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TRANSFORMING KNOWLEDGE AND RESEARCH FOR JUST AND SUSTAINABLE FUTURES: Towards a new social imaginary for higher education

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ABSTRACT

The paper considers why it is important to transform knowledge and research for just and sustainable futures and discusses the role of higher education in these transformation processes. The paper sets out how knowledge, research, and knowledge systems can be understood and critiques knowledge hierarchies that have emerged in the context of colonialism, leading to the marginalization of the knowledge systems and languages of the colonized. It is argued that there is a need to create new ecologies of knowledge that value and develop synergies between 'all of the archives of the world' and that can revitalize and expand the knowledge commons and contribute to more just and sustainable futures. Higher education has a pivotal role to play in the creation of new ecologies of knowledge and a revitalized knowledge commons through promoting socially and ethically engaged research, the decolonization and reorientation of university curricula and pedagogy to foster sustainable futures, and the democratization of universities to better represent historically marginalized groups. Underpinning this role must be a shift from a Western modernist social imaginary of higher education to one based on a new planetary consciousness.

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Introduction

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INTRODUCTION

The Sahle-Work Commission on the Futures of Education (UNESCO, 2021) makes a compelling case for transforming knowledge and research for just and sustainable futures. The report critiques existing knowledge hierarchies developed through European colonialism and calls for cooperation and solidarity to strengthen complex ecologies of knowledge, drawing upon diverse knowledge systems. This conception of a multiplicity of knowledge systems advocates for the ‘inclusion of ideas and thoughts that celebrate a greater diversity of possible futures beyond the present’ (p. 126) and legitimizes diverse sources of knowledge that can contribute to meeting the needs of existing and future generations and the planet. In the view of the Commission, the recognition and inclusion of a greater diversity of possible futures must form the basis for a new social contract for education (see also Toukan, 2023). However, whilst the report makes a strong case for epistemic pluralism, it raises fundamental questions about how we conceive knowledge and research, why and how knowledge and research must be transformed, and the role of higher education in the transformation process.

The paper commences by clarifying how knowledge and research can be understood. It explains how existing knowledge hierarchies have emerged in the context of European colonialism and makes a case for the creation of new ecologies of knowledge that can draw on ‘all of the archives of the world’ (Mbembe, 2023). Recognizing the diversity of knowledges in the world and creating new ecologies of knowledge is important for redressing past injustices and as a basis for a revitalized knowledge commons that can contribute to realizing more just and sustainable futures. The second part of the paper focuses on the implications for higher education. It is argued that higher education has a pivotal role to play in the creation of new ecologies of knowledge and a revitalized knowledge commons through promoting socially and ethically engaged research based on transdisciplinarity and equitable co-creation of knowledge; the decolonization and reorientation of university curricula and pedagogy to foster sustainable futures; and, the democratization of universities to better represent historically marginalized groups. Underpinning these transformations must be a new social imaginary for higher education based on what Mbembe (2023) describes as a ‘planetary consciousness’.

HOW CAN KNOWLEDGE AND RESEARCH BE UNDERSTOOD?

Generally, ‘knowledge’ refers to information, facts and understanding about the natural and social worlds gained through experience or education. It can take many forms (theoretical, practical, emotional, spiritual, etc.) and is expressed in diverse ways (from abstract theorizing to forms of social interaction to artistic expression). Through processes of knowing, human beings make sense of their relationships with each other, the natural world (living and non-living), and tools, such as technologies, which they use to act in the world. The social nature of knowledge and of knowing and its intrinsic value to the realization of fundamental rights and freedoms gives rise to the idea of the knowledge commons, i.e. the view that knowledge should, wherever possible², be publicly accessible and democratically governed in keeping with the principles of open science (UNESCO, 2022b). ‘Research’, on the other hand, usually refers to the processes through which we co-construct and validate knowledge about the world through our interactions with each other and with nature and technology. They might include activities ranging from conducting scientific experiments in a laboratory to forms of experiential knowledge generation.

Knowledge and research are situated within ‘knowledge systems’, i.e. complex webs of knowledge creation, organization, validation, and sharing encompassing how knowledge is generated, stored, transmitted, and applied³. There are many different types of knowledge systems (Lepore et al., 2023: 4). For this paper, these include (but are not confined to) academically-based, disciplinary knowledge systems spanning the natural and social sciences, arts and humanities; community-based knowledge systems situated across diverse community settings, encompassing know-how, expertise and skills passed down through generations; and, Indigenous knowledge systems, which are integral to Indigenous

2 UNESCO’s position on open science is that ‘access to scientific knowledge should be as open as possible, but sometimes access may need to be restricted, for example to protect human rights, confidentiality, intellectual property rights, personal information, threatened or endangered species, and sacred and secret Indigenous knowledge. Open science encourages scientists to develop tools and methods for managing data so that as much data as possible can be shared, as appropriate’ (UNESCO Recommendation on Open Science).

3 It is in these terms that UNESCO describes its Local and Indigenous Knowledge Systems (LINKS) initiative. See, for example, <https://www.unesco.org/en/links>, last accessed 27 May 2024.

communities and are the product of Indigenous Peoples' direct experience and their long histories of interaction with their natural surroundings (Lepore et al., 2023; Odora Hoppers, 2002). All knowledge systems shape and are shaped by the broader social and cultural contexts in which they are embedded giving rise to distinctive knowledge cultures. Lepore et al. define knowledge culture as 'the set of formal and informal roles, structures, norms and practices, shared meanings, and cultural forms (e.g., language, symbols, rituals), which influence how knowledge is understood, valued, assembled, shared, and acted upon in specific settings (Lepore et al., 2023: 4). It will be argued below that a critical role for higher education is to integrate diverse knowledge systems and that this requires a profound shift in the existing knowledge cultures found in higher education institutions.

Understanding knowledge systems as complex adaptive systems (Fransman et al., 2021) allows for an appreciation of their distinctiveness while recognizing that all knowledge systems change over time and have fluid boundaries with other knowledge systems. Change to knowledge systems might arise through discoveries that challenge existing understanding⁴ or interactions with other knowledge systems. If knowledge systems have come into contact through processes of trade or migration, they may interact in competitive or synergistic, mutually beneficial ways by sharing knowledge and innovation. However, knowledge systems may also come into contact through conquest, conflict and colonialism. The spread of European colonialism since the 15th Century, for example, precipitated the development of existing knowledge hierarchies and hegemonies. The knowledge systems that served the colonizers' interests were considered by them to be superior and universal in their application and scope, whilst colonizers often delegitimized the knowledge systems of the colonized as being provincial and based on superstitious beliefs rather than on 'objective' truth. Today's debates stem in part from interactions between knowledge systems.

Scientific knowledge systems have become hegemonic during the scientific revolution in Europe, coinciding as it did with empire building. It is, however, problematic to conflate disciplinary science with 'Western science' as is sometimes the case in the literature. Scientific knowledge drew extensively on knowledge and innovations from African, Arabic, South American, Asian and many other civilizations that predated the European Renaissance, whether in mathematics, medicine, astronomy or environmental science. These debts to other civilizations are often barely acknowledged (Bernal, 1989; Harding, 2008; Saliba, 2007). Science has also been developed by scientists across diverse geographical and cultural contexts, even if the current environment of knowledge and research favours scientists based in the Global North.

The scientific disciplines evolved in the context of colonialism, capitalism and patriarchy and have been used to legitimize the hegemony of powerful social and economic interests (Shiva, 2016; Harding, 2008). For Mbembe, the dominance of a form of scientific rationality based on the abstract and dispassionate extraction of knowledge makes it possible for science to be used instrumentally. Technological mastery over nature has facilitated new forms of violence over ecosystems (Mbembe, 2001; Shiva, 2016). The extraction of raw materials has led to the pollution of land, seas and rivers, whilst the reliance on fossil fuels has contributed to climate change. States have often deployed science to develop surveillance and means of violence that have been used against their own and other populations. Science has also been misappropriated for ideological purposes, such as the development of the eugenics movement that served to legitimize racism and colonialism (Gould, 1996)⁵.

The rise of 'scientism' (Visvanathan, 1997) based on a belief in the objectivity and universality of empirical, scientific methodologies as the 'gold standard' against which all forms of knowledge and research must be judged has also influenced the development of social sciences. For example, economics and psychology are often premised on the idea that the social world, like the natural world, should be understood rationally and objectively using scientific, empirical methodologies. How these disciplines have developed also reflects the predominance of Western cultural assumptions (Odora Hoppers and Richards, 2012). For instance, they frequently draw on individualistic conceptions that contrast with the more collectivist understanding of human subjectivity that characterizes many non-Western cultural traditions. As Mbembe puts it, the 'universal scientific subject remains [...] a Western man, the product of a specific historical trajectory [...] It is this universality that needs to be questioned' (Mbembe, 2001: 159).

4 For example, the philosopher of Science, Thomas Kuhn, discusses how science has evolved through various paradigm shifts as new facts give rise to new theories of science Kuhn T (1970) *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.

5 The eugenics movement served to justify racism and colonialism through the spurious claims that there exists a hierarchy in human aptitude based on 'race' with White Europeans at the top of the pyramid and Black Africans at the bottom.

It is essential, however, to recognize that community-based and Indigenous knowledge systems are also situated within power structures in which custodians of knowledge have a designated status within a formal hierarchy. For example, Indigenous knowledge systems and the traditional structures they serve are sometimes patriarchal (Khupe, 2014; Keane, 2008; Jackson, 2023). Therefore, it is essential to see community-based and Indigenous knowledge systems in their broader social and historical context and not to idealize or romanticize them as being divorced from broader power dynamics and inequalities or stuck in the past, unable to adapt and evolve.

In the context of contemporary globalization, knowledge systems co-exist within a wider knowledge governance system that reproduces knowledge hierarchies (Odora Hoppers, 2021). There exists a hierarchy in funding and status between universities at a national level and between universities based in the Global North and South reinforced by global league tables and rankings. Research funding favours elite institutions in the Global North, and Northern-based funders often determine what research should be funded. These dynamics lead to inequalities in the working partnership between Northern and Southern partners.

Publishing houses predominantly located in the Global North produce outputs in English and other dominant languages, making it more difficult for academics in the Global South to publish. Southern-based academic journals are rarely afforded the same status or prestige in academic rankings as those in the North. Knowledge is often organized according to a hierarchy between disciplines, which influences the peer review process. Citation practices discriminate against Indigenous knowledge outputs (Priyadharshini, 2023). Governments also have a crucial role in governing knowledge production through, for example, intellectual property legislation, competition law, and regulation of access to different kinds of knowledge.

Knowledge and research are increasingly privatized. Both public and privately funded education is a vast marketplace for various private interests, from producing textbooks and learning materials to educational technologies with implications for education understood as a public good (Verger et al., 2016; Srivastava, 2013). The private sector funds research through its own research, design and innovation processes and philanthropic activities. Some of this research has relied on extracting knowledge from community-based and Indigenous knowledge systems (UNESCO, 2022b). Multinational corporations are prominent in producing and disseminating digital content with implications for the knowledge commons. Although the private sector is mainly driven by profit, it depends on publicly funded education to provide the expertise required to meet its knowledge needs. To promote open science and knowledge sharing, it is important to guard against the unfair extraction of knowledge and its commercialisation, whether it is produced in higher education, community settings, or from Indigenous Peoples (UNESCO, 2022b).

Knowledge systems are, therefore, shaped by broader forces of history, are never neutral and serve competing interests in society. Of relevance here is recent decolonial scholarship that has drawn attention to the 'colonial matrix of power', i.e., the extent to which inequalities in power developed during colonialism have been perpetuated in the postcolonial era (Quijano, 2007; Mignolo, 2023). Building on this idea, Ndlovu-Gatscheni views the 'coloniality of knowledge' as the ongoing dominance of disciplinary knowledge developed under colonialism, marginalizing the ways of knowing of the formerly colonized. He sees the coloniality of knowledge as a tool of 'coloniality of power', perpetuating global inequalities and legitimizing Western dominance. The coloniality of knowledge also contributes to the coloniality of being, instilling a sense of inferiority and self-doubt in colonized peoples, including over the value of their Indigenous knowledge (see also Fanon, 1986). It is essential, however, to recognize the agency of scholars in formerly colonized countries in resisting coloniality and creating new ecologies of knowledge, drawing on diverse knowledge systems, including Indigenous ones, in the process (see for example Táiwò, 2022). Importantly, knowledge and research can serve historically marginalized groups' interests in resisting coloniality and realizing just transitions to more sustainable futures (Swilling, 2020).

WHY MUST KNOWLEDGE AND RESEARCH BE TRANSFORMED?

The above discussion of the relationship between knowledge and power raises issues of epistemic justice. Schmelkes has recently defined epistemic justice as ‘the right of every people to their own knowledge and ways of generating, legitimizing and valuing it, as well as the right of everyone to the knowledge of humankind. The quest for epistemic justice also entails putting a stop to the disappearance of languages and cultures that is occurring every day (Schmelkes, 2023: 1). The understanding of epistemic justice as a right to one’s knowledge and language and the right to the knowledges and languages of humankind has implications for how we conceive of the right to education (below). However, addressing the challenges of unsustainable development requires aligning issues of epistemic justice with social and environmental justice. It demands redressing intersecting inequalities, including those based on class, caste, gender, rurality and disability, whilst simultaneously living in harmony with the natural environment and other species. In this regard, knowledge and research are fundamental for enhancing disadvantaged groups’ agency freedoms and capabilities to live the lives they have reason to value and for ensuring the flourishing of other species and natural systems (Sen, 2017; Schlosberg, 2007).

Following on from the above is the potential role that knowledge and research can play in tackling the complex problems of unsustainable development. Dealing with global challenges, including poverty and inequality, climate change, biodiversity loss, global pandemics, and challenges posed by new technologies are complex, ‘wicked’ problems. Our ability to tackle these problems is enhanced if we can draw on diverse knowledge systems - or, in Mbembe’s (2023) terms – ‘all the world’s archives’ as is discussed below.

TOWARDS NEW ECOLOGIES OF KNOWLEDGE

Transforming knowledge along the above lines requires moving away from a reliance on disciplinary knowledge and creating new ‘ecologies of knowledge’. The term is used to embrace the interconnectedness and interdependencies of knowledge systems and the possibilities for creating valuable synergies between them analogous to a natural ecosystem (Star, 2016; de Sousa Santos, 2007; Wojciechowski, 2009; Aker, 2007). Acknowledging that no knowledge system has innate superiority in explaining complex reality is essential. Epistemic justice demands that each needs to be evaluated using its internal criteria of validity whilst taking account of the broader historical and cultural context in which knowledge systems have emerged and developed (Odora Hoppers, 2002; Odora Hoppers, 2022). All knowledge systems are also subject to biases and are ultimately fallible. The value of different knowledge systems lies in the extent to which each can contribute within broader ecologies of knowledge towards a theoretical understanding of complex reality to solve real-world problems. It is through bringing diverse knowledge systems into critical conversation with each other that it becomes possible to appreciate the strengths and limitations of knowledge systems and their ability to contribute to transformative change.

Recognizing the potential of ecologies of knowledge does not imply ‘rejecting’ academically-based, disciplinary knowledge. Disciplinary knowledge has evolved over centuries and, as argued, has drawn on insights from many civilizations, even if they have taken their modern form in the context of capitalism, patriarchy and colonialism. They encapsulate specialized, systematic knowledge of the natural and social worlds related to discrete areas of human activity. They provide an invaluable resource (along with other knowledge systems) for developing new ecologies of knowledge.

However, if the disciplines are to play such a role, they must be transformed to ensure that they are not universalizing in their assumptions and exclusionary of other ways of understanding the world. As Odora-Hoppers and Richards (2014) have argued, this must include a metaphysical examination of the ‘constitutive rules of the game’ that underpin the disciplines. For the gatekeepers and guardians of disciplinary knowledge systems, this demands exercising ‘epistemic humility’ (see for example, Srivastava, 2022) whilst encouraging processes of critical reflection on the discipline itself. In the case of science, as Asabere-Ameyaw and colleagues have argued (2012), there is much that can be learned from Indigenous African approaches that they have termed a ‘science of the social’, i.e. an approach which integrates an understanding of the natural world with a fundamental belief in the interconnectedness of human beings with each other but also with past and future generations and with all living and non-living things (see also Harding, 2008). These ways of thinking about the natural and social worlds are also evident in other Indigenous knowledge systems.

REVITALIZING AND EXPANDING THE KNOWLEDGE COMMONS

By creating new ecologies of knowledge, a revitalized and expanded knowledge commons can emerge, providing the intellectual and practical resources urgently needed for realizing more just and sustainable futures. The term 'knowledge commons' in English is often traced back to the anti-enclosure movement in England between the 16th and 19th centuries and to the American tradition of shared spaces and democracy that emerged during the American Revolution. More recently, the idea of the knowledge commons has often been associated with the rise of digital technologies and the internet. Open-source software, mass online education and training programmes, Wikipedia, and Creative Commons licenses have become prominent examples of sharing and collaboration in the digital realm. However, corporate interests' control over these initiatives poses threats of knowledge enclosure through patents, copyrights, and paywalls, restricting access and stifling innovation. Powerful technology companies can control online platforms, manipulate information, and shape public discourse, undermining the free flow of ideas central to the commons.

There is a need to expand understanding of the knowledge commons beyond its current dominant usage. For instance, it is essential to note that many Indigenous cultures and civilizations have emphasized knowledge as a common good that is developed and shared inter-generationally. Environmental and social justice movements have also championed the common good, reclaiming resources from neoliberal forces for many years (Lotz-Sisitka, 2017). Leaders like Vandana Shiva (2005) advocate for 'Earth Democracy', linking environmental justice and sustainability to democratizing and de-commodifying Earth's material and immaterial resources, like water, seeds, and knowledge. Such a broader interpretation, encompassing people and the planet, is critical to achieving environmental justice and sustainability. It is crucial, however, not to have an idealized view of a knowledge commons as a 'real' global entity. What might be considered as the knowledge commons straddles national borders and diverse interests and must contend with intellectual property laws at national, regional and global scales. Instead, Lotz-Sisitka (2017) argues for a view of 'commoning as a process' which recognizes the struggles of Indigenous and other groups to maintain intellectual property rights but is also concerned with the educational process of empowering communities with the knowledge and agency required to transform their lives.

TOWARDS A NEW SOCIAL IMAGINARY FOR HIGHER EDUCATION

Education is essential for the transformation of knowledge and research. Through formal and informal education processes across the lifespan, people gain access to the knowledge commons. This section, however, focuses on higher education, as it is often within the higher education sector that academically-based, disciplinary knowledge is produced, validated, and circulated. As argued below, the sector must also play a leading role in creating new ecologies of knowledge. However, if higher education is to contribute towards building a safer, more just, democratic and sustainable world, then, according to UNESCO, higher education needs to be reinvented (UNESCO, 2022a).

Of relevance here is the idea of a new social imaginary, i.e., a change in the collective consciousness that shapes how individuals perceive their relationships, institutions, and shared future. In his seminal work *Modern Social Imaginaries* (2004), the philosopher Charles Taylor argues that modernity brought about a social imaginary characterized by the rise of individual autonomy, the nation-state, and the market economy. Following Mbembe, however, it is argued that a new social imaginary is required to achieve more just and sustainable futures. For Mbembe, a new 'planetary consciousness' is necessary to shift dominant development models based on individualism and competition towards a more collective and cooperative approach founded on an ethics of care. According to Mbembe, 'living together on the same planet means recognizing the 'in-common', that is to say, 'the possibility of other relationships, other ways of inhabiting the Earth, and of repairing it' (Mbembe, 2023: 6). Mbembe identifies Indigenous knowledge systems that emphasize the interconnectedness of all people and all living and non-living things as having an important role to play. In contrast to the universalizing discourses of colonialism, the nurturing of such a planetary consciousness must instead be based on the idea of *le tout monde* (one-worldness), i.e. a conception of human beings that recognizes our interconnectedness whilst simultaneously acknowledging diversity in ways of understanding the world. In the sections below, three interrelated aspects of how higher education can support a new social imaginary are considered, namely, transforming research, transforming the curriculum and democratizing the governance of higher education.

TRANSFORMING RESEARCH

Creating new ecologies of knowledge requires investment in engaged research that can bridge diverse knowledge systems to assist communities in realizing more sustainable futures. The idea of 'engaged research' has different meanings in academia (Holliman, 2017), and it is necessary to clarify what the term means in the context of the current paper. Here, the term refers to bringing the disciplines into dialogue with each other and community knowledge systems through transdisciplinary research based on principles of knowledge co-creation and equitable partnership working. The model of socially and ethically engaged research developed here aligns with Mbembe's idea of a new planetary consciousness in that its focus is on complex, real-world problems that are societally relevant, working in a transformative manner to understand these issues and support proactive actions or interventions.

Transdisciplinary research aims to integrate diverse knowledge systems (Lawrence et al., 2022). Transdisciplinary research pursues theoretical explanations of reality across disciplines and knowledge systems, transcending traditional academic boundaries. It, therefore, encompasses multidisciplinary, interdisciplinary research that uses mixed methods and actively involves non-academic actors in the process. Transdisciplinary research is marked by a strong sense of reflexivity, in which participants constantly consider the broader context and ensure the compatibility of all project components, methodologies and tasks throughout (DeJaeghere, 2024). However, approaches to transdisciplinary research may differ in the extent to which they become embedded in contextual realities and meet the needs of the research participants, as the examples below illustrate.

ENGAGED RESEARCH IN ACTION

This section presents some brief, illustrative cases to highlight the potential and challenges in implementing engaged research based on principles of transdisciplinarity, knowledge co-creation and equitable partnership working. It begins by considering the well-known example of the Intergovernmental Panel on Climate Change (IPCC) which has adopted a transdisciplinary approach in producing its reports. Initiated in 1988 by the World Meteorological Organization and the United Nations Environment Programme, the IPCC aims to provide governments with scientific data to address climate change effectively. The IPCC performs extensive assessments to elucidate the physical science of climate change, its impacts on societies and ecosystems, and viable mitigation and adaptation strategies. These assessments involve a rigorous process, starting with scoping meetings to set the framework, followed by drafting by expert teams based on the latest scientific findings, data, and Indigenous knowledge. After thorough peer review and revision, these drafts receive line-by-line approval from the IPCC panel. The finalized synthesis is fundamental for international climate negotiations and national policy formulation.

Recent reports show increased inclusion of Indigenous knowledge, which is evident through references and case studies of adaptation strategies derived from Indigenous knowledge (IPCC, 2023a; IPCC, 2023b). According to Carmona et al. (2023), however, the peer review process in developing the assessment reports is heavily skewed towards individuals enculturated in disciplinary sciences. Furthermore, the IPCC continues a reductionist narrative that often perpetuates harmful stereotypes about Indigenous Peoples. This critique highlights a need for greater reflexivity in the IPCC processes, advocating for recognizing Indigenous rights, portraying Indigenous Peoples with agency rather than as vulnerable, and embedding Indigenous knowledge genuinely in research methodologies from the initial scoping phase.

From the above example, it is evident that a commitment to transdisciplinarity on its own is insufficient for ensuring that the solutions generated through research are contextually relevant and meet the needs of research participants. Here knowledge co-creation can assist in creating relevance and ownership through involving the intended beneficiaries of the research, along with policymakers and practitioners responsible for implementing change at every stage of the process, from research design to implementation and dissemination. Approaches to knowledge co-creation range widely (TESF Collective, 2024) but typically embrace a range of collaborative and participatory approaches to research, from citizen science to participatory action research. It is also vital within knowledge co-creation approaches to mitigate the inevitable power differentials between partners, and equitable partnership working must be built into the research process, as the following two examples illustrate.

The One Ocean Hub⁶ is a pioneering initiative integrating science and Indigenous knowledge to promote ocean health through inclusive decision-making. This project is distinctive in its efforts to combine academic research with local insights, effectively bridging the gaps between science, law, and policy. It emphasizes the active involvement of communities in its transdisciplinary research, aiming to create balanced solutions that account for both conservation and various ocean uses. The Hub prioritizes empowering marginalized voices and advocating for a sustainable ocean future, moving away from uniform research methods. Instead, it utilizes a knowledge co-creation approach where scientific experts and local communities collaboratively frame research questions. Integrating Indigenous knowledge into the Hub's research is a crucial focus, recognizing Indigenous communities' unique ecological and cultural insights. The Hub uses inclusive methods ranging from citizen science to art and storytelling, enhancing scientific understanding and community resilience. The Hub has established a significant impact through One Ocean Learn, a digital platform, and the DEEP Fund, which spread knowledge and influence decision-making across different levels.

This project has been recognized for its continuous and meaningful engagement with Indigenous communities throughout the research lifecycle, ensuring that it contributes positively to realizing Indigenous People's rights (Tuhiwai-Smith, 2021; Tuck and Yang, 2012). The One Ocean Hub has transformed the notion of 'evidence' by mobilizing the best available marine science and African cosmology. It generated new 'ecologies of knowledge' mobilized through complex contestations and processes involving scientists, fishers, lawyers and ocean defenders. For example, evidence from the One Ocean Hub was recently cited by the UN Special Rapporteur on Cultural Rights in stating that 'sustainable development cannot be separated from the recognition of individual and collective cultural rights, including spiritual and heritage rights' (cited in Morgera, 2022: 1).

The third example presented here is that of the Transforming Education for Sustainable Futures (TESF) network. Like the One Ocean Hub, TESF exemplifies the potential of engaged research and showcases the transformative potential of education in promoting sustainable futures for marginalized groups. Funded by the UK's Global Challenges Research Fund, TESF was active from 2019 to 2023 and involved partners from India, Rwanda, Somalia/Somaliland, South Africa, the Netherlands, and the UK. It supported 67 projects on reimagining education to enhance sustainable livelihoods, urban environments, and climate responsiveness. A significant focus was placed on addressing intersectional educational inequalities, touching on factors like gender, socioeconomic status, race, class, language, colonial history, and indigeneity.

The network emphasized transdisciplinary research and knowledge co-creation, incorporating academic, community-based, and Indigenous knowledge. It built long-term partnerships with NGOs, government bodies, and community groups to foster community engagement and ensure that research outcomes were practically applicable. TESF explicitly recognized power imbalances inherent in research partnerships and prioritized equitable and ethical research practices, advocating for shared ownership, mutual learning, and capacity mobilization. TESF has engaged in projects ranging from enhancing educational access for ethnic, linguistic, and other minorities to education to embedding sustainability education across institutional settings. The initiative also emphasizes community integration through practical applications like school food gardens, which serve as learning and community engagement platforms. Activism emerged as a potent educational tool across several TESF initiatives. Critical issues like water security and land rights were addressed to empower participants to advocate for their rights. Evidence was communicated through the arts and media as well as in more traditional, written forms, using languages, where possible, that were accessible to the beneficiaries of the research.

However, engaged research like TESF and the One Ocean Hub⁷ brings substantial ethical and practical challenges. As discussed by TESF Collective (2024) and others (Lepore et al., 2023; Facer and Enright, 2016), these challenges include managing equal participation across all partners, reconciling diverse research interests, ensuring adequate resources and recognition for non-academic participants, promoting the use of multiple languages, and building trust and reciprocity in partnerships. There is also a need to adapt traditional research ethics to fit co-created research contexts and provide diverse modalities for presenting research findings that respect different knowledge systems. As the examples illustrate, supporting engaged research requires a shift in university knowledge cultures (Lepore et al., 2023) with implications for core university processes, including financial and contractual arrangements between partners and ethical protocols. This shift is

6 <https://oneoceanhub.org/>

7 There are of course other examples of the model of engaged research discussed in this paper, although space does not allow for a full discussion. The Knowledge for Change Consortium is an example of transformative higher education spaces and knowledge Lepore W, L. Hall B and Tandon R (2023) *Bridging Knowledge Cultures: Rebalancing Power in the Co-Construction of Knowledge*. Brill.

challenging for universities historically equipped to support disciplinary research and more limited applied research with industry and government. Higher education institutions are also well-placed to transform the broader research ecosystem by, for example, influencing how funding councils, publishers, and peer review processes can better support Southern-led research⁸.

TRANSFORMING THE CURRICULUM

The Sahle-Work Commission makes a strong case for rejecting knowledge hegemonies and hierarchies in the curriculum in favour of a knowledge commons built on a recognition of diverse epistemological perspectives, as the following quote makes clear:

We should resist knowledge hegemonies and foster possibilities for creativity, border-crossing and experimentation that can only come through the full inclusion of humanity's diverse epistemological perspectives. Inherited prejudices, arbitrary hierarchies and exploitative notions must be rejected. Education can enhance people's abilities to build on the knowledge commons, with each generation contributing to their reinventions of the world (UNESCO, 2021: 65).

A priority is to decolonize the curriculum (see for example, Bhambra et al., 2018; Jansen, 2019; Mbembe, 2016).

Decolonizing means that the curriculum needs to draw attention to the colonial legacy in education and society, decentering the Eurocentric bias of the formal curriculum and instead drawing on diverse knowledge systems.

Decolonizing approaches also argue for reparative pedagogies that use understanding the effects of the colonial legacy, racism and the trade in enslaved peoples to open up possibilities for reparative futures (Paulson, 2023; Sriprakash et al., 2020; Walker, 2023).

In keeping with the idea of a planetary consciousness, education must also pivot towards sustainability and planetary well-being, extending beyond traditional academic subjects to include sustainability-related knowledge and values such as environmental awareness, ecological stewardship, responsible consumption, and understanding the interconnectedness of social, economic, and environmental systems (Lotz-Sisitka et al., 2015; Facer, 2020). Indigenous knowledge systems offer unique perspectives and values in this context (Mbembe, 2023). Evidence from the kind of engaged research highlighted in the sections above can prove helpful in educating the next generation of professionals about the value of different knowledge systems for tackling sustainability issues. Teaching and learning should start by recognizing and valuing students' community knowledge and languages, providing a foundation to explore other knowledge systems. Education should facilitate learners' movement between these systems, helping them understand, respect, and appreciate diverse knowledge systems' history, integrity, and distinctiveness and explore their interrelatedness and potential for creating synergies (Tikly, 2020; Odora Hoppers, 2002).

Pedagogical approaches should traverse both formal and informal spaces, including opportunities for land- and place-based learning (Jackson, 2023). They should foster collaborative learning environments where students, educators, and local communities collaborate to identify challenges, co-create solutions, and actively share knowledge. This approach empowers communities to act as agents of change and ensures that educational efforts are relevant to their needs and contexts. Additionally, educational institutions should promote plurilingualism and translanguaging, recognizing the value of all community languages to enhance learners' access to diverse knowledge systems (Milligan and Tikly, 2016; Garcia and Wei, 2014). This inclusive approach facilitates a deeper, more contextual engagement with various knowledge systems, enriching the educational experience.

8 Universities can also sign up for recent initiatives such as the *Africa Charter on Transformative Research Collaborations*, endorsed by the Association of African Universities (AAU) (2023) *Africa Charter for Transformative Research Collaborations*. Accra: Association of African Universities. The charter sets out clear principles to support equitable partnership working between Northern and African-based universities.

DEMOCRATIZING THE UNIVERSITY

Underpinning the transformation of research and the curriculum must be a commitment to democratize higher education. Higher education institutions today, like their colonial forebears, remain elitist and continue to exclude learners based on class, caste, clan, race, gender, ethnicity, language disability, rurality, etc. The use of technology in the context of the COVID-19 pandemic has deepened the digital divide and has exacerbated rather than reduced these inequalities (West, 2023). Education must dismantle barriers to access and promote inclusion for marginalized groups. Inclusion involves addressing gender inequalities and tackling discrimination based on race, ethnicity, home language or disability. Instead, higher education should cultivate empathy, compassion, and respect for diverse ways of knowing and nurturing a new planetary consciousness amongst learners. It should promote values like peacebuilding, intercultural dialogue, and care for humanity and the planet. There is also a need to increase the participation of historically excluded and marginalized groups among Faculty, especially at higher levels of the university. Diversifying Faculty provides one mechanism for integrating marginalized knowledges and reorienting research in the interests of under-represented groups (UNESCO, 2022b). Underlying all the above must be a rejection of the increasingly instrumental role assigned to education in the context of neoliberalism and a reaffirmation of education's role as a public good.

CONCLUSION

It has been argued that knowledge and research, whilst ubiquitous across all societies, are characterized by knowledge hierarchies linked to dominant social interests and the colonial legacy. There is an urgent need to transform knowledge and research to realize epistemic justice, facilitate just transitions to more sustainable futures and nurture a new planetary consciousness. What is needed are new ecologies of knowledge that can draw on all the archives of the world and contribute to a revitalized knowledge commons. It has been argued that higher education institutions have a significant role in these transformation processes by promoting engaged research based on principles of transdisciplinarity, knowledge co-creation and equitable partnership working, decolonizing and integrating sustainability into the curriculum, and democratizing and diversifying the higher education sector as a whole.

Given its historic mandate, UNESCO is well-placed to assist in these broader transformation processes. Since its inception in 1945, UNESCO has championed open access and knowledge sharing. The recent initiatives on open science and the use of AI (UNESCO, 2023) advocate strongly for the principle of knowledge for the common good of humanity, UNESCO (2022b) and the planet. UNESCO also supports processes of 'commoning' (Lotz-Sisitka, 2017) through, for example, its Local and Indigenous Knowledge Systems (LINKS) programme, which advocates for Indigenous knowledge and language rights and the inclusion of Indigenous knowledge in global climate science and policy processes. UNESCO could broaden its policy advocacy to protect and expand the knowledge rights of other marginalized groups. Through its UNESCO Chairs, UNITWIN Networks, and other programmes, UNESCO can foster international collaboration in engaged research (Tikly, 2022). At the heart of UNESCO's historic mission has been campaigning for the right to education throughout life. Here, the idea of equitable, inclusive and good quality education that lies at the heart of the education sustainable development goal (SDG 4) must embrace, at its very core, issues of epistemic justice and the valuing of all the archives and languages of the world as a basis for realizing a new planetary consciousness.

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