

Transformative Environmental Education: Stepping Outside the Curriculum Box

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Abstract

Environmental education has become trapped in the curriculum box. At a time when our students' generation is becoming trapped in a global warming box, their education needs to be rapidly adaptable to the changing state of their planet. Venturing outside the curriculum box takes courage, creativity, and a willingness to let nature serve as the teacher. This paper provides a rationale for stepping outside the box, and discusses my experiences as an environmental education coordinator working to create transformative learning experiences for students.

Résumé

L'éducation écologique est devenue enfermée dans une boîte de programmes scolaires. Alors que la génération étudiante devient enfermée dans la boîte du réchauffement climatique, son éducation nécessite de s'adapter rapidement aux changements de sa planète. S'aventurer hors de la boîte des programmes scolaires demande du courage, de la créativité et un empressement à laisser la nature être l'enseignant, l'enseignante. L'article fournit des raisons pour sortir de la boîte et examine l'expérience de l'auteure comme coordonnatrice de l'éducation écologique travaillant à créer pour les élèves des expériences d'apprentissage qui métamorphosent.

Keywords: transformative environmental education, sustainability education, curriculum box, state of the planet, global climate change, courage

Picture this: It's the year 2050, and we find ourselves in a run-down courtroom. The teaching profession is standing trial for crimes against humanity and the rest of nature. The prosecutor comes close, looks us in the eyes and asks, "When it became evident, in the late 20th and early 21st centuries, that urgent education and action on global climate change were needed to avert a planetary emergency, what were you teachers thinking? Why didn't you make the changes necessary to transform the education system before it was too late?" To which we meekly reply, "We didn't have time. We had to cover the curriculum."

Of course, this scenario (at least the courtroom scene) won't come true, but our lame defense already has. Covering the curriculum is the leading reason given by Canadian teachers for not teaching our students what they need to know in order to face the 21st century realities of planetary climate collapse and an urgent need to switch to a renewable energy economy (Puk & Makin, 2006).

Remember when environmental education was all about nature? Ecology? The environment? Saving the planet? Now it seems to be more about curriculum alignment. Curriculum links. Curriculum connections. Matching learning outcomes, blending curriculum expectations, melding with curriculum, and investigating curriculum topics. This shift could not have come at a worse time.

Around the world, research is showing that climate change, ecosystem degradation, and biodiversity loss are a threat to the very survival of humanity and most other species on Earth (United Nations Environment Programme [UNEP], 2007). According to the most recent Global Environment Outlook (GEO-4), “The need couldn’t be more urgent and the time couldn’t be more opportune, with our enhanced understanding of the challenges we face, to act now to safeguard our own survival and that of future generations” (UNEP, 2007, p. 493).

The world urgently needs transformation—on an emergency basis. The present generation of students is being faced, among other crises, with the daunting task of reversing the current exponential increase in global greenhouse gas emissions by 2015 (Intergovernmental Panel on Climate Change [IPCC], 2007, p. 67). In 2007, the IPCC chair, Rajendra Pachauri, said, “If there’s no action [on climate change] before 2012, that’s too late. What we do in the next two to three years will determine our future. This is the defining moment” (as cited in Gorrie, 2007). According to NASA physicist and the world’s most outspoken climate scientist, James Hansen (2008), we are now beyond dangerous climate change and have to apply drastic and revolutionary measures to secure the future: “[W]e have used up all slack in the schedule for actions needed to defuse the global warming time bomb” (¶ 3).

Clearly, our education systems in general, and environmental education in particular, have failed the Earth and the future. According to McKeown and her colleagues, “the most educated nations leave the deepest ecological footprints...[M]ore education increases the threat to sustainability” (McKeown, Hopkins, Rizzi, & Chrystalbride, 2002, p. 10). Stephen Sterling (1996) explains further:

Education is proclaimed at high levels as the key to a more sustainable society, and yet it daily plays a part in reproducing an unsustainable society....A society faced with a radical imperative to achieve a socially, economically and ecologically sustainable basis within a historically short time needs to reappraise most aspects of its organization; education—as the main means of social reproduction—has to be at the centre of this task, both as subject and as agent. (p. 18)

It is obvious that time is of the essence, that education must revisit its goals, and that the future of humanity is, to a large part, in the hands of educators. If humanity is to mitigate global warming and adapt to a planet with an unstable climate, we will have to ensure that education be rapidly adaptable, making an immediate shift to transformative environmental edu-

cation and sustainable development learning. But can curriculum-controlled education prepare students quickly enough for a world now facing unprecedented conditions in the biosphere? Unfortunately, curriculum is a slow-moving and slow-changing determinant of what gets taught. Learning for a Sustainable Future (2006) laments that “it is difficult to envision large-scale changes in educational practice and content at the classroom level without first seeing those changes in place in curriculum policy” (p. 5).

How, then, are we to “save the planet” and all future generations (of all species) as long as environmental education and sustainability learning are stuck in the curriculum box? To borrow from Albert Einstein, we cannot stop environmental degradation with the same educational system that allowed environmental degradation to happen in the first place. United Nations Educational, Scientific and Cultural Organization (UNESCO) (1999) outlines a new role for education:

Education must...serve society by providing a critical reflection on the world, especially its failings and injustices, and by promoting greater awareness, exploring new visions and concepts, and inventing new techniques and tools....Education's role in such undertakings is not only to make people wiser, more knowledgeable and better informed, but also more ethical, responsible and critical as well as capable of continuing to learn and respond to new situations. (p. 44)

What role can educators play in safeguarding the future for all life on Earth? We can start by making sure we don't place the integrity of “the curriculum” ahead of the integrity of life. Let's consider, therefore, not waiting for curriculum committees, curriculum mapping, curriculum review, and curriculum revision to allow us to change what we teach. The changing state of the planet, as well as solutions and remedies to deadly climate change, biodiversity loss, pollution, and deforestation, must now guide our curriculum.

Something else we can do is examine why the education system is not mobilizing faster. Puk and Makin (2006) uncovered four other reasons given by teachers for not teaching for ecological literacy. The first, mentioned above, was lack of time in the current curriculum: “The number one response given repeatedly was that as long as ecological literacy was not part of the required, provincial curriculum, there was not enough time to include it as an ‘extra’ topic” (p. 273).

The second reason given was a lack of resources (Puk & Makin, 2006), despite the fact that we live in the information age and myriad environmental education resources are available online. The third reason was a lack of teacher training; teachers cited their lack of knowledge and comfort in this area (Puk & Makin, 2006). However, if these teachers had learned ecology in school like they learned math knowledge and skills, lack of ecological literacy could not be used as an excuse today. Agne and Nash offered faculties of education a solution to this problem in 1976:

If our concern is to help future teachers develop a world view which is deeply rooted in a reverence for life...teacher educators must begin to be more assertive and less value neutral as they act boldly on behalf of human survival. (pp. 143-144)

Lack of support from colleagues, administration, school board, and parents is the fourth reason teachers gave for not teaching for ecological literacy (Puk & Makin, 2006). This could reflect society's general denial of the global environmental crisis, in part due to the influence of the misinformation campaign by climate change skeptics and deniers (Hansen as cited in Pilkington, 2008), and in part due to the complexity of the issue.

In light of current scientific understanding of the state of the planet, these reasons are no longer valid. If teachers think they don't have the time, resources, training, or support to teach children how to save the future, could it be because they don't understand what's at stake? Or, despite growing evidence that the curriculum box has turned into a death trap, is it because teachers have been conditioned to focus on other aims, conditioned to stay in the curriculum box, indeed to become the box? When the IPCC (2007) reported that if we don't reduce our global greenhouse gas emissions by the year 2100, global average temperatures could increase by 6.4°C (p. 45), how many teachers understood the magnitude of this threat? How many teachers even heard this prediction? It must be the responsibility of every teacher in the world to truly grasp the significance of this projection for the survivability of life on Earth as we know it.

It takes pluck and audacity to buck the system, strength and stamina to swim against the flow, and creativity to figure out how to do it. As a classroom teacher, I looked for occasions to teach about life while "covering the curriculum." For example, I once fought for the right to teach a French language unit on environmental issues instead of the prescribed unit on cars, which was "on the exam." Also, I always stopped my grammar lessons when the pileated woodpecker came to visit a tree outside our classroom window. With good fortune, however, I have had several opportunities during my career to transform what happens in the classroom, both as a curriculum consultant offering demonstration lessons to classroom teachers, and as a teacher with an environmental education Non-Governmental Organization (NGO) providing workshops for students. Admittedly, looking in from the outside makes it easier to view with a critical eye the education system's relationship with the rest of the world. I offer below three examples of times I have been able to take the risks necessary to escape—or at least dance around outside—the curriculum box.

Good Neighbours Come in All Species

Bioregion-based or place-based learning tends to be a missing element in many educational jurisdictions. For example, I now live in the Southern

Gulf Islands of British Columbia, Canada, a wonderful place that many consider a natural paradise. Yet I noticed that most of the teachers here only took their students outside for physical education classes, and then only in good weather. North American environmental education guru, David Orr (1992), laments that the importance of place in education has been overlooked, because “to a great extent we are a displaced people for whom our immediate places are no longer sources of food, water, livelihood, energy, materials, friends, recreation, or sacred inspiration” (p. 126). Unfortunately, our students were learning that the natural community around them offered nothing valuable to learn.

To help create a sense of place for the students in our small communities, and to show teachers that they don’t need a background in science to teach environmental education, I developed an arts- and humanities-based program called “Good Neighbours Come in All Species” (an evocative quote from landscape designer, Sally Wasowski), as an offering to schools through my environmental education NGO, GreenHeart Education.

The students (preschool to grade 8) participated in six outdoor sessions designed to help them develop a reverence for all life and kindle their innate connection with the rest of nature:

- *Making Friends with Nature* involved sensory awareness and nature appreciation activities. Each child found a “heart spot” they would visit each week with a different focus, which was a playful way to develop a “sense of place” and an introduction to ecological concepts of energy flows; (re)cycling of air, water and soil nutrients; interrelationships; and change.
- *Nature’s Gifts to Our School* had the students building terraria for their classrooms and bird feeders for their schoolyard.
- *Your Ecological Self* was a time for depicting favourite places and totem elements or animals through masks, banners, and mandalas.
- *Finding Your Song in Nature* included an outdoor poetry trail, music making with natural objects, and listening for one’s “song” amongst the natural sounds in the playground.
- *Up Close and Personal*, seeing the rest of nature through new eyes, was accomplished with digital photography, videography, and simple solargraphy.
- *A Festival of Good Neighbours* was a community celebration for sharing the gifts received from our “neighbours” of all species as well as our artwork and poetry.

With indoor education, taking students outside for more than a sports game is already stepping outside the curriculum box. I sensed a fear that other teachers or passersby would question why the students were sitting around outdoors during the school day. But my greatest challenge was keeping the teachers with me! Three out of four teachers took advantage of this “free” time to do other things, rather than participate along with their students. They

missed the opportunity to learn strategies for teaching several subjects outdoors—and their colleague who did participate witnessed a wonderful new side of her students as they connected with the natural world.

It must be acknowledged that teachers are extremely busy people with grueling demands on their time. But saying that we don't have the time to integrate environmental learning into our teaching is like saying we don't have time to light the fire because we're too busy trying to keep warm.

I wish I had done a pre-program survey with the students to gauge their attitudes towards “neighbours of all species” before our work together, but follow-up comments from the children showed a shift in their sense of connectedness:

“Nature is all around us ... and I learned a lot about it. I liked the Heart Spots.”

“Thank you for giving me this gift of knowing so much about nature.”

“You helped us find ourselves in nature.”

“Thanks for teaching me to be more aware of things around me.”

“The best part was learning to be friends with nature.”

Good Neighbours was not really about teaching poetry, art and music; it was about using poetry, art and music to create connections to the natural environment around their school (a new idea for these teachers) in order to achieve one of the biggest goals of environmental education: giving the rest of nature value in the eyes of our students. I believe that this process of connecting forms the ethical and emotional foundation, for both students and teachers, that allows naturally transformative teaching and learning. Helping our students meet and make friends with other species—literally—will help these children become adults who include concern for all of life in their deliberations and decisions.

Sky Awareness

When I served as the Coordinator of Environment and Sustainability Programs at Upper Canada College, an independent school for boys in Toronto, Canada, I looked for every occasion to extend the boundaries of the curriculum and to share with my colleagues how to enlist Nature as a teacher. Sometimes what you teach during extracurricular activities makes up for what doesn't get taught during instructional time. I took members of the Solar Club up on a dormitory roof at noon on December 21—a cold but sunny Winter Solstice and the last day of school before the Christmas break. Our guest was a solar energy expert, a wonderful fellow who had taken this club under his wing, and what we discovered about the students was disconcerting: they had never before looked up!

These students could not tell us how the sun tracked across the sky—where on the horizon it rose and set—and did not understand that the sun was at its

highest point in the south on its lowest trajectory of the year in the Northern Hemisphere. The geometry of solar panel efficiency quickly became a lesson in basic astronomy (which, teachers later told me, is often the first unit to be cut from science courses if time is running out). How will these students become engineers of the renewable energy revolution if they are not even “sky aware”? How can we teach students to be sky aware if we never venture outside the classroom box with them?

Education professor Madeline Hunter is known for saying, “Don’t get caught in the trap of ‘covering material.’ If you do, cover it with dirt and lay it to rest, because without meaning, it’s dead anyway” (as cited in Dorn, 2000). As educators with responsibilities inside and outside the classroom, we are going to have to find the time to re-examine the curriculum from the perspective of what our students need to learn for the 21st century—versus what we’re used to “covering.”

Sustainable Development Means Fairness

Here is my favourite experience outside the box ... one that gives me hope. In 2006, when I heard that the grade 3 students at Upper Canada College would be studying a unit entitled *What a City Needs*, I saw my chance to try something I had never attempted before: teaching young children about sustainable development. Because fairness is everything to children of that age (eight and nine- year-olds), I framed the integration principle of sustainable development in terms they could grasp: Is the proposed development fair to all the people involved, present and future (Social Equity)? Is it fair to the rest of nature (Environment)? Is it a fair price for everyone (Economy)? And the children understood it immediately!

Before they began designing their own cities, we put the principles of sustainable development into practice by asking what a schoolyard needs (playground equipment in addition to the sports fields, they decided). They posed, in the words of one of their teachers, “phenomenal questions,” and kept talking about the concept of fairness throughout their unit. “That was exactly what we were after, so it was perfect,” she concluded.

Afterwards, eight-year-old Andrew described his learning this way: “We talked about money, if it’s fair to all people, and if it’s fair to all the Earth. Then we talked about sustainable, so not taking away from any people, and it would last a long time, and not cutting down so many trees. And then we talked about if the cost was fair.” When nine-year-old David was asked what he had learned, he said, “If you put something in, it has to be fair for the environment, fair for all people, and fair for the cost. We talked about sustainable development: if you put something in, it won’t affect the future.” I asked David how he remembered the term sustainable development. “I like it,” he said, “and I like learning about it, and I always think about it.”

Imagine all students learning, as they grow up and graduate, that sustainable development (something not usually found in third grade curriculum) is all about fairness. What and how we teach right now perpetuates the unquestioned status quo. What and how we teach perpetrates *unsustainable* development: environmental degradation, economic inequity, and inter-generational unfairness. There is a possibility that Andrew and David's generation, by learning the transformative new paradigm of sustainable development and its principles and processes throughout their education, will create a future that is actually sustainable.

Paulo Freire (1973) liked to point out that "education is an act of love, thus an act of courage" (p. 38). We teachers, if we love our students, our own children and grandchildren, this planet we live on, and the idea of a future for humankind, must summon the courage to break free of Fortress Curriculum if it isn't changing fast enough.

We need to start offering the knowledge, skills, values, attitudes, and habits of mind and heart that students need in order to create the best possible future, NOW. Life, indeed survival itself, must become the curriculum. May this new curriculum be envisioned as a forest, a garden, or a river (curriculum comes from the Latin *currere*, for current), so that it can be organic and live, grow, change, adapt. Or, if we must remain in the curriculum box, may we picture it as a house, a home, with its doors and windows flung open wide to embrace the world outside it.

My hope, for the sake of future generations, is that sharing these stories will help invoke the courage we are all going to need to face down a curriculum-constrained education system in a climate-constrained world. Let this be our transformative gift, our way of showing our love as teachers, to all of the children, of all species, for all time.

Notes on Contributor

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