore human population growth cannot continue forever (Meadows, Meadows, Randers, & Behrens, 1972; Meadows, Randers, & Meadows, 2004). This message is also inherent in former UN Secretary-General Ban Ki-moon's *No Planet B* message (Targeted News Service, 2014).

Environment clubs and coordinators

Environment clubs have been around for more than a century (Roberts, 2009), but for many schools their environment club is essentially an extension of their science teaching program

and of little relevance to other subject teachers (Robertson & Krugly-Smolka, 1997). Often, the environmental education programs are relegated to extra-curricular or after-school activities (Aguilar & Krasny, 2011). Environmental education is perceived as an *add-on subject* with a lower value in the overall curriculum (Bagoly-Simó, 2013; A. Gough, 1997). Teachers interested in integrating environmental education across the curriculum are faced with a (perceived) overcrowded curriculum and apathy from other students and teachers (Tan & Pedretti, 2010). Some primary school teachers lack the confidence, knowledge and skills to integrate environmental education concepts into their learning intentions (Green & Somerville, 2015). Sterling (2009) and Huckle (1996) asserted that sustainability was critical to the functioning and perhaps survival of society and the economy and that it must be given priority in the curriculum. It has been shown in a number of countries that environment clubs can be incorporated into both extra-curricular and cross-curricular programs (Fien & Heck, 2003).

Schools establishing leadership for sustainability are recommended to make it a core task for schools if they value the environment and want to promote action to remedy planetary degradation (Marshall, Coleman, & Reason, 2011). Key to this step is defining behaviour typical of an environmental leader (Portugal & Yukl, 1994). Leaders are expected to promote a vision of an environmental future, change perceptions about environmental issues, and take personal action to demonstrate commitment to environmental issues. Other authors suggest broader behaviours, such as improving teaching and learning, enhancing teacher quality, and building relationships across the wider school community (Day & Sammons, 2014).

While there are a number of studies on leadership in principals and other senior administrators (e.g., see Baker, Anthony, & Stites-Doe, 2015; Drysdale & Gurr, 2011; Sugrue, 2015), there are few studies that have focused on sustainability coordinators or teachers who coordinate environment clubs as part of their teaching load. Henderson and Tilbury (2004) showed that school leadership is pivotal to the successful implementation of a school-wide sustainability program. Birney and Reed (2009) found that sustainability leadership had some important qualities essential to the formation of effective sustainable schools:

Sustainability covers all aspects of school and community life — it is not an add-on. Therefore it requires effective leadership that is at the heart of whole-school development at a strategic level and throughout all aspects of school life. (p. 11)

The latter authors were not specific about the main source of this leadership within school, but added that ‘The research found that the role and commitment of the head teacher coupled with strong leadership is critical and necessary to enable sustainability to take root’ (p. 8). Their findings are supported by Larri (2004), who believed that environmental education should be integrated into school learning programs and led by a passionate teacher at senior administrative class salary level. This article examines the support required to make the sustainability coordinator role successful, and Larri (2004) outlines some of these factors above (e.g., parents valuing sustainability coordinators).

The implication here is not that one teacher should take on the entire responsibility of sustainability leadership. On the contrary, evidence shows that when leadership roles are shared between principals and classroom teachers, schools are better able to meet the needs of students (Özdemir & Kılınç, 2015). Other studies support this view because they focused on principals and the way they distributed leadership to teachers (Leo & Wickenberg, 2013). Rickinson, Hall, and Reid (2016) showed that if schools want to embed sustainability across the curriculum and school culture, it might be critical to appoint a designated teacher to the coordinator’s role.

The above research suggests that a passionate, motivated teacher can inspire students, teachers and parents to embrace sustainability practices and policies, but this hypothesis needs to be confirmed to validate the sustainability leader-exemplar model. The study described in this article extrapolates from previous findings and addresses a gap in the literature by generating data from

interviews with three experienced Australian secondary school teachers who were environment club (sustainability) coordinators. These coordinators also facilitated sustainability policies and practices at their respective schools. Four other teachers and three parents who interacted with the coordinators were also interviewed for the study using open-ended interviews. This coordinator-teacher-parent data was part of a larger study by the author that also included environment club data from 30 students.

Research aims and rationale for the study

There were three research questions in the study:

Research Question 1. Do environment club coordinators have anthropocentric views, or are their views more aligned to ecocentrism?

Research Question 2. Are there social forces around the sustainability coordinator that impact on the sustainability programs?

Research Question 3. Do the coordinators have an emotional/spiritual connection to the Earth?

There are some studies of environment club coordinators in schools (Simonová & Cincera, 2016; Wilson, 2014), but none use an environmental philosophy lens to evaluate environment clubs in secondary schools. The study here takes a novel approach by investigating anthropocentrism and ecocentrism in secondary school environment club coordinators. The qualitative methodology described here uses key elements of Naess's (1973) deep ecology; namely, biospherical egalitarianism, wilderness protection, biodiversity and the intrinsic value of nature.

The paper here adopts a *posthumanist/relational materialist/radical* ideology (Smith, 2017), a position derived from the need to challenge anthropocentrism and view the child as 'emergent in a relational field' (Hultman & Lenz Taguchi, 2010, p. 527) where *non*-human forces are central to the child's learning. This paper is also grounded in the idea from Gough (2015) that human relationships are kinships *with* the Earth, and are not about the individual 'autonomously forming and developing relations with the world' (p. 8).

Research Question 3, 'Do the coordinators have an emotional/spiritual connection to the Earth?', draws on the connectedness to nature literature to underpin the generation of data. According to Kopnina (2013), the 'ecocentric perspective developed within environmental ethics [wa]s marginalized in current ESD debate' (p. 607), and Li (1996) argued that environmental education lacked a moral dimension because it avoided ethical questions related to the human domination of nature. However, recent research on connectedness to nature in children (Cross, 2011; Ward, 2014) and adults aged 18–68 (Mayer & Frantz, 2004) reported that experiences in wild nature promote connectedness to nature in adulthood (Liefländer, Fröhlich, Bogner, & Schultz, 2013). Children need to experience nature to fulfil 'physical, mental and spiritual health' (Louv, 2013, p. 2). This sparked the Children and Nature Network, 'a non-profit organization whose mission is to fuel the worldwide grassroots movement to reconnect children with nature' (Children and Nature Network, 2016).

Naess was influenced by Rachel Carson's (1962) *Silent Spring* to have a deep humility towards the Earth (Naess & Rothenberg, 1989), and his philosophy opposes hegemonic social structures that promote excessive consumerism and disproportionate use of the Earth's finite resources. Naess often spoke about his love of the mountains, and his metaphysical connection to nature is a key part of the work presented in this article.

Research design

This was a qualitative study, and the author used interpretive analysis of the data to understand sustainability coordinators' alignment to the principles of deep ecology. Prior to commencing the

study, the author contacted the principals at each school in the study to establish initial lines of communication and meet the sustainability coordinators. Notes were taken at these meetings to establish the background to the environment club coordinators' involvement in the formation and activities of the club. These notes are used to provide context for the answers to the interview questions and to produce explanations for the findings. Other teachers and parents accepted invitations to join the study, but their data were generated primarily to build a picture of what is going on with the sustainability coordinators. Interpretive analysis is a type of conceptual analysis because it 'enable[s] the researcher to better understand the concept, to make their positions clear, enabling readers to more easily weigh up the merits of the claims' (Jickling, 2014, p. 53).

The above approach was adopted because: 'The core understanding [of this methodology] is learning what people make of the world around them, how people interpret what they encounter, and how they assign meanings and values to events or objects' (Rubin & Rubin, 2012, p. 19). Open-ended interviews were the primary method of data collection, using material targeted at the three research questions to address the basic tenets of deep ecology (provided in advance to the participants). Additional questions were written to understand how the coordinators situated themselves within the school sustainability community (Research Question 2) and how and why they took up their role as coordinators (Research Question 3: emphasising the emotional and spiritual realms). This move was in response to preliminary discussions with the sustainability coordinators when it became clear that the social forces around them might influence their views on deep ecology. The scope of the study included questions on biodiversity, wilderness preservation, biospherical egalitarianism, intrinsic value of nature, hyper-consumerism, and spiritual connectedness to the Earth. Handwritten field notes were taken during the interviews to support the audiotaped data. The participants did not identify as deep ecologists prior to the study, nor were they given any material on deep ecology beforehand other than the list of questions proposed for the interview.

Limitations of the study

A major constraint for the study was the difficulty in finding a cohort, perhaps due to schools frequently being approached by researchers to participate in their studies. The principal at one school (Karatjurk) raised this with me when accepting the invitation to join the study. Consequently, there were only three coordinators in the study, but each provided lengthy interviews with rich data for analysis. Responses that were not aligned to the interview questions were excluded from the final analysis.

Participants

There were eight participants across the three secondary schools in the study: The schools included Bunjil (psuedonyms were used), a mixed-gender state school, Karatjurk, a state girls' school, and Waa, a Catholic mixed-gender school with separate junior and senior campuses. These schools were active in promoting sustainability across the school campuses and had appointed a teacher as sustainability coordinator. Schools in the study were a convenience sample in that not all schools approached were willing to part of the study, and participation was voluntary. Overtures to schools for permission to conduct open-ended interviews with sustainability coordinators, teachers and parents were difficult. As such then, 'samples' was never 'selected', and in each case informal approaches were made to the sustainability coordinators before gaining formal approval from the principal and the Victorian Department of Education. The coordinators then made suggestions regarding parents who might be interested in contributing to the study. Direct approaches to parents were not considered appropriate in this study. The relationship between the teachers, parents, and the environment club coordinators is shown in Table 1.

Table 1. Relationships between participants in the study

School	Participant	Role	Relationship to sustainability coordinator
Bunjil	Wayne	Environment club/ sustainability coordinator	Self
	Ruth & Martin	Parents	Sons are in the environment club
Karatjurk	Adam	Environment club/ sustainability coordinator	Self
	Crystal	Parent	Daughter is in the environment club/proactive in school sustainability
	Claire	Student	Student in the environment club (Crystal's daughter)
	Christina	Geography teacher	Colleague
Waa	Brad	Environment club/ sustainability coordinator	Self

Nature of the interview questions

A list of questions was devised for semistructured interviews to investigate various aspects of deep ecology. The questions were based on Manoli, Johnson, and Dunlap’s (2007) New Environmental Paradigm (NEP) Scale and modified to align with the basic principles of deep ecology (Smith, 2017). In addition to the questions on deep ecology, the study also explored the extent to which the cross-curriculum priority of ‘sustainability’ in the Australian Curriculum was adopted by each school. There were also questions relating to *ecological wisdom* (Gedzune, Gedzune, Skrinda, & Micule, 2011; Mickey, 2016), to look for higher order thinking in club students, and the topic of *environmental stewardship* (Alexander, 2011) was raised in the interview with the coordinator at Waa (Brad). A summary of the questions is shown in Table 2.

Confidential interviews were conducted at the school, ranging from 32–88 minutes per participant (sustainability coordinators’ interviews ranged from 46–88 minutes). All interviews were audiotaped and transcribed, then checked by the author. Additional data were drawn from the author’s handwritten field-notes taken during each interview.

The student data has been accepted elsewhere for publication but will be used where relevant to build a picture of the findings around the environment club coordinators. The use of open-ended interviews gave participants the opportunity to expand on their answers to the prepared questions.

Responses to each question (audio-recordings) were transcribed into time-stamped transcripts by a professional transcription service. These data were then coded against themes that align with various aspects of the deep ecology platform (see Table 3). The study draws on the inductive method (Hesse-Biber, 2011) where the researcher looks for patterns in the data to form ideas and generate hypotheses for what is happening in schools and homes regarding the research questions.

Findings

The interviews yielded rich responses due to the open-ended questions, with sustainability coordinators elaborating their answers due to the ‘prompt and probe’ method (Gillham, 2000) utilised in this study. The data did not fall into categories amenable to quantitative analysis, so vignettes are used to explain the data.

Table 2. Questionnaires used for sustainability coordinators, teachers, students and parents

Questions for Sustainability Coordinators/Teachers	
Q1.	Can you tell me how you became involved in sustainability education and a little bit about your recent teaching in the area?
Q2.	How does it make you feel when you and your students work on an environmental problem and contribute to reducing the problem? Do you feel more connected to the Earth?
Q3.	Do you think that students acquire a kind of ecological wisdom, perhaps a more robust personal ecological philosophy by studying sustainability?
Q4.	When you think of the earth's ecosystems as consisting of physical elements, human and nonhuman elements, do any one of these deserve priority? How does this affect your approach to sustainability teaching?
Q5.	Do you think that science has the answer to all of our sustainability problems? Is there another way of tackling planetary health for future generations?
Q6.	Some people try to solve environmental problems just so that we can have more resources for humans. What do you think about this approach? Explain.
Q7.	Some people called Deep Ecologists think we should not keep using more and more resources, and should put the earth first. What do you think?
Q8.	You will be shown a picture of the DES (deep ecology spectrum) scale. Can you tell me where on this line you might situate yourself with 1 = anthropocentric (humans first) and 10 = ecocentric (Earth first)? The diagram will be explained to you at the time of interview.
Questions for Students	
Q1.	Can you tell me what motivates you to be involved in sustainability and perhaps a little bit about yourself?
Q2.	How does it make you feel when you work on an environmental problem and end up either solving or reducing the problem?
Q3.	Does working towards a solution make you think differently, more carefully about what impact you and the people around you have on the planet?
Q4.	Thinking overall, about teachers and other students, if some don't really care that much about the environment, how do you think and feel about that?
Q5.	Some people try to solve environmental problems just so that we can have more resources for humans. What do you think about that idea?
Q6.	Some people called Deep Ecologists think we should not keep using more and more resources, and should put the Earth first. What do you think?
Q7.	Does being involved in sustainability change the way you think in general? Are you more inclined to be critical if you think an action is harmful to the Earth?
Q8.	Are many of the teachers at the school as keen on sustainability as the [Environment club Coordinator]?
Q9.	You will be shown a picture of the DES (deep ecology spectrum) scale. Can you tell me where on this line you might situate yourself with 1 = anthropocentric (humans first) and 10 = ecocentric (earth first)? The diagram will be explained to you at the time of interview.
Questions for Parents	
Q1.	Can you tell me a little bit about how your child became interested in sustainability?
Q2.	Do you think that the home environment is important to your child's views on sustainability?
Q3.	How does it make you feel when your child works on an environmental problem and end up either solving or reducing the problem?
Q4.	Have you noticed any transformation in their thinking that might be viewed as a more sophisticated way of thinking about the environment?
Q5.	There are moves around the world to promote ecological literacy and wisdom. How do you feel if your child becomes a more critical thinker about the Earth?
Q6.	Some people called Deep Ecologists think we should not keep using more and more resources, and should put the Earth first. Do you agree? Explain.
Q7.	You will be shown a picture of the DES (deep ecology spectrum) scale. Can you tell me where on this line you might situate yourself with 1 = anthropocentric (humans first) and 10 = ecocentric (earth first)? The diagram will be explained to you at the time of interview.

Table 3. Coding themes based on deep ecology platform

1. School/home interdynamics – positive, neutral and negative interpersonal dynamics (student, parent, sibling):
 - a. Does the home environment mediate ecocentric beliefs (such as being brought up on a farm or visiting grandparents on their hobby farm)?
 - b. Do parents from ethnic, rural backgrounds have a desire to give their children the same experience as they did of caring for animals?
 - c. Do club students influence their parents along the child-parent axis to adopt ecocentric behaviours?
 - d. Can we use cultural heritage to support the earth?
2. Lifestyles and social decisions that protect the earth and its resources:
 - a. Ecocentric lifestyle — reduced resource use (ecological footprint).
 - b. Anthropocentric and consumerist lifestyles (excessive resource use).
 - c. Population management issues (Should population growth be controlled?).
 - d. Living ethically to preserve habitat (e.g., rainforest vs. palm oil).
 - e. Neophilia; buying excessive amounts of consumer goods and succumbing to the peer-driven desire for new gadgets.
3. Sharing the earth:
 - a. Are there limits to the use of natural resources, and therefore a limit to the growth of population on the earth?
 - b. Does the Spaceship Earth idea have a place in the sustainability forum in schools?
4. Rights of nonhuman life-forms and the abiotic parts of ecosystems:
 - a. Biospherical egalitarianism (Are animals and ecosystems just as important as humans?).
 - b. Sharing the earth to maintain wilderness and critical habitat.
 - c. Connecting human action to impact on wildlife and ecosystems (e.g., plastic rings killing penguins).
 - d. Does nature have intrinsic value independent of its utilitarian value to humans?
5. Empathy for, and connectedness to nature, and a love for wildlife:
 - a. Damaging the Earth hurts humans and ‘hurts’ the Earth.
 - b. Global environmental disasters affect students no matter where they are in the world.
 - c. Being in nature, experiencing wilderness, and visiting or camping in national parks engenders connectedness to the earth.
6. Do environment clubs engender agency and resilience in students?
 - a. Does being in the club empower the student to speak out, defend or act for the environment?
 - b. Is the sustainability coordinator a good example of how to act sustainably?
 - c. Do students adopt more socially critical stances as they acquire greater knowledge about environmental issues?
 - d. Do environmental critics intimidate students in environment clubs?
 - e. Ecological resilience. Do you ever become despondent about environmental decay or is there sometimes a positive spin on the situation?
7. Existential, ontological and metaphysical responses.
 - a. Do you think the Earth is a living entity that deserves greater protection from human impact on its ecosystems?
 - b. Is it possible to think of yourself as part of the Earth, almost like one large organism?
 - c. Do you feel more connected to nature when you are out in the wilderness?

Bunjil*Wayne*

Bunjil has a strong sustainability focus with both the school and Wayne having received sustainability awards for their efforts towards protecting and restoring the natural environment around the school. Examples of the projects are the urban forest and the school wetlands, the latter which incorporates a mindfulness meditation centre. It was clear from the interview that Wayne was a goal-oriented leader of environmental projects at Bunjil, and there was little doubt from his interview that he was pivotal to the success of these initiatives for the school. Many ideas were driven by Wayne, but he held weekly meetings to consult with the club students and prioritise what sustainability work was to be done around the school. Referring to his club students he added, ‘It’s a journey and it’s a philosophy of life and a way of life’ (Wayne, 00:21:21). Findings from the student data show that the members of the club had high regard for and were positively influenced by Wayne. Wayne wanted to inspire the students, teachers and parents of Bunjil to act for the environment. In terms of

Research Question 1, which looks for evidence of ecocentrism or anthropocentrism, Wayne promoted connection to the environment:

We can't expect the [students] to save the environment and be sustainable unless we teach them first to love the environment. So, once they've made that connection with the [environment], once they see that the whole ecosystem is linked to the food sources and all those sort of things, then it becomes relatively easy to move in the next step. They think twice before they make a bad decision for the environment. (Wayne, 00:09:21).

It was clear that Wayne was goal-oriented, but he was also interested in promoting an emotional connection to the Earth. In the above quote Wayne expresses a love for the environment, an emotion that is identical to Naess's love of mountains, but he also makes the practical link between a healthy planet and food security. This combination of a genuine love of the earth and scientific expertise are important characteristics of sustainability leaders.

The interview with Wayne indicates that he encouraged students to move out of their comfort zone and embrace deeper knowledge about nature and to defend the Earth. Wayne saw sustainability as requiring higher thinking consistent with deep ecology:

[Sustainability], [I]t's not a subject. I try to model good practice and if possible best practice. So they're immersed in it. They see people working at it on a day-to-day basis. And without them necessarily being aware of it, they're absorbing the fibre of [sustainability]. That's been my philosophical approach to delivering on this stand. (Wayne, 00:19:33)

In the above quote Wayne is promoting environmental education as an affective, immersive experience and as a philosophical experience that follows the deep ecology worldview. He emphasises that teachers need to lead by example and that students respond best when sustainability is practised around them by teachers, older students, parents and other staff. When the author asked Wayne for his thoughts on biospherical egalitarianism, his view was as follows:

When I think about ecosystems, it consists of physical elements human, non-human. I don't think you can separate them. I think we run a real risk if we don't think about ourselves as being a component of the biotic category. And if we separated ourselves out from the other living components, then we've got a risk of compromising things. Now that we [humans have] got a proven track record of being able to do it, we've managed to mess things up. No other organism has made the changes to its own environment that the humans have. (Wayne, 00:22:23)

Wayne aligns with the deep ecology principal of biospherical egalitarianism, a position that he arrives at from his knowledge of ecosystems. His understanding of the biology behind the main sustainability challenges for humans seemed to underpin his leadership role throughout the interview. It is not possible to say from this research whether Wayne's awards and projects are linked to the deep ecology ideology, or whether they would have occurred in the absence or presence of an anthropocentric view of the world. Nevertheless, his values do align with many aspects of ecocentrism and deep ecology.

Martin and Ruth

Martin and Ruth were parents of two boys at the school and their interview provided evidence that Wayne was a key factor promoting parental commitment to the environment club. Data from Martin and Ruth have been presented in a previous article on the school-home sustainability milieu (Smith & Gough, 2015), which revealed that Martin's cultural heritage (Indian) was a significant factor in their sustainability practices. Ruth and Martin conveyed enthusiasm for the

environment club and strong support for Wayne, motivated by a desire to support their sons' environment club activities. Much of their attitude was due to the efforts of Wayne in building up sustainability at Bunjil via key projects like the urban forest and the wetlands, but also through other ventures, such as solar panels and waste management projects. The interview with the parents generated data confirming that Wayne was a strong, motivating leader and that the environment club was a collaborative effort between students, parents, school and sustainability coordinator. Martin and Ruth's primary concern was to support their sons as members of the school environment club, but also to adopt new sustainability practices at home and to be good members of the Bunjil sustainability community.

Karatjurk

Adam

Like Wayne at Bunjil, Adam and the Karatjurk sustainability community had won key awards for sustainability and environmental work. It was also clear that he, like Wayne, greatly cherished his appointment as sustainability coordinator. However, Adam's approach to sustainability projects and running the environment club was quite different. His strategy placed more emphasis on inspiring students and colleagues to take the lead in developing critical sustainability infrastructures at Karatjurk, and he encouraged students to become active in the greater community as ambassadors of sustainability. Adam had an inclusive style of coordinating the environment club, allowing the member students considerable freedom to fulfill the aims of the club by providing inspiration rather than direct instruction over club projects (e.g., *Frog Bog*, *Pedal Cinema*). It is not possible from the data to conclude why the students at Karatjurk were engaged beyond the school boundaries more so than those at Bunjil. More research is needed to confirm the data and establish the demographic factors influencing the sustainability community at each school. Karatjurk had the advantage of being located next to a river, which provided excellent opportunities for students to undertake riparian studies and was used to full advantage by Adam as a teaching resource.

Adam taught science and was a biologist by training, so, again like Wayne, understood the science behind sustainability initiatives. This explained in part Adam's success in managing the environment club (although 'manage' is not exactly what he did). He was *process* oriented rather than *goal* oriented, and was a team worker. The interview revealed that Adam walked the talk by living sustainably at home as well as acting sustainably at school, a quality that was noticed by club students and engendered widespread respect for him across the school community. Adam was a strong advocate for the environment and promoted a nonradical activism among his students.

The biggest motivation for Adam running the club was seeing the students make a difference to the environment and him sharing in that success. Connecting to the Earth was important for Adam and this is central to deep ecology:

I suppose the biggest thing is to see the change in the students, and to see how proud they are that they're actually having [an] impact now, rather than learning about these things with the hope that when they're old enough they can make a difference. I think when kids feel connected, that's when you get the best outcomes. When they do hands-on projects that have direct outcomes so they can see . . . say, for example, tree planting, and weeding, and installing water tanks, and building a frog bog . . . [and] the energy bikes that we have here at school where kids can actually pedal and see how many watts they generate. I think you really need to connect. It's a bit of a cliché, but you [need to] connect the hand, the heart, and the head. (Adam, 0:07:40)

Adam stated that the success of the environment club was, in part, due to support from the principal for environment projects on energy conservation and biodiversity (such as the Frog Bog), even though these were done as part of their regular classes in Environmental Science. Adam's inspiration was a significant contribution to the success of Karatjurk's sustainability culture, but it appeared that the work of other teachers and a motivated membership of the environment club were also important. While much of Adam's interview was about the social dynamics of sustainability at Karatjurk, he understood and believed in the principles of deep ecology, in particular by adopting a low ecological footprint by living lightly on the earth and demonstrating a comprehensive understanding of human impact on marine ecosystems. The only exception to this rule was his belief that humans should not be 'stealing resources from the future generations' (Adam, 00:20:16), which is a commonly used anthropocentric statement.

Crystal

Crystal was the parent of a girl (Claire) at the school and an active member of the EcoGroup, a group of parents, teachers and interested members of the local community chaired by Adam and held monthly at Karatjurk. The EcoGroup was an open forum that acted as an informal executive, providing feedback on sustainability policies and practices to the school and the principal via Adam. Crystal trained in environmental science and was also a valuable member of the EcoGroup. She was a strong supporter of Adam and passionate about the environment, providing valuable data from the spiritual perspective as it related to connecting to the environment. The author asked Crystal to comment on the impact of Adam and the environment club on her daughter Claire and whether the experience had led to a kind of ecological wisdom. Crystal reported that Claire has a level of sustainability thinking that equated to ecological wisdom:

I think that the resonance has become deeper [in] her sustainability ethic, and she has become more participatory in solving, being a part of volunteer projects within the school, flexing her environmental citizen arm at school. So, she's often called on to be a part of the projects and does that quite willingly because she realises that that's her responsibility as a citizen of the Earth. Yeah, I do see her acting in line with those values quite readily. (Crystal, 00:19:56)

It was clear from the interview that Crystal and Claire were committed to the environment and would have been active regardless of the club. Nonetheless, the actions of Adam and the opportunities he created provided invaluable opportunities for Crystal and Claire to engage in environmental activities.

Christina

Christina had been teaching Geography at Karatjurk for 12 years and participated in the study following an invitation from Adam. Christina supported Adam's role in managing the sustainability practices and policies at Karatjurk, and she also saw protecting the environment as part of her own role:

In terms of sustainability practices, I think [Adam] is the main sustainability person at the school who pushes that throughout the school, but of course as a Geography teacher, I push that as well in all of my classes. And also, just simple things like doing yard duty, especially since we're on the river, always getting students to be mindful of the fact that they have to take their rubbish to bins and things like that. (Christina, 00:00:38)

It was not clear from Christina's response how much the integration of sustainability was her idea, but Adam's approach to sustainability clearly influenced Christina's Geography teaching:

'I think [Adam's] influence in the school. I've been on many camps with [Adam's] where I've learned so much as well myself, so that's given me the tools as well to teach in my classrooms' (Christina, 00:13:05).

Waa

Brad

As sustainability coordinator at a Catholic secondary college, Brad's role was strongly connected to the teachings of the church. The work of the environment club at Waa was promoted as stewardship of the Earth and administered through the Ministry Team, a cross-platform forum at Waa encompassing liturgical, social justice and sustainability initiatives at Waa. The author asked Brad to clarify environmental stewardship at Waa: 'So, that's a Christian value that we're looking at, to see if we [are] doing as much as we can to pass that on in terms of a Christian or Catholic [stewardship] value' (Brad, 00:10:50). It was clear from the interview that Brad was pursuing similar sustainability goals to those embraced by Adam and Wayne, and not an anthropocentric interpretation of stewardship of the earth. Like Adam and Wayne, Brad was passionate about his role as sustainability coordinator. He too walked the talk about sustainability and made efforts to engage the whole school in the sustainability message. Brad taught science and had a background as a zookeeper, so he had a good understanding of ecology and wildlife management. He also understood the aims of the study and the principles of deep ecology. One successful campaign Brad mentioned was a school-wide energy audit, where an outside consultant was employed to help teachers and students monitor electricity usage at the school. Brad also ran litter-free lunches in combination with a fun run and music provided by the vocational education sector at the school.

Brad explained that his role as sustainability coordinator was often 'extremely frustrating' because of the resistance to (and sometimes criticism of) school-wide approaches to sustainability, and he added that change toward sustainability uptake was slow. Commitment to sustainability from the greater school community was not evident from the Waa interviews, but there were no interviews with parents, so this data remains unconfirmed. The interviews with teachers Michael and Sean were both focused on the task of promulgating the sustainability message.

Despite Brad's frustration at times with his colleagues, however, he still felt supported by the principal and other teachers:

I get a lot of support [from colleagues and the principal] but I would like more. There are plenty of staff that I talk to individually that are passionate about one aspect [of sustainability] or another. Teachers are so happy that I have a paper recycle bin in every room, and other teachers that [say] 'good work' with reducing the litter in the ground, the yard looks cleaner. . . . So, you get that support, and when I ask teachers to help out, they help out. But, you still see lights being left on, heaters being turned up to the max, . . . and that's in offices where I know there are staff that I have on board that don't like that. So, I have to create a culture . . . where people feel free to stand up and speak up . . . which was helped when I did the energy audit. I had a lot of conversations with staff for the first time about their views of energy being wasted because we did the energy audit in such a public manner. (Brad, 00:43:59)

This excerpt indicated that the social dynamics of sustainability between Brad and his colleagues changed, in part depending on his perspective of the situation. It showed that there was more to learn about coordinator-staff interactions and that further research was required to reveal these relationships.

There were several other aspects of Brad's interview relevant to this article. First, Waa was located adjacent to a local creek and wetlands area, which was a natural habitat ideal for teaching

sustainability. Nature visits to the wetlands and tree planting were favourite activities for environment club students, which allowed Brad to make best use of his talents in wildlife ecology. This opportunity is the same as Adam had with Karatjurk being located next to a river, and is a good argument for schools to be located adjacent to areas with remnant vegetation and natural wetlands or waterways. Findings here show that Brad had an ecocentric focus for his work. Waa's move to include the sustainability coordinator on the Ministry Team was evidence that the school interpreted stewardship of the earth in ecocentric terms rather than as dominion over the earth.

Discussion and Conclusion

The study was conducted using the research questions stated above, but inductive analysis of the interview data revealed a richer picture than anticipated in the research design. Responding to Research Question 1, findings from the study can only be regarded as tentative but indicate that the sustainability coordinators interviewed were ecocentric in their views, although Adam believed in the anthropocentric idea that we should save the planet for our children and grandchildren. The study also showed that the club coordinators played a crucial role in recruiting students to the environment club and inspired others to protect the environment and adopt sustainable practices and policies. This is in agreement with previous research (Simonová & Cincera, 2016).

Regarding Research Question 2 and the social forces around club coordinators, findings here indicate that coordinators thrive with the support of school administrators, especially if a principal provides the necessary funding and time allocation for the coordinator's position. The key qualities of environment club coordinators/exemplars are relevant to this question: (1) sustainability coordinators *walked the talk* by living sustainably at home and work (behaviour), (2) were a source of inspiration to club students and the wider school community (affect), (3) were passionate about protecting the environment (affect), (4) expressed a love for nature (affect), (5) worked hard to make sustainability a cross-school interdisciplinary effort (behaviour), (6) had a good grounding in and understanding of the science and ecology behind sustainability (cognition), and (7) typically had some training, prior work experience or emotional bond with nature and animals or wildlife (affect/cognition).

In answering Research Question 3, the above characteristics define a *sustainability exemplar* — a teacher who connects to the environment at a deep (for some, spiritual) level, engages with students and colleagues to realise their potential for *ecological wisdom*, and overcomes the negative view that sustainability is not core business. There are socio-political tensions around the notion of the crowded *curriculum* that environment coordinators are at times compelled to face, and these forces can emerge at federal or state government, union or school levels. Not all teachers in the schools in the study think that environmental education is important, perhaps due to a lack of resources to integrate environmental education or a lack of confidence/knowledge about cross-curricular possibilities in their discipline. These forces need to be investigated in future research.

Other qualities of environment club coordinators: They enable the school community to complete sustainability projects like solar panels, recycling, waste minimisation, wetlands, wildlife habitat, urban forests, and much more. They galvanise the students, teachers, parents and local community into action doing projects that protect the Earth, and sometimes do so with minimal resources (and maximum inventiveness). They endeavour to break down the barriers formed where colleagues view sustainability as *bolted onto* (or even crowding) the curriculum.

The three coordinators in the study aligned with anti-anthropocentrism (ecocentrism), and supported biospherical egalitarianism, so their position was in agreement with deep ecology philosophy and Research Question 1. All were emotionally connected to the Earth and promoted nonviolent action to save the Earth, again in keeping with deep ecology. The study by Simonova and Cincera (2016) focused on goal-driven, epistemological environmental education, with no data generated on the emotional and spiritual aspects of sustainability. The data in this article

shows that the affective domain (love, passion, inspiration) is key to the role of environment club coordinator. The sample size was too small to predict the importance of a science or ecology background to the sustainability coordinators' role, and the literature cited shows that some coordinators might not have had formal science training. The study indicated that it was likely that staff and students were positively influenced by the expertise of their coordinator. The study also supports the proposal that future professional development for environmental education practitioners should incorporate the affective domain (e.g., connectedness to and love for the Earth), along with higher order cognitive skills (ecological wisdom), and behavioural traits (e.g., nonviolent action, walk the talk), all of which are consistent with the principles of deep ecology.

In summary, environment club coordinators require substantial support and recognition from school administration if school-wide sustainability programs are to be effective and if students are to thrive as ambassadors for the planet. A school-wide commitment to sustainability should be underpinned by cross-curricular studies and projects that encourage involvement by staff from curriculum areas outside of science. Parents and the local community should be invited to be part of a sustainability support group at the school, to provide valuable input for the club coordinator and the school. Connectedness to nature is also a key attribute of the sustainability coordinators' responses in this study, but this emotional and metaphysical data requires confirmation by further research.

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