on_education
Journal for Research and Debate

the anthropocene: becoming-imperceptible of (environmental) education

Lesley le Grange

Almost two decades ago Crutzen and Stoermer coined “The Anthropocene”, positing a new geological epoch, which started in the late eighteenth century after the invention of the steam engine. This invention marked humans’ transition to the use of fossil fuels – the combustion of the latter gave rise to different forms of pollution and to what is known today as global climate change.

Almost two decades ago Crutzen and Stoermer (2000) coined “The Anthropocene”, positing a new geological epoch, which started in the late eighteenth century after the invention of the steam engine.[1] This invention marked humans’ transition to the use of fossil fuels – the combustion of the latter gave rise to different forms of pollution and to what is known today as global climate change. The effects of anthropogenic processes, however, date back to periods long before Crutzen and Stoermer’s coinage of the term ‘Anthropocene’. Haraway (2015) points out that human-induced planetary change has occurred in inter/intra-action with other processes and species for as long as the spread of *Homo Sapiens* across Eurasia (from about 60 thousand years onwards), and especially since the invention of agriculture some twelve thousand years ago. Morton (2014a) avers that a certain logistics arose with the invention of agriculture (agrilogistics[2]), which went viral until it eventually required the steam engine and industry. Here we can see that *agrilogistics* and the Anthropocene are coextensive. Haraway (2015) terms the coextensiveness between past, present, and to come (Plantationocene, Anthropocene and Capitalocene) as Chthulucene. Although the past, present, and to come are different, they are imbricated in one another. Haraway’s (2015, p. 160) Chthulucene, “entangles myriad temporalities and spacialities and myriad intra-active entities-in-assemblages entangles myriad temporalities and spacialities and myriad intra-active entities-in-assemblages – including the more-than-human, other-than-human, inhuman and human-as-humus.”[3]

Whether the Anthropocene is a new geological epoch, is the subject of ongoing debate.[4] What is widely recognized, however, is that the Anthropocene is a moment in time, where planetary effects of anthropogenic processes have reached unprecedented levels (Zalasiewicz et al., 2011; Morton, 2014a; 2014b; Braje & Erlandson, 2013; Smith & Zeder, 2013; Haraway, 2015; Zalasiewicz et al., 2015; Waters et al., 2016; Chernilo, 2017; Wallin 2017). Moreover, the Anthropocene is also a time of growing awareness by humans of the harmful effects that its activities are having on the planet. In terraforming the planet humans have not acted alone – human activities are always done in inter/intra-action with other abiotic processes and biotic species (Haraway 2015). But it is through our agency (the affects unique to our conatus[5]) that humans as a species have wreaked havoc on the planet (Le Grange 2018a). Nevertheless, growing ecological awareness in the era of the Anthropocene could also productively influence all spheres of life – ecology, economics, education,

politics and the social sphere – in the interest of sustaining the planet. In other words, growing ecological awareness is producing a reflexive moment in the Anthropocene; a moment of critical consciousness about human agency vis-à-vis the planet, which brings perennial and new questions to the fore: the perennial existential question of how we should live; the perennial curriculum question, "what knowledge is of most worth" (Spencer, 1884). And new ones: is knowledge enough; what can I do? Furthermore, the Anthropocene is also a moment that invites us to ask how long should this 'epoch' be; and what comes after the Anthropocene? In other words, the Anthropocene presents opportunities for humans (in inter/intra-action with others) to speculatively construct vectors of possible futures. Speculating about such vectors means leaving modernity[6], the death of the human, the death of 'nature', the death of (environmental) education for the simple (and complex) reason that we cannot use the tools from modernity's toolkit to fix the problems created by that toolkit.

Three speculative vectors of the future

As mentioned, the Anthropocene invites speculative vectors of the future. I shall outline three. The first speculative vector is utopian/idealist and based on the premise that 'nature' is malleable. It is the idea that 'nature' can continuously be bent to support human development through advances in science and technology. This view aligns with transhumanism. About transhumanism More (1990) writes:

"Transhumanism is a class of philosophies of life that seek the continuation and acceleration of the evolution of intelligent life beyond its currently human form and limitations by means of science and technology, guided by life-promoting principles and values."

Transhumanists hold that humans are still in an early stage of development and that humans' development will progress in conjunction with advances of science and technology.[7] However, this vector is problematic because it is based on flawed assumptions: 1) that 'nature' is limitlessly plastic and 2) that 'nature' is a blank sheet against which humans act. 'Nature' is of course not endlessly plastic and has agency – 'nature' hits back and hits back harder the more it is 'bent'; the effect of climate change which is already felt across the globe, bears testimony to this. Moreover, there is no correspondence between 'nature' and human thought – 'nature' is a fiction of human thought. It is the realization of this fantasy that declares that 'nature' is dead. Morton (2014a) points out that 'nature's' plasticity/malleability is a transhuman fantasy and most certainly a *correlation* fantasy – 'nature' cannot be 'bent' to correlate with human thought. *Correlationism* is the view that things (in this case 'nature') are "only meaningful when we talk about human relationships with them" (Morton, 2014a, p. 39). I shall return to the concept of correlationism later.

The acceleration of human development along with science and technology as proposed by transhumanists will result in mass extinction of plants and animals – parts of 'nature' will literally die. This coupled with the potential negative effects of advanced technologies (robotics, drones, artificial intelligence, biological warfare, commodification of the human body, ecophages[8]) could result in the annihilation of the human and other species, a dark trajectory, signaling the literal death of 'nature'. This brings me to the next speculative vector.

The second speculative vector is a dark one, in the sense that the upshot of the Anthropocene is a planet-without-us (humans). This line of destruction is quickened by humans' failure to apprehend their modes of thinking that have contributed to the contemporary ecological crisis. In other words, a planet-without-us is the consequence of humans' inability (unwillingness) to liberate itself from

the fetters of *correlationism* and the fiction that 'nature' is malleable. For Wallin (2017) such a dark trajectory concerns thinking what it might mean to live (and die) in the (post-) Anthropocene. However, Braidotti (2006) advances an interesting sensibility in her ethics of becoming-imperceptible. She outlines the self-styling of one's death by embracing *zoe* ("the life-force of recurrent waves of positive differences"; Braidotti 2006, p. 154). By death, Braidotti refers to the dissolution of the self, the individual ego. For Braidotti (2006) death is a joyous event and the embracing of life. She writes:

"It is indeed the case that the Life in me will go on, but it is *zoe*, not the rational conscious, sovereign individual. It will go on in the superior generative powers of a Life that is relentlessly not human in its power to endure, in its obscene capacity to fulfil the vitality that animates it. Life will go on, as *zoe* always does. So much so as to render obsolete the classical dilemma: 'choose life (bios), not death!' (thanatos) – and replace it with: give me life (*zoe*) and hence – give me death" (p. 159).

So, the second speculative vector might not be dark after all.

The third speculative vector is a short/thin Anthropocene made possible by adopting Haraway's (2015, p. 161) adage, "Make Kin Not Babies!" By making "kin" Haraway (2015) means something other or more than entities tied by ancestry or genealogy – there should be an urgency to seek multispecies ecojustice, which includes embracing diverse human people. Making kin concerns composing and recomposing the human to connect in the deepest sense with all earthlings in preference to procreating (ties to genealogy). She writes: "we need to make-with – become-with, compose-with – the earth-bound. The upshot of making-kin is the reconstituting of refuges for all earthlings. As Haraway (2015, p. 160) notes: "Right now, the earth is full of refugees, human and not, without refuge."

Just as the Anthropocene invigorates speculative vectors of the future, it is also characterised by an explosion of ideas, thoughts, philosophical speculation, 'theories', new fields, new concepts (neologisms), movements and so forth. I now turn to brief discussion of some of these new "ethico-onto-epistemologies9" (Barad, 2007, p. 409).

A (re)turn to realisms and non-representation

In the Anthropocene, old (anthropocentric) modes of thought continue to circulate and perhaps remain pervasive. Be it positivist modes of thought premised on the view that there is a correspondence between human knowledge and the world, phenomenology's assumption that reality can only be known through understanding human consciousness, critical modes of thought that hold that we come to know reality through transforming human consciousness, poststructuralism which holds that reality only exists in human language, and so forth.

However, in the historical moment, the Anthropocene we are witnessing a (re)turn to realisms: a return to critical realism; a turn to speculative realism and matter-realism (new materialism) because existing philosophies (phenomenology, critical theory and poststructuralism) are no longer adequate for responding to current challenges. As Bryant, Srnicek and Harman (2011, p. 3) write:

"In the face of the ecological crisis, the forward march of neuroscience, the increasingly splintered interpretations of basic physics, and the ongoing breach of the divide between human and machine, there is a growing sense that previous philosophies are incapable of confronting these events."

A (re)turn to speculative realism, new materialisms (matter-realism) and critical realism is a response to the perceived limits of linguistic (post)structuralisms and other anthropocentric philosophies. All the realisms mentioned are opposed to what is referred to as naïve realism/materialism – the idea that an external observer is the locus from which the entire world can be grasped. Speculative and new materialisms are recent responses to the now "tiresome 'Linguistic Turn'" (Bryant et al. 2011, p. 1). Speculative realism denotes a range of thought, but put simply it is a philosophy that signifies a return to speculating the nature of reality independently of human thought and holds that continental philosophy (phenomenology, structuralism, post-structuralism, deconstruction and postmodernism) has descended into an anti-realist stance in the form of what Meillassoux (2008, p. 5) terms "correlationism". Put simply, correlationalism means that reality appears only as the correlate of human thought – correlationalism is the reason why conventional continental philosophy might be considered to be anthropocentric. New materialism represents an interdisciplinary field of inquiry produced by a community of feminist scholars. It is marked by a return to realism because post-war discourses of structuralism and poststructuralism have become more or less exhausted. New materialism questions the privileging of subjectivity and representation and according to Braidotti (2012, p. 171) replaces textual and other deconstruction with an ontology of modulated presence. In other words, subjects can differ in terms of the affects they produce and how they are affected but their becoming is curtailed by the materiality of the world – there are sustainability thresholds. New materialists find inspiration in thinking with Deleuze, and in particular the late Deleuze who collaborated with Guattari in placing the human on an immanent plane, thereby stripping it of its ontological privilege. Moreover, new materialists hold that all matter (including organic matter) has agential capacities. This idea is depicted in Barad's (2007, p. 132) concept of "agential realism". About the idea that nature is agentic, Gough (2016, p. 52) writes: "… it acts, and those actions have consequences for both the human and nonhuman world". Another important contention of new materialism is that ontology, epistemology and ethics are inseparable, captured in Barad's (2007, p. 409) neologism, "ethico-onto-epistemology".

Furthermore, as modernity leaves us we are witnessing a critique of representational logic. St. Pierre (2013) points out that representational schemata assume two things: that there is a primary, originary reality to be found; and that language is able to accurately represent such a reality. Critiques of representational logic have been performed by poststructuralist scholars; and (post)qualitative research will presumably expand on such critiques by asking what the role of language is as we (re)turn to new realisms/materialisms and importantly, whether we can escape 'representational logic and the language/material binary' (St. Pierre 2013, p. 650). Barad's (2007) neologism of 'intra-action', which portrays the imbrication of meaning and matter, might be helpful here so that language is not understood simply in discursive terms, but materially too – that language is the product of material flows. Moreover, that language is not stable as is the case with all modes of life. As Le Grange (2018b, p. 45) writes: "All things, even physical objects such as desks and computers are in-becoming – rocks, human beings as well as systems of thought and language do not have fixity but are always changing." The critique of representational resonates with an emerging field called non-representational research. Ingold (2015, vii) calls non-representational research "a *correspondence*, in the sense of not coming up with some exact match or simulacrum for what we find in the things and happenings going on around us, but of *answering* them with interventions, questions, and responses of our own" (emphasis in the original).

But, what might the implication of our discussion be for educational thought and the discipline/field of environmental education?

The death of (environmental) education

In earlier discussions I referred to the death of nature. By death I referred to both mass extinction of plants and animals (literal death) and to the annihilation of the fiction that 'nature' is a correlate of human thought. I have also referred to the death of the self, when discussing Braidotti's (2006) ethics of becoming-imperceptible. I aver that the death of the human (self) is necessary for any prospect of the post-anthropocene and because the production of the 'human' enjoys primacy in education, any prospect of a post-anthropocene must necessarily mean the death/end of education. By the death of education I mean the abandonment of education that mimics *agrilogistics*, which involves the "human desire to abolish anxiety and know where the next meal is coming from" (Morton, 2014a, p. 264). In the case of education it can be read as the human desire to abolish anxiety and to know what will be taught/learned next. In relation to this Wallin (2017, p. 1106) argues that in the era of the Anthropocene, educational alibis of utilitarianism and instrumentality, which continue to bind the supposed purpose of schooling to the image of the future, are now obsolete.

The death of the subject (individual ego) could also mean rethinking the subject and in the context of (environmental) education the rethinking of pedagogy. As Le Grange (2016, p. 34) writes:

"The subject of [environmental] education who is post-anthropocentric is not an atomised individual but is ecological; embedded in the material flows of the earth/cosmos, constitutive of these flows, making the subject imperceptible. Pedagogies that are produced in the classroom are not performed on the earth but bent by the earth – teacher and student/learner become imperceptible and represent a microcosm of the living wholeness of the earth/cosmos …. [I]mprovisation could also be expanded to not only be concerned with the human that reverberates from within and is animated, but to include the vibrations of the earth, its flows, rhythms and creative intensities."

Moreover, any prospect of a post-Anthropocene requires education to be liberated from the shackles of utilitarianism and instrumentality so that education becomes a process of experimentation with life. As Ansell-Pearson (2016, p. 28) so cogently puts it:

"We do not know what affects we are capable of in advance, and this suggests that there is an empirical education in life, involving a 'long affair of experimentation, a lasting prudence' and a wisdom that implies constructing a plane of immanence. In terms of our becoming-ethical we can say that we do not know what a body can do: it is a mode of practical living and experimenting, as well as, of course, a furthering the active life, the life of affirmativity, for example, cultivating the active affects of generosity and joyfulness, as opposed to the passive and sad affects of hatred, fear and cruelty."

If learning is to occur through experimentation then educational outcomes cannot be predetermined as is the case with dominant approaches to curriculum, where learners are kept on track through subject disciplines and predetermined outcomes, and tracked through instruments such as standardised tests. In the case of environmental education its existence as a separate discipline/field/subject can no longer be justified. In the face of ecological catastrophe 'environmental education' should become-imperceptible in the sense that it should imbue all activities and processes which we might wish to call education.

But, for Wallin (2017, p. 1108) education in the era of the Anthropocene requires a new mood

which we might otherwise typify as pessimism. He writes:

"A pessimistic approach might challenge the vaunted culture of 'happy affects' intimate to education, which in many iterations remains blissfully ignorant that its epistemological and ontological orientations are woefully inadequate to encroaching climatological and ecological concerns. Further, pessimism might constitute a new disposition for reassessing the ideals of progress and optimism that continue to regulate pedagogical expression and research within the ambit of affective capitalism and its circuits of interminable productivity and semiosis."

Some parting thoughts

The Anthropocene means many things, including immense and irrevocable destruction of the planet, but also invites disparate speculative vectors of the future that are: arrogant, dark, joyous, eco-just, and so forth. In other words, the Anthropocene relates to both human-induced destruction of the planet and to how humans take responsibility for (preventing) such destruction through the dissolution of the self and the death of all its correlation fantasies. Any prospect of a post-anthropocene requires living with uncertainty and not knowing in advance what might happen, it might require a new mood but most importantly the embracing of life (which incorporates death) by experimenting with it. And if we are to live hopefully, then education should entail experimenting with how to "Make Kin Not Babies".

References

Ansell-Pearson, K. (2016). Deleuze and new materialism: Naturalism, norms and ethics. Retrieved from https://www.academia.edu/.

Barad, K. (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Durham, NC: Duke University Press.

Braidotti, R. (2006). The ethics of becoming imperceptible. In C. Boundas (Ed.), *Deleuze and philosophy* (pp. 133-159). Edinburgh: Edinburgh University Press.

Braidotti, R. (2012). Afterword: Complexity, materialism, difference. *Angelaki, 17*, 169-176.

Braje, T.J. & Erlandson, J. M. (2013). Human acceleration of animal and plant extinctions: A late Pleistocene, Holocene, and Anthropocene continuum. *Anthropocene*, *4*, 14-23. https://doi.org/10.1016/j.ancene.2013.08.003

Byrant, L., Srnicek, N. & Harman, G. (2011). Towards a speculative philosophy. In L. Byrant, N. Srnicek & G. Harman (Eds.), *The speculative turn: Continental materialism and realism* (pp.1-18). Melbourne: re.press.

Chernilo, D. (2017). The question of the human in the Anthropocene. *European Journal of Social Theory, 20*(1), 44-60. https://doi.org/10.1177/1368431016651874

Crutzen, P. & Stoermer, E. (2000). The Anthropocene. *Global Change Newsletter, 41*(1), 17-18.

Gough, N. (2016). Postparadigmatic materialisms: A "new movement of thought" for outdoor environmental education research? *Journal of Outdoor and Environmental Education, 19*(2), 51-65.

Ingold, T. (2015). Foreword. In P. Vannini (Ed.), *Non-representational methodologies: Re-visioning research* (pp. vii-x). London: Routledge.

Haraway, D. (2015). Anthropocene, capitalocene, plantationocene, chthulucene: Making kin. *Environmental Humanities, 6*, 159-165.

Le Grange, L. (2016). Sustainability education and (curriculum) improvisation. *Southern African Journal of Environmental Education*, *32*, 26-36.

Le Grange, L. (2018a). Spinoza, deep ecology and education informed by a (post)human sensibility.

Education Philosophy and Theory, 50(9), 878-887. https://doi.org/10.1080/00131857.2017.1384723
Le Grange, L. (2018b). The notion of Ubuntu and the (post)humanist condition. In J. Petrovic & R. Mitchell (Eds.), *Indigenous philosophies of education around the world* (pp. 40-60). New York: Routledge.
Meillassoux, Q. (2008). *After finitude: An essay on the necessity of contingency*, trans. R. Brassier. Continuum: New York.
More, M. (1990). Transhumanism: Towards a futurist philosophy. *Extropy*, 6.
Morton, T. (2014a). How I learned to stop worrying and love the term Anthropocene. *Cambridge Journal of Postcolonial Literacy Inquiry, 1*(2), 257-264. https://doi.org/10.1017/pli.2014.15
Morton, T. (2014b). From modernity to the Anthropocene: Ecology and art in the age of symmetry. *International Social Sciences Journal*, *63*(207-208), 39-51.
Smith, B.D & Zeder, M.A. (2013). The onset of the Anthropocene. *Anthropocene*, *4*, 8-13. https://doi.org/10.1016/j.ancene.2013.05.001
Spencer, H. (1884). *What knowledge is of most worth*. Michigan: University of Michigan.
Spinoza, B. (2001). *Ethics*. (W.H. White, Trans.). Wordsworth: Hertfordshire.
St. Pierre, E.A. (2013). The posts continue: Becoming. *International Journal of Qualitative Studies in Education, 26*(6), 646-657.
Wallin, J.J. (2017). Pedagogy at the brink of the post-anthropocene. *Educational Philosophy and Theory, 49*(11), 1099-1111. https://doi.org/10.1080/00131857.2016.1163246
Waters, C.N. et al. (2016). The Anthropocene is functionally and stratigraphically distinct from the Holocene. *Science, 351*(6269), 137. https://doi.org/10.1126/science.aad2622
Zalasiewicz, J., Williams, M., Haywood, A. & Ellis, M. (2011). The Anthropocene: A new geological time? *Philosophical Transactions of the Royal Society*, *369*, 835-841. https://doi.org/10.1098/rsta.2010.0339
Zalasiewicz, J. et al. (2015). When did the Anthropocene begin? A mid-twentieth century boundary level is stratigraphically optimal. *Quartenary International*, *383*, 196-203. https://doi.org/10.1016/j/quaint.2014.11.045

Recommended Citation

Le Grange, L. (2019). The Anthropocene: Becoming-imperceptible of environmental education. *On Education. Journal for Research and Debate, 2*(4). https://doi.org/10.17899/on_ed.2019.4.4

Download PDF version

Do you want to comment on this article? Please send your reply to editors@oneducation.net. Replies will be processed like invited contributions. This means they will be assessed according to standard criteria of quality, relevance, and civility. Please make sure to follow editorial policies and formatting guidelines.

lesley le grange

Lesley Le Grange is Distinguished Professor of Curriculum Studies and Environmental Education at Stellenbosch University, South Africa. He has published widely in the fields of Environmental Education and Curriculum Studies. He is Vice-President of the International Association of Curriculum Studies (IAACS) and Fellow of the Royal Society of Biology (UK). Lesley is rated by South Africa's National Research Foundation (NRF) as an

internationally acclaimed researcher.

1. According to Morton (2014), Crutzen has since backtracked on his initial dating of 1784 as the beginning of the Anthropocene and now sees 1945 as the date that marks the huge data spike in human involvement in Earth systems called "The Great Acceleration".
2. Morton (2014, p. 259) points out that a piece of this logic "asserts that to exist is to be constantly present. So, we can see the field, we can plough, we can sow with what is available or not available, yet the field remains constantly. The agricultural activity is isolated from nonhuman systems yet always imbricated with them. Morton (2014) contends that to achieve constant presence in thought and in social and physical spaces requires violence and that such achievement itself is violence. He points out the (ecological) reality consists of porous boundaries.
3. By the assemblage human-as-humus, Haraway (2015) refers to the oneness of humans with the earth – humans' entanglement with all modes of life: animal, plant, rock, water, soil, air, etc.
4. There is no place here to explore this debate or whether the Anthropocene is instead a boundary event (not an epoch) as Haraway (2015) suggests. For a detailed discussion on what is a geological epoch and why the Anthropocene should be considered as a new geological epoch, see Zalasiewicz, Williams, Haywood and Ellis (2011).
5. Spinoza (2001) introduced the notion of *conatus* to explain the separateness and individuality that are apportioned to modes. *Conatus* is the essence of modes, which is characterised by that which makes the individual thing persist or endure. For Spinoza, substance (God or Nature) is that which exists in an through itself. A mode is something that cannot exist on its own, but only in some other thing on which it depends. So a rock, a human, a tree, etc. are all modifications of substance.
6. I characterise modernity as a historical moment of the Anthropocene.
7. Editorial note: For more on transhumanism and its educational implications see Issue 2 of this journal: https://www.oneducation.net/no-02-september-2018/editorial-2/
8. Ecophages are self-reproducing molecular substances that nanotechnology can potentially produce, which will have the capability of gobbling up things.
9. This concept depicts the imbrication of being, knowing and our actions in the world.