

Feature

# Higher Education Futures Beyond the Anthropocene: Mobilizing the Power of Science, Art, and Imagination

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<Abstract>

The multifaceted nature of the ecological crises cannot be solved through research solely focused on technoscientific solutions, but requires a critical interrogation of underlying assumptions about culture, education, and social change. Drawing on decolonial and ecofeminist critique, this article starts with a discussion of the current global climate inertia and the way higher education institutions are implicated in the status quo. It then considers whether and how the current modern/colonial higher education system could be reimagined – and reconfigured – to stimulate a cultural shift toward planetary sustainability. What is the role and responsibility of higher education in fostering the critical imagination necessary for cultural transformation in the face of the Anthropocene? How can we mobilize the power of science, art, and imagination in responding to the climate emergency? How can we reshape the relationship between higher education and planetary sustainability in ways that effectively integrate different knowledge ecosystems, bridge the research-practice divide, and prioritize planetary wellbeing? The article concludes with a mini case study of Arizona State University to illustrate both the challenges and opportunities, as well as contradictions and complexities, in reconfiguring the modern/colonial structures as we begin reimagining higher education futures beyond the Anthropocene.

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## 1. Introduction

Discussions about the futures of higher education have intensified with the cascading crises related to global pandemics, climate change, biodiversity loss, economic precarity, social fragmentation, ongoing wars and military conflicts, and more. From the United Nations to universities, various stakeholders have actively engaged in the process of reexamining the role and responsibility of higher education in addressing these crises. In this context, Nagoya University's 25th anniversary symposium "Connecting Higher Education Research and Practice: What We Can Do in the Next Quarter Century," along with this special issue, offer a unique opportunity to explore the futures of higher education and its research from multiple perspectives, reflecting an urgent need for ongoing international, interdisciplinary, and collaborative dialogues.

While the discussion about the futures of higher education could be approached from different angles (see, for example, UNESCO 2021a, 2021b), I would like to focus on the role and responsibility of higher education in the context of the Anthropocene, *i.e.* the most recent period in Earth's history in which humans have fundamentally altered the planet's geo- and biospheric systems, transgressing planetary boundaries and threatening the future of life on Earth (Crutzen 2002, Steffen et al. 2007, Richardson et al. 2023).<sup>1)</sup> Recognizing the limitations of the term, including the fact that the so-called "Age of Man" is not only enacted differently but also has vastly differential effects across times, places, and bodies, I use it here to draw attention to the disastrous effects of global ecological crises and as an invitation to broaden both our imagination and our methodological and theoretical toolkits (see Mathews 2020). This includes bringing into focus – and into dialogue – important reconfigurations of the term Anthropocene such as Capitalocene (Moore 2016), Chthulucene (Haraway 2016), and Plantationocene (Haraway and Tsing 2019), among others. Collectively, these various critiques call for an urgent reconfiguration of dominant epistemological, ontological, and ethical investments in universality, human exceptionalism, (neo)liberal individualism, and mastery – the core concepts of Western philosophy and the foundations of modern political economy –

as a single vision for surviving on a damaged Earth (Haraway 2016, CIES 2020, Silova 2021, Stein *et al.* 2023, Bozalek and Zembylas 2023, Zembylas 2018). More importantly, these critiques bring into focus alternative trajectories of planetary futures.

The focus on futures in the plural is intentional. As noted in the UNESCO's report *Reimagining Our Futures Together* (UNESCO 2021a), it is important to recognize that "there are multiple possible future scenarios, ranging from radical transformation to profound crisis" (UNESCO 2021a: 8). Thinking about *futures* in the plural therefore allows us "to frame the present differently, to identify trajectories that might be emerging and attend to possibilities that might be opening or closing to us" (UNESCO 2021a: 8). Importantly, thinking about futures in the plural (always interconnected with multiple *pasts* and *resents*) deeply resonates with decolonial research and practice that acknowledge the existence of multiple temporalities, knowledge traditions, and ways of being (Mignolo 2021, Viveiros de Castro 2017, Yusoff 2018). It speaks against the hegemonic idea of "One World made from one world" – the capitalist, patriarchal, and colonial globalized world – gesturing toward "a world in which many worlds coexist" or the pluriverse (Escobar 2020: 9, see also a Gesturing Toward Decolonial Futures Collective 2020, Amsler and Facer 2017). Emphasizing the plurality of possible future trajectories thus opens up transformative spaces from which novel reconfigurations of higher education could emerge to help us face and respond to the cascading effects of the planetary crisis.

The central concern of this article then is to explore what this planetary crisis – and its political, economic, social, and environmental consequences – entail for higher education. In particular, how should higher education respond to the world of shifting planetary boundaries, collapsing ecosystems, and emerging visions? How can we mobilize the power of science, art, and imagination to challenge the status quo and contribute to more sustainable planetary futures? And how can we maximize the impact of our research on policy and practice? Drawing on decolonial and ecofeminist critique, this article starts with a discussion of the current global climate inertia and the way higher education institutions are

implicated in the status quo. It then discusses whether and how the current modern/colonial higher education system could be reimagined – and reconfigured – as a way to stimulate a cultural shift toward planetary sustainability. The article concludes with a mini case study of Arizona State University (ASU) to illustrate both the challenges and opportunities, as well as the contradictions and complexities, in reconfiguring the modern/colonial structures as we begin reimagining higher education futures beyond the Anthropocene.

## **2. Higher Education *in* the Anthropocene: Solution and/or Problem?**

Higher education institutions are at the center of global sustainability debates. As Tristan McCowan *et al.* (2021) outline, universities are “the location of much of the science that identifies the patterns in the changing climate, its causes and possible solutions,” as well as one of the key mechanisms for transforming not only individual attitudes and behaviors, but also the political, economic, and cultural structures on both the local and global scale (McCowan 2021: 14). Furthermore, universities increasingly assume the role in public service and engagement work, aiming to adapt scientific knowledge to local contexts and promote use-inspired scholarship for sustainability. Despite the mounting scientific evidence about global warming produced in universities – accompanied by the growing knowledge about possible mitigation options and technoscientific solutions – the global climate inertia continues as the climate emergency escalates (see Cook *et al.* 2016, IPCC 2018, IPCC 2023, see also Meadows *et al.* 1972, Turner 2008, 2012).<sup>2)</sup> There seems to be a clear disconnect between the growing scientific knowledge about the climate crisis and the failure to mobilize the power of this knowledge for social change.

Going beyond their traditional roles of academic knowledge production, scholars across disciplines – from sciences to environmental humanities – have been engaging in advocacy and public mobilization by issuing multiple warnings about the need for immediate “bold and drastic” action, and a radical transformation of our policies, practices, and lifestyles (see Ripple

*et al.* 2017 and 2020, see also Hartman and Oppermann 2020). To elevate the level of urgency, some climate scientists are choosing to boycott research altogether until their work is taken seriously by policymakers to inform action; many others are leaving their labs to join climate protesters on the streets (Zhong 2022). In parallel, students of all ages – from schools to universities – are walking out of schools and universities to demand concrete, social justice-oriented action by organizing school strikes, die-ins, fossil fuel divestment campaigns, lawsuits, or launching powerful socially engaged art initiatives to raise awareness and mobilize public engagement and response (Anayatova *et al.* 2022, Karsgaard and Shultz 2022, Stein *et al.* 2023, Vamvalis 2023).

Despite the growing urgency to act, the common responses across expert communities and the general public tend to fall too readily into defeatism, cynicism, and self-fulfilling predictions (Haraway 2016, Lamb *et al.* 2020). For example, some responses reflect an almost apocalyptic “game over, too late” attitude, suggesting that any actions we take are “too little, too late” and instead resorting to “doomism” or surrendering “our fate to ‘God’s hands’” (Lamb *et al.* 2020: 5). Others continue to call for more research and education, hoping that the problem will be solved eventually as long as we wait patiently (and work harder) for more innovative techno-scientific solutions or better geoengineering fixes. Yet others redirect responsibility elsewhere, narrowing the action space to personal consumption choices (*e.g.* buying electric cars, recycling, etc.) while obscuring the role of powerful organizations in driving fossil fuel emissions and diverting attention away from system change (Lamb *et al.* 2020). Still others warn of the downsides of climate action, suggesting that any drastic change (*e.g.* abandoning fossil fuels) would carry an even greater burden for society (*e.g.* slowing down economic growth or causing unemployment). Combined, these various logics of climate inaction (and delay) reflect the power of the status quo used to downplay or discount the need for action. In this context, Donna Haraway (2016) asks,

How can we think in times of urgencies without the self-indulgent and self-fulfilling myths of apocalypse, when every fiber of our being is interlaced, even complicit, in the webs of processes that must somehow be engaged and repatterned? (Haraway 2016: 35)

These processes entail, first and foremost, the repatterning of the modern/colonial system and the institutions that support it, including the higher education system. This starts with acknowledging that modern higher education, and the dominant forms of modern(ist) education more broadly, are deeply implicated in the planetary crisis we face. As Orr (2004) noted decades ago, “The conventional wisdom holds that all education is good, and the more of it one has, the better” (p.6). Yet, many scholars have convincingly argued – and empirically demonstrated – that the dominant forms of modern education, including higher education, contribute to planetary unsustainability rather than alleviate it (Stein *et al.* 2023, Bozalek and Zembylas 2023, McCowen 2023, Silova 2021, Common Worlds Research Collective 2020, Komatsu, Rappleye and Silova 2020, Silova, Komatsu and Rappleye 2019, Orr 2004, 2009, Bowers 1995, 2002, Schumacher 1973). Drawing on critique that spans decolonial, indigenous, and ecofeminist scholarship, I will briefly outline some of the ways in which higher education contributes to the planetary crisis, as well as to the global climate inertia and resistance to change, followed by a discussion of the efforts aimed at repatterning higher education *otherwise*.

First, it is necessary to acknowledge that modern higher education has deep roots in modernity/coloniality, stemming from the European Renaissance and European colonial expansion wherein the accumulation of land and money went hand in hand with the accumulation of meaning and knowledge (Tlostanova and Mignolo 2012). In North America, universities’ complicity in the modern/colonial system is directly linked to their role in the dispossession of indigenous lands and peoples, as well as slavery and racism (Stein 2022, Fuentes and White 2016, Wilder 2013, Grosfoguel 2013). For example, Wilder’s (2013) archival research about the history of the first five colleges in the British American colonies demonstrates how universities acted as “instruments of Christian expansionism, weapons for

the conquest of indigenous peoples, and major beneficiaries of the African slave trade and slavery” (Wilder 2013: 17, see also Fuentes and White 2016). These conclusions resonate with Grosfoguel’s (2013) historical and philosophical analysis of the role of Westernized higher education in genocides/epistemicides of the 16th century against different populations globally, including “against Jewish and Muslim origin population in the conquest of Al-Andalus, against indigenous people in the conquest of the Americas, against Africans kidnapped and enslaved in the Americas, and against women burned alive, accused of being witches in Europe” (Grosfoguel 2013: 73). As Grosfoguel (2013) argues, these four genocides/epistemicides are interlinked and interrelated, constituting the modern/colonial epistemic structures of Westernized university that privilege Western knowledge over all other knowledge traditions.

Second, there is a direct connection between the 16th century’s genocides/epistemicides (*i.e.* destruction of cultures and knowledges) and the current ecocide (*i.e.* the destruction of ecosystems). As documented by ecofeminist scholars (Merchant 1980, Plumwood 1993, 2002), the dominant Western modern(ist) thought is based on the structuring dualisms that assert Man’s “mastery of nature.” In *The Death of Nature*, Carolyn Merchant (1980) documents the major transformations in science and society that occurred during the 16th and 17th centuries – “from Copernicus to Newton, from Renaissance natural magic to the mechanical worldview, and from the breakup of feudalism to the rise of mercantile capitalism and the nation-state” (Merchant 1980: 15-6) – tracing how the death of nature as a living being accelerated the domination and exploitation of both human and natural resources in the name of (Western) progress. In *Feminism and the Mastery of Nature*, Val Plumwood (1993) further extends the critique by illustrating how the established dualisms in Western philosophy have enabled not only the domination of nature, but also the domination of some humans over others based on race, gender, and class. Collectively, these ecofeminist scholars argue that the Scientific Revolution in the 16th and 17th centuries further rationalized human hyper-separation from nature, giving rise to industrialization, as well as fossil fuel-charged modes of production and consumption that have pushed the Earth

to its ecological limits.

Third, Westernized universities contribute to reproducing the culture of human exceptionalism and (neo)liberal individualism on a broader scale by prioritizing curriculum and pedagogies that divide culture and nature, mind and body, self and other, in deliberate and systematic ways (Silova 2021). For example, student-centered learning, which has been reinscribed as a central component of education for sustainable development (ESD) and popularized through the UN Decade of Education for Sustainable Development (2005-2014), functions as one of the pedagogical mechanisms that reinforces ontological individualism, further reinforcing the human/nature divide and discouraging people from taking collective action (Komatsu, Rappaye, and Silova 2021, see also Bowers 2005). Furthermore, teachers and students are positioned as the agentic all-knowing subjects and the world “out there” as the inert matter to be studied, managed, and acted upon at will (Common Worlds Research Collective 2020). Curriculum and pedagogy endow humans with agency, reason, and rationality, while simultaneously reducing nature to its exploitable value to benefit humans. Even when teaching about environmental stewardship, humans are presented as caretakers, protectors, and saviors who are responsible for a more effective management of nature as a resource for economic growth and development (Taylor 2017, Stein *et al.* 2023). While such curricula and pedagogical approaches may be familiar (and even comforting) to many educators located at universities in the Global North, they often presume the continuity of the modern/colonial system by reproducing settler colonial ‘saviourism’ and encouraging further investments in modern/colonial futurities (Stein *et al.* 2023: 988, see also Bills and Klinsky 2023, Liboiron 2021, Tuck and Gaztambide-Fernández 2013).

Finally (although this list is far from complete), universities have been instrumental in universalizing Western modern/colonial knowledge system as rational and objective – being equal to and equivalent to a God-Eye view (Boidin, Cohen, and Grosfoguel 2012). Pointing out that the canon of thought in the Social Sciences and Humanities is generally based on the knowledge produced by “a few men from five countries in Western Europe” – Italy, France, England, Germany and the USA – Grosfoguel (2013) challenges the



pretension that this knowledge has “the magical effect of universal capacity, that is, their theories are supposed to be sufficient to explain the social/historical realities of the rest of the world” (Grosfoguel 2013: 74). Furthermore, he points out that the modern/colonial cost of maintaining the universal epistemic relevance of Western knowledge has been the denial of the value – and even the existence – of other knowledge systems, which have been systematically ignored, repressed, and sometimes entirely erased (Grosfoguel 2013, see also Maldonado-Torres 2007, Santos 2007). This form of “the modern *uni*-versity precludes other educational possibilities, because it posits itself as *uni*-versal” (Stein 2019a: 149), while closing possibilities for otherwise worlds and worldviews.

These modern/colonial foundations of higher education continue to structure the work of Westernized universities today. Focusing on American higher education institutions, Stein (2022) explains how universities have been key to making lands in the United States more profitable under capitalist logics: “...universities have trained scientists and managers to work in resource extraction industries and have developed Western scientific and industrial technologies and techniques for maximizing products and profits” in various sectors of the economy at the expense of social, ecological, and planetary wellbeing (Stein 2022: 131). In a similar vein, Crow and Dabars (2023) argue that the very academic culture of universities, which is characterized by the partitioning of academic disciplines and the valorization of increasingly specialized and reductionist knowledge, has led to the abandonment of “its best hope to make sense of the holistic interdependence of humankind and the complex biogeochemical cycles that constitute the Earth system” (Crow and Dabars 2023: 302). By narrowly linking education’s role to fulfilling the promise of economic growth, individual profit, and competitiveness in the global marketplace, universities further reinforce the commitment to the normative horizon of the Western modernity/coloniality. However, as Rappleye and Komatsu (2020) point out, there is a fatal flaw in the very intellectual logic of this scholarly pursuit: “the resources needed to reach that horizon, long imagined as infinite, are, in fact, finite” (Rappleye and Komatsu 2020: 204).<sup>3</sup> Even if universities continue to serve the status quo refusing to change,

“this situation is not tenable in the medium or long term, either for the planet or for the major institutions impacting it” (Escobar 2022: 198). How then can we begin the work of radically (re)imagining and reconfiguring higher education otherwise – beyond its modern/colonial limits, *beyond* the Anthropocene?

### **3. Reconfiguring Higher Education *Beyond* the Anthropocene: A Cultural Shift**

The processes of reconfiguring higher education beyond the Anthropocene are ongoing, multiple, and always inevitably “messy, dynamic, and contradictory” (Sium, Desai, and Ritskes 2012: ii). They are happening everywhere – from within the departments and programs of Westernized universities themselves (*e.g.* McKenzie, Henderson, and Nxumalo 2023, Bills and Klinsky 2023, Bozalek and Zembylas 2023, McCowan 2023, McCowan, Filho, and Brandli 2021, Stein 2019b, Stein and Hare 2023) to the multitude of non-Western, indigenous higher education and non-formal education spaces (*e.g.* Escobar 2022, Komatsu *et al.* 2022, Daigle 2019, Tlostonova and Mignolo 2012, Boidin, Cohen, and Grosfoguel 2012, Grosfunkel 2013).

As the growing number of universities begin to address the climate crisis by upgrading their physical infrastructure, revising curricula, establishing new sustainability offices, or redefining research priorities, their efforts tend to focus on making universities “more sustainable while maintaining business as usual” (Stein 2019b: 198) – or, as some describe it, “business as usual, but greener” (Baskin 2019: 165). This is presumably because some universities may be attempting to address the challenge of sustainability relying on the technological, cognitive, and behaviorist approaches – all of which function to reproduce the mainstream modern/colonial culture – rather than pursue a more radical cultural shift (Komatsu, Silova, and Rappleye 2023). For example, McCowan *et al.* (2021) suggest that universities tend to approach sustainability challenges as a cognitive problem (*e.g.* a lack of awareness about the SDGs among communities and universities stakeholders), technical/logistical problem (*e.g.* a lack of

funding and competing priorities, poor infrastructure or inadequate space), behavioral problem (*e.g.* lack of skills and training, limited resources and materials), or a political problem (*e.g.* unsuitable frameworks, a lack of formal support from national bodies, and a lack of relevant recognition of academic staff working on local collaborations for sustainable development). Without the more radical cultural shift that requires delinking from modernity/coloniality, such approaches are likely to simply reproduce the very culture that has brought about the environmental crisis itself.

Without dismissing the role of technoscientific research and innovations, the cultural shift entails a fundamental overhaul of the underlying modern/colonial structure (*i.e.* culture), including its dominant logic of human exceptionalism and (neo)liberal individualism, as well as its “profound faith in the powers of technology, the workings of a free market, and the growth of the economy as the solution to all problems” (Meadows *et al.* 2004: 203, see also Klein 2014, Komatsu *et al.* 2019). From this perspective, culture must not be understood as merely an inert or stable set of beliefs or values ‘stored’ inside people but rather as patterns of sense making materialized in actual practices, everyday lives, and societal institutions (see Markus and Kitayama, 2010, Komatsu *et al.* 2019). In this context, the cultural shift foregrounds the concept of *self* as a core component of culture that affects all aspects of life, proposing that our behavior is affected by how one conceptualizes the relationship between self and other, including nature (Komatsu *et al.* 2023, White 1967, Naess 1973). Deeply resonating with decolonial, ecofeminist, and Indigenous perspectives, the cultural shift assumes a departure from modernity/coloniality and its denial of our interdependence, relationality, and responsibility toward each other and all beings. Furthermore, it gestures toward pluriversality, acknowledging our interdependence with each other and the world.

Turning inwards to make this discussion more concrete, I would like to introduce a mini case-study of Arizona State University (ASU) to examine its ongoing work aimed at shifting the academic culture toward planetary sustainability, as well as to critically reflect on the complexities and contradictions involved in this process. I chose to focus on ASU not only

because it is the largest public university<sup>4)</sup> in the United States and one of the top ranking in sustainability impact measures nationally and internationally,<sup>5)</sup> but also because it is my academic home institution. The focus on ASU thus helps to situate myself as the author, while offering a unique opportunity to share my insider insights about the complex processes of the university transformation toward planetary sustainability.

### **3.1 A Glimpse into Arizona State University's Transformation Trajectory**

Arizona State University (ASU) is located in a place that requires a simultaneous acknowledgement of colonial legacies and climate crisis impacts. Established in 1885, ASU is located in the Salt River Valley in Arizona, on the ancestral territories of Indigenous peoples, including the Akimel O'odham and Pee Posh Indian Communities, who have been caring for these lands for centuries, enabling the university to be there today. Although the Indigenous peoples have developed deep connections with the Sonoran Desert and the Gila River over centuries, these connections have been severely damaged since the arrival of colonial settlers in 1881 and the industrial development that followed. In particular, the building and the expansion of state infrastructure – especially the Arizona's coal-energy-water nexus<sup>6)</sup> that has brought water from the Colorado River to the expanding cities of Phoenix and Tucson – contributed to the growth of Arizona's population and economy, while denying Diné water claims and establishing conditions for future dispossession, displacement, and marginalization of the Indigenous communities (Curley 2021, see also Emerson and Montoya 2021, Tachine and Cabrera 2021).

Today, the Greater Phoenix area is known for being one of the least sustainable cities in the world (Ross 2011, deBuys 2013). Phoenix is also one of the fastest growing cities in the US, with a current population over 5 million people. At the same time, Phoenix is one of the fastest heating cities in the world (Feld 2021), with temperatures exceeding 100 degrees Fahrenheit (37C) for more than 100 days out of the year. Located in the desert, Phoenix is already hot, but the heat island effect created by the

built environment of the city absorbs heat, causing even higher temperatures. Furthermore, Phoenix gets very little rainfall each year; most of the water supply is pumped from Lake Mead, fed by the Colorado river over 300 miles away. And the river is drying up due to a combination of chronic overuse of water resources and a historic drought (Partlow 2023). Some experts say that Phoenix will be uninhabitable in a near future<sup>7)</sup> (Guidi 2023), although opinions vary (Porter and Sorensen 2023, D’Annunzio 2023).

In this context, addressing the ecological crisis and its impacts – both locally and on the global scale – has become one of the main priorities of ASU. Since 2004, ASU has systematically worked toward foregrounding sustainability in its work – creating the Global Institute of Sustainability, launching the first School of Sustainability in the US, and deploying the largest solar energy portfolio of any university nationally, among other efforts. More recently, this work has evolved into a “comprehensive, university-based approach to ensuring a habitable planet and a future where well-being is attainable for all humankind” (ASU n.d.). In 2020, for example, ASU launched the Julie Ann Wrigley Global Futures Laboratory, an interdisciplinary hub working to mobilize research, teaching, and action to address sustainability challenges and “to design a future in which humanity not only survives, but thrives” (ASU n.d.). Further advancing this mission is ASU’s Center for Planetary Health, a new research facility for fostering an interdisciplinary approach to knowledge generation, collaboration, and innovation focusing on “our relationship with our world, from human origins to our global future” (ASU n.d.).

ASU’s efforts of addressing sustainability challenges are multifaceted and constantly evolving (see Boone 2022). They include substantial changes in academic curriculum (*e.g.* mainstreaming sustainability throughout curriculum, introducing new programs and even colleges/ schools<sup>8)</sup>), hiring practices (*e.g.* increasing the racial/ethnic diversity of faculty and staff<sup>9)</sup>), physical infrastructure (*e.g.* increasing energy efficiency of new buildings and campus retrofits, maximizing onsite solar generation<sup>10)</sup>), research priorities and practices (*e.g.* integrating science and indigenous knowledges,<sup>11)</sup> prioritizing research that directly benefits the public), behaviors (*e.g.* implementing zero waste programming<sup>12)</sup>), partnerships (*e.g.*

forging deeper relationships with the community, taking responsibility for the wellbeing of the communities we serve), student support (e.g. focusing on inclusion rather than exclusion, as well as improving outreach, retention and graduation rates of indigenous students), university business practices (e.g. using services and products that are more sustainable and reusing materials<sup>13</sup>), and other efforts aimed at university-wide transformation toward planetary sustainability.<sup>14</sup>

ASU stands out for explicitly identifying *academic culture* as an area of urgent transformation. At the opening of ASU's Center for Planetary Health in the spring of 2022, President Michael Crow directly called out modern universities – and the academic culture more broadly – as being complicit in the planetary crisis, calling for urgent and more radical change. Knowing that this may be perceived as “somewhat controversial,” especially coming from a university president, he wanted his statement to go “on record”.<sup>15</sup> The extended quotation below only captures a portion of his speech:

We're 2,500 years into what I call the evolution of academia from this little suburb of Athens called, of all things, Academia. Academia is so original that it's named after some farm town from 2,500 years ago on the edge of Athens. That's how original the idea is. That 2,500 years of evolution has brought us to the following outcomes. I want to be clear about this for the record:

A global climate management failure. We contributed for 2,500 years heading off a path where we ended up with a failed relationship with the natural systems on which we are dependent. We, academia, are at least as significantly involved in that failure as any other group.

Second, we abandoned, through the advancement of science, our connection to the actual planet. We heard in Randy's flute music, “*The People and the Land. The People and the Land.*” Almost no one understands that, with some exceptions, obviously. We contributed in the way that we have advanced knowledge to the abandonment of this deep connection. All the people that came before this

institution called academia were deeply connected. There was no separation. The separation came later when we said that we needed to understand things in different ways.

The third thing that we did was we created a hierarchy of knowledge that prizes basic understanding above all else. I understand how the Earth works now. Isn't it really wonderful? And we're all dead. I'm glad you have your wonderful understanding of how these things work and all the wonders of physics and all the wonders of chemistry. I'm not taking anything away from those things. They are necessary but grossly and undeniably insufficient for the future. We deny our interdependence on each other, *the planet and the people, the land and the people*. We deny that. We make decisions by the millions every single year, decisions after decisions after decisions that deny the codependence and the coevolution of our species with this living planet that we are blessed to have come from. We focus on the individual. This is not a libertarian thing for my libertarian friends that are out there. I joke with my libertarian friends that I'm a libertarian also. I'm just a different libertarian. I'm not a libertarian that believes only in my own individual liberties. I believe in protecting the liberties of all the people that follow me, including the Earth that will be there to help them to survive, and I want to protect those liberties also.

We have, for whatever reason, become genius idiots. We have massive knowledge and limited understanding. We abandoned, for whatever reason, the way in which knowledge evolved in the thousands of generations that came before modern science and the thousands of generations that came before modern academia. We need to find a way to bring those things back together, to connect them in new ways that we've not really figured out how to do. These 2,500 years of the evolution of academia, it's been okay. A lot of great things have happened, but we've got some serious, serious issues. (emphasis added)

The recurring reference to "*The People and the Land*" – which was

introduced right before President's Crow speech in a land acknowledgement by Nataani Hanley-Moraga (Indigenous student currently studying business at ASU) and then carried further in a beautiful flute song by Randy Kemp (Indigenous artist and ASU alumnus) – ties together the deeply interconnected challenge of addressing modern/colonial legacies and planetary sustainability crisis. Through their powerful spoken word and music, these members of the ASU community – a business student, an artist, and an administrator – have collectively and unanimously signaled the urgency of reconfiguring the relationship between people and the land as key to changing the present trajectory of planetary crisis, while undoing the damage that has been done. This is at the heart of a cultural shift, which is enacted on an ongoing basis by university faculty, students, and staff in everyday life – from classrooms and labs to dining halls and parking spaces.

Although the wheels are now in motion, such radical cultural change is both impressive, but also inevitably slow and incomplete. For example, while achieving carbon neutrality six years ahead of its formal commitments (see Tricoles 2020), ASU has not yet fully divested from fossil fuels. According to the ASU Foundation (n.d.), the university has made no new direct private fossil fuel commitments since 2015 and the current investment portfolio does not hold any thermal coal companies directly. The ASU Foundation's (n.d.) investment strategy states that the university has committed to “no new direct fossil fuel public or private investments, gradually leading to the dissolution of the remaining direct fossil fuel investments” by 2035. This is neither fast nor radical enough for many ASU students, faculty, and staff, who call for immediate and full divestment from fossil fuels. Furthermore, there is a lack of investment in infrastructure to support the reduction of travel-related carbon emissions, whether in the form of public transportation improvements (*e.g.* reducing the price of public transport and increasing public transport availability) or pedestrian and bike friendly transit options beyond campus that provide safe, efficient, and affordable routes. In this sense, the university reform is bound up with the US (and Arizona state) political economy dictated by fossil-fuel interests (see also Adkin 2023).



On a different note, the task of (re)building relationships based on interdependence can be especially challenging in an academic institution that has operated for decades under a (neo)liberal logic of competition. “Repeatedly ranked #1 in areas that matter” – #1 in innovation, #1 in sustainability, and #1 in global impact (see a recent promotional video<sup>16</sup>) – ASU has a complicated relationship with rankings. On the one hand, ASU uses rankings to measure its own progress toward sustainable development goals (SDGs), while simultaneously competing with other universities “motivated by economic interest, desires for status, and the sharing of knowledge goods” (Marginson 2011: 35). On the other hand, it contributes to the global data infrastructure – the so-called “academic Olympics” – that sustain “the epistemic coloniality and unequal political economy of the global higher education system” by reinforcing dominant scientific paradigms thus flattening and homogenizing institutional forms and knowledge systems that do not fit within it – including community and indigenous knowledges (Mills 2023: 475, see also see also Shahjahan *et al.* 2017). As many critics note, global rankings may also distract universities – and the public – from “the deep existential crisis that is at the heart of modern institutions and their false promises of security, progress and happiness” (Mills 2023: 484).

Commenting on the difficult work of uprooting the modern/colonial legacies in a Westernized university setting, some faculty members find themselves attempting to challenge the very systems their employment and academic identity are based on (see Bills and Klinsky 2023, Ajaps 2023). Using a case-study of ASU’s School of Sustainability, for example, Bills and Klinsky (2023) discuss barriers related to implementing Justice-Based Environmental Sustainability education, including individual obstacles (anxiety and discomfort) and systemic ones (university understandings of land, progress, and power). Importantly, Bills and Klinsky (2023) highlight different ways in which faculty members identify and use “cracks” in the system to support change, while creating spaces for critical self-reflection that allow university stakeholders to both recognize individual agency and realistically assess where and how the larger system impedes changes and could be transformed. Working across different academic units, faculty and

students are building communities of practice to collectively identify opportunities for transformative change and solidarity both inside and outside the academy.

Meanwhile, the cultural shift is further catalyzed by multiple people, projects, and academic units that challenge the status quo in the most powerful and imaginative ways. Among many examples is a multiyear, multi-stakeholder Arizona Water Innovation Initiative, led by the Global Futures Laboratory in collaboration with Ira A. Fulton Schools of Engineering. Through this initiative, ASU works with industrial, municipal, agricultural, tribal, and international partners “to rapidly accelerate and deploy new approaches and technology for water conservation, augmentation, desalination, efficiency, infrastructure and reuse” (ASU Arizona Water Innovation Initiative n.d., see also ASU 2022). The initiative encompasses units working on technical solutions and water data infrastructure (e.g. The Advanced Water Observatory and Decision Support System, the Global Center for Water Technology), as well as policy and social engagement (e.g. Impact Water – Arizona, Arizona Water for All, and Kyl Center for Water Policy). For example, “The Arizona Water for All” program focuses on Arizona’s most water-insecure households and communities to improve water security and engagement in water decision-making using community-based participatory approaches, while The Kyl Center for Water Policy at ASU’s Morrison Institute promotes research, analysis, collaboration, and dialogue to build consensus on sound water stewardship for Arizona and the West. Complementing these initiatives in important ways is the “Water Narratives and Societal Change”<sup>17)</sup> project by the Water Impact-Arizona, which brings together ASU faculty, students, and community to explore impactful water narratives through storytelling in a variety of forms, from live music and dance performances celebrating water to written stories, video, and photo art exploring our relationships with water.

Furthermore, ASU’s Center for Science and the Imagination<sup>18)</sup> brings together unlikely collaborators – writers, artists, and other creative thinkers alongside scientists, engineers, and technologists – to (re)imagine possible futures together. The Center’s work takes on different innovative

forms, from hosting imagination salons to organizing an Imaginary College that supports the work of “rebels, hackers, wizards, inventors, and alchemists driving pathbreaking research, teaching and outreach projects” (e.g. Margaret Atwood, Kim Stanley Robinson, Paolo Bacigalupi, and Nnedi Okorafor, among many others), to producing and disseminating pedagogical resources to engage the broader public in the process of imagining possible futures. At the core of the Center’s work is a commitment to cultivating a collective sense of agency and responsibility towards the future that is both inspiring and inclusive of diverse voices and visions (Center for Science and the Imagination, n.d.).

Another example is a socially engaged art project that grew into a youth-led movement “*Turn it Around: Youth Visions of Climate Futures*.”<sup>19)</sup> Implemented by an intergenerational group of students and faculty from ASU’s education, arts, and sustainability programs, this project was specifically designed to crowdsource youth visions of climate futures in order to radically reimagine the role of education and reconfigure the relationship between people and the Earth. Through this initiative, young people from around the world were invited to respond to several prompts asking youth to imagine ideal learning environments, share their everyday actions that contribute to a livable future on Earth, tell why climate education is critical for their learning, or share where they find hope and resilience in facing the uncertain future. Curated into a creative variety of ways – from a deck of flashcards to art exhibits, pedagogical materials, and a policy report – their collective visions “shift and shuffle the dominant knowledge systems and categories” by challenging existing education policies, practices, and patterns as no longer possible, tolerable, or even thinkable (Anayatova *et al.* 2022). Furthermore, this work activates a series of turning points – intergenerational, decolonial, methodological, and pedagogical – in order to unlearn harmful patterns and begin relearning how to be a part of the Earth’s ecological community.

Although it is impossible to give justice to the breadth and depth of initiatives underway at the university, this short case-study gives a brief insight into the complex workings of one institution toward a fundamental cultural shift, as well as the opportunities and challenges that this process

entails. Working within the existing system to simultaneously reduce harm and mobilize ideas, people, and resources toward articulating alternatives, ASU is a living example of an institutional metamorphosis from the modernity/coloniality cocoon. While dealing with lingering attachments to the promises offered by modernity/coloniality (*e.g.* progress, sustainable development, global competition, university rankings, *etc.*), it is also creating openings for new, more viable planetary futures to emerge. Its work is neither predictable nor complete, but fascinating to observe – and to be a part of.

#### 4. Toward A Cultural Shift

Another university is possible; to heed this call, however, demands from us a reimagining of possibility. The fate of human society and the Earth is at stake. (Escobar 2022: 198)

As universities worldwide mobilize efforts to respond to the planetary crisis, we must remember that the destruction of the planet has not been the work of ignorant people, but rather “the results of work by people with BAs, BScs, LLBs, MBAs, and PhDs” (Orr 2004: 6) – predominantly university graduates. Acknowledging the complicity of higher education in the planetary crisis is therefore the first step toward articulating alternatives and (re)imagining higher education otherwise. This process entails facing “the limits of the system and the institutions we have inherited” (Stein 2020) and “unlearning what imperial/colonial designs have naturalized as the only way to know and the only way to be” (Tlostanova and Mignolo 2012: 22) – that is, the logic of human exceptionalism and (neoliberal individualism, the belief in infinite economic growth and progress, the reliance on universal designs and technoscientific solutions, among others. As Prádanos (2020) notes, such higher education is “just preparing our students for extinction, not for life” (see also Adams 1995).

Although it may be difficult to imagine higher education otherwise, “another university is possible,” but only if it is delinked from the matrix of modernity/coloniality (Escobar 2022: 198, emphasis added; see also

Tlostanova and Mignolo 2012, Boidin *et al.* 2012, Stein 2020, Silova, Rappleye, and Auld 2020, Bozalek and Zembylas 2023). In fact, many alternative forms of higher education already exist despite modern/colonial efforts to displace and eradicate them (see examples in Tlostanova and Mignolo 2012, Sterling *at al.* 2018), while many others are actively in the making (for example, the case of Arizona State University above). In this context, it is important to bring into focus – and into dialogue – existing and emerging alternatives that challenge the very idea of “*uni*-versity” and its investments in onto-epistemic universality, supremacy, and mastery, while instead foregrounding “*pluri*-versity” that recognizes and engages with knowledge traditions from “across multiple places, cultures and cosmovisions” (Dunford 2017: 390, see also Boidin *et al.* 2017, Grosfoguel 2013, Stengers 2012). Taking “pluriversality” as a starting point is thus essential to understanding and (re)learning the relational and interdependent nature of self-, life-, and world-making more broadly. It is at the heart of the cultural shift toward more viable and ecologically just planetary futures.

## Notes

- 1) According to Stockholm Resilience Center, six of nine planetary boundaries have been crossed as of 2023, with the notable increase of the pressure in all boundary processes (Richardson *et al.* 2023). While transgressing planetary boundaries may not be as easily noticeable as drastic changes happening overnight, together they mark a critical threshold for increasing risks to the planet and people. Commenting on these findings, Rockström (quoted in Stockholm Resilience Center 2023) warns that the combined pressures of transgressing these key boundaries will inevitably lead to “irreversible change and harm.”
- 2) In particular, some studies suggest that the world will cross the 1.5 degrees Celsius (2.7 Fahrenheit) warming threshold this decade (Hansen *et al.* 2023), while most scenarios under the United Nations’ Intergovernmental Panel on Climate Change (IPCC 2023) envision the world breaching 1.5C during the 2030s. Crossing this threshold will radically redraw the map of the world and cause irreversible changes – from species extinctions to resource shortages, famines, and mass migrations of climate refugees on a global scale, threatening the lives of the world’s poorest and most vulnerable populations and ultimately disrupting life for everyone, everywhere.
- 3) See, for example, comparative education research that links education (*e.g.* expressed in overall levels of cognition) to economic growth through large-scale student achievement tests run by the OECD’s Programme for International Student Achievement (PISA) and associated with the international development industry (see Rappleye and Komatsu 2020). While the validity of such claims has been recently critiqued (see Komatsu and Rappleye 2017, Rappleye and Komatsu 2021), the logic of growth continues to dominate education policy circles in both national and international contexts.
- 4) As of 2023, ASU’s enrollment exceeded 145,000 students in its on-campus and online programs combined (ASU 2023a).
- 5) ASU has ranked No. 1 in the United States and No. 2 in the world for its sustainability practices by the 2023 Sustainability Tracking, Assessment & Rating System (STARS), a program run by the Association for the Advancement of Sustainability in Higher Education. In addition, it has ranked #1 by the Times Higher Education Impact Rankings for addressing the SDGs (Terrill 2023).
- 6) See Curley (2021) for a detailed discussion of three historic events related to

the Arizona's coal-energy-water nexus: (1) the creation of the Colorado Compact in 1922; (2) Congressional funding for the Central Arizona Project in the mid-1960s; and (3) the proposed water settlements between the State of Arizona and the Navajo Nation in the early 2000s. The nexus included the construction of dams, power plants, pumping stations, and canals, accompanied by the political compromises, evolving technologies, massive water diversions, population displacements, and national financing – all working together “to expand and reenforce colonial difference over space and time” (Curley 2021: 2). The present-day inequities in socioeconomic and health conditions, education access, and water security on the Indigenous lands underscore the impact of settler colonialism (Emerson and Montoya 2021, Tachine and Cabrera 2021).

- 7) The summer of 2023 was “a test of endurance” with the historical record of 31 consecutive days of temperatures above 110F (43C) and minimal cooling at night. In these temperatures, hiking trails were closed down and children's playgrounds had warning signs, reminding parents that the metal playground equipment is too hot to touch. In a New York Times article, one local reporter wrote, “In triple-digit heat, monkey bars singe children's hands, water bottles warp and seatbelts feel like hot irons. Devoted runners strap on headlamps to go jogging at 4 a.m., when it is still only 90F degrees, they come home drenched in sweat and promptly roll down the sun shutters. Neighborhoods feel like ghost towns at midday, with rumbling rooftop air-conditioners offering the only sign of life” (Healy 2023).
- 8) For example, ASU has established schools and programs that directly signal the break with the traditionally siloed academic disciplines, including the School of Complex Adaptive Systems, School for the Future of Innovation in Society, The School of Ocean Futures, the Center for Global Discovery and Conservation Science, the Institute of Human Origins, and more.
- 9) For more see Terrill 2022.
- 10) See ASU (2022) case study on achieving carbon neutrality, including through physical infrastructure.
- 11) For example, ASU is home to over 60 Indigenous faculty. In addition to hiring practices, the university has made efforts to center Indigenous students and faculty, as well as Indigenous ways of knowing and being in the academy through academic programs and retention initiatives (*e.g.* programs in American Indian Studies, American Indian Legal Studies, and Indigenous conceptions of justice). It is also creating spaces where indigenous wisdom and latest techno-scientific innovations are brought together on an ongoing

basis and in non-hierarchical ways – whether through joint interdisciplinary projects, discussions, or institutional structures and initiatives. This work is led by colleagues in the Office of American Indian Initiatives and Global Futures Laboratory’s Indigenous Knowledge focal area, making invaluable contributions toward this transformation.

- 12) For example, ASU’s Zero Waste initiative focuses on adapting the goods we consume to maximize their use before sending them back into the economy for the most productive use possible. The emphasis on food reconnection aims to foster a strong relationship with food, knowledge of its sources, and impacts on the health of our planet, while encouraging plant-forward diets. For more see here: (<https://cfo.asu.edu/zerowaste>)
- 13) For more on business practices and policies see: (<https://sustainability-innovation.asu.edu/campus/what-asu-is-doing/>)
- 14) For more, see ASU Charter: (<https://www.asu.edu/about/charter-mission>)
- 15) The recording of the opening ceremony of the Center for Planetary Health, including President Crow’s comments, is available at (<https://video.ibm.com/recorded/131669750>) (President’s Crow speech starting at 15:30 minutes).
- 16) (<https://www.youtube.com/watch?v=fpMQQ2BjYqQ>)
- 17) For more see (<https://www.narrativestorytelling.org/water-narratives>)
- 18) For more see (<https://csi.asu.edu/>)
- 19) For more see ([www.turnitaroundcards.org](http://www.turnitaroundcards.org))

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# 人新世における高等教育の未来

— 科学、芸術、想像の力を結集して —

イヴェタ・シロバ

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## <要 旨>

生態系危機の多面的な性質は、技術科学的な解決策のみに焦点を当てた研究によって解決されるものではなく、文化、教育、社会変革に関する根本的な前提を批判的に問い直す必要がある。脱植民地主義やエコフェミニズムの批評を踏まえながら、本稿ではまず、現在の世界的な気候の惰性と、高等教育機関が現状にどのように関与しているかについて論じる。そして、現在の近代的／植民地的な高等教育システムが、惑星の持続可能性に向けた文化的転換を促すために、どのように再構築されうるのかを考察する。人新世を前に、文化の変革に必要な批判的想像力を育む上で、高等教育の役割と責任とは何か？気候危機という緊急事態に対応するために、科学、芸術、想像力の力をどのように動員できるのか？異なる知識の生態系を効果的に統合し、研究と実践の溝を埋め、惑星のウェルビーイングを優先するような方法で、高等教育と惑星の持続可能性の関係を再構築するにはどうすればよいのか？本稿の最後に、アリゾナ州立大学のミニ・ケーススタディを紹介し、人新世を超えた高等教育の未来を再構築する際に、近代的／植民地的構造を再構築する際の課題と機会、そして矛盾と複雑性の両方を説明する。

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