




EDITORIAL

# Exploring the Political Ecology of Environmental Education and Where We Go From Here

Paul Hart<sup>1</sup> and Peta J. White<sup>2</sup> 

<sup>1</sup>Faculty of Education, University of Regina, Regina, SK, Canada and <sup>2</sup>School of Education, Deakin University, Burwood, Victoria, Australia

**Corresponding author:** Peta J. White; Email: [peta.white@deakin.edu.au](mailto:peta.white@deakin.edu.au)

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Environmental politics is complex, multidimensional and integral within an ecology of worldviews and a variety of emerging approaches to educational provision. However, it is not always clear what forms such politics can or should take. The aim of this Special Issue is to introduce and explore efforts to articulate more meaningful environmental educational experiences for young people. Learning about different perspectives that underpin educational learning experiences facilitates communication and potential collaboration in comprehending the critical urgency of current ecological problems as political problems that impact natural environments, social institutions and human consciousness (IPCC, 2023). For example, we may come to more deeply appreciate concerns about crises such as mass extinctions of species, global climate change, ocean acidification, economic instabilities and many related human-environment issues that are subject to different points of view.

This Special Issue is intended as a critical exploration of environmental education spaces within a rapidly expanding political ecology of environmental education theory and practice. Authors were encouraged to consider how dimensions of politics and power may inadvertently or subtly influence what we think we know and how that directs our activities. “Political” implies that we work with what we think is right. “Power” implicates human complexities of responsibility and action. Theoretical focus implies working with ideas and concepts that have become crucial in understanding environmental education as political. The assumption is that we may come to appreciate that conceptual understanding continues to evolve as we learn more about the complex and contested spaces around each concept. In creating spaces for complexities and contestations that characterise political ecologies, our own developing and often unobtrusive and personal perspectives warrant more attention. In learning what forms such politics can take, we can begin to focus on learning about the political dynamics, social boundaries, collective self-limitations and the evolution of thinking within environmental education as well as about political perspectives and political motives for change.

The challenge to authors of this issue of the *Australian Journal of Environmental Education* was indeed complex. As a concept, politics revolves round theoretical differences and so adding this dimension to the story of environmental education practice gradually deepens and evolves, as theories generated within the ecologies of thinking politically. Current iterations of such political ecologies can only be considered as one stage of evolution of what appears to be incumbent in any theory as manifestly political. We are compelled by ecopolitical debates and differences to continually explore new educational possibilities based on promising new research and evidence

of possible (political) outcomes within a range of scenarios of transformation. In response, manuscripts in this Special Issue illustrate a variety of ways to approach environmental issues in terms of political viewpoints concerning potential and real crises that humans must engage as crucial topics across multiple points of view. Authors were encouraged to contribute to a range of positions from which educators and students could consider and (re)construct their thinking and practices.

As Meek and Lloro-Bidart (2017) suggest, environmental education scholars face the challenge that every aspect of their research is political. And, as political, readers in political ecology will experience how power relations work to mediate education. Political ecology, in turn, explores relationships between environmental change, as political, and economic and social processes that must be addressed within the framing of a political ecology “of education.” The idea, in this Special Issue, was to open up new perspectives on ontological implications of Anthropocene debates that appear to function within and through technologies of power (Schultz, 2017). Common to these perspectives is the realisation that a fundamental shift in the Earth’s systems (i.e., the Anthropocene concept) requires a fundamental shift in our understanding of the human condition as it intersects with society, technology and nature. In essence, this is a political commitment where power relations can be explored within a range of underlying varieties of hope and activism.

Given these “political” circumstances, it is crucial to ask how environmental education at various levels can more visibly engage within dimensions such as the ethics of global politics as well as the locus of political agency and shared responsibility for Anthropocene conditions as they evolve, intensify, accelerate and become global. The challenge for secondary level educators is to learn how to work with complexities of new concepts and processes such as neoliberal capitalism, the objectification of others, things, nature and international human relations. For example, how can environmental education at various levels find ways to engage and debate concepts such as Donna Haraway’s *Staying with the Trouble*, J. Moore’s (2016) Anthropocene or Capitalocene, Stengers’ (2010) cosmopolitics and Tulloch and Neilson’s (2014) neoliberalisation of sustainability?

The Education for Sustainable Development (ESD) literature portrays an integral part of this political process historically, as promoted through the Rio Process (Berryman & Sauv e, 2013) which redefined sustainability in ways consistent with the neoliberal agenda and the globalisation of market capitalism. For example, ESD has arguably become an integral part of the current shift toward ecopolitics, yet still lacking a critical dimension, and, as such, remaining consistent with the neoliberal agenda, rather than thinking beyond the neoliberal discourse, as an evolving multidimensional politics of environmental education (futures).

Environmental discourse has evolved beyond its earlier focus on 1960s naturalism. It was a period of economic and social stability, steady growth across developed capitalist economies, new industrialism and uncritical consumerism without much attention to ecosystem deconstruction. By the 1970s Green movements had emerged in response to Fordist capitalism whilst select scientists (e.g., Carson, Hardin, Ehrlich) and grassroots movements generated public concern about industrial and economic development, for example, pesticides and population growth (e.g., *The Population Bomb*) (Ehrlich, 1968). The Club of Rome sponsored the study of *Limits to Growth* (Meadows et al., 1972) and along with Hardin’s lifeboat ethics and book, *The Tragedy of the Commons*, focused on the dominant ideology of “growth.” Most interesting, arguably, was the deep ecologist radical attack on capitalism (e.g., Bookchin’s social ecology and early rejection of capitalism) which is a story for another time.

Tulloch and Neilson (2014) portrayed a diversity of positions concerning sustainability discourse during the 1960s–1970s, based on an underlying consensus that industrial (economic) growth directly conflicted with ecological sustainability. And although there were multiple positions within environmental thought, various perspectives on anti-growth discourse were emerging. However, these discourses of the 1960s–1970s dissipated in subsequent decades within

the rising tide of economic growth and neoliberalism. Global expansion, economic (industrial) growth and corporatisation have superseded sustainability discourses on several fronts of depoliticisation including the Rio Process, and subsequent conferences culminating in the World Summit (Rio + 10) and the UN Summit on Sustainable Development (Rio + 20) in 2012.

Those of us, as environmental educators, who participated in various ways in early conferences became critical observers of the potential of this process for educational sanction of sustainable development. This became the main thrust of many international interactions. Academics were arguably betrayed by the strategic questioning of “economic” development as the critical issue. In the end, ecological sustainability was only implicitly and indirectly acknowledged. The process underlying the increasingly modified conceptualisation of sustainable development was constructed to depoliticise sustainability such that the Rio Declaration in 1992 and Agenda 21 created a chain of signification toward the economic market and the reconciliation of ecological issues with economic growth. The action plan privileged industrial growth which was strategically positioned as being in sync with the “deep green” movement: the environment is something that can be managed. This Capitalocentric vision of sustainable development inflicted the social and environmental agenda with the ongoing neoliberal Agenda 21 where market expansion was crucial for a dynamic yet stable global economy. Jessop (2012) calls this focus on a green economy a solution to environmental destruction and social poverty — a Green New Deal that has subsequently encountered its own critique.

Tulloch and Neilson (2014), amongst many others, have identified capitalist growth with declining quality of the material lifeworld. And it was the concept, “sustainable development,” that translated this critique inadvertently against the dominant capitalist political framework — Wallerstein’s “modern world system” (Agnew, 2021) — positioned as central to the protection of nature and societal well-being. Political ecologists and a wide range of thinkers, more recently world system thinkers, now implicate neoliberal capitalism within the process of planetary destruction and turn sustainability discourse toward modes of economic regulation and maintenance of the natural ecology that must subsume economic and ecological dimensions. The background (historical) literature now advocates for constructions of “planetary limits” as viable ecologically sustainable projections of living within sustainable planetary boundaries. As such, political manipulation foreshadows much more debate concerning alternative development models, alternative technologies and innovative regulation, currently expressed as “reconfigurations” of political ecology discourse.

For environmental educators, it has seemed reasonable to create opportunities to engage the work of those writing within the complexities of what Lövbrand, Mobjörk and Söder (2020) describe as the geopolitical imagination (in rewriting the Earth as political space). To facilitate such work, we encouraged authors of this issue to explore a variety of thoughtful perspectives that assist in conceptualising the scope and depth of underlying philosophical positions under scrutiny at this time. We anticipated that engaging politically would provide diverse perspectives, as well as a sense of the inevitable political and educational debates, as active spaces for thinking about futures for environment and for environmental education.

Within new, politically complex background engagements, this Special Issue remains focused on creating openings for difficult conversations concerning the futures of environmental education research as critical, theory-into-practice-based, interdisciplinary and ultimately political. We are at a critical juncture in human history where humans are coming to understand their responsibility for extremes in climate, and have since at least the 1950s (IPCC, 2022). Initially the goal was not so much in charting coherent directions but in creating conditions for serious thinking expressed in ways of studying, researching and educating responsible engagement in the field of environmental education historically embedded within environmental political theory/praxis. At present, the goal is in charting directions and becoming political within the planetary commons.

Within the history and debates of the field of environmental education, the manuscripts in this Special Issue illustrate a variety of ways to approach environmental issues in terms of political viewpoints concerning potential and real crises that humans must engage as crucial topics. Authors quite naturally provide a range of positions from which educators and students can (re)consider and perhaps (re)construct their thinking and practices. They illustrate the complexity and diversity of conversations and projections from different political viewpoints with potential for critical engagement within environment and environmental education. We invited prospective authors to focus on research futures, rethinking issues on different scales as directed at insufficiencies of social and political infrastructure. We encouraged authors to present their perspectives at increasing depth, complexity and diversity across a new generation of research theory and practice within environmental education.

In the book *Critical Environmental Politics*, Carl Death (2014) opens with a view of contemporary global politics characterised by contradiction and paradox. We are living through the Anthropocene, an unprecedented era of environmental change, where the impact of human activity is now so great that it directly affects change at the level of planetary systems, as Foucault (1979) observed, placing our existence in question. The paradox, according to Blühdorn and Welsh (2007) is that we all know this. Environmental movements are becoming dedicated to exposing the politics of those whose main interest remains in economics and growth, in essence, within a politics of continuous growth and unsustainability.

In this introduction, we have created conditions for exploration of a variety of perspectives, variously labelled as dimensions of environmental politics or the politics of socio-ecological transformation. These perspectives serve to signal a biopolitical turn within educational theory. They provide space for post-critical scholars to explore how certain concepts, such as planetary limits and climates of capital, provide frames for exploration of educational/social/human relations. In essence these spaces are political spaces where power and politics always/already operate. They operate under certain, often contested, assumptions, to create new and deeper explorations of spaces and frames within education and the social sciences where power and politics are always/already operating, whether we can recognise them or not. Spaces of taken-for-granted ideas/ideologies such as “materialist” or “capitalist” provide the almost invisible grounds for “normal” functioning of societies. Exposing political perspectives, liberal and conservative, as they translate within educational settings implicate questions of ethics and empiricism in relation to underlying materialist and (post)humanist assumptions about education. This is the biopolitical turn that now matters for educational theory and practice and ultimately for social and political transformation.

Given the relatively recent proliferation of politically oriented environmental journals (including *Environmental Politics*, *Journal of Environmental Values*, *Journal of Political Ecology*, *New Formations*, *Millennium*), it should not be surprising that the politics of environmental education (for example, *Journal of Environmental Education*, Special Issue, 2016) created openings for critical political scholarship within environmental education. The focus is on two fundamental issues: to deepen critiques of the origins of research practices in the name of “sustainability” and, to question “neoliberalism.” It is interesting to look at recent decades and to question, with critical environmental educators, the lack of transgressional agency (Lotz-Sisitka et al., 2015) as well as concern for the political status of new ethics and post-critical approaches as starting points for post-qualitative inquiry.

Lövbrand et al. (2020) described how Anthropocene debates have unfolded as an accelerating human imprint on the global environment (which has undergone dramatic shifts) and how they may reconfigure Earth as political space. Profound material implications of a transformed global environment are central to such thinking. Now seems the time to reconsider and to actively debate what kind of political (i.e., policy) spaces are required to neutralise the exercise of power and control that tends to ignore or dismiss representational politics of contemporary Anthropocene debates concerning global futures (i.e., global politics). Dalby (2009) approaches the

Anthropocene as a discursive event, actively involved in rewriting spaces for global politics. And as in any political endeavour, disagreement prevails.

Amidst new geographies of melting glaciers, rising sea levels and burning forests, politics becomes international. As climate change endangers territories and populations of particular states, the primary referent for environmental education and research is the global biosphere — the entire life support system of the planet. Thus, the role for global politics lies in working to secure the entire life support system of the planet which directly implicates educational research and provision. The planetary nature of the challenge is unique and demands global-scale responses that transcend national boundaries and cultural divides to prevent collapse of large parts of the human population. Given this reality of geographical imbalances, it is the aggregated “human effect” that is of primary concern. International cooperation and policy are needed to avoid the complexities of collective collapse and military solutions.

As a “human effect” the Anthropocene cannot be reversed, but can, as a voiced discourse or philosophical framing, facilitate rethinking (the conceptual) frameworks, with political focus on global politics. For example, thinking with Haraway’s concepts of Capitalocene and Chthulucene as transformative beyond Anthropocene and Stengers’ (2010) “becoming with” as ideas we can use to think “other ideas.” With geopolitical imagination, we find new ways to impose order and meaning within global politics. A new world of global flows can provide new framings for understanding the character of global life as conveyed by new concepts of global environmental studies and mechanisms of governance. They facilitate thinking about how to engage ways of understanding what is behind melting glaciers, rising sea levels and extreme weather as climate-induced instabilities and conflict.

Biermann & Lövbrand (2019) rely on many critical political scholars such as Chandler, Cudworth and Hobden (2018) in the search for language that describes how the world works and what challenges global politics in the aftermath of economic globalisation and binaries of political space. These academics summarise and speculate on many realistic challenges that accompany environmental politics. Implications for environmental education should challenge educators to find ways to integrate basics and detail at age-appropriate levels as new curriculum materials follow, particularly at upper levels and in university courses where geopolitical ideas are increasingly part of daily news stories. University courses are in various states of engaging geopolitical issues based in disciplinary studies of climate change as a new educational reality. The following points will either sound familiar or perhaps capture interest in mobilising the new realities in the struggle to (re)define global spaces in view of environmental realities that are already always political.

The new language of global politics engages speculative realist framings of information, finance and people in a world of global relations within an academic and political search for order in responding to a growing sense of ecological interdependence and urgency. Necessary speculation eventually gives substance to the relatively new field of global environmental governance studies that work across traditional political boundaries in ways that defy conventional thinking concerning international relations. Global (life) thinking becomes characterised by new types of agency, new mechanisms and levels of governance. Such geopolitical thinking and foreign policy praxis seem crucial in addressing new geographies of international responsibility such as melting glaciers, rising sea levels and extreme weather. Such a re-territorialisation of global affairs act to mobilise “extended” Anthropocene concepts and environmental politics to redefine global spaces across emerging environmental realities.

Critical geopolitics interrogate extant international politics as geopolitical. Such is the form of scholarship that invites us to begin this process by opening environmental education and environmental education research to considerations of identity and cooperative necessities. These manifest across certain assumed kinds of politics and environmental education and incite new conceptual and moral/aesthetic understandings of “self” and “other,” indifference, and responsibility. How else can we begin to secure the future habitability of the planet, now

becoming an endangered world that challenges the “givens” of science, economics and the aggregate human effects on the Earth? We must begin somewhere and sometime . . . perhaps here? And now?

Blühdorn and Deflorian (2021) extend politicisation beyond post-politics and the reconfiguration of political discourse in academic debates concerning transformative politics and what this might mean for a reconfiguration of public discourse and social activism. Such re-politicisation calls for new “conceptual” tools and “theoretical approaches.” It also calls for exposing the contingent character of the established social order. And yet how much prefigurative power and transformative capacity have these movements and forms of activism really had when keeping their overall lifeworlds largely intact?

Lövbrand, Möbjek and Söder (2020) move beyond these longstanding politics of unsustainability that have been repeatedly absorbed within the capitalist juggernaut to expose an endangered world as evolving beyond the Holocene and Anthropocene eras of materialism, population growth and traditional economic growth and its imprint on the planet. And it is the planetary nature of the challenge that now demands global-scale response that transcends national boundaries and cultural divides as Anthropocene mentality that cannot reverse or resolve the problem. Instead, the search is for “new reality” thinking and praxis, beyond the uncomfortable places already created (like sustainable development) with the best of intentions in mind. Global political thinking concerning the hard issues such as capitalism, continuous growth, the entire ecological context, including the populations issue and problems of production or reconstructing the geo (Dalby, 2014, p. 7) degraded lands and waters, in fact rewrites the entire Earth story as political space.

Over a decade ago Foster, Clark and York (2010) in *The Ecological Rift: Capitalism’s War on the Earth* quoted James Hansen, a world authority on global warming, who stated that “Planet Earth . . . is in immanent peril due to exploitation of fossil fuels.” Subsequently, of nine planetary boundaries, three — climate change, biodiversity and the nitrogen cycle — have already been crossed, while others such as ocean acidification and fresh water use are emerging planetary rifts. This, and an economy near overshooting planetary boundaries and tearing apart biogeochemical cycles of the planet, amongst other troubling trends, have inspired degrowth conferences in Paris (2008) and Barcelona (2010). Almost half a century has passed since the Club of Rome raised the issue of limits to growth, associated with Latouche’s “degrowth” economics. Foster (2011) described a major European movement for ecological sustainability following the Degrowth Declaration in Barcelona, as well as the Green New Deal, as part of a longer story where such changes would allow the economic system to shrink while keeping the underlying structure of capital accumulation intact. Raising larger questions of system change was beyond what degrowth theorists seemed willing to acknowledge. The entire story offered in Foster et al. (2010) was that economic growth, as the main driver of planet ecological degradation, requires critique of capital accumulation as part of a transition to a more sustainable order which engages serious critique of ecologically destructive growth. Socialism is useful as a beginning, wrote Schumacher in *Small is Beautiful*, precisely because of the possibilities it creates for overcoming the religion of economics. However, the ecological struggle must aim not only for degrowth but for transition away from a system geared for the accumulation of capital without end.

With this Special Issue we focus on conversations about environmental politics that environmental education research has engaged somewhat informally for decades. The agenda for this Special Issue was to create spaces for authors to reflect critically on the role that research in environmental education and in particular that the *Australian Journal of Environmental Education* could play in reshaping the nature of a segment of environmental education discourse. For example, there are questions of equalities of power and influence within various dimensions of inquiry that require/demand challenge and intra-active engagement.

We anticipate that this Special Issue will signify another milestone in the history of this journal in creating openings for critical engagement in environmental education futures beyond the

Anthropocene. So we invited aspiring researchers interested in engaging theory and application of the “missing” politics in environmental education research to create openings for the important and complex work of engaging in 30 years of environmental politics without specific educational focus. We anticipated that contributors create openings for continuing and difficult conversations that we argue are crucial for the future of research in environmental education.

This *Australian Journal of Environmental Education* Special Issue is a contribution to the construction of a vital response of environmental education to political ecologies of global environmental health and well-being. Authors from a wide variety of positions and locations provide their perspectives on environmental education theory-into-practice in relation to economic, social and environmental issues. These political ecologies have the potential to influence environmental and education futures as part of the inevitable politics that surrounds both global and local environmental and educational futures.

David Orr revisits the “missing politics” in environmental education with reference to colleagues who have done many good things but tend to overlook the fact that our actions are inevitably political. In fact, we have failed to expose the “greed, lies, megalomania, and criminality that infect our politics.” We were doing the science while they were doing the politics; they were taking power. Orr’s message: When we ignore the forces of politics that are destroying the habitability of the earth, we do not have an environmental crisis as much as a political crisis. And we must reckon with fundamental challenges of governance, the viability of democracy, physical limits to growth, the reliance on technology and, essentially, ignorance and the deflection of mind. The upshot . . . we will be unlikely to stabilise climate without dedicated people of irrepressible courage to do what needs to be done.

Paul Hart explores educational fallout from revelations from planetary boundaries (i.e., real limits) literature and the need to expand thinking (and education) to engage world systems. The educational challenge: to engage politically with sound background concerning education and the political ecology of socio-economic transformation beyond the existing glass ceiling of current democracy. Responsible and critical discussion of the politics of state governance is a crucial underpinning required in order to develop new modes of thinking about environmental politics and educational praxis for healthy planetary futures.

Annette Gough recalls the history of environmental education in Australia as political in the sense that, whilst a priority amongst scientists, environmentalists and academics, it was not so among education departments. Despite its active engagement by many educators, the politicisation across curriculum enabled avoidance of the “politics of environmental education” in supporting the status quo of current neoliberal political systems. The manuscript argues that it is time to reconsider the nature of politics and of power bases toward the future.

Michelle Catanzaro, Rob Watts, Judith Bessant, Philippa Collin and Stewart Jackson were prompted to write this piece as a result of a Ministerial Veto of the Australian Research Council’s decision to fund a project to explore a student-led climate movement in Australia. Some criticism concerning Ministerial politics did not appear to deter the focus “politics” and how to approach exploring “the political” as anthropocentric. The authors argue that such work on “the political” is useful in extending the idea of democracy itself beyond humans within the politics of climate justice as well as the contextual political.

Gary Levy explores fallout from a failure of the Australian national referendum on Indigenous Voice to Parliament. He describes reactions as well as anticipated reckoning to be done. Levy speculates on political questioning concerning silences and emergent voices, as well as deep listening and what constitutes human voice (vocal ecology). He also speculates on engaging fresh and different thinking about this concept of voice to address the significant disadvantage of First Nations Australians in search of an “ethics of affirmation.”

Sandra Wooltorton and Peta White explore the ecology of an Indigenous-Informed Multippecies Collaboratory in the wake of the defeat of the Indigenous-voice referendum. The Abstract, in particular, is a helpful advance organiser. The authors foreshadow “think with”

practices whilst exploring socio-ecological relations and post-qualitative practice thinking methods. Their journey includes multispecies collaborative Indigenous philosophy and kincentric ecologies across their explorations of socio-ecological relations, using journalling, creative writing and photography and arguing that an Indigenous-informed onto-epistemology can and should inform the heart and practice of environmental education. This fascinating manuscript uses the failed referendum to address crucial questions concerning the post referendum recovery as a series of possibilities that address issues such as racism and how to work within, around and through in decolonising their work. They seek to actively engage a worldview advanced on a new foundation that implicates living, breathing, animate place, a relational methodology and multispecies collaborative. They use several vignettes, engage with full recall of dominance and power relations, and end in critical reflection.

Robin Bellingham and Aleryk Fricker engage critical relational geopolitics in environmental education (Australian curriculum) in terms of their historical capacity to shift settler colonial futurity to engage First Nations custodial relations with Country, with particular focus on mining and the Australian gold rush. The authors present a case for geopolitical understandings in contemporary education and how Australian education can address injustices for people and planet. There is rich descriptive detail, particularly related to the gold rush and its effect on greater parliamentary democracy in Australia.

John Bosco Acharibasam, Kathryn Riley, Ranjan Datta, Denise Mckenzie, Veronica Favel discuss political implications of integrating Indigenous relational worldviews on water governance using a relational theoretical frame and community-based participatory research methods. The focus is on Indigenous traditional story-sharing methods, interpretations and ways of knowing. Power dynamics remain a concern of the Indigenous community, amongst other political agendas. The authors noted community concerns about power dynamics in water governance. They focus on power and politics in challenging governance based on settler colonial systems by advancing self-determination and Indigenous sovereignty in goal setting for safe drinking water.

Craig Stanbury considers population, climate change and the philosopher's message. Although there is no doubt that global population size is a significant variable in the climate change conundrum, it is, in fact extremely complex. The message in this manuscript is that, beyond the "limits," philosophers and other should be more concerned about cultivating character in society so that citizens think ethically about issues such as procreation.

A utopian performative is the performance of future potential that critiques our present political moment. In her manuscript Cassandra Tytler does indeed grapple with the messiness of our current realities, offering a troubling of interpretations of nature and place. She argues that virtual reality can be used to create space for the digital realm as reclamation and resistance to colonialist reality by transcending traditional boundaries, by queering apocalyptic methodologies, and by reimagining roles for educators and researchers beyond current political realities.

Bronwyn Davies manuscript explores questions of "what matters" and "what is made to matter" within entanglements of humans and non-humans—our complex symbiotic relationalities such as neoliberalism where politicians seem powerless. Davies explores the possibility that humans might actually learn to respond ethically within tangles of relationality. This begs questions of ethics and the (im)possibility of an ethical base for existence. This manuscript is indeed an invitation to intra-act beyond neoliberalism, before global warming, within limits to growth, to find our role, to accept responsibility, recognise weaselly politics against the limits on a finite planet, where there are finite cures. In essence, who are we listening to today, and what are we going to do about it?

Noel Gough clearly states that this manuscript is an exploration of how environmental educators might break from existing traditions through critical exploration of climate histories and anticipated futures as depicted within science fiction engaged with the politics of climate. Speculative strategies such as this can create imaginaries as, for example, political imaginaries that expose power relations within cultural/social futures. Embedding such a process within the



literature of academic curricula can create retroactive continuities and perhaps physical agency in times of realist climate change. Gough is concerned that Anglophone educational systems are ill-equipped to address thinking through scientific and political imaginaries. This creates a base for speculative futures and fabulations that range across forms of environmental and environmental education literature, often overlooked as underpinnings for political balance in reasonings that challenge taken-for-granted, interpretation-based inquiry.

The focus on a politics of transgression addresses a need for radical forms of learner-centred transformation (for sustainability) as yet under-theorised and underdeveloped in environmental education research. Heila Lotz-Sisitka's manuscript reviews a lengthy history of an emerging politics of transgression within environmental education research. This manuscript addresses the ongoing problem of how to do transgressive-based inquiry as environmental education research within an increasingly regressive political landscape (as capitalist). The goal here is to highlight a "low theory" of transgressive politics in environmental education research practices that can be applied to the author's ongoing inquiry focus in transgressive research.

Helen Kopnina and Timothy Bedford survey critical scholarship that links education for sustainable development goals (ESDG) with the literature on ecopedagogy and degrowth as applied to courses in areas such as business education. It seems important to note that the authors are critically aware of the illusion presented by combining economics/ESDG with social justice and environments, foregrounding economic growth. Kopnina and Bedford discuss how ESDG address this combining from the point of view of the need to reorient ESDG towards genuine sustainability of ecopedagogy. They argue that more explicit pedagogical re-orientation is required toward recognition of planetary boundaries with a less anthropocentric focus. The idea is to engage a clear understanding of priorities entailed in sustaining future generations by initiating transformative change.

Lesley LeGrange provides a novel approach to the environmental politics engrained within capitalist societies. He describes a story of engaging with environmental education politically. In following LeGrange's descriptions of his personal experiences of transition, we see how environmental education itself has evolved as inherently, but now more purposefully and openly, political. The manuscript describes the transitions as increasingly politically aware within very different contexts (globally) and more overt politically as the underlying philosophical bedrock has evolved internationally. Recent publications on planetary boundaries have created openings, on a global scale, for critical discussion as the work of environmental educators has become increasing grounded in new philosophy and knowledge on earth-regulating systems in the Anthropocene.

Chris Eames, Martha Monroe, Peta White and Nicole Ardion describe relations among the Organisation for Economic Cooperation and Development's programme (Programme for International Student Assessment [PISA]) of student testing in areas of science, as this programme evolves to include environmental issues in the Science Framework (assessment). This manuscript establishes the background and describes the evolution of this international process as a political endeavour influenced by global and appropriate local bodies, with the history of this as an ongoing political process across many international organisations. The authors outline the historical dimensions as grounding for the developing focus on the environmental dimension and intentions related to new foci, such as agency, in raising the profile of socio-ecological challenges with areas of student learning in mind. The intent is also to leverage curriculum as a political process and acknowledge PISA as a political tool for change.

Ronghui (Kevin) Zhou explores implementation of environmental education using waste classification and management policy as an example. A policy enactment framework exposed contextual factors such as enrolment and infrastructure and district influences, although outcomes differed significantly. Variations and complexities of implementation and power recentralisation could be assessed in relation to both localised and nationally politicised policy mandates. This "story" was one of tension between educational objectives and political

imperatives, material and interpretive dimensions, enactments, constraints and outcomes. Once again, it was the classroom teachers' pivotal role in connecting policy and practice that appeared to make the difference in contributing to the long-term development of an ecologically civilised society.

In recentring the political within education for sustainable development Fabian Pettig and Daniela Lippe discuss the prefigurative potential of participatory photovoice in relation to social-ecological transformation. They argue that this work can help to re-politicise ESD by creating power-critical spaces of possible futures where certain patterns of thought and action become the subjects of interrogation and (political) negotiation with transformation in mind.

This Special Issue includes two book reviews. First, Paul Berger reviews David Orr's edited volume, *Democracy in a Hotter Time: Climate Change and Democratic Transformation*. Berger believes that this book will be of greatest interest to an American audience while still being relevant for other readers. He suggests that educators who are familiar with climate change literature will find interesting arguments about democracy in a warming world in a number of the chapters of Orr's book.

Amanda Peters reviews *The Arts of Living in a More-than-human World* by Bronwyn Davies and Jane Speedy. Peters' thoughtful style provides an invitation to engage the book. She describes it as "a meaningful paradigm to encounter and mobilise action in the Anthropocene."

This Special Issue was conceptualised as a result of recent international assessment reports of global change that complicate and implicate educational futures. Their international and global relevance have become increasingly political in ways that implicate both environmental and educational futures. Young people, as the future voting public, could benefit from the debates that create opportunities to re-politicise the climate crisis and deepen political debates about needed social and educational changes. The challenge is to attempt to move beyond simplistic ideological cleavages that have characterised political and domestic debates to improve understandings of contested and misinterpreted concepts and positions that may benefit from deepened forms of more informed contestation.

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