Preparation for the Ecocene: 
Envisioning futures for environmental and sustainability education(1)

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Abstract
This contribution provides some insights in possible future developments in Environmental and Sustainability Education (ESE). Some challenges for the field are presented in light of a rapidly changing world that has homogenizing and polarizing tendencies. Four different movements and emphases within education, communication, and participation in relation to people and planet are distinguished: from nature conservation education (NCE), to environmental education (EE), to education for sustainable development (ESD) to environmental and sustainability education (ESE). These different ‘educations’ do not literally succeed one another. Rather, they often they run parallel. The authors observe a trend in some parts of the world towards convergence where both sense of place and the strengthening of relationships between people and people and the non-human and more-than-human world, as well as the questioning of deep rooted structures and hegemonic values, engaging multiple actors with sometime conflicting views and the crossing of boundaries between sectors and disciplines, are considered critical. The readers of this special issue are challenged to mirror these movements with their own histories and realities but also to imagine how nascent scientific, technological, social, and ecological developments might perturb, disrupt, and/or transform the field of environmental education in ways that allow for more sustainable futures to emerge.

I. Introduction
The future of environmental education is an urgent question in the larger context of the Anthropocene, the geological epoch in which human activities have become the dominant driver in the ongoing evolution of Earth’s biosphere. Our contemporary ecological moment is characterized by complexity, uncertainty, and ‘accelerating change’ (Wals and Corcoran 2012). While the global impact of anthropogenic climate change is undeniable, the pace of temperature and sea-level rise depends on ecological feedback loops that are not fully understood – and which may be increasing the rate of biosphere destabilization (Hansen et al. 2015). From a social perspective, the Anthropocene is an age of what humanities scholar Rob Nixon (2011) terms ‘slow violence,’ or ecological violence and environmental injustice that occurs on spatial and temporal scales that are hard to understand or represent, most often against the world’s poorest peoples. In light of such developments, educators need strategies for anticipatory engagement with changing socio-ecological realities – both in the present and future – in order to be effective within their various embodied contexts. This contribution sketches some possible responses or directions for future environmental and sustainability education (ESE). It is up to readers to see whether such or which of such futures will need to be created given the socio-historical, political-cultural and socio-ecological realities they find themselves in. The contexts in which we as authors find ourselves – closely connected to The Netherlands (Wals) and to the United States (Corcoran and Weakland) are already quite different from one to another, and there’s even plurality within them, but we imagine that this will also be the case in the countries that are featured in this special issue: Korea, Taiwan, Japan, Australia and New Zealand. Sometime such differences seem almost trivial or ‘just’ academic but in practice have great consequences for possibilities for, for instance, participation, transgression, activism, integration and boundary-crossing. This contribution does not seek to prescribe possible futures for all and everywhere but rather invites readers to consider their own contexts and realities and mirror them against some of the possibilities outlined here in hopes that such ‘mirroring’ will open up debate and conversations that can ultimately improve the quality and impact of ESE. This contribution sketches some possible responses or directions
for future environmental and sustainability education (ESE) which may lead us to the imaginary Ecocene: an epoch in which not one single species determines the future of the Earth but the collective wisdom and interactions of all species and the bio- and geophysical world.

II. Envisioning Futures

In *The Future shock*, Alvin Toffler wrote 40 years ago about the social paralysis that comes with rapid changes where people cannot keep up with the times. Rapid technological and social change leaves people disconnected and in a state of ‘shattering stress and disorientation’ which he referred to as ‘future shocked’ (Toffler 1970). Today we not only witness accelerating technological change, which is nowadays compounded by hyper-connectivity, social change, hyper-migration, in part as a consequence of climate change, but we also are facing rapid ecological decline. Essentially we are in a state of global systemic dysfunction (Lotz-Sisitka et al. 2016). Lack of place, identity, psychic numbing, and a loss of agency are only a few consequences humans are suffering, not to mention the consequences suffered by the non-human world of plants, animals, and other living beings. A question for educators and those seeking to reclaim some kind of balance, meaning, and belonging in our existential quest on this planet is whether we can slow down, reflect, and re-think. More specifically, can we reclaim the future as it seems to spin out of control?

The future seems like a runaway train. American media-theorist Douglas Rushkoff, in a fascinating interview on Dutch Television, talks about reclaiming the ‘now’ (VPRO Tegenlicht 2014). He argues that we are no longer leading the life we want to have but that our lives are predetermined by the electronic cookies we accept which eventually and subtly influence the choices we are to make out of the overwhelming number of options that billions of people have nowadays. As a result, we do not live in the “now”, but live in the “near future”: as soon as we try to just ‘be’ or try to become connected with a place or with someone or something, we are distracted by our so-called ‘connectivity’ to the world-wide-web of temptations. Our ‘body-glued’ technologies demand us to go somewhere else, to go check something, to get something, to become something. There is little time to be bored, to ponder, to stare, to wonder, to mull things over, to sink deeply into a book, to gaze at the stars, no time to reflect at length on things that really matter and make us human. In order to think about a sustainable future, we need to be able to pause, think, and imagine.

Both environmental and sustainability education are founded on the basic premise that education and learning in one way or another can help create a better future. But not just any type of education. Some of the unhealthy trends in society can be seen in our education and, in fact, reproduce and reinforce them. Looking at the current educational system can help explain why humans have become who we are, and why it might not produce the kind of learning needed to change who we are and what we are becoming. When education amplifies unsustainability by emphasizing individualism, continuous (personal) growth and development, cultivating the idea of being productive citizens and diligent consumers and embracing the idea of competition at the expense of solidarity, then it accelerates systemic global dysfunction.

The notion of ‘envisioning futures for environmental and sustainability education’ raises many possibilities and questions. We can pause and think more about the meaning of ‘envisioning’. Envisioning suggests an active process that leads to some kind of image or vision of what is, what might be or even what was. Envisioning a future can be seen as a reasoned imagining, an educated semi-fictional sketch of what might be. We can engage many people – young and old, rich and poor, living in disaster prone and fragile regions or in more stable ones – in such envisioning and see what kind of commonalities and differences might emerge. Envisioning can become a bridge among binaries, polarization, and separation and open up the spectrum between hope and fear, survival and extinction, climate change resilience and runaway climate change, between coming together and survival of the fittest.

Likely these visions are influenced by who you are, where you are, where you have come from, where you are going. A rich collage of possible futures will emerge that can become the beginning of a conversation about probable, possible, and desirable futures. What does the word ‘desirable’ or, for that matter, ‘sustainable,’ mean to different people who envision such futures? Still other questions might be raised about why some futures are more probable than others or what influences the change toward a more desirable future. If we do agree on an alternative future, then questions about how to get there – sometimes referred to as backcasting (Holmberg and Robert 2000) – also need to be asked. Who needs to do what, when, and how? What forces are working with us, what forces
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work against us? What is it that needs to be sustained, what might need to be disrupted or unsustained? The latter question is often ignored as the idea of transgression and disruption is often seen as political and aversive. Yet, transgression and disruption might be essential for breaking with powerful and highly resilient but outdated systems and routines that are inherently unsustainable (Lotz-Sisitka et al. 2016). The future is as much about the past as it is about the future. Both in envisioning and in backcasting we can benefit from what was before and how the past is represented in the present – and likely how it will continue to be represented in the future. Sometimes we can find things in the past that were lost in our ‘leap’ to modernity that might provide clues for sustainable future. Sometimes ancient practices and principles still exist in places that have been able, willingly or unwillingly, to escape this leap to modernity. Indigenous and intentional communities across the globe with more relational ontologies, communal values and ethics, and traditions that allow for more spiritual and meaningful ways of being in the world could very well offer guidance in envisioning a sustainable future (Chaves 2016).

At the same time, envisioning a sustainable future might also benefit from imagination and (science) fiction, as they can lead us to consider the seemingly impossible, as well as create new energy and innovation. Critical here is that this energy and innovation is paired with some kind of planetary consciousness and underpinned with values and ethics that move Earth closer to the post-Anthropocene which, we propose to call the Ecoscene. The Ecoscene is the geological epoch during which Earth enters a long relatively stable period where life on Earth is in a state of a dynamic equilibrium and homo-sapiens lives by a so-called flat ontology, recognizing that all species are exceptional. Clearly we haven’t arrived there yet, but let us assume that we have still plenty of time to get there or somewhere else that may turn out to be more sustainable.

So, the future then might be considered an emergent property that we never meet but when imagined can give us some direction in where we are going. As a ‘product’ of envisioning, it is marinated in uncertainty and complexity, and, indeed, in ambiguity, even controversy, as there will be disagreement about both knowledge and value claims with respect to what makes for a desirable future. Who is ‘we’ in the ‘Future We Want’ report on ESD (World Commission on Environment and Development 1987)? Who is included and who, or what, is not? Post-human perspectives and new-materialist (Alaimo 2012) perspectives are not represented in such a report (not to mention the human perspectives not represented in the titular ‘we’). Envisioning futures in the context of sustainability needs to be mindful of multiple perspectives.

A focus on the future and imagining what might be is needed in order to break through the tendency to see the continuation of present manifestations of global systemic dysfunction (e.g. climate change, mass extinction, excessive inequality, sexism, bigotry, animal abuse, and the on-going toxification of water, air, soil and bodies) as inevitable. Hope and possibility tend to bring about more change than fear and fatalism which tends to keep things the way they are.

We challenge environmental and sustainability educators everywhere to imagine how nascent scientific, technological, social, and ecological developments might perturb, disrupt, and/or transform the field of environmental education. This includes mobilizing earlier lines of related inquiry within the field, such as the earlier mentioned backcasting (Holmberg 2000), as well as charting points of contact between emerging modes of speculative thought and the field’s own longstanding concern with ecological futurity. Our field can also benefit from thinkers within fields such as design, architecture, and computer science. These disciplines have recently initiated discussions concerning how critical speculation might help practitioners challenge ingrained disciplinary assumptions. For example, speculative design (Dunne and Raby 2013), architecture fiction (Gadanho 2009, Lally 2014), and science fiction prototyping (Johnson 2011) harness science fiction’s capacity to explore possible futures through extrapolating elements of our contemporary moment into imaginary worlds.

The work of creating the future is being done now – and much of it is unsustainable in terms of natural and cultural resources. In fact, the notion of nature and culture as ‘resources,’ can be challenged from a sustainability perspective. Can we imagine sustainable futures, and can we design forms of education and learning that help us realize them? Can we envision futures for the field of environmental and sustainability education capable of helping us achieve the transition to sustainability? Future environmental education needs to lead to meaningful engagement with ecological futures in the Anthropocene; needs to develop resilient, adaptable pedagogies as a
hedge against future ecological uncertainties; and needs to spark discussion concerning how futures thinking can generate theoretical and applied innovations within the field.

III. Education for the future

What might the future might bring for environmental and sustainability education? Historically, we can distinguish different movements and emphases within education, communication, and participation in relation to people and planet (Table 1). Roughly this movement is from nature conservation education (NCE), to environmental education (EE), to education for sustainable development (ESD) to environmental and sustainability education (ESE). Sometimes there was divergence (e.g. when nature- and ecology-oriented education and social justice and democracy-oriented education were separate, sometime convergence (e.g. when environment and sustainability, along with health, peace, democracy are all seen as intricately linked). It must be said that these different ‘educations’ do not literally succeed one another – often they run parallel – and that there will be differences between geographical contexts. Nonetheless, the pendulum swings, but in some parts of the world (e.g. Australia, New Zealand, Canada, Colombia, Brazil, Northern Europe), we can presently see a trend towards convergence where both sense of place and the strengthening of relationships between people and people and the non-human and more-than-human world, as well as the questioning of deep rooted structures and hegemonic values, engaging multiple actors with sometime conflicting views and the crossing of boundaries between sectors and disciplines, are considered critical. The four strands of ‘planetary’ education in Table 1 might also be present in one way or another in the countries featured in this special issue. We have not investigated this but invite readers to do so.

The recent Global Education Monitor Report (GEM 2016) shows quite clearly how education connects with all the Sustainable Development Goals as distinguished in the UN’s Agenda 2030 (United Nations 2015) It also shows that education can be highly problematic when is merely amplifies those capacities in people and those systems and structures in society that accelerate unsustainability. What is new, here, is that a major report from a United Nations organization, UNESCO, is recognizing this and departs from the standard narrative that all education

| Table 1. A historical perspective of education in relation to people and planet |
|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| **Nature Conservation Education (NCE)** | **Environmental Education (EE)** | **Sustainability Education (SE)** | **Environmental and Sustainability Education (ESE)** |
| **Starting period** | Late 19th century, early 20th century | Late 1960-ties, early 1970-ties | Early 1990-ties, end of the DESD (2014) | Present |
| **Main focus** | Connecting with nature, understanding web-of-life, protecting species, raising awareness, knowledge and understanding | Raising environmental awareness about pollution of water, soil and air. (note: there are forms of critical EE that resemble the focus and impact of SE) | Increasing citizen engagement, participation in sustainable development issues and increasing their understanding of the connections between environment, economy, culture and ecology and how today’s actions affect future generations | As under SE but also: connecting with place and the non-human world (deepening of relations) as well as attention for both agency (learning to make change) and the critique and transgression of unsustainable societal structures. Global citizenship and local identity. |
| **Intended impact** | Ecological literacy, societal support-base for nature conservation through national parks | Changing individual environmental behaviors, developing agency and societal support for environmental legislation | A more holistic or integrated approach of dealing with issues around water, food, energy, poverty, biodiversity in governance, education, business. | A transition towards a more relational way of being in the world and a society based on values and structures that make sustainable living the default. |
| **Examples** | Visitor centers in National Parks, Public awareness campaigns, nature programs in schools, school gardening | Environmental education centres in cities, Public awareness campaigns, school curricula, teacher training | Multi-stakeholder platforms focusing on sustainable development issues, Whole institution approaches to sustainability, Corporate Social Responsibility | Brokering learning and engagement within transitions: Intentional communities such as ecovillages, transition towns, whole school approaches, local food movements, shared economies, cradle-to-cradle design. |

Source: Adapted from Wals 2012
is good because it will lead economic development and growth, and lift people out of poverty. The shift from Education for All (EFA) and the Millennium Development Goals to education as a mechanism to contribute to the Sustainable Development Goals (SDGs) – which are to be leading in international and national policy-making until 2030 – may offer possibilities for the kind of environmental and sustainability education many of the authors in this special issue are talking about. Although, in the spirit of reflexivity and critical thinking, the SDGs themselves will also need to be continuously scrutinized and debated as they too are highly political in subtle (e.g. SDG-1 focuses on ‘eradicating poverty’ but not on eradicating extreme wealth) and not so subtle (e.g. SDG-8 focuses on realizing ‘decent work and economic growth’ which sustains the idea that continuous growth is the center piece of sustainability) ways.

We are envisioning a future of environmental and sustainability education that operates very much in the right hand column of Table 1. Of course, there will be unpredictable events that could yield a rather different future, but for now we see a convergence between environmental and sustainability education where more attention will be paid on the affordances for education that connects people and planet and empowers people to make change and to live meaningful, dignified and responsible lives. A focus on the affordances and conditions for such education and learning will shift the attention away from questions of how people should behave or what they should be learning to questions like: ‘Do the encounters educators create and the learning spaces they design or utilize allow for students and the structures of which they are part to become more sustainable in the first place?’ Does the learning environment ‘invite’ people to reflect on values, controversies and dilemmas, to become critical of ‘false news’ and ‘viral myths’ and propaganda in the ‘post-truth’ era, but also: to take action when deemed necessary? These are the kinds of questions that will need to be asked if we as scholars, educators, and citizens want to support learning-based change towards a world that is more sustainable than the one currently in prospect.

We as authors do not wish to prescribe possible futures for all and everywhere but rather invite readers to consider their own contexts and realities and mirror them against some of the possibilities outlined here in hopes that such ‘mirroring’ will open up debate and conversations that can ultimately improve the quality and impact of environmental and sustainability education.

Notes

(1) This contribution is an adaptation of the Introduction to edited Volume on ‘Envisioning futures for environmental and sustainability education’ (Corcoran, Weakland, and Wals 2017). Reprinted with permission from Wageningen Academic Publishers.

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In 2013, Corcoran was awarded a Fulbright Fellowship to work at the Wangari Maathai Institute for Peace and Environmental Studies in Kenya. Corcoran is on the Steering Committee of United Nations Environment Programme’s Global University Partnership for Environment and Sustainability. He is a Senior Advisor to Earth Charter International and a Senior Fellow with the US Partnership for Education for Sustainable Development. He served as a member of the UNESCO Reference Group for the United Nation Decade of Education for Sustainable Development from 2005-2014. Corcoran has (co)edited a number of key books in the field of environmental and sustainability education.

References


