

# Decolonial Subversions

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Biomedical research and global sustainability: Throwing off the straitjacket of hierarchical thinking, making space for nomadic thinking

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# Biomedical research and global sustainability: Throwing off the straitjacket of hierarchical thinking, making space for nomadic thinking

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## Abstract

The biomedical paradigm, characterised by the separation of human from nature, of mind from body, and of 'us' from 'them', is encrusted with the jewels of western exploitation. Its legacy, one of many, has been to permit critical thinking to be infused with the domination of scientific knowledge over indigenous knowledge, of expert experience over patient experience, and of western knowledge over knowledge from other regions. Planetary sustainability has put us all into an uncomfortable liminal space where there is an urgent need to develop new ways of thinking to navigate the complexity and uncertainties of the Anthropocene. The decolonization/dismantling of the historically biased, epistemically rigid, hierarchical thinking that has led us to the brink of environmental collapse must re-centre a more 'nomadic' or 'rhizomic' type of thinking that works against the grain of traditional western categories and conventional methods, making breathing space for experiential person-centred, ecological wisdom to blossom. What might this look like for global health and academia? Practicing medicine using an ecological lens; a system with geographically diverse representation in the authorship of scientific literature; methodological diversity in the top journals, placing qualitative research, stories and art on an equal footing with Randomised Controlled Trials; and editorial boards composed in part of lay members. A more inclusive academe, through Cultural Safety, where works from patients, service users, indigenous community voices are published alongside and co-produced with expert/professional communities is a step in the right direction.

Keywords: Decolonization, Anthropocene, epidemiology, epistemology, evidence-based medicine, Indigenous, ecology, diversity, nomadic, medical pluralism.

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## Background

Modern medicine “has been carved from its crust by the course, currents, and ripples of colonialism”, where objectivity triumphed over subjectivity [1]. The biomedical paradigm, characterised by the separation of human from nature, of mind from body, and of ‘us’ from ‘them’, is encrusted with the jewels of western exploitation [2]. Its legacy, one of many, has been to permit critical thinking to be infused with the domination of scientific knowledge over indigenous knowledge, of expert experience over patient experience, and of western knowledge over knowledge from other regions. One measurable impact has been a geographic bias in the epistemology of knowledge, which manifests in the discounting of non-western thought [3-5], whereby thinking from the global north dominates thinking from the global south. Furthermore, by conquering the challenges of nature through the evolution of biomedicine, the result is a non-reciprocal relationship with nature.

The Anthropocene is defined as the new geological epoch of humanity’s own making, based on evidence of damaging human influence on the biosphere. Colonialism has been deeply implicated in forging present day modern society’s nonreciprocal and exploitive positionality with nature and the planet. The legacies of colonisation within the Anthropocene also extend to enduring prejudices such as racism, classism, sexism, ableism, xenophobia, and gender discrimination, and thereby have effects on the structure of healthcare and biomedicine. Hence, the intersection of planetary health with environmental health, public health and individual health is of enormous importance for those who deliver healthcare to consider. Although medical journals rarely locate clinical disease within the concept of ecological global health, there is nevertheless development of these connected concepts within relatively recent journals such as *Lancet Planetary Health* or *PLOS Global Health* [6-10].

This non-reciprocity has led to detrimental human influences on the planet, where sustainability is now the pressing issue for human survival in the Anthropocene era [11, 12]. Within the field of healthcare, these are seen in areas such as the overuse of antibiotics (leading to antibiotic resistance and autoimmune disease), disturbance of the microbiome [13], respiratory disease (from pollutant fine particulate matter containing heavy metals, toxic gases, polycyclic aromatic hydrocarbons) [14], bacterial viruses and other harmful substances which can be implicated in cancers [15]. Moreover, climate change anxiety amongst children and adolescents has induced youth activism concerned with reversing climate degradation [16]. Greta Thunberg has been notable in her efforts, nevertheless, within the adult structures of biomedical education and research, there remains a need to be transformed from within, hence our recommendations to look beyond colonial or post-colonial hierarchical scientific thinking for solutions [17].

Planetary sustainability has put us all into an uncomfortable liminal space where there is an urgent need to develop new ways of thinking to navigate the complexity and uncertainties of the Anthropocene. Lack of awareness of these plagues journal reviewers and retards the publication of new knowledge generated through, for example, public engagement/co-production, or from indigenous communities, or created through narrative arcs; none of which fit into Euro-American traditional knowledge hierarchies. Grassroots knowledge

emerges like a DJ's playlist of grey literature † rather than fitting into the black and white PRISMA epidemiological guidelines required of more conventional reviews of knowledge.

In Dr Ijeoma Nnodin Opara's PLOS blog [17], she explains how the handicap of biomedical epistemology follows a process of "co-opting and bending the decolonization discourse to adhere to Eurocentric constraints such as viewing situations in binary terms and, therefore, in 'tension' versus in multifaceted, intersectional, and in harmony. Constraints such as framing approaches as pragmatic vs philosophical as opposed to each informing and depending on the other". Indeed, Prof. Báýò Akómoláfé's [18] writings on how rigid post-colonial legacies of knowledge will not be helpful in creating planetary sustainability, he says "The cosmology that created an 'objective' world... the brutal liberalism that now instigates anxieties about apocalyptic endings... is limited in addressing a planet that will not yield to our expectations of it."

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## Disrupting rigid knowledge hierarchies

This striation of knowledge comes from the over-coding, centralization, hierarchization, binarization, and segmentation of its free movement. We acknowledge that our own research in decolonisation studies draws upon accepted methodological approaches through quantification, measurement and coding [19], which we recognise as an indoctrination from our own western upbringing and a "methodological whiteness" [20] that fails to capture the iron cage within which we too exist. The historically biased, epistemically rigid, hierarchical thinking that has led us to the brink of environmental collapse, must be replaced with a more nomadic or rhizomic type of thinking. In creating new knowledge to tackle the looming problems of the Anthropocene, the indigenous decolonial 'nomadic' origins of Cultural Safety [21] are useful as a direction away from hierarchical thinking, highlighting power imbalances, knowledge/epistemology biases, reflexivity and the need for co-production in healthcare.<sup>‡</sup>

The inclusion of global south and indigenous ways of thinking need to be re-centred from their displaced position in healthcare and may enable reciprocal ways of interaction with nature. Also, the introduction of Art can shatter rigid hierarchical thinking in medical spaces and is worth thinking about from a medical humanities perspective. In Nicolas Bourriaud's essay titled 'The Radicant' [22], which theorizes "Altermodernity" (a term coined by Bourriaud in 2009 representing an alternative to postmodernism [23]), Bourriaud's 'Radicant' outlines new ways in which he sees how contemporary artists might work in today's globalized world:

Altermodernity is neither a petrified kind of time advancing in loops (postmodernism) nor a linear vision of history (modernism), but a positive experience of disorientation through an art-form exploring all dimensions of the present, tracing

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† The term grey literature is used to describe a wide range of different information that is produced outside of traditional publishing and distribution channels, and which is often not well represented in indexing databases. <https://libguides.exeter.ac.uk/c.php?g=670055&p=4756572>

‡ Cultural Safety arose as a framework to address structural iatrogenesis where patients are harmed by unconscious or conscious racist power imbalances in the bureaucratic and cultural systems within healthcare systems, including those systems originally intended to help them. <https://blogs.bmj.com/medical-ethics/2021/07/22/what-is-cultural-safety-and-how-could-it-dissolve-structural-racism-in-the-uk/>

lines in all directions of time and space. Thus, the artist becomes a cultural nomad, making it difficult to translate or define an identity in the constantly changing context in which artists operate. In ordinary language, 'modernizing' has come to mean reducing cultural and social reality to Western formats. And today, modernism amounts to a form of complicity with colonialism and Eurocentrism. Let us bet on a modernity which, far from absurdly duplicating that of the last century, would be specific to our epoch and would echo its own problematics: an altermodernity [23].

The question is, how can we move out of the post-modern era? We should not accept the post-modern framework as something that is here to stay, accepting the futility of struggle, but continuing to argue for emancipation within or outside of its rules? Gilles Deleuze and Felix Guattari [24] notice how the tree, rather than the rhizome, has dominated western thought:

It is odd how the tree has dominated Western reality and all of Western thought, from botany to biology and anatomy, but also gnosiology, theology, ontology, and all of philosophy....: The root foundation, Grund, racine, fondement. The West has a special relation to the forest, and deforestation; the fields carved from the forest are populated with seed plants produced by cultivation based on species lineages of the arborescent type; animal raising, carried out on fallow fields, selects lineages forming an entire animal arborescence. The East presents a different figure: A relation to the steppe and the garden (or, in some cases, the desert and the oasis), rather than forest and field [24].

Within the works of Deleuze and Guattari, and critical commentators of their work, there are useful metaphors: "In its botanical sense a rhizome is an underground tuber that ramifies and diversifies, producing new shoots and extensions into new territory". This diversification takes "unforeseeable directions; a network of relations which is non-hierarchical, proliferating, hybrid, contrary to conceptualisation and identity". This is in opposition to "Arboric systems of knowledge based on the tree, which solidify in visible and immovable forms". Deleuze and Guattari are in favour of shifting power from the tree to the rhizome, as they state in this quote, "we are tired of trees. We should stop believing in trees, roots, and radicals. They've made us suffer too much. All of arborescent culture is founded on them, from biology to linguistics" [24,25,26].

We live in an unavoidably interconnected universe. Can we look at this ocean of information as the endless source of inspiration and wonderment? Information needs to be dealt with in new ways, a new consciousness revolution, a new renaissance, a new world disorder, disconnection and connection to all things, tapping into what seems to be absent, finding new ways of showing how to relate these things to seemingly unrelated other things and seeking for the emergence of new things, 'a becoming'.

The Rhizome employs capture by subjectification and opening to the outside, whereas the Radicant is constructed out of intersubjective borrowings and blending of narratives creating a dialect between the subject and the path that it travels on. In both cases there are connections made within other connections. Translation occurs through a process of deterritorialization and reterritorialization. Nomadic thought works against the grain of traditional categories and conventional methods. The state annihilates the nomad precisely for their indifference to the state's formalism, the state re-territorializes the nomad, and the nomad de-territorializes the state; the two modes of isomorphic deterritorialization and reterritorialization are two

aspects of the same process, operating at different levels, moving in different directions and speeds. The Nomad favours multiplicity over unity. It appears from this that, again, the answer comes from the middle 'Milieu', a physical or social setting in which something occurs or develops.

In Lokugamage's poetic book, 'Within the Pregnant Pause' [27], where Eastern mindfulness, or present moment or stillness practice, is operationally contextualised within the receiving of information from evidence-based medicine guidelines:

- Receiving information through your mind only, could be anxiety provoking.
- Through just your body, could be from a base of previous trauma
- From your stillness within, the feeling is the least biased

It is from a place of empowerment.

The deployment of mindfulness in interpreting evidence-based medicine weaves interconnectivity and a still mind into unbiased and unpredictable potential behavioural action or solutions that are person-centred, subjective yet tailored appropriately to a given situation. Mindfulness stems from the global south and is an ancient non-hierarchical state of experiencing life which is an antithesis to 'thinking'. It promotes looking at life through a state of 'being' (in the present moment). The unpredictability, spontaneity, and tangential solutions to problems that arise from 'present-moment practice' therefore affiliate to rhizomic problem solving. Mindfulness deliberately subverts both 'hierarchical' as well as 'thinking', thus making breathing space for experiential wisdom to blossom, liberated from personal biases.

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### Practically how can Cultural Safety and performance art with public engagement help nomadic/rhizomic thinking?

As there is an urgent need to develop new ways of thinking within medicine and global health, in this article, we want both to create an awareness of how much western and hierarchical knowledge dominates current research and to offer some examples of problems and solutions to consider and expand upon within research and healthcare policy. Commenting on past healthcare failures in their article on coping with complexity and educating for capability, Frazer and Greenhalgh say: "Successful Health services in the 21st Century must aim not merely for change, improvement & response but for changeability, Improvability & Responsiveness" [28]. We think this lends itself to rhizomic thinking processes, in particular drawing on principles of Cultural Safety as an important vector of nomadic thinking if instituted as the norm for the production of health services, of publications, knowledge and policies [29]. In this scenario, traditionally top-down hierarchical institutions would have to co-produce health through the nomadic (unpredictable and spontaneous) thinking of the recipients of healthcare and through public engagement, which will disrupt previously established power hierarchies. There is a growth of patient-led initiatives with public engagement, through using performance art as a disruptive strategy that produces a liminal state of discomfort where the flame-filled kindling of performance art gets under the skin of 'hierarchical scientific thinking' to provide momentum to divert to more nomadic/rhizomic forms of thinking [30]. Meanwhile, within global health,

active listening to ecological indigenous concepts of planetary health, would overturn the historic power imbalance between coloniser and those colonised.

In her books, *Braiding Sweetgrass*, *Gathering Moss*, the indigenous scholar, Robin Wall Kimmerer deliberates on the differences between Euro-American hierarchical thinking versus indigenous thinking (listening, asking, learning) within her overarching interests of planetary ecological restoration [31]. This includes not only restoration of ecological communities, but restoration of our relationships to land. Perceptively, her works refer to learning from the sustainable rhizomic structures of nature, such as mosses. This relates to a little explored educational theory called 'Rhizomatic Education: Community as Curriculum' by Cromier which was developed for web learning, and which could potentially be an interesting theoretical springboard for exploring and expanding within modern educational theory and medical education. It may well bolster the principles of Cultural Safety, which is a community focussed, rhizomic, power sensitive, reflexive equity strategy [32].

However, in writing this piece we do not wish to draw an artificial divide between arboric vs rhizomic thinking. When exploring the metaphor, it might seem that we wish to get out from under the branches and roots of the tree? But we would posit that it is not a matter of doing away with the tree but to embrace other ways of knowing. Embrace uncertainty and map a way to form rhizomic connections and become open to multiple ways of becoming modern, become connected through an unlikely combination of things. This weaves us back to mutual flourishing. Kimmerer considers mycorrhizae, fungal strands that inhabit tree roots. They connect the trees in a forest, distributing carbohydrates among them: "they weave a web of reciprocity, of giving and taking. In this way, the trees all act as one because the fungi have connected them" [33].

So, for global health and academia, what might success look like? It is about integrating humanities throughout all scientific teaching and education, not as a bolt-on or addition, but to enable scientists to have a deeper appreciation of the power structures within which they operate. It might look like a system with a more geographically diverse representation in the authorship of scientific literature; a more methodologically diverse representation in the top journals, placing qualitative research, stories and art on an equal footing as Random Controlled Trials; and journals with editorial boards composed in part by lay members. A more inclusive academe, where works from patients, service users and indigenous communities are published alongside, and co-produced with, those of expert/professional communities, would be a good place to start.

In this paper, we suggest a bridging process from which a scientist and hierarchical academic could begin to understand the flaws and limitations of the purely hierarchical knowledge-based peer reviewed journal writing, locating the conundrum with the Anthropocene and the crucial need for solutions for sustainable solutions. If this article were to be re-arranged into a more rhizomic form it could have incorporated poetry, art, multimedia but that may be a project for the future. From a global health perspective, Indian academic and ecological activist, Vandana Shiva, says:

These new movements for freedom need new learning, new empowerment, new hope. From the seed I learnt lessons of self-organisation and renewal, diversity and democracy; from quantum theory I learnt about non-separability and nonlocality; indeterminism and uncertainty; complementarity and non-exclusion; potential and

probability. Both the quanta and the seed take us beyond the mechanistic, fragmented, divided, inert, linear, deterministic world of reductionist science, and the industrialisation and commodification [34].

## Summary

This article calls for a scholarly awareness of the need for hierarchical thinking to share centre stage with nomadic thinking and public engagement (including the stories of the recipients of healthcare) to find new solutions to the healthcare challenges of the Anthropocene and inequity in health. Objectivity, commodification, and exploitation or overpowering of nature has reached a dead-end through its contribution to the creation of the Anthropocene. This calls for a new decolonial era where ecological, clinical and public health requires the inclusion of nomadic or rhizomic thinking.

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## Contributions

AUL, CC and MH all contributed to the ideas and writing of the manuscript.

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## Declaration of Interests

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