Chapter 1
Environmental Education: Nurturing a Relationship with Everything, Everywhere

Giuliano Reis, Jeff Scott, and Mira Freiman

Abstract Environmental education (EE) has been deemed capable to re-connect today's youth with the natural environment, thus helping them to become more ecologically responsible citizens. Put differently, EE must be able to challenge people's perceived sense of dis-connection from the planet. This chapter explores ways of nurturing the re-examination of our co-responsibility to life by investigating the content of one course assignment (reading response) submitted by a student teacher and the narratives and actions of a group of young people who embarked on a 10-day canoe trip in Canada. The discussion that follows also serves as a segue into an introduction to the structure of the book.

G. Reis (✉)
Faculty of Education, University of Ottawa, 145 Jean-Jacques Lussier,
Ottawa, ON K1N 6N5, Canada
e-mail: greis@uottawa.ca

J. Scott
School of Education, Nipissing University, 100 College Drive,
North Bay, ON P1B8L7, Canada
e-mail: jeffs@nipissingu.ca

M. Freiman
F.H. Collins Secondary School, Box 11236, Whitehorse, Yukon Y1A 6N4, Canada
e-mail: mira.freiman@gmail.com

(...)   (...)

Laudato sie, mi Signore, cun tutte le tue creature, | Praised be You, my Lord, with all Your creatures,
spezialmente messer lo frate Sole, | especially sir brother sun,
lo quale è iorno, e allumini noi per lui. | who is the day and through whom You give us light.

Ed ello è bello e radiante cun grande splendore, | And he is beautiful and radiant with great splendour,
de te, Altissimo, porta significazione. | and bears a likeness of You, Most High One.

Laudato si, mi Signore, per sora Luna e le Stelle: | Praised be You, my Lord, through sister Moon and
in cielo l'hai formate clarite e preziose e belle. | the Stars: in heaven You formed them clear and
| precious and beautiful.

Laudato si, mi Signore, per frate Vento, | Praised be You, my Lord, through brother Wind,
e per Aere e Nubilo e Sereno e onne tempo, | and through the air, cloudy and serene, and every
per lo quale a le tue creature dai | kind of weather, through whom You give sustenance
sustentamento. | to Your creatures.

Laudato si, mi Signore, per sor Aqua, | Praised be You, my Lord, through sister Water,
la quale è molto utile e umile e preziosa e | who is very useful and humble and precious and
casta. | chaste.

Laudato si, mi Signore, per frate Foco, | Praised be You, my Lord, through brother Fire,
per lo quale enn'allumini la nocte: | through whom You light the night,
ed ello è bello e iocondo e robustoso e forte. | and he is beautiful and playful and robust and strong.

Laudato si, mi Signore, per sora nostra madre Terra, | Praised be You, my Lord, through our sister Mother
la quale ne sostenta e governa, | Earth, who sustains and governs us, and who
e produce diversi fructi con coloriti fiori ed | produces various fruit with colored flowers and
erba. | herbs.

(...)   (...)

("Il cantico delle creature," *La preghiera del francescano* 2009, p. 789-490) | ("The canticle of the creatures," *Custodia Teræ Sanctæ*)

1.1 A (Hopeful) Sense of Connectedness

In his "cantico", Saint Francis of Assisi (1181–1221) praises God for all that He had created. More so, he indicates that non-human creatures (i.e. sun, moon, stars, wind, water, fire and earth) are brothers and sisters to us and that all things have one creator and therefore are related. It follows that, as siblings who belong to the same family, God makes no distinction in how He dispenses His love to us and we (everyone and everything) are deserving of the same respect and care. Regardless to one's belief in any existing religious systems or deities, the canticle has a simple message that transcends the boundaries of brick and mortar temples and sacred books: we must look after each other. After all, we are family. Needless to say, our present time couldn't be further from this utopia.

As we write this chapter, the world is knotted up by various socioecological issues, from terrorism to extreme poverty to environmental degradation. For instance, over 65 million people have been forcibly displaced worldwide in 2016 as a result of persecution, conflict, violence or human rights violations (United Nations High Commissioner for Refugees 2017). At the same time, one child in five in high-income

countries lives in relative poverty (UNICEF Office of Research 2017), and hundreds of the world's plant and animal species have gone extinct as a result of climate change even though current temperature levels are modest relative to those predicted in the next 100 years (Wiens 2016). In sum, if we were ever commissioned to be kind to one another – human or not – we are failing miserably. Everything, everywhere seems to be on a path towards drastic changes, even extermination.

Although the statistics described above are not improving at any desirable pace, people are becoming more knowledgeable and beginning to make alterations to their lifestyles to help overturn the current state of the planet more than ever before. Not surprisingly, environmental education (EE) has entered the school lexicon (Bodzin et al. 2010), with many now seeking ways to consume less while considering ethically sourced goods (Reis, Mueller, Gisewhite, Siveres and Brito), whereas others work to defy conventional views of happiness that are tied to the mere accumulation of stuff (Diener and Seligman 2004). There are good reasons to get our hopes up (a little bit at least).

This book is but another contribution to these efforts to live in harmony with everything, everywhere. While ambitious in its title, its premise is as simple as the opening canticle: our actions are as much connected as ourselves. So, whatever one of us does to make this world a better place for all can inspire and provoke others within their own confines to provide their contribution. The experiences and ideas shared here might have a rippling effect on readers. At least, that is what we hope.

In the sections that follow, we expand on the significance of being one with the environment and how humans frequently take that affiliation for granted. Next, we present a summary of the different sections under which the chapters selected for the book were placed. In this way, we anticipate that our readers will appreciate the value of this edited collection to both their research and educational practice.

1.2   A Sense of Disconnect

We begin our reflection with a story that happened in a university undergraduate class, which shall remain unidentified for reasons of anonymity. This class had a suggestive general name: Schooling and Society. (In a way, it might imply to some that each one of these phenomena – although intertwined – can be studied separately from one another. Can there be "schooling" without "society"? or "society" without "schooling"? Maybe, but that is beyond the point that we want to make here.) As part of the course, students were required to read an article that studied the feasibility of education for sustainability (EfS) in a specific teacher education programme (see Paige et al. 2016). For one of the assignments, individual students were encouraged to take a more personal approach to the reading by writing a response that considered how the article related to their school/teaching experience. Below is what one student submitted:

> This was an interesting article and although I would've found it more beneficial if it [was] connected to the [provincial]/Canadian context rather than the Australian, there was one particular experience that resonated with me in which I can apply to my own experiences and beliefs as a future educator. Lloyd states that he "always aimed to connect learning to student interests and their local worlds; for example, measuring water quality in the local river or studying geological structures during day and extended excursions." The reason that this particular example stood out to me is because I truly believe one of the most effective ways to engage young learners is to take the inquiry-based approach. With the inquiry-based approach learning is in the student's hands and they are more likely to demonstrate and use higher order thinking skills such as analyzing, evaluating and these skills are way more useful than simply "remembering" textbook information for example. There is so much value when students are in control of their learning and even more value in having young learners out in the environment. I believe having students outside exploring; through the use of their imagination as well as through their curiosity, is one of the most beneficial types of "learning". Children are full of energy, imagination and creativity, and I think its part of my job as an educator to give children the *opportunity* to both explore these facets of their minds and to flourish, in the outdoors and in nature where they aren't confined to walls and artificial lights. When reflecting on my own experience, one of my favourite parts of the day is being on duty during recess. My placement school shares grounds with a city park, meaning that the students have a huge outdoor space to explore. (...) I feel [students] also develop a sense of compassion for nature when they are outside, for example, they learn that they shouldn't break off branches (trees have feelings) and that there are different living things out in the yard and this they connect to both science and religion class.

Although it is unclear the exact reason for the student to believe that the reading would have been "more beneficial" if connected to her immediate context – i.e. not Australian – the same individual was able to pinpoint "one particular experience that resonated with [her]". That is, she nevertheless managed to transcend the locality of the article to imagine how its ideas could be transferred to her condition as a teacher candidate whose placement school "shares grounds with a city park" in Canada. What initially seemed to be unrelatable to her eventually became a possibility. An inquiry-based approach to environmental education is not an exclusive privilege to Australians. Likewise, shouldn't "the *opportunity* to both explore [their imagination and curiosity] and to flourish" be given to students in Canada and everywhere else? Why is that common for people to believe that certain educational issues are exclusive to their immediate realities, thus independent from/unrelated to other circumstances (Reis et al. in press).

In the face of the student's conclusion that she indeed could relate to ideas in the reading, why is that she still decided to indicate that it would have been "more beneficial" to her if the authors had done their study more closely to her known Canadian landscape? In our minds, that student represents those of us who often don't challenge our taken for granted assumptions about the globality/universality of life itself. Once we understand that we are brothers and sisters, naturally entitled to the same rights to a fulfilling communal existence, we will celebrate and respect our similarities rather than use our differences as an excuse for domination, destruction and inaction. But, how can people see the range of our shared current environmental problems and the potential solutions that exist out there? Could "a sense of compassion for nature" develop from just being outside – or "out in the environment"? Outside of what? Of "remembering textbook information"? Of the confines of "walls and artificial lights"

of school? Of the streets of our urban lives and inside (city) parks? How can people create *opportunities* (italicized as the student did) to reconsider the connectedness of everything, everywhere? In any way, it appears that people's sense of attachment to their surroundings is fundamental to creating occasions to alter the current social, cultural and ecological (nevertheless embroiled) state of the world.

1.3   Can We "Save" the Planet from Ourselves?

Geological eras are typically characterized by changes in physical systems due to natural events such as volcanoes, glaciation or meteorites. Curiously, the current geological era in which we live – called the Anthropocene (Zalasiewicz et al. 2010) – is characterized by the negative effects that humanity's exploitative behaviours have been having on the planet. Generally, such destructive actions can be associated with a sense of disconnect from the natural environment, which also deludes us from seeing how they indeed threaten our own survival (Weston 2004). Otherwise, for example, although reduced, why would we continue to release chlorofluorocarbon gases in the atmosphere that damage the ozone layer (Crutzen 2006)?

Clayton Barry (2010) suggests that there are four main reasons providing the foundation for the underestimation of our connection with the non-human. Firstly, nature can be seen as mechanistic, controllable and subordinate to humans by virtue of our (self-declared) superior ability to think. This argument is often associated with Rene Descartes, who separated the human mind from everything else (environment) in his famous statement: "cognito, ergo sum" ("I think, therefore I am"). Secondly, nature can be considered an obstacle to human progress. This becomes evident in the language used to discuss our interactions with nature, for example, to conquer a mountain as opposed to climb it. The flood stories in major religions such as Hinduism, Christianity and Judaism could be considered to provide yet another instance of this view (Keay 2000). Thirdly, there is a tendency to distort "'natural laws' to justify human acts of oppression" (Barry 2010, p. 122). That is, our attempts to dominate nature and others of our own kind are but a consequence of an existing natural hierarchy that favours the fittest individuals or groups in society. This is the case when humans see themselves as superior to other beings. Finally, there is the sacred perception of nature, in which humans worship the natural environment (Sudarsana 2013). This too provides a vehicle for separation on the basis that it could lead humans to consider themselves unworthy of being one with a holy natural environment. An example of this type of sociocultural representation can be seen in the movie "The Matrix," where humans are characterized as a disease in a dystrophic world (Wachowski and Wachowski 1999). Although this example is fictional in nature, it reflects the type of environmental symbolism currently present in the North-American popular culture industry and which has been found to continuously influence people's understandings of their own contributions to current environmental issues.

Whatever plausible reasons exist to explain our current state of disconnect from nature, the fact remains that it is deteriorating the wellbeing of the planet (Louv

2008). That is, the development of a healthier relationship with nature is of vital interest to society in general as there is evidence showing the many benefits of connecting with the environment, including but not limited to, an increase in physical fitness, creativity, self-esteem, attention restoration and reduced stress (Charles et al. 2009). However, only "when we see land as a community to which we belong, we may begin to use it with love and respect" (Leopold 1949, p. xvii). (This is exactly what St. Francis' canticle suggested in the thirteenth century.) In this scenario, could EE help to strengthen our connections with everything else around us, human or otherwise? Do schools still hold the potential to help us in this process of reconnecting?

1.4 Can Schools Help Us "Save" the Planet from Ourselves?

As an organization, the formal school system has been deemed to help build the necessary knowledge and attitudes to support a closer connection with the environment, especially through a historical connection with science (Campbell and Robottom 2004). Contradictory as it may seem, current school practices can also reinforce a disconnection from nature. In a reality regulated by inexact educational policies and strong socioeconomical inequalities (Wall 2000), the existence of educational disciplines that separate social, political, economic and environmental knowledge makes it difficult for students to understand nature and human society as anything but separate from one another (Barry 2010). Indeed, the "institutionalization [of environmental education] within general education works against its own socially and ecologically transformative goals" (Gruenewald 2004, p. 71). As a result, teachers and students are often challenged to promote and advance EE programmes that are short-lived (Reis and Guimaraes-Iosif 2012). That is, "the complexity of interactions which determine behaviour [or action], illustrates that environmental citizens are not produced merely by programmes of education, but by a whole range of factors which education may interact" (Hawthorne and Alabaster 1999, p. 40).

In the context where formal education is not equipped to solely undertake the transformative role needed to face current environmental challenges, environmental educators in all learning settings are challenged to find alternative strategies to reconnect humans with nature. One possible solution would be the direct exposure to nature through outdoor recreational activities (Hanna 1995). Thus, the integration of field experiences into the school curricula could benefit teachers and students in restoring their relationship with the environment more than traditional classroom-based instruction alone (Dettmann-Easler and Pease 1999). We now turn to the examination of one such field activity: canoeing. It is meant to serve as an analogy for the type of journey that we hope our readers will embark while reading this book, one that aims to restore our (presently debilitated) interdependence with everything, everywhere.

1.4.1 Canoeing at Deep Waters

Camp Deep Waters is a privately run co-ed summer camp for youth aged 7–18, founded in 1931. It provides a diversity of canoe tripping programmes that range from 1 to 56 days. As a member of the Ontario Camping Association (OCA), the camp conforms to specific standard policies. For example, its trips must follow low-impact environmental practices, which are meant to minimize human disturbance to visited locations (Ontario Camps Association 2008). It must also adhere to safety protocols, such as the one that requires individuals to wear lifejackets when paddling on flatwater to helmets and lifejackets while paddling a white-water rapid.

At Camp Deep Waters, Mira participated in a 10-day canoe trip with 11 other people: two adults (a 20-year-old male and a 23-year-old female) and nine youths (five females and four males, ages ranging from 13 to 15 years). During that time, participants were encouraged to produce artefacts (drawings and photographs) representing their connection with/disconnection from nature. Additionally, Mira took notes on participants' accounts of activities and other observable events.

The first 2 days of the canoe trip were spent in nature in an area with fewer people and different amenities than one would expect to see in a heavily urbanized area: there were lakes, tress, canoes and paddles, but no sight of tall buildings, long sidewalks or malls. The third day of the trip involved passing through a town, which was perceived by most participants as a typical symbol of civilization. Days 3–9 were spent paddling down a river in remote surroundings. Electrical wires, roads and houses were to be found again only nearing the end of the trip on day 9 (pseudonyms are used throughout to preserve anonymity of participants).

1.4.2 Nature-Civilization Continuum

Markedly, the factor that most clearly mediated participants' sense of connectedness to nature during the trip was the variation in the intensity with which the presence of other humans was perceived in the environment. For instance, one of the young members of the group (Hawk) expressed feeling connected with nature as he stood in the rain on the fifth morning of the trip: "[the rain] washed away all the human smell and made all the air smell better, like nature – the trees, the leaves and the water". In this case, Hawk's experience with the surroundings is prominently embodied (kinaesthetic) (Reis 2015).

In addition, a number of artefacts created by participants provided further support to the idea of feeling connected with the environment when human presence is minimal. This was the case when Otter, another young participant, drew an illustration of a sapling (Fig. 1.1) and explained that it was linked to the rocks, moss and river. Curiously, his observation of nature led him to ascertain that everything in nature is connected even though humans are nowhere to be seen in the drawing.

Fig. 1.1 Otter's depiction of the sapling connecting with the surrounding environment (© 2017 Mira Freiman)
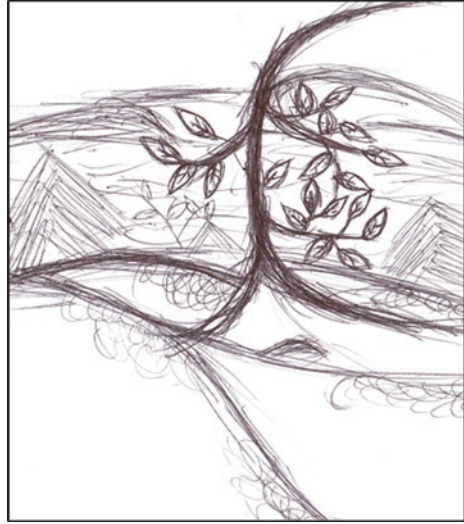
Another example that illustrates participants' perceived sense of connectedness to nature could be seen in their playful interactions with insects, like when a coyote chatted with mayflies that were on his arm or when a bear greeted a large beetle on the canoe barrel (though he was not sure if it was a dangerous or safe beetle): "Whoa, hello big boy". (At around the same time, a wolf went after it with his paddle despite the requests from two other youths not to kill it.)

Mira's notes (edited here for clarity and brevity) reveal other remarks made by participants about the impact that indications of human presence had on them during specific parts of the trip:

> There are motorboats flipped over on the rocky shoreline. I can see dead fish in the water and what appear to be pieces of an old wood-canvas canoe. Otter says: "This place makes me feel further from nature." I ask "why?" and she says something about it being "creepy." Deer agrees with her. Fox also says that the area makes her feel further from nature. (Day 2, 4–5pm)

> Otter says being here makes her feel more connected to nature. I ask "really?" and she confirms "yeah." Loon says that being here makes her feel further away from nature. Otter explains that it is beautiful here and she likes looking out and seeing the view. Deer and Otter agree that stepping back from nature makes them feel more connected to nature. I am reminded of the saying 'distance makes the heart grow fonder', which implies in this context that distancing from nature helps us connect with nature, and appreciate it more. Bear asks if it is like how when you are in the city, you do not appreciate how comfortable your couch is. There is a chorus of agreement. Otter says when she is in civilization, she wants the woods, and when she is in the woods, she wants civilization thereby suggesting that the woods and civilization are mutually exclusive. (Day 3, 12pm)

Other human activities typical to the outdoors were also considered to influence participants' perception of their connectedness to nature. That was seen on the morning of day 3, when Fox took a picture of Robin making breakfast and said that it made her feel closer to nature.

Generally speaking, despite the fact that perceptions of connectedness to nature differed amongst individual participants (i.e. some felt discomfort while standing in the rain while others enjoyed it), an object or sight perceived to be associated with the natural setting of the canoe trip was most likely than not to make participants feel closer to nature (e.g. rain, insects, trip canoes and group members). Conversely, if something was perceived to belong outside of the canoe trip (e.g. abandoned old wood-canvas canoe and signs of urbanization), it had the potential to make participants feel disconnected from the same natural environment. In sum, participants' sense of closeness to/detachment from their surroundings fluctuated along the canoe trip according to their interpretation of what they saw, heard, tasted, smelled and touched during those 10 days.

The distinctive meanings of nature and civilization suggested by participants' narratives and actions indicate that they are aware of/triggered by the particularities of each situation. In the end, the canoe trip exposed the youth to different circumstances along a nature-civilization continuum. In creating possibilities for people to reflect on the elements that can alter their perceptions of proximity to – or distance from – nature, one can only hope to empower the individual to develop a more holistic notion of nature, where our humanness is but an intrinsic (and perhaps small) part of life on the planet. And this is one of the ambitious goals of this book: to invite readers to consider different (but real) possibilities to bring themselves closer to nature.

1.5   This Book

The present introductory chapter discussed the pedagogical aspects of a typical teacher education assignment, a reading response, and a particular EE initiative, a canoe trip, as their implications to people's sense of connectedness to nature. In the first story, the Canadian teacher candidate initially failed to see how her educational context was not so distinct from that of Australia's. She felt disconnected from that other school system even though she was able to draw parallels between the two in her assignment. Likewise, in the second story, canoe trip participants were met with distinct feelings about their sense of connectedness to nature during their excursion into the wild. In common, the two stories have the fact that the people involved reflected on their relationship to nature (i.e. moments when they appeared to be close to/distant from their surroundings). In doing so, they were able to identify those elements that helped them to feel less distinct from their environment and challenged their taken for granted assumptions about how connected/related they really are to one another – human or not. The present book has been written to provoke this type of conversation/reaction/reflection amongst readers. How can we get closer to the environment? How can humans restore and strengthen a respectful relationship with others as well as with themselves? How can we develop a greater sense of "compassion" for what is around us and for ourselves? Are there different ways we can do this? If so, would they be unique to specific geographies or could they be adapted to

different locations on the map? How can we – whoever and wherever you are – create occasions to alter the current social, cultural and ecological (nevertheless embroiled) state of the world? You will find possible answers to these questions here.

The authors represent a diversity of places and perspectives on EE. Given the potential high number of scholars who could have contributed to the book, contributions were selected based on their critical aspect and the fact that they were not necessarily bounded by their geographies. That is, in selecting the chapters that you now see here, preference was given to those that were truly – or as much as possible – international in the sense that readers from elsewhere could clearly relate to their messages. For most of us educators, the complaint that an idea or example is inadequate due to its lack of local applicability can be sometimes frustrating. Of course, one could not expect environmental matters to be approached or even valued equally around the planet and without any consideration for the original contexts where they emerged. Problems and their solutions are never universal (i.e. one size fits all). At the same time, one idea in Australia might inspire/assist people in Mexico (or vice versa) to continue on with their efforts of making the world a more just place for humans and non-humans. This is the international (perhaps global) aspect of each chapter.

The contributions in the book have been placed under four interrelated sections. The first one is called "Environmental Education and Teacher Education" and includes contributions more strongly correlated to the theory and practice of EE within teacher education programmes:

- *Understanding ecojustice education as a praxis of environmental reconciliation*: *Teacher education, indigenous knowledges, and relationality* (Chap. 2) by Jesse Butler, Nicholas Ng-A-Fook, Rita Forte, Ferne McFadden and Giuliano Reis (University of Ottawa). In this chapter, the authors apply the concept of reconciliation to environmental education (EE), exploring principles through which EE scholars, both in Canada and internationally, can take up EE as a praxis of environmental reconciliation.
- *Reimagining environmental education as artistic practice* (Chap. 3) by Hillary Inwood (University of Toronto) and Elizabeth Ashworth (Nipissing University). Here, the authors explore the potential of art education to increase the power and reach of environmental learning in teacher education programmes and schools. Likewise, the concepts of creativity, imagination and aesthetics are considered powerful pedagogical tools to provide a means for teacher educators of the arts to contribute towards positive environmental change.
- *Integration, inquiry, and interpretation: A learning garden alternative placement and eco-mentorship program for pre-service teachers* (Chap. 4) by Kelly Young (Trent University) and Darren Stanley (University of Windsor). In this chapter, the authors address the complex nature of environmental education by highlighting some of the ways in which language – specifically, root metaphors – perpetuate the ongoing disconnection of humans and the natural world.
- *Embedding environmental sustainability in a predominantly online teacher education program: ways to contextualize learning* (Chap. 5) by Deborah Prescott (Charles Darwin University). Through a teacher self-study, this chapter illustrates

aspects of learning and assessment design in the context of a regional Australian tertiary institution with predominantly online delivery of two large courses for teacher candidates. The four key guidelines for effective learning and assessment design that emerged through the investigation are considered fundamental to effective environmental education programmes and cross-disciplinary learning.

The second section of the book is titled "Environmental Education outside Walls" and contains those chapters that speak to the theory and practice of environmental education in nonschool settings:

- *Educating for student agency: Perspectives from young eco-civic leaders in Canada* (Chap. 6) by Lisa Glithero (University Of Ottawa). This chapter shares the findings of a study that investigated how youth, nationally recognized as eco-civic leaders in Canada, perceive their agency and capacity to create a more environmentally sound society.
- *Environmental education as/for environmental consciousness raising: Insights from an Ontario outdoor education centre* (Chap. 7) by Joanne Nazir (Redeemer University College) and Erminia Pedretti (OISE, University of Toronto). Here, the authors draw from insights gained from a study of educators working together at an outdoor education centre in Ontario (Canada) to advance the idea that raising environmental consciousness involves connecting people to, fostering care for and building agency for their environments.
- *Indonesian adventures: Developing an ecology of place on Sulawesi Utara* (Chap. 8) by Vajiramalie Perera (Simon Fraser University), Wiske Rotinsulu (Universitas Sam Ratulangi), John Tasirin (Universitas Sam Ratulangi) and David Zandvliet (Simon Fraser University). In this chapter, the authors develop an island metaphor and explore the meaning of community in place-based education.

The third section of the book is called "Environmental Education in the Context of Schools" and includes those contributions that are built upon the notion that schools can be critical venues for environmental education to take place:

- *Crisis and recovery in environmental education: The case of Greece* (Chap. 9) by Constantinos Yanniris (McGill University) and Myrto Kalliopi Garis (Université de Montréal). This chapter explores the institutional, structural and pedagogical characteristics that contribute to the resilience of environmental education frameworks towards the survival of future socioeconomic perturbations in a world of growing uncertainty.
- *Storied environmental curriculum: A case-based perspective on environmental education* (Chap. 10) by Alandeom W. Oliveira (State University of New York at Albany). Here, the author examines the written organization of two cases developed by biology teachers in Brazil to highlight the need for environmental educators to better understand what it means to develop a storied curriculum on ecological issues.
- *A socioscientific issues approach to environmental education* (Chap. 11) by Benjamin C. Herman (University of Missouri), Troy D. Sadler (University of Missouri), Dana L. Zeidler (University of South Florida) and Mark Newton

(California State University). This chapter makes a case for applying a socioscientific issue (SSI) approach to environmental education (EE).

- *Moving forward from the margins: Education for sustainability in Australian early childhood contexts* (Chap. 12) by Sue Elliott (University of New England) and Julie Davis (Queensland University of Technology). The authors of this chapter offer an analysis of early childhood education for sustainability (ECEfS) theory and practice in Australia as means to ramp up ECEfS activities elsewhere.
- *Environmental education in China: A case study of four elementary and secondary schools* (Chap. 13) by Qin Chengqiang, Xiong Ying, Feng Yan and Li Tian (Guangxi University). This chapter is based on a survey conducted within four elementary and secondary schools in Nanning (China) and discusses important questions related to the improvement of environmental education in these schools and recommendations for others.

The fourth and final section of the book – "Environmental Education Research and Poetry" – is dedicated to those contributions that are focused on the scholarship of environmental education but with a more personal twist:

- *An improbable international collaboration: Finding common ground* (Chap. 14) by Astrid Steele (Nipissing University) and Wafaa M. Abd-El-Aal (Beni-Suef University). Here, the authors share the circumstances and development of their initial collaborative environmental education project while also reflecting on the benefits and obstacles of their continued partnership.
- *Environmental education research and the political dimension of education for citizenship: The Brazilian context* (Chap. 15) by Luiz Marcelo de Carvalho and Heluane Aparecida Lemos de Souza (Universidade Estadual Paulista). In this chapter, the authors explore the relationship between education and the process of citizenship construction in environment education research reports and theses carried out in Brazil in 1981 to discuss the dangers of universalizations in the field.
- *Black earth green moon Mama Allpa: Polyphonic moments from temple to tambo* (Chap. 16) by Pat Palulis (University of Ottawa). Drawing into the concept of ecopedagogical responsibility, the author makes a poetical stand against the grain of the progress narrative.

Similarly to a student who is introduced to new and exciting ideas in school or a canoe trip participant who has a chance to explore first-hand the outdoors, the editors would like to invite readers to embark on a journey when reading the book. To that end, each chapter has also been written with the goal of increasing people's likelihood to buy into EE and therefore feel empowered to act upon the possibilities that exist within the theory-practice realm of the field. That required all of us – authors and editors – to depart from at least three convictions: (a) that learning is contextually driven by a myriad of social, cultural, personal, affective and physical elements (Falk and Dierking 2000); (b) that in order for learners to reconnect with nature, they must act, think and feel with/in it; and (c) that the natural environment can indeed be a teacher in and of itself (Wals 2012). We ask that our readers too be open to these principles.

Finally, we hope that the content of this book will be considered for use in under-graduate and graduate university programmes worldwide. As such, authors provided discussion questions aimed to help instructors and students to engage in meaningful conversation about the ideas presented. These questions are located at the end of each chapter and by all means should be utilized and modified as needed. Enjoy!

Questions

Discussion questions that could help instructors and students to engage in meaning-ful conversation about the ideas presented in this chapter.

1. In your opinion, what does it mean to be disconnected from nature? Please pro-vide two examples to illustrate your answer
2. What is "the environment"? How is it different or not from your understanding of "nature"?
3. Indicate one local socioecological issue in your community. Do you believe that this problem is exclusive to your area or it is common in other countries? (You will have to do a quick online search to support your answer here)
4. Have you ever been on a canoe trip or a similar outdoor experience? Were your emotions similar to those exhibited by the canoe trip participants? Please explain your answer
5. Do you see signs of human interference in the area where you live? How do they make you feel: connected or disconnected from the natural environment? Why?
6. In your opinion, how could formal educational settings contribute to making people feel closer to nature?

References

Barry, C. (2010). The environment/society disconnect: An overview of a concept tetrad of environment. *The Journal of Environmental Education, 41*(2), 116–132. https://doi.org/10.1080/00958960903295241.

Bodzin, A., Klein, B., & Weaver, S. (2010). *The inclusion of environmental education in science teacher education*. New York: Springer.

Campbell, C., & Robottom, I. (2004). Environmental education: Appropriate vehicle for science education? *Teaching Science, 50*(2), 18–23.

Charles, C., Louv, R., Bodner, L., Guns, B., & Stahl, D. (2009). *Children and nature 2009: A report on the movement to reconnect children to the natural world*. Santa Fe: Children & Nature Network.

Crutzen, P. (2006). The "anthropocene". In E. Ehlers & T. Krafft (Eds.), *Earth system science in the anthropocene* (pp. 13–18). New York: Springer.

Custodia Teræ Sanctæ. (n.d.). *The canticle of the creatures*. Available at http://www.custodia.org/default.asp?id=1454

Dettmann-Easler, D., & Pease, J. (1999). Evaluating the effectiveness of residential environmental education programs in fostering positive attitudes toward wildlife. *Journal of Environmental Education, 31*(1), 33–39. https://doi.org/10.1080/00958969909598630.

Diener, E., & Seligman, M. (2004). Beyond money: Toward an economy of well-being. *Psychological Science in the Public Interest, 5*(1), 1–31. https://doi.org/10.1007/978-90-481-2350-6_9.

Falk, J., & Dierking, L. (2000). *Learning from museums: Visitor experiences and the making of meaning*. Walnut Creek: AltaMira.

Gruenewald, D. A. (2004). A Foucauldian analysis of environmental education: Toward the socioecological challenge of the earth charter. *Curriculum Inquiry, 34*(1), 71–107. https://doi.org/10.1111/j.1467-873x.2004.00281.x.

Hanna, H. (1995). Wilderness-related environmental outcomes of adventure and ecology education programming. *Journal of Environmental Education, 27*(1), 21–32. https://doi.org/10.1080/00958964.1995.9941968.

Hawthorne, M., & Alabaster, T. (1999). Citizen 2000: Development of a model of environmental citizenship. *Global Environmental Change, 9*(1), 25–43. https://doi.org/10.1016/s0959-3780(98)00022-3.

Keay, J. (2000). *India: A history*. New York: HarperCollins.

La preghiera del francescano. (2009). Padova: Messaggero di Sant'Antonio.

Leopold, A. (1949). *A Sand County almanac and sketches here and there*. Oxford/New York: Oxford University Press.

Louv, R. (2008). *Last child in the woods*. New York: Workman Publishing Company.

Ontario Camps Association. (2008). Trips and excursions: Relevant regulations and resources. *Guidelines for Accreditation*. Available at http://www.ontariocamps.ca/documents/parents/OCA%20Guidelines%20for%20Accreditation%202008.pdf

Paige, K., Lloyd, D., & Smith, R. (2016). Pathway to 'knowing places' – And ecojustice – Three teacher educators' experiences. *Australian Journal of Environmental Education, 32*(3), 260–287. https://doi.org/10.1017/aee.2016.18.

Reis, G. (2015). A socio-culturally sensitive science curriculum: What does it have to do with our bodies? In C. Milne, K. Tobin, & D. Degenero (Eds.), *Sociocultural studies and implications for science education: The experiential and the virtual* (pp. 231–255). New York: Springer.

Reis, G. (in press). Science teachers under suspicion: Is it true that science teachers aren't good as they used to be? In L. Bryann, K. Tobin (Eds.), *13 questions in science education*. New York: Peter Lang.

Reis, G., & Guimaraes-Iosif, R. (2012). The death and life of a school-based environmental education and communication program in Brazil: Rethinking educational leadership and ecological learning. *Applied Environmental Education and Communication, 11*(3–4), 123–132.

Reis, G., Mueller, M., Gisewhite, R., Siveres, L., & Brito, R. (in press). *Sociocultural perspectives on youth ethical consumerism*. New York: Springer.

Sudarsana, C. (2013). An empirical study on the relationship between nature worship and the preservation of environment in some parts of West Bengal in India. *International Journal of Social Sciences, 2*(2), 79–83. https://doi.org/10.5958/j.2321-5771.2.2.002.

UNICEF Office of Research. (2017). *Building the future: Children and the sustainable development goals in rich countries, n. 14*. Florence: UNICEF Office of Research- Innocenti. Available at https://www.unicef-irc.org/publications/series/16/.

United Nations High Commissioner for Refugees. (2017). *Global trends 2016*. Geneva: UNHCR. Available at www.unhcr.org/statistics.

Wachowski, A., & Wachowski, L. (1999). *The matrix [motion picture]*. United States: Groucho II Film Partnership, Silver Pictures, Village Roadshow Pictures, and Warner Brothers Pictures.

Wall, G. (2000). Recent representations in popular environmental discourse: Individualism, wastefulness and the global economy. *Canadian Review of Sociology and Anthropology, 37*(3), 249–265.

Wals, A. (2012). Learning our way out of unsustainability: The role of environmental education. In S. Clayton (Ed.), *The Oxford handbook of environmental and conservation psychology* (pp. 628–644). New York: Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199733026.013.0032.

Weston, A. (2004). What if teaching went wild? *Canadian Journal of Environmental Education, 9*, 31–46.

Wiens, J. (2016). Climate-related local extinctions are already widespread among plant and animal species. *PLoS Biology, 14*(12), e2001104. Available http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.2001104. doi:10.1371/journal.pbio.2001104.

Zalasiewicz, J., Williams, M., Steffen, W., & Crutzen, P. (2010). The new world of the anthropocene. *Environmental Science and Technology, 44*(7), 2228–2231. https://doi.org/10.1021/es903118j.