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Response to: "Looking back to launch forward: a self-reflexive approach to decolonising science education and communication in Africa". Recognizing and validating multiple knowledge ecologies

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Abstract

This is a response to Sesan and Ibiyemi's essay [2023], which rightly urges *scholars and science communicators* to resist the colonial legacy of science in African countries. The essay argues that northern paradigms, focused on science as the only true form of knowledge, need to be replaced with functional Indigenous knowledge systems. However, the authors adopt the framework of the global north when reimagining and advocating for a radical 'power literate' agenda thus confounding knowledge with science, and education with science communication. These approaches obscure the fundamental importance of reimagining power dynamics in a world of multiple epistemologies. Instead, we propose that 'knowledge communicators' facilitate a multi-knowledge world through participatory processes.

Keywords

Participation and science governance; Science communication in the developing world; Social inclusion

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Introduction

'Looking back to launch forward: a self-reflexive approach to decolonizing science education and communication in Africa' argues for a uniquely African knowledge ecology that intersects with the values, cultures, religious beliefs and native languages of the continent's inhabitants. The authors contrast this localized knowledge ecology with the current knowledge production and education systems operating in Africa (and many other countries in the global south), rooted in the global north. They argue that such systems fail to equally recognize or value more functional traditional knowledge or communication systems. The authors draw readers' attention to the colonizing power of formalized science and education systems from northern countries that have been imposed or internalized, and which often erase traditional ways of knowing. For these authors, all science is necessarily local.

This essay is timely because the call for societies to reconnect with their pre-colonial histories and come to terms with post-colonial realities applies well beyond African countries [see, for example, Nava & Hofman, 2018] . The authors highlight some of the debate surrounding decolonization in scientific and education circles and point out that there has been little practical reflection on this issue in science communication spaces. Likewise, there has been scant discussion about the roles of science communicators in actively engaging with decolonization, for example, by calling out the privileging of Eurocentric knowledge production systems or scholarly communication mechanisms.

We argue that this call to move beyond seeing science as the 'good' or 'quality' knowledge, in contrast to other forms of knowledge, is relevant for *all* countries, and speaks to the ways that science, as a dominant paradigm, colonizes broader epistemologies, regardless of geographic location or culture. Such colonization requires community-specific and active resistance [for inspiration, see Dawson, 2014; Finlay et al., 2021; Rasekoala & Orthia, 2020; Watego et al., 2021] if the values inherent within multiple epistemologies are to be recognized. However, such calls need to be made carefully and thoughtfully if actions are to productively open the field to more epistemologies.

Confounding science and knowledge

While there have been a growing number of scholarly calls and initiatives aimed at decolonizing science, what is meant by 'science' in this context and what is being decolonized, is often left ambiguous. Science means many things; it can refer to a bounded set of knowledge, to a method (or set of methods) for acquiring 'reliable' knowledge, or to a socio-cultural institutionalized practice focused on generating knowledge and more [Okere, 2005]. The one consistent theme running through all of these references is that science is, in some way or another, an epistemic pursuit. Science is related to knowledge. But that is not to say that science is the same or equivalent to knowledge. Put differently, all science is about knowledge, but not all knowledge is scientific or about science.

In a world of multiple epistemologies, science is but one. Even within academia, not all disciplines are sciences. Indeed, while some students might study for a Bachelor of Science, others study for a Bachelor of Arts, or Commerce, or many other fields that are not usually considered as part of science. And there is much knowledge beyond academia, from everyday knowledge (e.g. how to track a specific animal) to the epistemology of crafts, such as the knowledge of bakers, gardeners, or carpenters [Smith, 2018].

Like many scholars, the author/s of the essay confound science with knowledge generally, or at least, they venture far down the slope from science as 'the marker of particular expert knowledge' to science as 'the marker of good knowledge in general. We suggest that this confounding is problematic because (whatever we may wish the term to mean) 'science' is, at least in English, predominantly reserved for the natural sciences. And English is recognized as the international language of science, bringing with its dominance an English interpretation of the term, also for non-Anglophile countries. Recognizing and acknowledging how the term 'science' is commonly understood and how it relates to knowledge more generally is central to any discussion of decolonization. Indeed, one could argue that interpreting science as equivalent to (good) knowledge is a form of epistemic colonialism.

Confounding education and science communication

Sesan and Ibiyemi's essay [2023] provides powerful and important practical examples of decolonization. These include academic union action against neoliberalism in many African states; re-learning what constitutes African science by documenting expertise such as that of traditional rainmakers in parts of East and southern Africa; and rural women in Mali and Burkina Faso who use native plants. Yet, in their suggested ways forward, the authors conflate science and science education with science communication leaving science communicators with no clear directions for moving beyond science to multiple epistemologies. The authors also ignore the benefits of bringing different forms of knowledge together to deal with specific solutions. For example, the sophisticated climate models of science need to be considered within the context of local knowledge ecologies by any locality looking for adaptive responses to climate change.

Another consideration missing from the essay is science communication's power (or lack thereof). Science communicators may advocate for or actively support embedding languages other than English and bilingual education into the formal school systems, and incentivize scholars to teach, research and publish in languages other than English. However, they have little direct power within formalized education systems, beyond roles with accredited and formalized science communication training programs in higher education. Science communication researchers may have opportunities to decolonize the theories, methods and funding structures associated with their scholarly activities. However, they have little power to critique the prevailing international publishing and funding systems. English remains the international language of science and science communication for now. While JCOM encourages submissions in languages other than English, publications are always accompanied by an English translation. To date, the focus has been on European rather than African, Asian or other languages. In taking inspiration from JCOM America Latina, JCOM must embrace a greater diversity of languages to become a decolonized publishing space promoting diversity and inclusivity in science communication.

Looking back adopts the rhetoric and framework of the global north

In many ways, this essay highlights one of the key challenges that those attempting to decolonise *science* communication face. We can open communication channels and processes beyond established global north norms. We can promote greater diversity and inclusivity in scientific fields and actively work to increase the representation of marginalized communities and voices in science and science communication. But such activities can also reinforce some of the colonial aspects of science (and the communication of science) they are trying to address. As we have noted, science is not equivalent to knowledge, not even to good, empirical, reliable knowledge. Science is as much defined by its cultural practice (e.g. peer-review journals) as it is by its relationship to knowledge. And these aspects of science and associated institutions are deeply (and one might argue inextricably) connected with the global north.

So here is the rub: arguing for a decolonization of *science* communication (as long as science is taken to mean what it has traditionally meant for countries in the global north) requires a commitment to the colonial view of what counts as good scientific knowledge (and how it is produced), and in doing so, adopts and reinforces the rhetoric and framework of this view. The 'science' in science communication keeps any attempt at decolonisation firmly under the yoke of

epistemic ideals that are rooted in the single epistemology of science. We would argue that if we truly want to broaden our epistemic landscape, we need to think beyond *science*, and beyond its communication and education.

Promoting a multi-knowledge world, where various forms of knowledge and knowledge-making practices are valued, respected and communicated, be it scientific knowledge, Indigenous knowledges and worldviews, or practical knowledge, seems to be a more productive approach than shoehorning all knowledges under the banner of science. Put simply, if we want to decolonize science education and science communication, we need to move beyond the term 'science' and the concept of science as it is currently understood.

Taking the axiological into the practical

Different nations, cultures, groups of people and organisations will have their own value motivations or axiological drivers for choosing the most relevant epistemologies to include in creating their own unique knowledge ecology. The chosen knowledge ecology may or may not recognize various scientific disciplines.

The priority for communication is facilitating the development of such knowledge ecologies, where all knowledge sources are valued, and which are unlikely to remain static. This development includes encouraging the country, culture, group or organisation to identify, describe and validate the diverse epistemologies that they value.

The tools used by communicators in this functional role are likely to include the mix of tools associated with the science communication models: transmission, dialogue and participation. But the cross-epistemological approach to knowledge ecologies particularly requires communicators to prioritize participatory approaches for selecting knowledge, producing knowledge and applying such knowledge. The success of such participatory approaches relies on embracing the principles of diversity, equity, access and inclusion. Without such participatory approaches, specific knowledge, and approaches to its production and application, may become isolated and siloed rather than integrated into the knowledge ecology.

Knowledge production will then draw on *all* of the valued epistemologies. Here, the role of a communicator is to facilitate co-creation across *all* of the epistemologies involved. Such co-creation of knowledge around a central issue is likely to be functional and local, similar to the Indigenous knowledge contexts argued for by the authors in this essay and approaches we argue for in this response.

The emergence of diverse and supported knowledge ecologies, which may or may not recognize and value any specific scientific epistemology, will, in all likelihood, challenge the power structures that underpin the privileging of science in education, governance and communication in countries in both the so-called global south and north.

A measure of success for this approach is supplanting the notion of 'science communication' with 'knowledge communication'.

References

Dawson, E. (2014). "Not Designed for Us": How Science Museums and Science Centers Socially Exclude Low-Income, Minority Ethnic Groups. *Science Education 98*(6), 981–1008. doi:10.1002/sce.21133

Finlay, S. M., Raman, S., Rasekoala, E., Mignan, V., Dawson, E., Neeley, L. & Orthia, L. A. (2021). From the margins to the mainstream: deconstructing science communication as a white, Western paradigm. *JCOM 20*(01), C02. doi:10.22323/2.20010302

Nava, T. S. & Hofman, C. (2018). Engaging Caribbean island communities with indigenous heritage and archaeology research. *JCOM 17*(04), C06. doi:10.22323/2.17040306

Okere, T. (2005). Is there one science, Western science? *Africa Development 30*(3). doi:10.4314/ad.v30i3.22227

Rasekoala, E. & Orthia, L. (2020). Anti-racist science communication starts with recognising its globally diverse historical footprint. *Impact of Social Sciences Blog*. Retrieved from https://blogs.lse.ac.uk/impactofsocialsciences/2020/07/01/anti-racist-science-communication-starts-with-recognising-its-globally-diverse-historical-footprint/

Sesan, T. & Ibiyemi, A. (2023). Looking back to launch forward: A self-reflexive approach to decolonising science education and communication in Africa. *JCOM 22* (04), Y01. doi:10.22323/2.22040401

Smith, P. H. (2018). Epistemology, Artisanal. In *Encyclopedia of Renaissance Philosophy* (pp. 1–9). doi:10.1007/978-3-319-02848-4_1182-1

Watego, C., Whop, L. J., Singh, D., Mukandi, B., Macoun, A., Newhouse, G., … Brough, M. (2021). Black to the Future: Making the Case for Indigenist Health Humanities. *International Journal of Environmental Research and Public Health 18*(16), 8704. doi:10.3390/ijerph18168704

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