Posthuman assemblages and the intimacy of theory: A conversation with Noel Gough

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Abstract

The following conversation is a semi-open interview with critical education scholar Noel Gough that aims to get at how critical/social theory, more specifically some aspects of the philosophy of Gilles Deleuze and Felix Guattari can be deployed in science education. Noel Gough's work has opened the way for other critical scholars in science education to attack fundamental problems and dilemmas related to knowledge, structure, and the control of thought and conduct. Our conversation takes a few twists, but ultimately we ask Noel to elaborate on the role of critical theory in science and education.

JB: I really appreciate the opportunity to interview you for this special issue of JASTE. One of the goals of this issue is to underline the importance of theory in critical, activist, transformative science and technology education. In doing so, we hope to give some support to all of us who believe in an interdisciplinary (self)critical science education that works towards the goals of social justice. I first came across your work on Gilles Deleuze and Felix Guattari (1987) in a special Issue of Educational Philosophy and Theory devoted to new philosophical perspectives in science education. I found the way you used the arborescent and rhizomatic metaphors of a *A Thousand Plateaus* to talk about science curriculum very useful. You demonstrate that even banal or obscure entities, pieces of art, feelings, a textbook blurb on Isaac Newton, could be rethought and reanimated through the application of theory. I met you, and some of your colleagues, again in fictional camp Wilde, a stopping point for queer adventures in science education at UMASS Dartmouth (these are better left to the imagination). What your work offers is an ethical approach to scholarship in the Deleuzian sense - it enables us to think differently and to do what was not possible before. So, in your opinion, what is the value of social/critical theory, and what does it allow science educators and researchers to do?

NG: I don't think of "social/critical theory" as a generic "it" about which we can generalise some sorts of instrumental value. We have to be discriminating about the social/critical theories we deploy and alert to the risks that can attend theorising our work in particular ways. For example, I have focused some of my own recent writing on what I see as the detrimental effects of researchers naively "borrowing" particular forms of theorising in ways that indefensibly reduce the complexity of the phenomena being investigated, including environmental educators naively appropriating constructivist science education, educators accepting medical models of "scientific" research and social/educational researchers borrowing the concept of "triangulation" from surveying and navigation in support of a "mixed methods" mantra (Gough (2012).

So I judge the value of any theoretical perspectives I deploy in terms of what this theorising permits, encourages or incites me to do, with particular reference to questioning, and offering alternatives to, dominant orthodoxies and normativities. I also judge the value of any theoretical perspectives I deploy by reference to the pleasures they produce. I expect the reading, thinking and writing that I do as a curriculum scholar and science/environmental educator to give me the kinds of pleasure that I receive from my encounters with what I consider to be the finest art (visual, musical, cinematic, whatever). Borrowing from Ursula Le Guin (who in turn borrowed from Virginia Woolf), I want the theoretical perspectives I deploy to generate "a wave in [my] mind" that propels me to produce something new. (Gough 2010)

JB: You focus a fair amount on Deleuze's work in your scholarship. What makes Deleuze (and Guattari) useful for scholarship in science and technology education?

NG: Deleuze (and Deleuze and Guattari) meet the criteria I refer to above. They are also theorists of open, complex systems, which means that their thinking is more (for want of a better word) "commensurable" with what I am happy to call postmodern science. Contemporary conventional science and technology education is still mired in modern science – it has barely moved out of the 19th century (there are some honourable exceptions but the mode of thinking which defaults to reductive simple systems approaches tends to persist in most of the jurisdictions that I am familiar with).

JB: Deleuze seems like a good fit for science because of his (re)focus on ontological realities, both actual and virtual. Assemblages seem compatible with current views in the philosophy of biology, but also lend themselves well to social analysis. Is the assemblage a good concept for education, and if so how could it be deployed?

NG: I have a deeply personal reason for seeing assemblage as a "good concept" for education and other social practices. In matters of my own "ontological reality" I had for a long time deployed Donna Haraway's figuration of the cyborg for theorising encounters between human bodies and other objects, including my partner's experiences with the after-effects of breast cancer. This changed during my own recent experiences of throat cancer. During the period in which I was intermingled with biomedical technologies, I did not readily see myself as a cyborg, not least because the machines that were determining what I was becoming were not primarily prosthetic. For example, the linear accelerator that daily bombarded the tumour in my throat with high velocity subatomic particles was not an addition or attachment to my body, which seemed to signal a limitation on the conceptual generativity of the cyborg.

Haraway's cyborg is a hybrid made from the intermeshing of technology with a body, which can be interpreted as curtailing the transformational potential of the intersections of bodies and technologies. This led me to recall Elizabeth Grosz's (early '90s – I can find it if needed) suggestion that Deleuze and Guattari's concept of assemblage offers a means of thinking bodies beyond oppositional categories and reframes our understandings of the encounters between bodies and other objects and thereby reframes our understandings of encounters between bodies and other objects. Assemblage offers a different way of understanding the body in its connections with other bodies, both human and non-human, animate and inanimate, linking organs and biological processes to material objects and social practices while refusing to subordinate the body to the homogeneity implied by the body's subordination to a humanist consciousness or to biological determinism.

Deleuze and Guattari refer to "machinic" assemblages, rather than organisms or mechanisms, to subvert the idea that wholes preexist connections. Human bodies are assemblages of genetic material, ideas, powers of acting and relations to other bodies. These connections multiply and complexify in a body undergoing treatment for cancer, not just in terms of new material connections with machines and drugs, but also new social relationships with, for example, radiation oncologists, technicians and nurses, and changed interpersonal relationships with family and friends. My personal experiences of such treatment enriched my theoretical understandings of

my posthuman self as a "machinic assemblage". The body conceived as a machinic assemblage is multiple whose function depends on the particular assemblages it forms with other bodies rather than an interior truth or identity. In this sense a body can be valued for what it can do (rather than what it essentially "is") – an assemblage assessed in relation to its enabling, or blocking, of a body's potential to become other.

Thus, post-cancer, I have renewed my interest in exploring the implications of posthumanist perspectives in environmental education research. With some honourable exceptions, much environmental education research privileges an anthropocentric gaze, which assumes autonomous human subjects as starting points for knowledge production and the focus of attention for data production and analysis. I am therefore curious to explore the possibilities for "undoing anthropocentrism" (addressed in my Snaza & Weaver chapter, 2015) by conceiving ourselves and the subjects/objects of our inquiries as machinic assemblages. That is, our posthuman relationships with environments writ large are not about individual subjects autonomously forming and developing relations with the world but, rather, about realising that these relations always already exist, and might be as much influenced by the behaviour of other materials in the places we inhabit as they are by our intentional or unintentional actions.

JB: These responses resonate strongly with me; especially your emphasis on interdisciplinarity, pleasure, and complexity. Your discussion of posthumanism strikes me as partially representative of a return to ontological concerns that has taken hold in poststructural circles - though it seems to me these connections with the material were always well known to the people who suffered unjust material conditions/distributions, and communities living in sustainable relations with the natural/social entities and flows that surrounded them. It seems to me that critical scholars from poststructural circles are actually having a difficult time, ironically, letting go of their concern with the subject; for example in favour of collectives, in favour of analyses that follow socially just, sustainable ontologic or material configurations of resources, abiota/biota, and plant/animal bodies. Before I present the final three questions I want to bring my colleague Shakhnoza Kayumova, who is super excited about how you relate to theory, into the conversation

SK: Noel, your response summarizes what we (Jesse and I) have tried to argue in our metalogue about critical activism in science education; that idealizing this or that program as an exemplar for a social/critical science activism is a totalizing and 'harmful' practice. If we, researchers and scholars,

start defining, subsequently we are drawing lines of legitimacy around what is a social/critical science activism, and by doing this we are replacing one oppressive order with another.

JB: So our question is to what extent do critical activists need to set up organizations to achieve activist ends; economic justice, antiracist goals? Unions, and school boards, and parent groups achieve much even though one could argue that they are overcoded and territorialized.

NG: I agree wholeheartedly with Shakhnoza's summary of the toxic effects of idealising/defining. I have just been planning a workshop for doctoral students early next year, tentatively titled 'Using Deleuze's toolbox to resist complexity reduction' and my abstract begins:

> During the nineteenth century, cultural historian Jacob Burckhardt presciently asserted that 'the essence of tyranny is the denial of complexity', and we can see this denial manifested today in many aspects of contemporary education theory and practice: schooling and education, teaching and learning have been redefined by reference to a culture of accountability, performance, and measurability that excludes and ignores complex processes and outcomes that are not readily apprehended by conventional measurement technologies.

However, I am probably not the best person to ask about the organisation of activism, because I have never been much of a 'joiner'. As Warren Sellers and I wrote in our *QSE* 2010 article, we are more inclined to be 'outsiders'. The only activist organisation I have consciously joined was Project Jonah in the 1970s, which sought to end Australia's participation in commercial whaling in the Southern Ocean (we won!). I also participated in the anti-Vietnam War moratoriums/ demonstrations in Melbourne in the early 1970s, but in these events I deliberately presented a 'mixed message' public persona by wearing an obviously Russian sable hat (a gift from my brother who had visited Moscow on business) with a large handmade badge reading 'McLuhan for Pope'. This only made sense to my year 11 media studies students who accompanied me to the moratorium march (and who tolerated my then veneration of McLuhan) and to a few stoned hipsters who looked at the badge and said something like 'hey man, McLuhan for Pope, that's really cool…' I still regret that McLuhan is no longer 'cool'. His work is still as important to me as other harbingers of postmodernism such as J.G.Ballard and Jean Baudrillard.

Thus, although I am committed to achieving social, economic and environmental justice goals, I am not committed to achieving them as an 'insider'. I am more inclined to use my 'outsider' dispositions and skills (which I have unashamedly deployed in some 'insider' positions) to avert and

subvert the goals of any 'tyrannical' organisational vehicles of complexity reduction in which I have influence.

SK: Noel, I appreciate how you made the theories you work with so personal, and intelligible. Your work provokes me to make theory work, not only in some abstraction, but also in our day to day lives. I have had similar encounters with Deleuze & Guattari's work and some of the 'post' theories with my own personal life. On my first day, at the 'field' for a data collection, I found out the news that tumor(s) had grown in all parts of my father's body, even penetrating his bones. I did not know how to tell him. In our culture, children are protective of elderly parents, as parents were protective of them in their younger years. So, we usually do not share sad news with our parents. Simply, we just do not talk about it. I left the house every morning with excuses of dissertation work. I did not know what to do. I did not know how to tell my dad or my mom that my father had only limited days to live in this life. I wanted to stop my dissertation...I wanted to leave my job...and all I wanted was to be with him. Finally, I decided to tell him that he had some problems in his lungs and we had to treat him. Luckily, he did not speak English. So, I did not translate what the doctor said to my dad, instead I came up with a list of other not-so "harmful" illnesses and gave information about them in Uzbek and Russian. Until my dad started to take chemo and the doctor discovered that I was not telling the "truth" to my dad. Anyways, long story short. The days I spend with my dad at the hospital, at home, and with all the machines, and medications, my own laptop, papers, and dissertation become a part of constantly shifting assemblages. I started to theorize about teaching and learning science, and science education as a part of bodily and affective intra-actions. I theorized with my dad, during the most physically difficult moments for him. During the times of endless moments of pain, hope, and survival, my encounters with Deleuze, Massumi, Braidiotti, Grosz, and Davies (through their work) kept me and my dad "busy."

JB: So in trying to bridge your common experiences in relation to science education: Would you agree that science ed needs to bring theory closer to our lives?

NG: Shakhnoza, I can certainly feel some of what you went through, having experienced somewhat similar experiences with my father (colon cancer) and more recently my mother (dementia, heart). I also had some of my own 'endless moments of pain, hope, and survival' following the second haemorrhage ensuing from my diagnosis with throat cancer. My wife and I were vacationing in Perpignon (southwest France) at the time of my first haemorrhage. Having diagnosed the problem

(massive tumour at the base of my tongue) the wonderful French doctors tried to stabilise me to the point that I could be repatriated to Melbourne with a medical escort. Their first attempts failed and I was placed in an induced coma for 36 hours during which three arteries in my head and neck were sealed off and I suffered a minor stroke. In the course of passing a plastic bag containing my wedding ring to my wife (who has an elementary understanding of French), a nurse used the word 'mort' (dead) to another nurse who was present. During the days immediately following, I knew pain well, but fortuitously I also learned that my first grandchild had just been born back in Melbourne , and that news provided with me hope *for* survival (for at least enough time to see my children grow).

Jesse, sorry if I have misunderstood its subtlety, but your question is almost a no-brainer. Of course, science ed needs to bring theory closer to our lives, but what is needed is constant vigilance about which theories science educators deploy. I think the most important goals of science education are to reveal its cultural/historical significance and to critique the dominant effects of its cultural/historical transmission.

JB: Yes perhaps, I meant more *how* is this achieved but you've just answered that succinctly. Our last question concerns energy and desire. What advice would you have for critical scholars and activists in terms of following their desire to bring about transformative change, peace, social and environmental justice?

NG: I am pleased that I still have the energy and desire to read, to think, and to write (with both 'reading' and 'writing' now extending beyond the scholarly norms to which I first became accustomed). I have tried to use my interpretive and generative skills to critique dominant discourses, both within and from outside hegemonic discourses. I do not think that I am in any position to advise 'critical scholars and activists in terms of following their desire to bring about transformation and transformative change, peace, social and environmental justice'. However, with some posthumanist reservations, I can still recommend Shakespeare's dictum, 'to thine own self be true'. I do not mean this to be interpreted as an essentialist excuse for inherited character or affect, but as an appeal to recognise what one's body (with or without organs) can do. The only way that I know how to contribute to 'bring[ing] about transformation and transformative change, peace, social and environmental justice' is to do what I already know that I do well, that is, read thoughtfully, write imaginatively and (if possible) provocatively, and publish my imaginings and provocations in mainstream publications.

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