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Learning regenerative cultures: Indigenous nations in higher education renewal in Australia

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Abstract

What is regenerative learning in Australian higher education? This paper addresses the intersecting crises of climate, species loss and injustice; often called a conceptual emergency. We tackle the problem of disciplinary compartmentalisation, preventing integration of important related concepts. The particular case is separation of the Australian Curriculum Cross-curriculum Priorities at school and university for teaching, learning and research purposes. We are concerned with two of the three: sustainability, and Aboriginal and Torres Strait Islander histories and cultures. The project generates significant conceptual linkages, which strengthen sustainability with Indigenous histories and cultures. The linked concepts have the potential to re-centre Indigenous knowledge systems and knowledge holders in Australian higher education for sustainability. The interconnectedness facilitates learning of, for and through regenerative cultures, which are healing and wellbeing-oriented. Centring Indigenous histories, concepts and wisdom in sustainability education will reveal deeper meanings such as communicative ways of understanding worlds. These have multiple applications in teaching and learning, and improved outcomes in practice. Each case study presented in this paper utilises a decolonising, regenerative research method for answering research questions. The methods challenge Western, colonising power relationships that continue to act upon Indigenous lived experience; enable communicative relations with more than human worlds and are transformative. Together, they value experience, the collective, being creative, narrative, justice, ways of knowing and responding to sentient, animate places. In this paper, decolonising ways of working towards regenerative futures foreground Indigenous ways of knowing, being, valuing and doing, revealing Indigenous knowledge making for contemporary contexts.

Keywords Regenerative learning · Decolonising methodologies · Conceptual emergency · Conceptual linkages · Regenerative cultures

Introduction

We face big problems in our world, caused by the intersecting crises of climate, species loss and injustice—particularly the increasing rich/poor divide. Some writers refer to this as a conceptual emergency (Wahl, 2016) in that we assume the value of concepts that no longer serve us well. Indeed, they may contribute to problems rather than healing them. For instance, our English language reinforces a concept of people as separate from nature, along with a concept of mind separate from body (Kimmerer, 2017). As an example of the former, unless specified, the term: 'environment' tends to mean a non-human environment (Poelina et al., 2020). The latter is illustrated by Mueller (2017) referring to Descartes' "cogito, ergo sum. I think therefore I am". Descartes doubted the reality of his sensual experience, and even the reality of

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his body, but he could not doubt he was doubting (Mueller, 2017, p. 275).

These conceptual separations underpin many of our economic and political systems and often provide rationales for injustices, inequities and environmental degradation that now threaten our futures (Mathews, 2017, 2021). They legitimise many inappropriate practices common in Indigenous policies or in teaching and learning in communities. For instance, teachers may impose values generated elsewhere onto students they teach, rather than working together with community members who know the students, the community and families (Wilks et al., 2020). As another example, there is separation of interconnected concepts such as the curriculum priorities for teaching, learning and research purposes (Australian Curriculum, n.d.). Due to the emphasis on the National Assessment Program — Literacy and Numeracy (NAPLAN), many Australians undervalue our three Cross-curriculum Priorities, which are Sustainability, Aboriginal and Torres Strait Islander Cultures and Histories, and Asia and Australia's Engagement with Asia (Australian Curriculum, nd.; Kuzich, 2011; Selby & Kagawa, 2018).

In this paper, we contend that centring Indigenous histories, concepts and wisdom in sustainability education will reveal communicative ways of understanding worlds, with multiple applications in teaching and learning and improved outcomes in practice, particularly in remote higher education contexts where research continues to demonstrate the need for transformation (Poelina et al., 2022; Wilks et al., 2020). We focus our attention on case studies relevant to sustainability in higher education. These case studies amplify the need to highlight an ecological and climate emergency, bringing our work together for interdisciplinary education (Renouf et al., 2019).

We aim to generate a richer, deeper sustainability education discourse for higher education in Australia and potentially, elsewhere. We call this *learning for regenerative cultures* (after Wahl, 2016). We position this paper as optimistic and visionary whilst being practical and ready for local adaptation.

Literature review

The four sections of the literature review are policy contexts, Cross-curriculum Priorities, Indigenous engagement in transformative learning and decolonising methodologies. Each section serves as context for creating regenerative cultures, which Wahl (2016) sees as societal transformation, arising with acceptance of ideas such as: we and our environments are interwoven; collaboration bestows advantage; our economic systems disrespect planetary boundaries; facing complexity means entertaining ambiguity and uncertainty; and earth care is caring for ourselves and our communities.

Policy contexts

During the last 50 years, UN policies, declarations and international decades supported practical and theoretical justifications for strengthened sustainability education. Australian sustainability policies reflected this most strongly at the end of the first decade of this century. For instance, the most recent sustainability education policy in Australia is *Living Sustainably: The Australian Government's National Action Plan for Education for Sustainability* (Department of the Environment Water Heritage & the Arts, 2009). This was an intentionally transformative policy with four strategies comprising government leadership, reorienting education systems towards sustainability, fostering sustainability in industry and businesses, and engaging community action. Objective 2.2 was 'Education for sustainability is integrated into all university courses/subject areas and campuses are managed in a sustainable way' (Department of the Environment Water Heritage & the Arts, 2009, p. 21). Recently however, instrumentalist Australian governments have made difficult or actively resisted sustainability reorientation by using standards of performativity and accountability (Tomas et al., 2020).

There is currently a dearth of whole of Australian government policies supportive of cross-sectoral sustainability reorientation like the 2009 *Living Sustainably* policy. Individual state policies do exist which take a whole of state government approach (for example, Victoria State Government, 2017). There is a new Australian threatened species plan in development (Threatened Species Commissioner, 2020) and there is a nature conservation plan (Commonwealth of Australia, 2019). However these are weak and do not address the need for a cross-sectoral sustainability reorientation. In view of global intersecting crises including climate change with its attendant issues such as apocalyptic fires, fierce storms, massive floods, species loss and pandemics, policy environments need to be strong (Díaz et al., 2019). As part of the suite of actions immediately necessary, it is imperative that durable forms of sustainability education—which we propose as learning regenerative cultures—form the heart of higher education teaching and learning, research and campus operations.

The Australian government response to Indigenous experts to value Indigenous science in regenerative learning and practice remains inadequate and calls for action now. This wisdom is critical to address injustice and marginalisation in policy, legislation, and practical terms (Douglas et al., 2013). For instance, there is still no Australian policy equivalent to the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) (United Nations, 2011). The inability for the Nation to domesticate the UNDRIP in law reinforces the fact that

Indigenous Australian government reconciliation policy-related actions are frequently criticised for lacking good faith and being weak (Parliament of the Commonwealth of Australia, 2018). There have been some gains in native title laws (Wensing, 2019) and an apology to the stolen generations (Channel Ten, 2008). However, these have afforded little practical change, and there has been a muted government response to repeated calls for Indigenous recognition, particularly in the last 30 years in relation to the Australian constitution (Burney, 2018). In summary, while there have been small improvements over the last few decades in Indigenous policy and legislative contexts, much remains to do (Lea, 2020). Aboriginal and Torres Strait Islander leadership models could contribute to the urgently required transformative actions by informing structural change in higher education teaching and learning, research and campus operations (Wilks et al., 2020).

Cross-curriculum priorities

In terms of school education, two of the three Cross-curriculum Priorities in Australia are sustainability, and Aboriginal and Torres Strait Islander histories and cultures (Australian Curriculum, n.d.). However, the government emphasis on narrowly designed NAPLAN literacy and numeracy test scores demands priority in schools and ironically may produce lower scores for Indigenous young people (Department of the Prime Minister & Cabinet, 2020; Roberts et al., 2019). Further, there is well-founded criticism of the Cross-curriculum Priorities themselves. For example:

> …Australian Curriculum has failed to provide students with the learning opportunities to examine past and ongoing conflicts over the right to land, appraise and evaluate the statutory and judicial processes of the state that denied Aboriginal and Torres Strait Islander peoples sovereign legal rights to Country, or appreciate that our cultural practices are representative of unique epistemologies (Lowe & Yunkaporta, 2018).

Australia tends toward political resistance of new policies for both Aboriginal and Torres Strait Islander inclusion (Buckskin et al., 2018) and sustainability reorientation in higher education and in society. There are multiple human well-being impacts of the long history of shameful Indigenous policies, which produced frontier wars, stolen generations and continuing incarceration over-representation (Fogliani, 2019; Wilson, 1997). At least some of the context relates to the ongoing colonial desire for Indigenous-owned land (Lea, 2020), and the incorrect belief that Indigenous culture (and bilingual education) would impede success at school and work (Dockery, 2017).

To confront impact intensification, there is a substantive argument for Indigenous leadership of transformative actions to change the structures that maintain oppression and prevent systemic renewal (Buckskin et al., 2018). We support this position, and argue that improving, strengthening and enthusiastically addressing the Australian Curriculum's Cross-curriculum Priorities at school would go some way to improving school outcomes beyond NAPLAN-identified issues. To enable this, governments need to commit substantial research dollars towards structural, cultural and social revitalisation across society and universities, and universities must accept responsibility for improving university student learning relating to all curriculum areas (Gale et al., 2015).

Indigenous engagement in transformative learning and decolonising methodologies

Because 65,000 years of continuous sustainable lifeways and livelihoods on this continent predate colonisation (Clarkson et al., 2017), there is little doubt about the value Indigenous knowledges and transdisciplinary science systems bring to the task of restoring ecological systems. This is because First Law embeds specific knowledge of multi-species cultures inclusive of humans within particular Country, which celebrate ancestral wisdom for all time (Perdrisat & Poelina, 2020; Poelina et al., 2019; RiverofLife Martuwarra et al., 2020). Multiple Indigenous-led research partnerships demonstrate the sustainability-oriented transdisciplinary research now available in the broad field of Indigenous knowledge application (for example, Bawaka Country et al., 2019; Poelina et al., 2022; Redvers et al., 2020).

This is now a UN priority for the decade (UN Decade on Ecosystem Restoration, 2020). The situation of these Indigenous knowledge systems as transdisciplinary science, exists within a historical framework lacking a spirit of good will. This amounts to a constant 'othering' of a collective wisdom. Indigenous experts are critical of historical and continuing colonisation as central to this endeavour (Paradies, 2020).

A fundamental problem articulated by philosopher Freya Mathews two and a half decades ago, is that whilst Western science has moved well away from its Newtonian/Cartesian roots that is dualistic and separates mind from matter, society is stuck in this worldview (Mathews, 1994, p. 30). Since then, substantial research has brought together Indigenous and ecological philosophy and regenerative practices. Research teams including Redvers et al. (2020) and Mathews (2009) have been at the forefront of this post qualitative trend recognising animate, responsive living ecosystems such as rivers and forests. Recently, Mathews (2020) wrote a masterpiece of ecological philosophy on the Indigenising of conservation. As Reason and Gillespie (2021, p. 6) ask, 'what would it be like to live in a world of sentient beings rather than inert objects'? Answers to this question are available through forms of experience, and

Indigenous ecological language and philosophies articulate these with clarity.

Decolonising methodologies

Each case study presented in this paper utilises a decolonising, regenerative research methodology to answer research questions. The methods challenge Western, colonising power relationships that continue to act upon Indigenous lived experience, are communicative with more than human worlds and are transformative (Paradies, 2020). Together, they value experience, the collective, being creative, narrative, justice, ways of knowing and responding to sentient, animate places. Within this theoretical framework, emergent post qualitative research recovers and reveals experiences previously oppressed and marginalised, such as place-based standpoints, by decentring knowledge (LeGrange, 2018).

Within this decolonising context, communicative inquiry processes for intercultural and/or multi-species collaboration reveal shared themes across the studies, along with performative commitment to transformative learning (or the *doing* of change making). These themes are increasingly utilised through the movement in environmental education and ecological philosophy towards first law (Mathews, 2020; Redvers et al., 2020), relational science and land language (Kimmerer, 2017) and decolonising transformative sustainability education (TSE) (Williams, 2018). In essence, these positions hold that more than human beings and things such as stories and places have agency, which is a position of ethical, ontological and epistemological entanglement. They open up possibilities for deepening transdisciplinary collaboration and make possible new, regenerative futurities that overcome present limitations.

To summarise the literature review, as Australians we need national policy settings that are decolonising, relating to acknowledgement of histories, respect for and inclusion of Indigenous peoples, cultures and knowledge systems, values and ways of being. We need policy settings responding to global calls for healing and restoring ecosystems and social systems. Application of these settings are required in higher education and across school systems. When we merge these separated policies and fields of learning, we allow emergence of occluded knowledge systems and phenomena always present. Truth-telling and national-local reflections about histories is an essential part of this pathway to learning regenerative cultures.

Methodology

We are a group of academics with common interests who have brought together our case studies to develop a collegial response to the literatures. Within an overarching decolonising, regenerative methodological frame as described above, we discussed and collaboratively analysed our case studies that revealed action themes for teaching, learning, and change. The product of our 'community of practice' methodology (Denscombe, 2008) is a set of exemplar case studies from which we induce generalizable themes.

Case studies

Our collection of case studies begins with a study calling for the renewal of tertiary education for Indigenous engagement and success (Wilks et al., 2020). Essentially, tertiary education requires a worldview renewal to achieve the required inclusive outcomes. Each of our subsequent studies call for renewal in some way. We propose action-oriented research as one way to facilitate regenerative learning and case two comprises three studies to explain the use of this in learning and change. These include Indigenous methodologies for learning and teaching (Wooltorton et al., 2020), feeling and hearing Country (Poelina, Wooltorton, et al., 2020) and enriching place-based knowledge systems (Wooltorton et al., 2020). Case three responds to sentient, animate places in learning, and case four describes the concept of regenerative governance for cultural wellbeing (Poelina et al., 2019), bringing the collection together.

Case 1: renewing tertiary education for remote tertiary indigenous student engagement and success

Resulting from this research (Wilks et al., 2020) we assert that universities must transform their systems, processes and structures to include Indigenous knowledge systems, communities and students in real learning and change. We describe findings from research implemented in remote and very remote Australia. In thinking about change, we asked Indigenous tertiary students and staff about their teaching and learning experiences and their needs; and about their views on ways the sector could better support them into and through university.

They shared stories, experiences and reflections about face-to-face and online contexts, including ways of learning. Emergent themes include the role of cultural security (working in ways that value cultural ways of working), Indigenous knowledge systems; community partnerships; student-focused assessment and support strategies; and pathways and transitions.

The depth and richness of the capacities, knowledge systems and skills of Indigenous learners, and of the communities where they study and live, are significant foundations for student retention, participation and completion.

However, in terms of critique, respondents described how neither metropolitan-based course designers nor university administrations acknowledge Indigenous student strengths or their contexts. We argue that designing to embrace these students' strengths and engaging their communities in their learning experiences and in university operations, will facilitate Indigenous student participation and success.

We also assert that whilst it is common knowledge that histories shape the present, universities pay little attention to the ways historical discourses continue to shape them. We conducted a further study of past policies, to consider the historical context further. We noted that there was little new in our research. Findings, policy releases and publications such as ours are regular occurrences, and this refers to the last 40 years. We noted a regular demand from Indigenous activists to shift from the discourse of 'problem' to 'Indigenous nationhood', beginning in 1972. However, we noted the 'problem' vocabulary lives on, influencing remote Indigenous tertiary education through its deficit discourse and 'gap language'. We assert that justice for remote Indigenous tertiary education futures sits within Australia's discourse and daily narratives. It can recognise Indigenous knowledge systems, strengths, wisdom and contribution, or remain stuck in colonial deficit discourses.

Case 2: action-oriented methodologies for transformative learning

We include three case studies using action-oriented research as vehicles for transformative learning. The first develops a framework for applying conceptual learning, while the second presents a practice-based application. The third applies learning from multiple case studies to generate important sustainability education outcomes. They all need *commitment to the doing of change making*.

Action-oriented research 1: feeling and hearing country

The 'Feeling and Hearing Country' project—and the following two reported later—involved a group of Indigenous and non-Indigenous researchers in the Kimberley region of Australia's northwest, and in the southwest. The intent is to describe the learning-how of a process for learners to use their intuition and senses to engage with or live into the living nature of Western Australian landscapes (Poelina, Wooltorton, et al., 2020).

These capacities rest on knowledges, values and ways of being that recognise and hold stories relating to a responsive, sentient ecological system. The concept of place sentience requires recognition and acknowledgement as the biggest step for non-local learners, because it requires belief in these possibilities at the outset (Poelina, 2022). There is a growing literature about application of place-based knowledge systems into practice, such as the work of Bawaka Country et al. (2019) who describe place-based response-abilities (ability to engage with and respond to the agency of place) as a different but connected notion to responsibility.

On critical reflection, the method needs an unlearning step, or perhaps practice at proceeding whilst suspending belief, to help learners begin. Conversations about working within or across two parallel knowledge systems (place-based and Western) can help. This does not mean one is wrong, but it is important to recognise that each knowledge system has a different impact on society and education.

A difficulty for many learners is that the English language accompanies (ongoing) Australian colonisation through its inherent assumptions of dualistic, binary knowledge systems, which produce 'othering'. In these ways, English 'naturalises' separation of people and nature, which is enshrined in our everyday speech. This is where the first unlearning is necessary, and holistic and Indigenous sciences show a way forward here (see Poelina, Wooltorton, et al., 2020). Many English speakers can intuitively respond to certain place-responsivities, for instance some people feel a cold chill when walking over certain places and others know there might be a message in a certain look or approach from a bird. Sharing personal stories can be good learner beginning points.

The bulk of this project was to document the ways in which Country[1] responds to open-minded learners when they apply empathy, creative communication and engagement with landscapes assuming a sentient, living nature. Many Indigenous languages enshrine a relational concept that is the basis for human and ecological wellbeing. This concept also exists in one's place, and enables intuitive reciprocal responsivity. The change making practice for learners new to this participation is 'becoming family with place', detailed in the second action-oriented research project, below.

Action-oriented research 2. Learning cycles: enriching ways of knowing place

This project involved co-authors embarking on a transformative learning journey in Western Australia's southwest, land of Noongar Indigenous people. The bioregion has a multi-millennial Noongar history, and a 200+ year colonial history. In terms of critique, some of the colonial story has resulted in replacement of Indigenous people by settlers, some who believed Indigenous people never lived in the

[1] In many Australian Aboriginal contexts, Country does not translate in the way English first language speakers use it. An Aboriginal understanding is likely to be inclusive of family, species, rivers, or perhaps spirituality.

region. We stress that when using this approach with adult and school learners, provision of prior guidance and preparation using gentle teaching/learning strategies with authentic, meaningful learner support is essential. To engage with local histories can be deeply painful.

With prior tutoring and final collaborative reflections with the project's Noongar co-author Len Collard, the three environmental educators implemented the learning journey (called *katitjin bidi* in Noongar language). This was to *do* the change making. With the outcome 'becoming family with place', the process produced a way of breaking down the place/people binary. To understand place as family is an Indigenous relational way of seeing, feeling and healing, that involves love of place above all other place-values. A practical component of this project required three days canoeing in a beautiful southwest location.

To be transformative of knowing, emotional engagement is a significant and frequently reported component of the type of action-oriented research we undertook. Equally important here, is the openness to place-based agency—spirit—which we felt on many occasions. After this research, there can be no doubt in any of us of the living, breathing, sentient, animate nature of the southwest. Much of the learning power arose due to the decolonising research framework. The process of learning involved cycling four ways of knowing and in this study, we completed one or two cycles each day.

We found that the order of ways of knowing or activities is unimportant and we adapted the process as we went. For us, the first was unmediated experience: canoeing [experiential knowing; a tacit, holistic form of knowing]. The second expressed the experience through imaginal artistic, or poetic patterns [presentational or creative knowing, which is also tacit, holistic or empathic]. The third way of knowing, being critique, untangled or was critical of the language-related concepts [propositional or practical knowing, which is discrete and discursive]. The fourth stage was the practical knowing, built upon and informed by the prior forms [participative or post-conceptual knowing, which included each of the preceding forms. In the cooperative inquiry process we used, the episteme is practical, post-conceptual or participative knowing, a rich bricolage of each of the prior ways of knowing (Heron, 1996). This was only the first cycle of the four ways of knowing, and our learning journey of seven cycles resulted in an enriched place-practice. We recognised there are layers of meanings embedded in landscapes of the southwest, some of which are 'hiding in plain sight'.

Action-oriented research 3: sharing a place-based indigenous methodology and learnings

Several interconnected place-based learning projects were synthesised and elaborated, this time to produce and refine the Indigenous methodology we called: 'becoming family with place' (Wooltorton et al., 2020).[2] The methodological intent was to facilitate the development and acquisition of an Earth-based, relational consciousness. Further, it was to enrich TSE through acknowledging stories and meanings in landscape. It was also to celebrate Indigenous ways of knowing, being and doing.

In terms of critique, there is despair about 'big' environmental challenges in the world today, such as local damages from putting extractive development ahead of Indigenous interests (Allam & Wahlquist, 2020), climate change, and species loss. Our methodology utilises 'learning together'. Building upon Indigenous critiques of settler colonialism, the methodology is anti-racist; and recognises land as Indigenous, storied, alive, sentient and having primacy.

We assert that because of its continuing history, Australian sustainability and environmental educators carry cultural obligations. This is because in Australia, all landscapes are Indigenous and storied. On this basis alone, we argue that all Australians have an innate right to learn the joy of knowing and interacting with one's place, along with a responsibility for its care. We suggest this place-based methodology is a life-long commitment involving daily transformative actions, an Australia-wide education dedication. The methodology and its pedagogy of 'becoming family with place' promotes Indigenous cultural resurgence and by extension, commitment towards Indigenous sovereignty in Australia. For these reasons, this approach is regenerative rather than sustainability-oriented, which Wahl (2016) argues it is simply not enough. The world now needs a regenerative impulse founded upon recovering place-based knowledge systems previously oppressed, and new ways of working together that are cooperative and caring.

Case 3: multi-species assemblages: decentring the human

Walking-with Derbarl Yerrigan[3] is part of a collaborative international consortium project, *Climate Action Network*, which generates knowledge on children's responses to

[2] A video presentation about the broad project this study is part of, is here: https://blogs.deakin.edu.au/becoming-family-with-place/

[3] Located on Whadjuk Noongar *Boodjar*, *Derbarl Yerrigan* is "Perth waters", an estuary that flows towards the Indian Ocean at Fremantle. In Noongar language, *Derbarl Yerrigan* describes the mixing of salt and fresh waters that make up this culturally, environmentally and historically significant estuary.

climate change. It uses a Common Worlds theoretical framing (CWRC, 2020) that moves beyond the human-centric concerns of mid-20th century human development theory to recognise the complexity of human–environment relations and ecological challenges and concerns. It positions childhood as collective, situated, and entangled, within messy real-world relations.

Walking-with Derbarl Yerrigan[4] involved researchers, educators, and a small group of preschool children walking-with *bilya* (river) to generate climate change pedagogies that centre human–environment relations, rather than individual children's needs. Use of an emerging and responsive walking methodology shifted how sustainability education teaches children *about* the world so they can act upon it, towards learning to become *with* the world in which they are enmeshed (CWRC, 2020).

After months of walking-with *Derbarl Yerrigan* and experimenting with practices informed by Indigenous knowledge systems, we began noticing *how bilya* was making connections and relations.[5] The following *bilya* story shows how children are learning with *Derbarl Yerrigan*.

> Wading through *Derbarl Yerrigan* with Olivia and Katie, we take our time stepping gently over thousands of small river shells, while also watching out for Moon jellyfish and Blowfish. *Bilya* is calm and greets us by gently rolling and swirling around our shins, ankles, and feet. Her coolness touches our skin…
> …With *bilya* gently swirling around us, I use both hands to take a small pair of light pink baby-sized tights and pull the waistband wide, making a large round hole. With both girls watching, I push this Do It Yourself device further below *Derbarl Yerrigan's* surface, trawling back and forth…
> Slowly, and together, we bring the tights back up. With anticipation, we find bits of brown and green river grass in it.
> Olivia begins stomping her feet, churning up sand, shells, river grass, water, and more. Looking up towards sky, she says, "Like *Djenark*[6]!"
> Churning, turning, and mixing continues. Together we churn, turn, and mix. We wonder how *bilya* movements bring plants and marine life closer to us, to *Maali*[7] and to *Djenark*.
> *Bilya* is turning milky yellow-brown.
> Suddenly Katie stops…
> Quietly *bilya* settles and we feel *bilya's* touch and coolness…
> While bending low and sitting in *Derbarl Yerrigan*, we wonder, "How does *bilya* feel today?" Katie replies, "Nice….very….and a little bit scratchy."

We were learning together with *bilya,* which involved, centring Indigenous knowledge systems that recognise worlds as holistic, interdependent, connected, agentic, and entangled (Kwaymullina, 2020). These knowledge systems influenced how we were practicing deep listening, dialoguing, and (re) situating ourselves with *bilya* worlds and coming to know *bilya* worlds as ethical (Blaise & Hamm, 2020).

The pedagogical doings in this project are multiple and informed by Indigenous knowledge systems. We are not just thinking about place, we are walking-with, thinking-with, and becoming-with *bilya*. Rather than walking to a destination, walking-with is being open to what becomes evident to us on the day and then how we respond. Our responses are embodied, emerging, sensorial, and collective. The doing is also more than human. *Bilya wayung* helps us to focus on how *Derbarl Yerrigan* is making connections and bringing worlds together.

Storying *Derbarl Yerrigan* is guided by Indigenous storytellers Kimmerer (2017) and King (2008), who teach us how to pay attention to linguistic imperialism and foreground the animacy of *bilya*. *Bilya Wayung* as a process draws from observational field notes, audio and video recordings, Noongar wisdom, photographic documentation, and traditional 'library' research and makes room for new relations to become visible. In the end, the process helped us all pay attention to **how** *bilya wayung* was happening and how children are part of these worldly connections.

In the higher educational context, these stories are useful for showing students land and place are alive and in relation. It is our wish for lecturers and student teachers everywhere to play with these ways of doing, knowing and being, as we as educators grapple with ancient wisdom and practices for critical times.

[4] Estuary name in Noongar language, the Indigenous language of Perth.

[5] Water (*gapu*, in Yolngu language) is a powerful symbol across different Indigenous groups. Yolnu people, 4000 km to the northeast, have several *gapu* metaphors that are instructive for this project. For instance, *Ganma* is the meeting and mixing place of fresh and saltwater and is a metaphor for Indigenous and non-Indigenous ways of learning. *Gurrutu* (kinship, in Yolngu language) describes how the flow of water is a powerful metaphoric connection of people. (Living Knowledge Project, 2008).

[6] *Djenark* is Noongar for the Australian Silver Gull. We encounter *Djenark*(s) on every walk; and have been paying attention to their movements. Please see Pacini-Ketchabaw and Blaise (2021) for more about these encounters and connections made during our walks.

[7] *Maali* is Noongar for Black Swan.

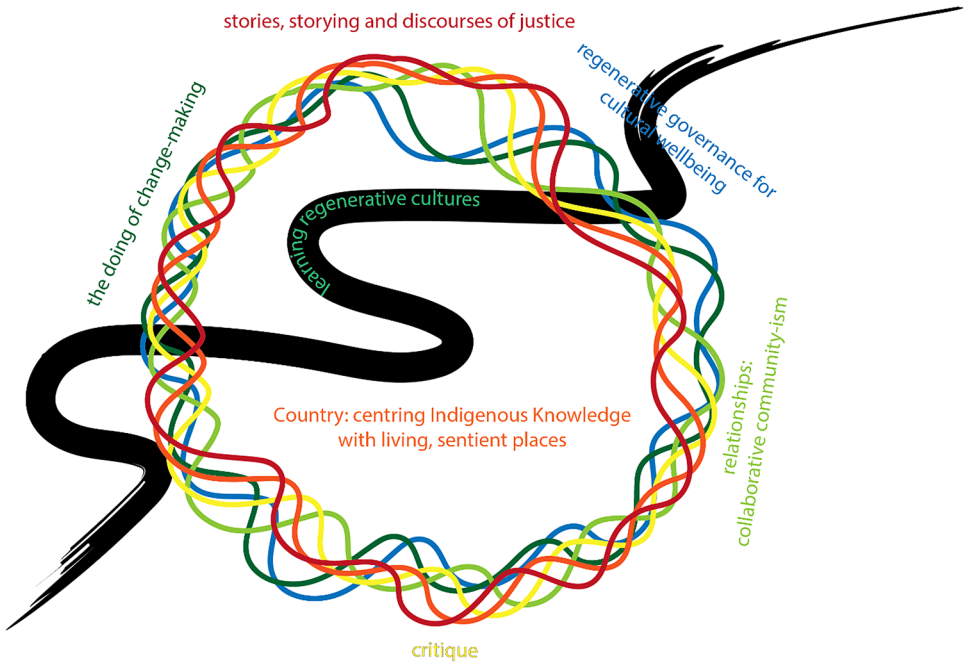

Fig. 1 A framework for regenerative learning

Case 4: regenerative governance for cultural wellbeing

The Martuwarra Fitzroy River Council operates in a way that is continuous with First Law; *Warloongarriy* and *Wunan* Law, the law of peace for sharing and Kimberley decision making that has been in operation for millennia.

The wellbeing and protection of our sacred ancestral serpent being as the protector of our water, Country and lifeways is the central theme for the Council that links people and places throughout the Kimberley and to the Australian continent. Indigenous governance works to support cultural wellbeing, resilience and making the transition to freedom, justice and hope, rather than colonial entrapment in decisions made elsewhere and imposed upon Indigenous peoples.

In terms of transformative ways of working, Council advocates a bio-regional governance model, inclusive of all stakeholders to ensure procedural and distributive justice (Poelina, 2020). There is an imperative to nurture an ethic of care for more than human and human beings and liberate ourselves from the '*me*' paradigm of Western individualism with its domination of nature. Rather, the idea is to take up the '*we*' paradigm of Indigenous community-ism.

Referring to an Indigenous community paradigm, a holistic concept underpins life, inclusive of mental, physical, cultural and spiritual health, with land and living waters central to wellbeing. This holistic concept entangles interrelationships as cultural wellbeing, and includes spiritual, environmental, ideological, political, social, economic, mental and physical dimensions.

Dialogic action is the core of this Earth Centred Regional Governance. First Law or natural law underpins this form of governance, which prioritises the health of the land and water above all. Indigenous people in the Kimberley refer to multiple complementary industries that aim towards the balance of life, as the 'forever industries' which support sustainable life and livelihoods forever. In effect, this case study includes the learning of each of our previous case studies.

Synthesis: learning for regenerative cultures

Our first case study shows both the need for regenerative learning and its application. It serves to highlight the inadequacies of tertiary systems as they currently are, but offers locally generated insights that provide pathways for change, for the inclusion of stories and discourses of justice, for the recognition of Country and for a level of critique that would allow education systems to responsively adapt to the needs of Indigenous learners on-Country.

Figure 1 visually synthesises the concept of regenerative learning, based on a synthesis of the case study learnings. The themes interact, represented by the overlapping spirals to convey their intertwined nature. The snake-like path labelled 'learning regenerative cultures' represents the way in which a life of regenerative learning influences and interacts with the themes of Country, the doing of change making, stories, regenerative governance, relationships, and critique. The theoretical aspect of this representation is its attempt to posit achievement of learning regenerative cultures through a dynamic interaction between the actors of

culture (human and more than human) and the processes they use for regeneration. Regeneration then, is a multidisciplinary process rather than one dependant on the axiomatic understandings of a single discipline (for example environmental science). Below, are examples that apply the themes.

Stories, storying and discourses of justice

We speak our world into existence. Stories of gaps and deficits direct our attention to these things, whereas strengths-based stories of places, inspiring ancestors, living and sentient/sacred places, and justice for places and people directs our attention to visions of strong, regenerative futures.

For instance, in an environmental education unit and in an Indigenous studies unit, two of our authors (separately, in different universities) privilege Australian Indigenous perspectives as most relevant and incorporate Indigenous voices throughout. Guest speakers and unit site materials include stories, articles, oral histories, Australian-acclaimed stories about Country (for instance), television programs, recorded lectures, podcasts, videos and all social media platforms. Both authors include Indigenous peoples from around the world and voices representing animals, ancestral beings or regions (such as rivers or forests). Students are also required to find their own websites and materials to bring into the unit.

Country: centring Indigenous knowledge with living, sentient places

Arising from an Indigenous relational worldview, we recognise Country is alive, sentient and communicative. When we turn to other-than-human beings and places, we become aware they are waiting for us to pay attention, to 'be-with' kin—as our extended relations. When we learn to perceive, hear and recognise evidence of this, we notice this has always been. For example, in an Indigenous studies unit, a traditional owner (who is a professor), takes his students to a river for an on-Country introduction. He teaches students to introduce themselves to their local waterways and engage in respectful ways.

As a second example, another of our authors formed the Climate Change Education Network because of the Australian summer of bushfires (2019/2020) and the global acceleration of the climate crisis where academics could work across universities to support Victorian[8] teachers to take up Climate Change Education. Within this initiative, the collective spent 2020 collaborating with various teacher groups through online workshops, conferences and meetings to model strategies to show how previously marginalised human and more than human voices could be utilised within educational practices. One illustration involved the offering of a workshop at two different teacher conferences using a Council of All Beings, a circle meeting in which each participant speaks for a more than human species or place (see Macy & Brown, 1998, for detail of this practice). It can be tricky to manage a full council in a 45-min conference session, but the participants slowed down and considered this approach, and many later reported successfully using the strategy with their own students.

Critique

Frequently, systems and individuals are not fair, just or caring. One way to address this is by critically examining discourses of knowledge systems. We ask questions such as how the narrative represents a subject, what history is relevant, who benefits, what is objectified, marginalised or missing, and on what foundation the information sits.

The Australian Curriculum—General Capabilities foreground the development of critical and creative skills in students. A strategy one of our authors uses in her environmental education and sustainability unit is to bring real life scenarios into seminars for collaborative unpacking, to understand the issues and explore strategies for how these could become useful teaching moments for student teachers to apply in their future classrooms.

Relationships: collaborative community-ism

Here, we refer to the movement from an individualist to a collective, community-centric way of governance including economic systems and living. This changes the notion of individual from consumer to an autonomous and stronger self, who accepts responsibility for a healthy system. For example, in an Indigenous science unit, students participate in an on-Country component. Traditional owners welcome them to Country, perhaps with a smoking ceremony, to induct the students into the learning paradigm. One of the traditional owners might talk about their story of growing up in an autobiographical sense. Some traditional owners might talk about their mission lives, while others might describe growing up with families. The traditional owners might take the students to relevant locations, which might be (for example) the top of the mountain to see across the landscape and talk about Country and essential cultural values, such as language and families. Importantly, they always refer back to the Noongar *katitjiny bidi* or learning journey.

Another application of university students learning about responsibility to community is participation in Citizen Science programs, which is a strategy many organisations use to generate the data they require without the financial burden of collecting it. This strategy is widely

[8] Victoria is a state in Australia where this author lives and works.

critiqued, yet enjoyed by many across Australia. Citizen Science programs support learners engage in the environment and collect data, thereby closely observing places and/or species through experiential learning for practical outcomes. Teachers might use publicly available data collection repositories. This is participation in real science for all.

The doing of change making

Regenerative practices reflect communicative, caring, collective and considerate ways of being. The implementation of processes for learning and change, the ways in which we do regenerative work, is located, communicative, shared and caring. For example, one of our authors is part of an academic group contracted to deliver professional development to Primary Teachers to build their capacity as science specialists. One day was devoted to modelling how to learn outside, even in the centre of Melbourne. The group utilised green spaces and engaged with more-than-humans. They applied 'slow pedagogy' strategies, enabling learning to go deeper to understand and experience. Enacting slow pedagogy (Payne & Wattchow, 2008) requires commitment while bringing valuable benefits.

As another example, when working with traditional owners as part of an Indigenous studies unit, students learn to listen, observe, smell and participate-with place at the pace of the traditional owners. Traditional owners describe 'place' in an Indigenous way. This is implicit in the process of *katijin bidi,* a learning journey using an Indigenous method of looking/seeing. This is a critical approach to learning, change and capacity building. As another example, this same teacher talks about Indigenous construction of Indigenous people, compared to a construction by mainstream society and by the academy. This is an inside/outside perspective and features the ways 'othering' works.

Regenerative governance for cultural wellbeing

Governance for regenerative societies recognises cultural wellbeing for all peoples. It rests upon similar themes and principles to those within this paper. For example, in the experience of one of our authors, over time there have been incremental changes in university governance due to Indigenous scholars in the leadership space. This has happened with the redundancy of such ideas as anthropologists being Indigenous knowledge authorities, while Indigenous studies became robust through collegiality and interdisciplinary research. Further, it is of interest that some of the equity models now operating in universities had their origins in the access and bridging sector for Indigenous people.

Benefits of a regenerative learning culture

By offering a framework for regenerative learning, we hope the concepts we bring together support action for change, creating new regenerative practices and discourses. The transdisciplinary framework synthesizes previously disparate knowledge areas, and helps us move away from individualized notions of success towards more collaborative and community-oriented understandings of wellbeing. While outcomes remain important, the process of achieving regenerative learning come to the fore. We shift the discourse away from a western purely cognitive approach, towards learning relational human and more than human knowledge foundations, shifting the purposes of learning from predominantly economic to those of Country and cultures. This does not deny the importance of 'economy', but subordinates it within a more holistic paradigm.

We employ action oriented, critical and transformative pedagogies. In doing so, there is scope for personally meaningful, creative and innovative solutions to global and local problems. There are numerous learning applications in formal and non-formal contexts for this framework, with potential for intergenerational knowledge translation and transmission. At the same time, the framework sits comfortably with Australian Cross-curriculum Priorities for primary and secondary education. This could encourage teachers and pre-service teachers, to more critically engage with different knowledge systems, which open up new opportunities for transforming the world we live in.

Application of the framework to reconciliation/treaty agendas could create new liminal spaces for shared languages of justice with new discourses to promote healing and recovery from traumas associated with colonisation. There will be challenges, however. Renewal takes work in rethinking, planning and implementing new ways of knowing, being and doing.

Conclusion

We synthesized six Australian case studies around Indigenous studies and sustainability education in higher education teaching, learning and/or research. We proposed a tentative learning framework of, for, about and through regenerative cultures. Themes are narratives and discourses of justice; centering Indigenous knowledge of Country with its living, sentient places; critique; relationships and collaborative community; regenerative forms of governance and *doing* the change making. At its core, is deep inclusivity of Indigenous histories, knowledge

systems, values and ways of knowing, being and doing. This means finally removing notions of Indigenous 'problem' and 'deficit' from all levels of Australian education and policy settings, instead foregrounding Indigenous strengths. We recommend Indigenous studies and leadership be the heart of Australian higher education. It is who we were, are—and always will be—as Australians. The resulting regenerative learning cultures adds wisdom, depth and experiential-practical knowledge for optimistic, hopeful futures of healing, restoration and renewal.

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