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SCIENCE COMMUNICATION FOR SOCIAL JUSTICE

Clashing epistemologies and contrasting injustice: an Aotearoa/ New Zealand case

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Abstract

How, as researchers, do we recognise and address the implicit biases when engaging across multiple knowledge ecologies. In this paper, we consider the way historical and epistemic justice and injustice plays into our knowledge making when dealing with a specific issue: forest biosecurity. Specifically, we focus on the Aotearoa New Zealand context where knowledge making has been, and still is, dominated by a western paradigm, but where there is increasing discussion on mātauranga Māori (Māori knowledge) as a valid and valuable form of knowing. Drawing on the experiences of a transdisciplinary research programme that sought to examine the human dimensions of biosecurity aspects of the plant pathogens kauri dieback and myrtle rust, we approach our original question using the theoretical concept of epistemic injustice and draw on our experiences as a way to highlight instances and forms of epistemic injustice in the science-society relationship. We argue that the division of epistemic labour (into fields, disciplines, etc), and the ranking and assigning of relative epistemic credibility based on this division is a fundamental part of the western knowledge ecology which creates the necessary conditions for specific and potent forms of epistemic injustice. We contrast this by discussing how other knowledge ecologies, specifically mātauranga Māori, comfortably engages with a variety of knowledge and knowers and discuss the possibilities other knowledge ecologies offer.

Keywords

Public engagement with science and technology; Science communication: theory and models; Social inclusion

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Introduction

There has been increasing interest in the way science communication and public engagement scholarship and practice still seems deeply rooted in a profoundly western worldview which privileges Eurocentric science over other forms of knowledge, often at the expense of social and epistemic outcomes. One way to engage with this challenge is to ask which knowledge do we value through our

knowledge systems and institutions, and which don't we? We explore this question through our experience working with two distinct and at times interwoven knowledges and cultures — mātauranga Māori and Western science — and specifically, draw on our work in the *Mobilising for Action* (MFA) programme in Aotearoa New Zealand [MFA, 2020b].

MFA is a large transdisciplinary government funded social research programme that is investigating the human dimensions of forest health and particularly those forests affected by the tree diseases kauri dieback and myrtle rust which are having devastating effects on Aotearoa/New Zealand's forest ecosystems. In this research programme we have sought to engage with both Western science and mātauranga Māori knowledge systems recognising that these can equally contribute to a deeper understanding of the human dimensions of forest health. Our experience interweaving these knowledge systems to understand forest health and to inform, engage and empower communities working in forest health has led us to consider the way we assign credibility to various knowers in public engagement.

We approach our original question using the theoretical concept of epistemic injustice and draw on our experiences as a way to highlight instances and forms of epistemic injustice in the science-society relationship. We argue that the division of epistemic labour (into fields, disciplines, etc), and the ranking and assigning of relative epistemic credibility based on this division is a fundamental part of the western knowledge ecology which creates the necessary conditions for specific and potent forms of epistemic injustice. We contrast this by discussing how other knowledge ecologies, specifically mātauranga Māori (Māori knowledge), comfortably engages with a variety of knowledge and knowers. This is not to say that epistemic injustice can't or doesn't occur within a Māori knowledge ecology. Rather, we'll show that the openness to a variety of knowledges acts to limit the forms of epistemic injustice that develop.

Context

Kauri dieback and myrtle rust are forest diseases which are having devastating effects on New Zealand's forest ecology. Kauri dieback, which was first recorded in 1972, but only formally identified in 2006 [Balm, 2017], has spread rapidly through New Zealand's northern forests, the last remaining strongholds for the magnificent and ancient kauri, which is one of the largest and longest-lived trees in the world and as a keystone species supports a unique forest eco-system [Toome-Heller et al., 2020]. Kauri are also culturally significant for Māori, the indigenous people of Aotearoa/New Zealand as they are central to the Māori creation narrative and regarded as an ancestor and so the loss of kauri is analogous to the loss of cultural identity [Lambert, Waipara, Black, Mark-Shadbolt & Wood, 2018]. For many New Zealanders who connect strongly with 'the bush', kauri are often aligned to national identity [Fischer, 2016]. With no known cure and given that only around 0.5% of kauri remain, any significant loss has profound environmental, social and cultural impacts.

Myrtle rust also presents a significant ecological and cultural threat [Jo et al., 2022]. However, unlike kauri dieback which is located only in the northern regions where kauri grow, myrtle rust is wind-blown and has now been identified in many regions across New Zealand [Toome-Heller et al., 2020]. Several of New Zealand's native and endemic myrtaceae species, are now showing vulnerability to the

disease and in some areas like the East Cape/Tairawhiti region, myrtle rust has already led to significant loss of the tree species ramarama. There is considerable anxiety over the recent discovery of myrtle rust on the iconic pohutakawa, which dominate coastal forests.

As an island nation with unique ecosystems, New Zealand places considerable importance on maintaining a robust biosecurity system. However, both kauri dieback and myrtle rust have shown significant vulnerabilities in New Zealand's biosecurity. A 2016 independent review of kauri dieback research and management identified critical gaps in research funding and in the insufficient breadth of knowledge used to inform biosecurity management [Black & Dickie, 2016]. The authors called for an urgent need to fund science research, but importantly it also identified a need to meaningfully fund mātauranga Māori (Māori knowledge) and social science research to enable more holistic and collaborative approaches to research and management, to halt the rapid spread of the disease. In the wake of the report, the Kauri Dieback Management Programme, led by the Ministry for Primary Industries faced widespread criticism over the perceived incompetency of its management. Kauri dieback has therefore become a hotly contested space and a litmus test on both the vulnerability of New Zealand's biosecurity system weakened further by the arrival of myrtle rust in 2017, and of epistemic injustice that has valued and privileged some forms of knowledge over others

Epistemic justice and injustice

To help us think through the questions around how various forms of knowledge are viewed and valued, we draw on the theoretical concept of epistemic justice. Epistemic justice, classically, comes in two flavours; one based on resources and one based on credibility [Coady, 2010]. Epistemic justice (or injustice) based on resources follows in the footsteps of more standard distributive justice issues. These are primarily concerned with how the scarce resources, in our case knowledge or its acquisition, are allocated. We say knowledge is scarce because not everyone can have all the knowledge (or access to knowledge) they may want or need — for example trying to access an academic article but not having the right subscription [Medvecky, 2016]. This leads to questions over how the scarce resources of knowledge and its acquisition should be allocated; who should get some of those scarce resources and how much they ought to have. While this has some bearing on the discussion that follows, we will draw more heavily on epistemic injustice stemming from how credibility is assigned.

Epistemic justice based on credibility is primarily concerned with testimonial knowledge — the knowledge we gain from others, be it through speech, through the written word or whatever form of intentional communicative methods it may be (hence the importance to science communication). Issues of justice arise when we consider how we assign credibility to various actors as knowers [Fricker, 2007]. In an ideal world, we each are granted the credibility we deserve; the amount of credibility we are given matches (more or less) the reliability of our claims. As Jennifer Doudna knows a lot about gene editing but, presumably, less about sociology, her claims about gene editing should be viewed as credible but her claims about sociology, less so [Medvecky, 2018]. From this perspective, she should be taken as a credible knower about gene editing *because* she knows a lot about gene editing (as evidenced by having won a Nobel prize for her work on CRIPSR-Cas9), and not for some non-epistemic reason, such as her being white.

Epistemic injustice occurs when a knower is granted inappropriate levels of credibility; either too much or too little credibility. Too much credibility (or credibility excess, as it is termed) occurs when a knower is given more credibility than they are perceived to deserve given the knowledge they hold, based on non-epistemic reasons, such as unconscious bias ones, like the knower is a man, white, wealthy, older, or a myriad of other reasons that have little bearing on the reliability of knowledge claims. Too little credibility (or credibility deficit) occurs when a knower is given less credibility than they deserve [Anderson, 2012; Fricker, 2007; Medina, 2011]. Epistemic injustice arising from perceived inappropriate credibility assignments, often stem from and reinforce social injustices (whether consciously or not). Science and its communication are well-known to not be immune to such injustices. In this paper, it is this form of epistemic (in)justice — the type which arises from credibility assignment — that we will primarily draw on.

Responding to epistemic injustice: the case of Mobilising For Action (MFA)

How, as researchers, do we recognise and address the implicit biases in the hard and soft institutions that shape our knowledge, methodologies, cultures and practices? To answer this, we critically reflect on a transdisciplinary research programme that sought to examine the human dimensions of forest biosecurity in New Zealand and specifically the plant pathogens kauri dieback and myrtle rust which are having devastating impacts throughout New Zealand forests [Bradshaw et al., 2020; Toome-Heller et al., 2020]. As an island nation with unique ecosystems, New Zealand places considerable importance on maintaining a robust biosecurity system [MPI, 2024].

In addition to the devastating ecological impacts, as previously discussed, kauri dieback and myrtle rust also have wide reaching cultural and social impacts. Furthermore, biosecurity control measures such as footwear and equipment cleaning stations and forest closures are a hotbed for contestation, as they significantly change people's engagement in forests [MacBride-Stewart, 2019; MacBride-Stewart, McEntee, Macknight, Medvecky & Martin, 2023]. Forest biosecurity is therefore a complex socio-environmental issue, with diverse and often divergent views over how forests should be managed. For management to be effective we would argue environmental agencies and researchers must engage with a diversity of values, knowledges and perspectives to inform decision-making.

In the aftermath of the findings of the Black and Dickie report [2016], and under mounting pressure to respond to the wide criticism of an underfunded biosecurity research system, in 2019 the Government invested $NZ13.75 million over three years for research to specifically combat the spread of kauri dieback and myrtle rust. The research is delivered through the Government funded Biological Heritage National Science Challenge Ngā Rakau Taketake Programme (NRT). Mobilising for Action (MFA) was one of seven research themes that emerged in the NRT programme. It focuses on addressing the social dimensions of forest health by understanding, engaging and empowering people to make on the ground action.

MFA is a transdisciplinary team, engaging social researchers from inside outside the academy. At its core is an explicit recognition that mātauranga Māori and western science knowledge both equally have a role to play in examining the social and cultural dimensions of forest health. To realise this core principle, MFA employed

the innovative waka hourua framework as an overarching approach to guide the research [Rata, Hutchings & Liu, 2012]. This framework is based on the Polynesian double hulled ocean-going canoe or waka, with each hull of the waka representing a body of knowledge that informs the research (see Figure 1). One hull represents mātauranga Māori and the other hull Western science. MFA visualised the platform joining each hull — the papa noho (to reside in a place over generations amongst other things), as a space where MFA's researchers and research, where and when appropriate, could come together, with all parts of the waka required for its effective functioning [see MFA, 2020a]. Based on this framework, and after an extensive scoping investigation to develop a forward looking research programme, MFA funded 12 research projects, three grounded in mātauranga Māori and led by kaupapa Māori specialists (research following Māori processes and methods, by Māori, for Māori and with Māori), one project which interweaves Māori and western science knowledges, five projects grounded in critical social science approaches and frameworks and three projects which specificaly supported outreach activities. It is from this body of research that we explore epistemic injustice through the experiences of a transdisciplinary team working in and across knowledge domains in the epistemic ecology of New Zealand's biosecurity system.

Figure 1. MFA's waka hourua model (https://www.mobilisingforaction.nz/waka-hourua).

Epistemic injustice in Western knowledge ecology

While it is a caricature to claim there is one coherent Western knowledge framework, a broad-brush picture of how knowledge is typically divided and perceived and presented in western culture is still helpful in understanding the dynamics at play. As Nagel explains, Western epistemology traditionally holds the view that "we can know only facts, or true propositions. It is assumed that truth is objective, or based in reality and the same for all of us" [Nagel, 2014]. There are two parts embedded here; the privileging of propositional knowledge and the assumption of the universality of the propositions. This modernist view has been significantly challenged in many ways, from feminist epistemologists' questioning that objective and universality of knowledge to questions over procedural knowledge — the distinction between 'knowing how' as opposed to 'knowing that' [Daukas, 2016; Pirttimaa, Husu & Metsärinne, 2015]. Still, there is little argument that propositional knowledge holds a privileged place in western knowledge ecology; knowledge is first and foremost about claims.

Moreover, in a two-step dance, knowledge is divided into categories which are then ranked and valued differently. The division include the sciences, the social sciences, the humanities, and so on — and within these, further division exists; physics, biology, chemistry, mathematics, history, economics, and so forth. The second step is ranking and valuing these differently, from formal ranking through reputational surveys and such like [Williams & Van Dyke, 2008] to valuing them differently through uneven funding across fields and disciplines [Sarpong, 2022]. It is worth noting this may be especially marked in the English-speaking world where the term science is ambiguous between encompassing knowledge broadly and being reserved for the bio-physical sciences, though given the dominance of the English language as *the* international language of academia, such ambiguity inevitably travels [Alastrué & Pérez-Llantada, 2015]. These aspects — the privileging of propositional knowledge, and the dividing and ranking of knowledge into fields and disciplines — have led to some very specific expressions of epistemic injustice.

One form of epistemic injustice that has been noted arises from the above mentioned ranking of fields where some fields benefit from credibility excess, while others suffer from credibility deficit. For example, the bio-physical sciences have been noted to benefit from greater funding, institutional support and policy structures to share and make the knowledge claims they know public than, say, the humanities, social science, or expert practical knowledge [Medvecky, 2018]. This credibility excess manifests in a number of ways from epistemic trespassing (making claims in an area that is beyond one's sphere of knowledge or expertise) [Ballantyne, 2019] to unwarranted epistemic paternalism (interfering in another's knowing for their perceived benefit).

Another expression of epistemic injustice can be seen to stem from the privileging of Science (used in this context to delineate western academic knowledge) over other non-western forms of knowledge. Again, this comes from the dividing and ranking combined with a privileging of propositional knowledge. But to get to the point of ranking and privileging, the first step is division. First, from this perspective, Indigenous knowledge is assumed to be one thing while Science another, both with their own, fairly clear boundaries. With such demarcation in place, epistemic domains can be ranked; one being viewed as superior, more reliable, more 'evidence-based', or more relevant than the other. What often results from such forms of epistemic injustice in colonial settings is what has been termed epistemic violence, referring to the silencing of marginalized social actors. Epistemic violence stems from a harmful form of what Dotson terms 'reliable ignorance', namely "the state [that] insures that an epistemic agent will consistently fail to track certain truths" [Dotson, 2011]. The incapacity to hear, recognise and value the epistemic contributions of mātauranga Māori in New Zealand within for instance the institution of science, presents a clear case.

An example of this epistemic injustice where normative Western knowledge frameworks have been placed above Indigenous knowledge systems is the "Letter to the Editor" in *The Listener* by Corballis et al. [2021, p. 4]. This published letter from several senior Pākehā (New Zealand European) academics provoked widespread controversy by taking this perspective in placing science above mātauranga Māori [Ngata, 2021]. The letters authors' claimed that mātauranga Māori is not science and has no place in science, a view that internationally has had Richard Dawkins and Elon Musk's support, despite it being widely considered

white supremacist, undermining, invalidating and deeply ignorant of Māori knowledge systems and in turn of Māori culture [Tassell-Matamua, Boasa-Dean & McEntee, 2023]. The letter received a small amount of public support under freedom of speech arguments. While the authors of this letter state that they were attempting to protect and 'save' mātauranga Māori from the colonisation of Western science, the opposite is concluded by experts in mātauranga Māori and its allies [Henry, 2022; Muru-Lanning, 2022] — that these authors were positioning Western science as being superior to Māori knowledge. In addition to this, the letter has been widely seen as being colonially paternalistic towards Māori, with the misassumption that 'Māori need rescuing' [Ngata, 2021]. The scale of the opposition to the Letter to the Editor was highlighted by an open-letter signed by thousands of academics across Aotearoa [Wiggins, 2021]. Importantly, it is commonly known that none of the authors of this "Letter to the Editor" are experts in mātauranga Māori, despite their attempt to be commentators on it. Corballis admitted to not knowing what mātauranga Māori is in a subsequent radio interview [Forbes, 2021]. This Letter to the Editor and many other like-minded proclamations about mātauranga Māori are well-known to ignore the various ways in which such Indigenous peoples see knowledge very differently and outside of the binaries of Western normative ontologies [Tassell-Matamua et al., 2023]; we focus on Māori knowledge specifically due to our geographic location and one of us authors being Māori.

Mātauranga Māori and epistemic injustice

As many Māori authors note, mātauranga Māori is a woven ontological system where all forms of knowledge are interconnected, sometimes fluid and overlapping and never separate or inferior from one another [Marsden, 2003; Stewart, 2021]. Additionally, despite traditions ancestors have passed down generations, Māori knowledge has never been static and continues to evolve and adapt, depending on new influences and empirical insights [Marsden, 2003; Stewart, 2021]. The term mātauranga itself is a contemporary word [Royal, 2012], that can be seen as a response to the colonial dominance of Western knowledge as part of the ongoing Māori cultural renaissance.

New sources of knowledge from the West are commonly known to have extensively and continually been incorporated into mātauranga Māori, such as days of the week, albeit with Māori names. Western science ideas are no exception, with for instance the incorporation of plant and soil research in the pathogen kauri dieback into Māori cultural practices. As many like Dan Hikuroa [2017] and Dubby [2021] note, mātauranga Māori can also be a form of science through its often dialectical nature. An example is how Māori are widely seen to have perfected the concept of conservation of natural habitats due to resource and biodiversity depletion in the form of rāhui long before Western scientists developed similar approaches [Harvey, 2022, rāhui are controls of access to particular habitats assigned by designated Mana Whenua, or iwi/tribes that reside in that area and hold recognised authority of it]. Mātauranga Māori continues to often inform Western science, such as in kauri dieback research with the potential of companion and healing plants for the trees [Lawrence et al., 2019]. Another example is how iwi often have pūrākau (stories) of taniwha (monsters) that warn people where not to build houses, that has begun to inform Western engineering [Evans, 2020].

One can deduce from all of this that mātauranga Māori is both informed by and informs Western science as another area of knowledge, that operates both with and beyond propositional knowledge frameworks. Perhaps what fuels a lot of mistrust around Western thinkers like Corballis et al. is how mātauranga Māori refuses to be limited to propositional knowledge production, by simultaneously including several other frameworks like whakapapa (ancestry), spirituality, the arts (poetry, metaphor, carving, chants and so forth), oral histories and how tāngata (people) are never separate from our physical and natural environment and our associated morality and responsibilities to care and serve others and our natural surroundings. A common epistemic injustice in relation to this often lies in who gets to publicly comment on mātauranga Māori, where Pākehā, Europeans and others who do not have knowledge in it nor are recognised spokespeople around it on behalf of Māori are regularly publicly platformed about it in the mainstream media and other contexts because they are recognised academics, scientists and public authorities and commentators. Often such commentators ignore the multiplex nature of mātauranga Māori that can, for instance, make learning concepts influenced by Western science more accessible, (which we found through MFA's collaboration between Māori artists and non-Māori scientists and school children for instance). The Letter to the Editor by Corballis et al, with Dawkins's and Musk's public follow ups, are cases in point, where these commentators have also attempted to separate science from spirituality and other significant concepts for Māori, assuming Māori knowledge as being inferior in knowledge value.

Reflections on epistemic injustice: how did the waka hourua guide MFA's research to address epistemic injustice?

The power of MFA's waka hourua framework stems from its origin as coming from the party that has historically been under represented in science research. As it drew on an existing mātauranga Māori framework it spoke directly to epistemic justice, by providing an avenue for confronting the disabling impacts of colonisation on knowledge production in biosecurity research.

Explicit in MFA's research is the acknowledgement that Māori cultural identity, beliefs, values, practices and well-being are inextricably linked to the environment. In MFA research, mātauranga Māori is seen as a collective holistic knowledge and the elevation of mātauranga is viewed as essential to better understanding the human dimensions of forest well-being.

Furthermore the framework had already been introduced to the kauri dieback space by a kaumatua (Māori elder), who called for its use to ensure an equal sharing of resources in kauri dieback research and to recognise the principle of partnership as written in Te Tiriti o Waitangi (The Treaty of Waitangi). This founding document of Aotearoa New Zealand, signed by the Crown and many Māori iwi/tribes in 1840, contains guiding principles for the ongoing relationship between Māori and the Crown, and its recognition in legislation and public policies [Orange, 1987]. This socialisation of the waka hourua by a Māori kaumatua, which is acknowledged by MFA, gives the framework's use in biosecurity research, context, legitimacy and credibility.

The framework's essence was realised by MFA through the equal distribution of its research funds across knowledge domains and through the programme leadership, with one western social science specialist and one kaupapa Māori specialist as co-leaders. MFA funded 12 research projects, three grounded in mātauranga Māori

and led by kaupapa Māori specialists (research following Māori processes and methods, by Māori, for Māori and with Māori), one project which interweaves Māori and western science knowledges, five projects grounded in critical social science approaches and frameworks and three projects which specificaly supported outreach activities, including support Māori journalism.

The waka hourua framework also values the contribution of critical social science for understanding and addressing forest health despite social science having been underutilised in conservation management [Bennett et al., 2017]. In conversation with mātauranga Māori, it provides space for development of the transformative social processes needed to bring about news forms of thinking, actions, systems and structures to both recognise and challenge epistemic injustices. It values the multiple knowledges that inform biosecurity research and provides space for those whose voices are often excluded from decision-making in biosecurity research and management [McEntee, Harvey, Mullen, Houghton & Craig-Smith, 2023].

MFA has therefore bought to its research programme a diverse transdisciplinary team, including critical social scientists, academic kaupapa Māori specialists and community and traditional knowledge holders outside the academy alongside artists, curators, school pupils, principals, teachers and their communities. This wide inclusion of voices, practices and methodologies has given recognition to and valuing of a wide range of knowledge particularly knowledges that are often marginalised in more anthropocentric positionings of the human nature relationship which view the environment as a place to be measured and managed [Ives, Freeth & Fischer, 2020] and which privilege Eurocentric approaches by viewing science as the epistemic authority [Ives et al., 2017].

An exemplar case particularly important for us as academics was the way the waka hourua framework was also realised in the peer review process MFA employed in a special edition of an international journal dedicated to its research [Harvey & McEntee, 2023]. MFA's Māori co-lead recommended and sought approval from the journal's editors for a kaupapa (approach) to peer review. This applied the waka hourua's principles of whakamana (empowerment) for the articles' researchers and writers to empower and raise the mana (spiritual wellbeing) of MFA's researchers. It adopted kanohi ki te kanohi (face to-face) as a key method for feedback and exchange during two hui (meetings) between MFA's peer reviewers and its authors. As a result of this approach, the authors' cultural perspectives and their respective disciplinary approaches could thrive and the face to face feedback enriched the depth of critical enquiry from the team's sharing of their collective experience which built on their diverse knowledges. This bought a robust approach to peer review whilst also challenging the Western blind peer-review processes place as *the* standard for rigorous and robust knowledge making.

Another example of how the MFA programme addressed issues of epistemic injustice is through working extensively with children who are often seen as recipients of biosecurity messages and not as knowledge creators in their own rights. Over two years the Toitū te Ngahere (TTN) project partnered with schools weaving in expertise from science/social science, mātauranga Māori and the creative arts [McEntee et al., 2023]. A key focus was to reframe the children's understanding of forest biosecurity through a te ao Māori (Māori world) centred approach, which in MFA's research calls for an emphasis to be ngahere ora, or the

wellbeing of the forest, as opposed to framing forest biosecurity primarily (if not solely) through the lens of plant pathogens [Lambert et al., 2018]. As marginalised voices in biosecurity, the children were viewed as vibrant social actors and the work sought to develop and build their epistemic courage and worth [Fricker, 2007] through the creative arts. This led to the children's work being displayed in gallery exhibitions, published in a book for distribution to all New Zealand schools and displayed as graffiti art on a large mural on two large shipping containers in public locations.

To address epistemic injustice requires rebalancing structures of power that lead to exclusion and marginalization [Anderson, 2012], not simply recognising the marginalised and providing them agency to act or have voice and other projects within MFA sought different ways to engage with and understand the role various voices play in the context of caring for kauri. The Māra Tautāne project [Tassell-Matamua et al., 2023] partnered with a Māori community to record the deep cultural and spiritual significance that Māra Tautāne (ceremonial gardens) hold for Māori. Turning things around from, instead of drawing on mātauranga Māori to better biosecurity systems, this project highlighted the potential effect that biosecurity threats can have on cultural practices that are associated with the ngahere (forest). But the capacity for the learnings from such projects remain limited as the structures that govern biosecurity remain heavily entrenched in models that largely measure economic impacts and deeply embedded in an anthropocentric approach to environmental management in which humans are seen as separate from nature [Tadaki, Sinner & Chan, 2017]. Such approaches also typically favour behaviour change approaches to management and communication with lead agencies focussing on educating the public [McEntee & Mortimer, 2013] . The Māra Tautāne project shows some of the challenges MFA faced in overcoming embedded epistemic injustices. The essence of the waka hourua model was challenged and constrained by the siloed nature of the dominant science and academic institutions, the westernized structures of schools with curriculum requirements and structured timetables and the variable readiness of schools, science institutions and policy agencies to recognise the value that multiple knowledges and diverse communities/stakeholders bring to addressing environmental issues.

Conclusion

The challenge faced when working with multiple knowledge systems stemmed from a twofold tension: a difference in worldviews with regard to knowledge making, and history of injustice, epistemic and otherwise. Specifically, we faced a history of epistemic injustice through unevenly distributed credibility assessments, along with a political history of power imbalance. And we faced working with systems that do not hold or perceive the same aspects of knowledge-making as centrally valuable (favouring propositional knowledge in Western science vs the multitude of sources in mātauranga Māori). As shown in the case of the Mike Corballis et al. letter, these aspects can easily compound to reinforce the existing epistemic injustice. The Mobilising for Action (MFA) programme [MFA, 2020b] aimed to re-imagine how to navigate this space. Put in the language of epistemic justice, MFA sought a way to deliberatiely and intentionally assign credibilty commensurately in the context of social science research around kauri dieback.

In the waka hourua's papa noho — the central platform where we come together as researchers from across knowledge domains — the waka hourua creates a space for potential reflexivity [Greenaway, 2021]. While some structural and systemic embedding of epistemic injustice limits the scope of what is possible, we argue that in the space created by the waka hourua framework we can challenge the contexts of knowledge production and explore more care-full approaches to understanding and managing biosecurity which recognise the inter-connectedness of humans with their environment.

In particular, giving voice to the historically epistemically marginalized community, to have a voice, but more importantly to have knowledge and valid way of knowing is, we argue, the most fundamental lesson we drew from the MFA's waka hourua framework. In many ways, epistemic injustice doesn't just stem from not being listened to or not being heard. It comes from not having one's knowledge recognised, and that, in the context of a colonial country like Aotearoa New Zealand, also requires a recognition of Māori's ways of knowing. This was, perhaps, nowhere more evident than in publishing a special issue in a classically western academic journal, but doing so by drawing on Māori traditions. Importantly, this aspiration to empower (whakamana) the contributors and raise their mana (spiritual wellbeing) — a significantly different approach to peer-review than one classically held in western knowledge making — acted to also empower western social scientist in their work.

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