Decolonising our approaches to educational research Learning from our shared experiences at Rangahau Mātauranga o Aotearoa (NZCER)

Rosemary Hipkins, Nicola Bright, Rachel Bolstad, Bronwyn Gibbs, Janet Lee, Georgia Palmer, and Esther Smaill





Rangahau Mātauranga o Aotearoa | New Zealand Council for Educational Research Te Pakokori Level 4, 10 Brandon St P O Box 3237 Wellington

www.nzcer.org.nz

https://doi.org/10.18296/rep.0057

 $^{\odot}$ New Zealand Council for Educational Research, 2024

Decolonising our approaches to educational research Learning from our shared experiences at Rangahau Mātauranga o Aotearoa (NZCER)

Rosemary Hipkins, Nicola Bright, Rachel Bolstad, Bronwyn Gibbs, Janet Lee, Georgia Palmer, and Esther Smaill

2024



iv

He ihirangi Contents

He kupu whakataki Introduction	1
What this report covers	1
He tukanga An outline of the workshop process	3
The structure of the workshop	4
Making meaning of the data	5
Ethical considerations	6
Ngā whakaaturanga The presentations	8
Whakawhanaungatanga: Relational positioning as decolonising methodology Whakawhanaungatanga Relational positioning Te pūtake Origins Ngā tukanga The relational positioning process Ngā hua Our learnings Te whakakorenga o te mahi tāmi i te ao mātauranga Decolonising education at multiple levels	8 9 10 10 11
Decolonising the curriculum: Is it even possible when curriculum is an instrument of colonisation? The provocation My learning experiences	12 12 12
Navigating towards decolonising assessment Prevailing norms Stepping off solid land Travelling across uncharted waters Embarking on new journeys	15 15 15 16 16
Refreshing PAT Pānui PAT Reading Comprehension assessments	17
Decolonising climate-change education research	18
He kitenga Main themes from the workshop Theme 1: The need to developing a shared understanding of what decolonisation means for	20
kaimahi at NZCER Ideas for follow-up action	20 20
Theme 2: Working together to clarify our own positioning Ideas for follow-up action	21 21
Theme 3: A need to explore systems dynamics Ideas for follow-up action	22 22
He kupu whakataki Reflecting on tensions and challenges	23
Concluding comment	24
Ngā tohutoro References	25

He kupu whakataki Introduction

Tāia te wai (o te waka) kia pai ai te whakatere ki uta ki tai Bail the water (of the canoe) so it may manoeuvre shoreward and seaward (NZCER, 2021, p. 5)

Decolonising education is one of four strategic priorities for NZCER. Citing Linda Tuhiwai Smith, the strategic plan describes this focus as being about "having a more critical understanding of the underlying assumptions, motivations and values that inform research practice" (p. 5).

Within our overall research programme we aim to embed our shared values and contribute proactively to the four strategic priorities in our research and development work. To do so for the decolonising education strategic priority, we felt that we needed to better understand how and when to put our own work under the "decolonising" spotlight. This is the purpose of the Decolonising Education project, within which the work outlined in this report is located.

The Decolonising Education project began just over 2 years ago with a small team of researchers exploring the scope of the proactive work we might do. We started with an open and ongoing exploration of the meanings of decolonisation, and what they might mean for our practice (Palmer and Bright, 2024). As a research team, we have also worked on developing our awareness of our own individual and collective positioning in relation to decolonising education (see Section 3). This was already a familiar concept for Māori members of the team, as the process is based on whanaungatanga, but was new and powerful personal learning for tauiwi (people who do not have Māori forebears) team members.

Having built a shared platform to support an ongoing work programme, the team began to look further, taking an exploratory and evolving approach. This report describes how we brought other members of NZCER's Research Group into the unfolding conversation. We decided to document and share this critical next step, with the aim of supporting any other teams who might want to follow a similar path.

What this report covers

This report outlines a specific event that took place in December 2023, as part of the Decolonising Education project. The event took the form of an extended mediated conversation workshop for NZCER researchers.

Over the previous year it had become increasingly evident that questions related to decolonisation had been cropping up in multiple projects. Brief reports made at regular Research Group meetings indicated that some research project teams had encountered and addressed challenges related to decolonisation in ways that led to new learning within the teams concerned. This realisation provided an opportunity to explore what had been learnt with the wider research group, and this was the purpose of the mediated conversations workshop. The process followed is described in Section 2. Section 3 includes summaries of the presentations given as part of the workshop. Presenters were asked to outline their content, but also to indicate any questions or tensions that arose for them as they did this work, and any new insights they gained while they were doing it. Our aim was to make the evolving nature of the work clear, rather than presenting a settled after-the-fact account that looks unproblematic.

Section 4 summarises the workshop outputs, and Section 5 surveys challenges and tensions that have arisen as we undertook the work outlined in the report.

He tukanga An outline of the workshop process

The methodology of mediated conversations (Cowie & Hipkins, 2014) provides a carefully structured process to capture key learning and emergent insights from specific research activities, provision of advice, and/or review and critique activities that researchers had been asked to undertake.

A mediated conversation is so-called because the audience mediates the way a presenter selects, frames, and presents their professional work and experiences. For our workshop, contributors were asked to shape their short (15 minute) presentation with other NZCER researchers in mind, and the audience was asked to listen and participate in the spirit of appreciative inquiry.

Participation was invited via Research Group meetings. The steps we took to gain informed and uncoerced consent are briefly outlined at the end of this section. The following questions were developed to support volunteer presenters as they framed their experiences for the learning purposes of the workshop.

- In your project, how have you thought about decolonising education?
- In your project, what was your learning about decolonising education?
- Can you describe a powerful learning story or a significant insight?
- How have you applied your learning about decolonising education?

Four presentations were offered, with six volunteer participants, three of whom were not members of the Decolonising Education project team. Once this group was established, a meeting of all the volunteer presenters was called. At this meeting, the scope of each presentation was discussed, and an order for the individual presentations was established. This pre-meeting gave presenters a clear idea of how the overall workshop conversation might unfold. Importantly, it also gave everyone a chance to talk about "grey areas" where they felt their own learning was unfinished business. Mutual support gave presenters permission to share doubts and questions as well as successes. We were inviting learning stories, not triumphal accounts.

The structure of the workshop

Table 1 is a summary of the workshop process, drawn from the record of our planning.

TABLE 1	The workshop plan
9.30am	Karakia and a waiata Tikanga for the day What's one word that comes up for you when you think about decolonisation? (quick go around the room)
9.45am	Kaputī – Morning tea/coffee and light kai
10 am	Presentation of short paper on meanings of decolonisation – 5 minutes Questions and discussion
10.15am 30 mins	Presentation on positionality – 15 minutes Ten min discussion in small groups
10.45am 30 mins	Presentation on decolonising curriculum—15 minutes Ten min discussion in small groups
11.15am 30 mins	Presentation on decolonising assessment—15 minutes Ten min discussion in small groups
11.45am 30 mins	Presentation on climate change and decolonisation—15 minutes 10 minute discussion in small groups
12.15pm	Wā kai – Lunch
	Group work: What are the big themes? What do you think should be next for research at NZCER? 10 minutes talking-listening time: What does decolonisation mean to me now? How do I now position myself in relation to decolonisation? What are my aspirations for how we live together in Aotearoa as Treaty partners?
2.30pm	One word or one thought to sum up how the day has been. Karakia Finished

Whanaungatanga was an integral part of the planned process and was established from the moment the workshop began. We were mindful of the need to "pace" the workshop time so that periods of listening were interspersed with periods of talking/thinking/processing, and that participants' need for sustenance was well catered for.

To set the scene, the Decolonising Education project team briefly outlined the work Georgia Palmer had been doing on the multiple meanings and uses of the term "decolonisation" (Palmer and Bright, 2024).

After each 15-minute presentation there was a 10-minute time slot for discussing what had been heard. All participants were invited to draw on the following reflective questions:

- What resonated? Have you had similar experiences or similar learning?
- Was there anything that puzzled you or was unclear?
- Did this presentation prompt any new thoughts or insights about decolonisation?

These questions were discussed in small groups (3–4 people) and participants were invited to catch thoughts or questions on Post-its and add them to large sheets of paper, organised by the three reflective questions, to begin to build a record of our collective learning.

After the four presentations, and a break for lunch, there was a structured plenary session, in which several larger groups explored the big themes by discussing the following questions:

- What patterns did we notice across these presentations?
- What successfully supports teams to enact aspects of decolonisation in their work?
- What challenges were experienced in more than one project and what might we learn from that?
- How can we encourage others to take initial steps if they have not yet had experiences such as those we have heard about today?

During this part of the workshop, one member of each group acted as the researcher, capturing ideas in note form.

The final reflective phase was more intimate. Borrowing an idea many participants had recently experienced during a wayfinding workshop with Chellie Spiller, we allocated 10 minutes for talking/ listening time in pairs. While one person talked for 5 minutes, their partner listened and did not intervene, then they swapped. The importance of creating a safe space for private processing had been raised by the Ethics Committee (see next section) and no further notes were taken at this stage. People could, however, capture additional thoughts on the Post-its, or make a general comment at the end of the workshop if they chose to do so.

Immediate feedback at the conclusion of the workshop was very positive. Several participants requested that the Decolonising Education project team follow up with a second workshop in the new year.

Making meaning of the data

As might be expected given the engagement of the participants, the raw data took a range of forms. Some data was captured as notes on Post-its that were organised onto large sheets of paper, and some through handwritten notes recording the larger group conversations after lunch. All the notes were typed up after the workshop by one of the research assistants who volunteered to transfer all the data into an electronic record, which was done within a day or so of the event. A post box was provided in case anyone wanted to make an anonymous comment, and the research assistant also documented the contents of this box.

One of the project leaders went carefully through the data to identify common themes and write a summary. This was then shared with the Decolonising Education project team, to ensure nothing important had been missed and everyone was happy with the way the data had been collated.

It was important to share this analysis with everyone who had participated. This happened at a regular Research Group meeting in April. All researchers were sent a link to the written summary in advance of this meeting. It included a generous number of verbatim quotes, with the aim of ensuring that people could see their voice in the written record. An abbreviated record of the data is provided in Section 4. The follow up conversation in the next Research Group meeting led to the identification of the Research Group's collective priorities for next steps. These suggestions will be followed up as the year unfolds (see Section 5).

Ethical considerations

NZCER has its own ethics committee, who were as keen to learn from our unfolding workshop project as the Decolonising Team themselves. We used the same template, and followed the same process, as we would for any other research project. Five areas of concern were identified and addressed during rich discussions about the ethics of researching our own practice.

No-one should feel coerced to take part: This is an ethical issue for any research but assumes even greater significance when an inquiry is centred within the workplace itself. All presenters were volunteers and participation on the day was voluntary. We outlined the process the workshop would follow, so people knew what to expect before they signed up.

Keeping people safe: learning that causes us to question who and how we "are" in the world can be unsettling and sensitive. The steps we took to keep everyone safe included: following tikanga and the principle of whanaungatanga and manaakitanga as we opened a safe space for the workshop, and as we ended it; setting ground rules for the workshop and asking everyone to respect these (Figure 1); encouraging contributors to share only as much as they felt safe to share; and asking everyone to engage in the spirit of appreciative inquiry.

FIGURE 1. A slide used when inviting participation

Tikanga and ground rules

Whanaungatanga and manaakitanga

These kaupapa remind us that we must develop and nurture supportive relationships and look after the wellbeing of all participants.

Support each other: make contributions in the spirit of appreciative inquiry

What's heard in the room stays in the room

It's a learning journey: respect where each person is at and don't push them to share more than they feel comfortable with

TE WĀHANGA He windawa matawa he windawa caa GOG NZCER

The Ethics Committee raised the issue of how ongoing support might be provided if anyone walked away from the workshop with unresolved thoughts or feelings that they needed more time to process. An additional last step of quiet processing time in pairs was added as one response to this issue.

Respecting confidentiality: One of the ground rules covered not discussing events that arose during the workshop with people who were not there. We also needed to be clear that the focus was not on what people had or had not done during their work, but on decolonisation challenges that could arise for anyone, and learnings that could be of interest across other similar organisations. Presenters summarised their own input for publication purposes (see next section) and so had control over how much of themselves they revealed formally.

Managing potential conflicts: We mainly work in teams, and there can be different views and tensions within them, as well as across the wider research team. The mediated-conversations process ensures that the collective sense made of presentations is established as part of the workshop process itself. This mitigates the risk of misinterpretation of what has been said and makes space for the voices of people who bring different views and perspectives.

Ngā whakaaturanga The presentations

This section includes summaries of all four presentations given during the workshop. They are presented in the order in which they were delivered. They were written after-the-fact.

Whakawhanaungatanga: Relational positioning as decolonising methodology

Nicola Bright (Tūhoe, Ngāti Awa) and Esther Smaill

Relational positioning is a decolonising methodology based on kaupapa Māori (Smith, 1999) and whakawhanaungatanga (Bishop, 1995) that aims to increase critical awareness, challenge the "normality" of racism, and support efforts towards equity. We developed our understanding and use of relational positioning through our work in *He Reo ka Tipu i ngā Kura: Growing Te Reo Māori in Schools* (Bright et al., 2021; Bright & Smaill, 2022). Since those early beginnings we have continued to explore and refine this practice in the various research and evaluation projects we have led.

Whakawhanaungatanga Relational positioning

The concept of "positionality" is not new (e.g., Chiseri-Strater, 1996; Herr & Anderson, 2005). However, within the literature, it is most often talked about at an individual level. Researchers typically establish their positionality as individuals by articulating and examining the lenses that they bring to their research (e.g., in relation to their gender, ethnicity, and lived experiences). This enables them to acknowledge and address their assumptions and biases and can assist with strengthening the research process. Our point of difference in offering relational positioning as a decolonising methodology is that we take both an individual and collective approach to its application.

Relational positioning involves establishing and strengthening relationships within a team through identifying connections both to each other and to the research. This approach is particularly useful for teams with Māori and tauiwi researchers, but it can be valuable for any team where meaningful relationships and shared understandings are a priority.

Relational positioning involves:

- creating the space for everyone within the team to reflect deeply on their identity, assumptions, and beliefs and how these affect their relationship to team members and to the research
- · seeing the world from other people's perspectives
- learning with and from each other
- tauiwi taking responsibility for learning about colonisation, racism, and allyship
- developing a better understanding of how to work together as a collective with shared understandings and values—acknowledging interesting commonalities and differences
- developing clear positions as individuals and as a team in relation to a research kaupapa.

Te pūtake Origins

Within He Reo ka Tipu i ngā Kura—our project about revitalising te reo Māori in schools—it was important to acknowledge the place we are in now as a country, where it is no longer just Māori interested in te reo Māori. Now, we are seeing the fruits of generations of hard work by reo proponents, advocates, and whānau as te reo Māori is becoming more valued and used among Māori and tauiwi (people who do not have Māori forebears).

As a team of kairangahau Māori and tauiwi researchers we had to re-examine what revitalising te reo Māori could look like within a Tiriti o Waitangi partnership approach and negotiate new ways of working together.

Nicola's positioning

As a kairangahau Māori and co-leader of this project, my starting point was to look to kaupapa Māori for guidance. I went into this rangahau with the clear whakaaro that this work to revitalise te reo Māori in partnership with tauiwi must prioritise Māori as those for whom the reo is most important. Coming from a kaupapa Māori base meant starting with whanaungatanga to set the foundation for our team and how we were going to behave towards one another. Taking time for whanaungatanga and making connections was essential in establishing positive, enduring relationships within our research team, and informing our research approach. I was very clear and determined about how I wanted this to go. I wanted to ensure that in this shared space we would:

- be safe as Māori
- create spaces for Māori and tauiwi to kōrero
- continue to advocate for Māori and kaupapa Māori
- not get "lost" within a tauiwi agenda
- avoid "recolonisation" of our language
- use this process to reduce cultural taxation

Esther's positioning

As the tauiwi co-leader, I came into this shared relational space as a tangata Tiriti, a Pākehā learner and speaker of te reo Māori. Being part of the *He reo ka tipu i ngā kura* team located me in the reo revitalisation space in a new way, as a researcher. Having the opportunity to contribute to a project underpinned by kaupapa Māori, meant that I needed to think carefully and critically about why and how (as tauiwi) I was going to be involved. Essentially, I came to understand that I did have a role to play and that this was inextricably linked with what it means to me to be a tangata Tiriti, a tauiwi ally who seeks to honour and uphold the principles of Te Tiriti o Waitangi. Coming into this shared space, I wanted to:

- safeguard against contributing to recolonising te reo Māori
- face and push through the paralysis and discomfort that I knew I would experience
- be a good ally and to bring other tauiwi along with me
- be responsive, e.g., able to identify when to step back and leave the space to kairangahau Māori and when to step up and lead aspects of the rangahau.

Ngā tukanga The relational positioning process

Our relational positioning process is Māori led and framed. It is designed to encourage researchers to engage in deep reflection and think critically about their connections to the work they are doing and the people they are doing the work with, and for. We used this process to help all team members settle on a position and share that position within the team.

Establishing the tikanga for these positioning conversations required us (the team) to agree on how we would behave and how we would treat each other—for example with kindness and respect. As leads of the team, we modelled this relational approach and guided our team through the process. For Nicola the focus was on preparing and supporting kairangahau Māori, whereas for Esther, the focus was on preparing tauiwi team members.

To help team members prepare for the conversations that occur as part of the relational positioning process we developed and shared a set of reflective questions. The following are examples of the types of questions you could expect to work though during positioning conversations.

- Whakapapa—where/who are you from? What things in your background have influenced you that you feel are relevant in this research space?
- Why does this research project and kaupapa matter to you, and what concerns (if any) do you have coming in?
- Who will this research benefit?
- What is your role in this mahi?
- Where might you step forward and take a lead or step back and leave space for others?
- How can this project contribute to decolonising education? The questions can be tailored to suit different projects and the team can review the questions and make changes if they wish. In our project, after agreeing on the set of questions, each team member was expected to spend some time thinking about how they would answer them. To support this reflective process, we provided the team with a selection of resources. For tauiwi this included information about colonisation, racism, and allyship. This approach enabled us to reduce cultural taxation on Māori, because tauiwi team members took responsibility for educating themselves about issues related to colonisation, racism, and allyship.

A fundamental aspect of our tikanga is the creation of separate and collective spaces to wānanga. Creating opportunities for team members to have time in separate groups, as Māori and as tauiwi, enables each group to freely discuss the issues most relevant to them. The full team then comes back together in a shared collective space, better prepared to wānanga.

After completing this process, the focus shifts to having conversations about shared team values, but that is a topic for another time.

Ngā hua Our learnings

We learnt that taking part in relational positioning is valuable because these conversations:

- give you time to consider who you are and what that means in relation to the research project you are working on and to the collective that you are working within
- strengthen relationships, understanding, and trust within teams because you know what people's beliefs are, what drives them, and the areas where they might feel a bit tender

- equip you to have interesting and difficult conversations, to be prepared to be uncomfortable, and to learn from that
- influence how you do your research and the lens you bring to it
- provide an opportunity to think critically about your role in decolonising education and addressing power imbalances and biases.

Te whakakorenga o te mahi tāmi i te ao mātauranga Decolonising education at multiple levels

The negative impacts of colonisation for Māori in education manifest and need to be addressed at multiple levels. Relational positioning is a whanaungatanga-based approach designed to decolonise educational research practice at an individual and collective level. Our hope is that people's experiences of relational positioning will have flow-on effects to the institutions they work in (for us that's NZCER) and to the wider education system that these institutions sit within. We encourage all research teams, and especially those with Māori and tauiwi members, to use relational positioning as an opportunity to identify how and at what levels their project could contribute to decolonising thinking and practice.

How can your project contribute to decolonising systems, institutions, collective, and individual thinking and practice?

Decolonising the curriculum: Is it even possible when curriculum is an instrument of colonisation?

Rosemary Hipkins

The provocation

This talk combined my ongoing learning experiences from several recent research projects. I invited my colleagues at NZCER to reflect on the question above, which formed the title of my talk. It is a question that I am continuing to wrestle with, so I came to the workshop with more questions than answers. For the presentation, I focused on the experiences that raised my awareness of ways in which the school curriculum can act as an ongoing instrument of colonisation. Since the presentation, I have begun to find published research which explores these ideas and dilemmas.

My learning experiences

Early in the Decolonising Education project, the project team read the small BWB book *Imagining Decolonisation* (Elkington et al., 2020) followed by a discussion of what struck each of us as significant personal learning, drawn from the many different threads in the book. We talked about the idea of positioning ourselves and taking the time to build a firm foundation for the work that lay ahead. We explored the values we wanted to underpin the project and shared our personal thoughts about what we might include in an individual positioning. The risk of doing things that unintentionally recolonised Māori was an idea that hit me with some force. I think it resonated so strongly because of my recent experiences in other projects.

I came across an example of recolonisation during an investigation of special assessment conditions (SAC) for NCEA.¹ A strand of that investigation focused on the potential of universal design for learning (UDL) to help make assessment more equitable. A colleague and I took a close look at the first drafts of Level 1 science achievement standards for NCEA, to see whether and how UDL principles might be playing out in practice. One draft achievement standard, since withdrawn, used the Māori concept of mauri in a way that suggested it could be substituted for the concept of energy as a property of particles in particle theory. This was not helpful because it misrepresented the many layers of meaning of mauri, and at the same time did not support a clear understanding of the science of particle theory.

Because of the thinking we had been doing in the Decolonising Education project I could now see this action as a well-intentioned but inappropriate response to the mana ōrite imperative. Attempting to integrate mātauranga Māori into the Eurocentric science curriculum, as if there was direct equivalence between these two ways of knowing the world, was not an appropriate thing to do, and was an example of recolonising practice that should not be followed. A different type of response to the challenge of the mana ōrite imperative was needed. But what might that response look like?

As I was still thinking about this question I began to work as part of a small team to come up with a design solution to a practical dilemma facing the Ministry of Education.² Work on new NCEA achievement standards was well underway, but work on updating the science learning area as part of the curriculum refresh had not yet started. We were asked to create a strategy that could align

¹ National Certificates of Educational Achievement—Aotearoa New Zealand's senior secondary qualification system.

² The other team members were external to NZCER: Pauline Waiti, who is an expert in Pūtaio and an independent consultant with wide experience of Māori education, Associate Prof Sara Tolbert (Canterbury University) and Prof Browen Cowie (University of Waikato).

the two work strands without pre-empting the autonomy of either team. This was a tricky agenda. Thinking hard, we devised a small framework of "enduring competencies" that could inform the ongoing work of the NCEA subject expert groups, while at the same time anticipating what might help the curriculum refresh team (which had yet to be appointed). We devised four enduring competencies that could build a bridge from the existing *New Zealand Curriculum* to the refreshed curriculum. To do this, we carried forward and extended the curriculum weaving idea that is integral to the science capabilities (Hipkins, 2024). The team who developed the science capabilities (and of which I was a member) noted in their final report that further work was needed to think about the relationship between science knowledge and mātauranga Māori, so that capability in this area could be fostered in the future.

Given a new opportunity to address that gap, one of the enduring competencies we devised came to be called "drawing on different knowledge systems." The team recognised this as one way to address the recolonisation risk at the same time as renewing efforts to include a meaningful Nature of Science (NOS) thread in the curriculum. We hoped that the juxtaposition of the two very different knowledge systems (Eurocentric sciences and mātauranga Māori) would help make visible the features of science as a knowledge system that seem to be largely invisible to many science teachers, and that they tend to neglect or unintentionally oversimplify when responding to the NOS strand of the curriculum. At the same time, the mana ōrite imperative to give equal status to mātauranga Māori could be honoured more meaningfully. The overview of this enduring competency is shown in Figure 2.

FIGURE 2. Drawing on different knowledge systems



We wanted to show that each of the four enduring competencies is complex. To do this, we described four quite different "facets" for each one. The four facets for the competency of drawing on different knowledge systems are: Science as a knowledge system; Mātauranga Māori as a knowledge system; Science, as a knowledge system, is historically and socioculturally embedded; and Relationships between knowledge systems, worldviews, and identity. We unpacked each facet as a series of bullet points. Even though we were very conscious of the risks of recolonisation, we realised that in drafting the bullet points to support each facet, that we had typically used mātauranga Māori as a foil for making features of science more visible. As soon as we saw the risk of inviting pejorative comparisons by doing this, we knew we had to rework the text. We rewrote and reordered considerable chunks of the text so that only points about the nature of science made up the first facet and only points about mātauranga Māori made up the second facet. We needed to revisit all the text, for all four competencies, to check for other places where similar edits were needed (see Hipkins et al., 2022).

For the small Enduring Competencies team, the knowledge systems work is ongoing, though it is no longer a funded project. We are exploring models for juxtaposing different knowledge systems while respecting the integrity of each. We have needed to step outside traditional curriculum thinking to even begin to imagine how new pedagogies might be understood and enacted—or why making such changes might be an important response to current times (see Tolbert et al., 2024). As a first step, each of us needs to explore the values, assumptions and limits of our primary knowledge system (the one we think and live day-to-day). I know from personal experience that this takes time and intellectual and emotional effort.

Navigating towards decolonising assessment

Bronwyn Gibbs

For the past 2 years I have co-led a refresh of Progressive Achievement Tests (PATs) in mathematics. The aim of the refresh was to enhance equity by providing more culturally relevant, authentic, and accessible assessments. Here I share some of the successes, challenges, and whakaaro that arose during the project. I hope this will open up conversations about what decolonising assessment could look like as we continue to grow our vision for decolonising education in Aotearoa. Concepts of whakatere tōmua, wayfinding, anchor this mahi and the aspirations of the assessment refresh team.

Prevailing norms

PAT Pāngarau | PAT Mathematics assessments are part of a suite of assessments that were developed in the 1970s to support kaiako and tumuaki to understand what level ākonga are at, what progress they are making, and how kaiako can meet the learning needs of their ākonga. These assessments are standardised, meaning they are designed to be administered and scored consistently across all ākonga.

Standardised assessments provide reliable and useful information, but they have their limitations. Typically, standardised assessment methods are underpinned by Eurocentric knowledge systems, contexts, and biases, which potentially disadvantage ākonga Māori, and other learners who have been underserved by the education system. In these ways, and in how the results are used, standardised tests can perpetuate systemic inequities. They treat all ākonga uniformly. We know there are times when assessment tools are used in ways that do not necessarily benefit ākonga or uphold their mana.A clear challenge for the PAT refresh project was: how can we take steps towards decolonising standardised assessments?

Stepping off solid land

The parameters of the PAT project gave us scope to refresh up to one third of the mathematics assessment items. We began looking for opportunities for ākonga to show their mathematical understanding through assessments that recognise and incorporate their cultural and social worlds.

We contextualised many items to provide opportunities for more ākonga Māori to see themselves, and their life experiences reflected in the assessments. Updated contexts include kī-o-rahi, waka ama, kapa haka, and māra kai. Home, community, and settings outside of school were prioritised. Items about hāngī fundraisers, community volunteering, and caring for the environment, for example, enable principles and values such as mahi tahi and manaakitanga to be highlighted. New graphics were created to depict people and objects that are realistic and recognisable. Many of the characters have Māori names, and become familiar as they appear across the assessments.

We welcomed opportunities to include more reo Māori in our assessment tools, and included as many kupu Māori as we could throughout the mathematics assessments.



Alongside the assessment items, the Aratohu Kaiako / Teacher Guide was rewritten with a corresponding focus on equity. The Aratohu Kaiako communicates some significant messages regarding the purpose, administration, and use of PAT assessments and data. For instance, it highlights that assessment practices and disparities in learning experiences have contributed to inequitable outcomes for ākonga Māori. Kaiako should use the data and reports from PAT assessments to reflect on their teaching practices, and gain insight into the impact of their teaching for those ākonga who have been underserved by the education system.

Travelling across uncharted waters

Transforming assessment is complex and requires a journey of change. The current refresh has started the journey to make improvements to our messaging and the cultural relevance of PAT mathematics. In terms of equity, we're proud of what we've achieved so far.

However, it can be argued that "correcting for cultural bias, promoting the participation of ethnic minorities in pilot student samples, and providing accommodations for linguistic minorities are in the end simply remedial strategies that address cultural differences not considered in an assessment's original plan" (Solano-Flores and Nelson-Barber, 2001, p. 556).

So, do we need a new plan for our PATs—and other—assessments that take us over the horizon, towards opportunities to build a decolonised assessment from the ground up?

It is important for us to continue exploring ways to transform standardised mathematics assessments beyond the status quo. Decolonising assessment involves challenging and transforming the underlying structures and paradigms that perpetuate colonial legacies and power imbalances in education and assessment. Decolonising standardised assessment in Aotearoa must include:

- giving effect to Te Tiriti o Waitangi
- recognising and valuing mātauranga Māori
- reimagining assessment methods.

Embarking on new journeys

A key challenge for us in the PAT refresh was balancing and managing complexities within the project—the standardised nature of PATs, our vision for equity, and the broader NZCER strategic goal of decolonising education. Through this project I came to understand that decolonising mathematics assessment is an ongoing process that requires collaboration, open dialogue, and a commitment to addressing systemic biases within our education system. Transformation cannot unfold all at once, but each step on the journey helps us to chart a course towards our goals.

Refreshing PAT Pānui | PAT Reading Comprehension assessments

Janet Lee

The PAT Pānui | PAT Reading Comprehension assessments were refreshed in a parallel process to the work just outlined for PAT mathematics. Similar tensions and challenges applied.

The reading refresh began with a survey that gathered feedback from existing users of the resource. For me, the survey responses were both overwhelming and confronting, but they did confirm that significant changes were needed. The original plan was to refresh up to one third of the content, but ultimately 77% of the content was replaced with new material.

What was the problem? The existing PAT reading tests involved questions centred around texts that largely conveyed a western world view and familiar stereotypes from within this world view. To address this problem, two teams were established to select new PAT reading comprehension texts, one Māori led, and one Pacific led.

The two teams then drew on a NZCER's *Ready for Partnership*? tool (Hunia et al., 2024) to develop guidelines that they used to inform the review/critique of new material for inclusion in the refreshed assessments. Within these guidelines, high equity texts were defined as ones that foregrounded the knowledge, values, languages, and diverse realities and contexts of either Māori or Pacific peoples.

During the text selection and review process, the writing of Māori and Pacific authors was prioritised. Once a text had been selected, the teams reviewed the comprehension questions that were developed for it. At every stage of the refresh process, new texts and their associated questions were reviewed with both cultural and literacy lenses.

As Bronwyn noted above, an important part of the decolonising challenge relates to how the results generated by assessment tools are applied. The Aratohu Kaiako / Teacher Guide was updated to emphasise how assessment evidence can be shared with ākonga and whānau, to better inform learning progress in ways that benefit the ākonga themselves.

Decolonising climate-change education research

Rachel Bolstad

I hadn't been a core member of the team leading the "decolonising education" research within NZCER. However, I had seen ways in which this team's work was starting to flow into different research projects in our organisation.³ I could see that this influence was strengthening the ways we worked together within teams of diverse Māori and tauiwi, and deepening our understandings of our personal and collective positioning in relation to the areas we were researching. I was keen to explore NZCER's climate-change research project through this lens.

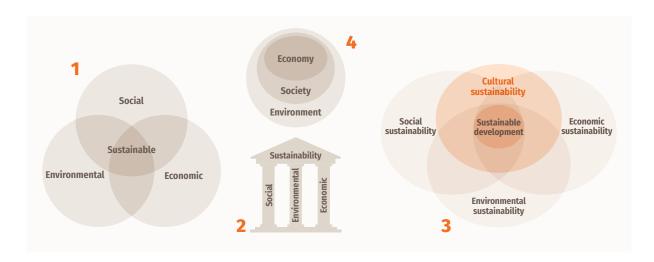
To inform some "in progress" writing up of case studies, it felt important and timely to push deeper into this decolonising space and to interrogate the work, and my part in it, and to reflect on ways in which the framings or approaches at play might be helping or hindering aspirations to decolonise education or research in the climate-change space.

In the weeks leading up to the workshop, I considered the prompt from the Decolonising Education project team: "in your project, how have you thought about decolonising education?". One honest response would be to say that I wasn't sure yet. I had a lot of fragmented and partially processed thoughts based on various readings, and knowledge and experiences accumulated through many years in environmental/ sustainability/ climate education research. I started to write my thinking down on paper and tested it out with the team to get a sense of whether I was on the right track. As we got closer to the workshop, I read the drafts from the other presenters to help me figure out how my contribution might complement the other presentations.

Nicola and Esther's provocation at the end of their presentation on positioning was: "How can your project contribute to decolonising systems, institutions, collective and individual thinking and practice?" This was a helpful entry point. To me, the climate-change project is clearly directed at systems-level *change* or *transformation*—which is not necessarily the same as decolonisation. The argument goes something like this: if we are to have a chance to sustain thriving and abundant life on Earth, then transformative change is needed to our economies, societies, communities, and businesses, because the ways these constructs operate now is not sustainable. Because education is nested within society, then logically education would need to be designed to help transform society rather than simply reproducing it. An OECD working paper released in early 2024 notes that, owing to the speed of climate change, there is "a rapidly closing window of opportunity to achieve profound transformations across sectors, systems and mindsets to secure a sustainable and liveable future" (Nusche et al., 2024, p. 4). Aspirations for transformational systems change are familiar to people who are active in the EfS and climate-education community (Feinstein & Mach, 2020; McGrath & Deneulin, 2021; Rousell & Cutter-Mackenzie-Knowles, 2019; Kwauk & Casey, 2021). Collective and individual change and institutional changes are all intertwined in this agenda.

But what does "sustainability" even mean? The images that follow represent some different ideas that are heavily debated in the global *non-indigenous* sustainability discourse (Purvis et al., 2019; Giddings et al., 2002). Pictures 1 and 2 present the environment as one pillar or circle, alongside the economy and society. Picture 3 on right adds in the idea of cultural sustainability, but the parts are still separate even if overlapping. The nested circles in Picture 4 reflect what some would call a "deep" sustainability model. From this point of view there is no part of human society or the economy that exists independently of the environment.

³ For example, the positioning process that Nicola and Esther discuss travelled into one of the project teams I co-lead with Nicola, in a project exploring the implementation of Aotearoa New Zealand's histories and Te Takanga o te Wā into localised curriculum.



Even though it should seem obvious that nothing on planet Earth exists outside the context of the environment, advocates for deep sustainability argue that this in itself represents a big mind shift for most modernised industrialised societies. Many of our current economic and social systems are built in a way that externalises or "hides" our dependence on the environment and the impacts we are having on it.

I kept thinking about a Māori teacher I've worked with in the climate-change space saying, "Decolonisation? That's for you Pākehā to do—you've been in it the longest".⁴ To some extent, the thinking that has circulated in the environmental/sustainability/climate-education literature for decades represents an effort to unpick some of the tacit assumptions that have pushed modern global society and economic structures into their current forms, and to find different ways of thinking about the world and our relationships to it. This includes challenging worldviews that treat humans as separate from, or having dominion over, nature, notions of property rights, laws, and regulations, seeing Earth as "natural resources" to be used and exploited for progress and economic growth, and the externalising or invisibilising of environmental and social wellbeing "costs" of economic "progress".

Interrogating and critiquing and seeking to transform some of the dominant ideologies, structures, and practices that shape day-to-day existence on planet Earth is part of the work that is needed to support a decolonising agenda, but it's not all of the work. None of the models in the figures above are indigenous models. For quite a long time, there's been internal criticism that EfS/climate education is not only a marginal space in the curriculum, it's also a marginalising space that can be dominated by non-indigenous worldviews, language, and framings (Reed et al., 2024). There are also issues around appropriation or cherry-picking of indigenous concepts—for example, "kaitiakitanga".

I've come to understand that a decolonising agenda for environmental / sustainability / climate education requires actively engaging with the specific, colonialist histories affecting Indigenous people and lands, and assisting in pathways towards restorative climate and environmental justice. The literature describes this as "land-based" education (Bowra et al., 2021; Tuck et al., 2014), or what might be called whenua-based in Aotearoa New Zealand. This is a notion we are now looking at across our climate-change case studies. This idea will also flow into our research on the implementation of Aotearoa New Zealand's histories and Te Takanga o te Wā in localised curriculum.

⁴ This comment was addressed to a room at a conference in which we were co-presenting about climate change and naturebased solutions (NbS).

He kitenga Main themes from the workshop

Across all the sources of data generated during the workshop, three main themes stood out.

- The need to develop a shared understanding of what decolonisation means for kaimahi at NZCER.
- The importance of working together to clarify our own positioning, and how that might best be supported.
- A need to explore how systems dynamics impact decolonisation efforts.

This section draws on selected quotes to illustrate how these themes came through during the workshop.

Theme 1: The need to developing a shared understanding of what decolonisation means for kaimahi at NZCER

Although project teams had been considering what decolonising education meant for their work, there was still a lot of comment about the need to be clear about what we mean when we use the term "decolonising" in relation to our work.

Do we [NZCER] all have a common understanding of what we mean by decolonisation?

[I] worry that the term decolonisation is unclear and people can project negative ideas onto it.

The workshop also identified a need to develop a shared understanding about both the what and the why of this work, and how we communicate our views with people outside NZCER.

If someone asked me "why is decolonisation an NZCER priority—like what's wrong with the education system, why do you need to do that", how do I answer that?

I am hearing some lack of clarity about who is intended to benefit from decolonisation—is it just indigenous learners? If not, how do we convincingly describe and convey benefits for all students?

We can think about how we reach goals using indigenous approaches but what about critiquing those goals? If we want to decolonise education, is the goal still for Māori to 'achieve' highly, get qualifications, get a good job, make good money etc.? If not, what are the goals that are not dictated by colonisation? If we continue to interpret success through a colonial lens, then we will be continuing to try and fit Māori knowledge into a colonial framework.

Ideas for follow-up action

Several suggestions from workshop participants responded to the challenges implied in the quotes above. It was clear that people wanted opportunities for the wider conversation to continue, and that ongoing discussions about decolonisation education should continue.

There was general consensus that we should work together to clarify the goals that we hold for having decolonising education as a strategic priority, and that once we have achieved greater clarity, we should work on a 5 minute succinct statement that any member of the Research Group could use when asked to explain this mahi. The intent of this would be to support everyone to distil complex ideas and communicate them clearly.

Theme 2: Working together to clarify our own positioning

Nicola and Esther's presentation on relational positioning resonated strongly with workshop participants. Those who had already experienced the positioning process talked about the impact it had had on their thinking.

Positioning was powerful, uncomfortable, and surprising.

Developing a shared understanding of how we position ourselves within research teams is a collective process, not an individual struggle. It was also clear that personal meaning-making in this space can be uncomfortable, particularly when we don't feel we have enough knowledge to move forward:

Positioning can be an individual thing and within our control, but what about the institutional structural stuff that you need to see and understand in order to find your positioning—how do you get to that in your positioning as a Pākehā?

Positioning was powerful, uncomfortable, and surprising.

As people grappled with the idea of positioning, they also thought about the burden that falls on kaimahi Māori when they are sought out to provide leadership in this space:

It's a big ask to ask Māori to explain what your problem is—what [name] described as "cultural taxation".

Ideas for follow-up action

An idea that resonated with workshop participants was that every project should begin with positioning work, where members of the team clarify what they bring to the project, and what might be expected of them within the project. There was also acknowledgement that positioning conversations take time, and so need to be resourced:

How do we make this a normal for starting out any project?

[We need a] set of practices for when you start a new project, to think through decolonisation.

There was acknowledgement that Māori should lead and provide guidance in the kind of relational positioning described in the workshop presentation. Some responses suggested that every project could benefit from Māori involvement. However, there was also recognition that this is not possible with the small number of kaimahi Māori currently employed at NZCER.

Who should be in the room? How can we make sure we have Māori represented in every space?

We need to wait for Māori to be available on the teams. We need to hold that space. What is the process to find this capacity? Always ensuring we hold the space though, even if Māori aren't in the room.

One person suggested that we need to build up a "resource bank" to assist researchers. Another suggestion was more specific about the type of resource that could be created:

Structured questions are really useful to help you think through where you are.

Theme 3: A need to explore systems dynamics

The presentations on decolonising curriculum and assessment generated questions and comments about systems-level dynamics that cluster around several subthemes. For example, the invisibility of systems within which we are immersed was a clear subtheme. Some comments connected the invisibility of familiar systems to the work we need to do on positioning.

As Pākehā it can be hard to 'see colonisation'.

A process—creating the space. How do we deconstruct colonial processes and positions when we are living and working in a colonialist framework?

[Name] presentation made me think about how different knowledge systems are prioritised, rejected, privileged, conflated, in arts education—especially music and dance.

A few comments made connections between curriculum/ assessment systems and wider environmental systems:

The overlap between decolonising imperatives and walking back environmental destruction is an important resonance.

Again, there was uncertainty about what awareness of these systems dynamics might mean for our practice. What, specifically, could/should we do to address the issues raised?

How do we avoid 'tinkering at the edges' while not using that as an excuse to make no substantive change at all?

Where is the place and process for conversations about the assumed benefits of learning the traditional Eurocentric curriculum? How does the content relate to the claimed purposes? Could different 'content' achieve these purposes better?

Easy to say but how do we even begin to unpack the complexities of practice? In work I have been involved in, this is not straightforward.

Kura kaupapa Māori create an alternative for Māori, but are not accessible to all Māori so we need to work in English medium too. What are the goals in creating options and parallel systems?

There was also awareness that you can't just tear things down, that meaningful change needs to take people with it, and that the challenges might be different for different groups:

How do we take the wider education sector with us? Are we taking enough people with us? So we don't get an Aussie referendum [result].

How are teachers enabled to practice their own positioning in schools? What about encouraging positioning for children?

Ideas for follow-up action

Many comments implied a need for ongoing, collaborative conversations, in which the issues raised can be more deeply explored by the wider group, not just individual project teams.

How do we find ways to systematically grow our knowledge about decolonising education?

Need to be part of the conversation to deeply understand it.

Collectivism: this is everybody's responsibility. It's not about individualism.

Some people were beginning to grapple towards new types of solutions and structures. One person commented on the danger of unintentionally recolonising:

How to ensure our processes aren't recolonising-of kaimahi and participants.

He kupu whakataki Reflecting on tensions and challenges

This report outlines the process followed before, during and soon after a specific event, namely a mediated-conversations workshop that delved deeply into what "decolonising our practice" might mean for those of us who work as kaimahi / researchers at NZCER.

The beginning section of the report noted that decolonising education is one of four strategic priorities for NZCER. This priority is focused on "having a more critical understanding of the underlying assumptions, motivations and values that inform research practice" (Smith, 1999, p.5). Our own exploration of the meanings and uses of the term decolonisation highlighted the "hearts and minds" nature of the personal learning journeys involved (Palmer and Bright, 2024).

Surfacing underlying assumptions, motivations, and values is both an individual and a collective learning challenge. The accounts in Section 3 were purposefully shaped to highlight the learning journeys of the individual presenters and to indicate the broad direction of the further learning they anticipated. Some learning took place within the collective of a specific project team (e.g. refreshing the PATs; and He Reo ka Tipu i ngā Kura) but ultimately, each person committed to their own learning journey. The dynamic interplay between individual and collective learning can create tensions and challenges. We have learnt that these are to be expected and embraced. This is time-consuming and sensitive work that needs to make space to safely "hold" these tensions and challenges.

Collective conversations formed an integral part of the workshop process, and key themes that emerged are summarised in Section 4. Participants found it valuable to hear and discuss the experiences of the presenters. At the same time, the themes and their supporting quotes suggest that those who took part are likely to be at different places on their personal learning journeys. We found that within research teams, tensions can arise when members of the team are at different places in their understandings of what decolonisation might mean for their practice. A "one off" workshop could never be enough to meet everyone's learning needs. We need to find ways to continue to engage in shared dialogue, and to allow critical conversations to evolve.

Another area of potential tension begins from the imperative for deep exploration as we follow our individual and collective learning journeys towards decolonisation. Deep exploration needs to occur within the contexts of the projects on which we are working, and inevitably takes time. We want to make progress as quickly as possible on this very important kaupapa, and at the same time we need to honour research deadlines. Balancing these potentially conflicting time demands can be tricky. On the one hand, further deep exploration of what we intend this strategic aim to achieve can only be beneficial. On the other hand, a "one size fits all" statement (such as a pre-prepared succinct statement) could serve to limit personal learning. Support for decolonisation needs to come from the heart.

Another interesting tension that emerged from the workshop process concerned the suggestion that every research team should include a kaimahi Māori. On the one hand, Māori members of the decolonising research team would welcome an increase in their numbers within the overall group.

If there were proportionally more of them, they could offer reassurance and support to each other as they continue to prioritise and explore research that benefits Māori and is conducted within a kaupapa Māori framing. On the other hand, they also foresaw a risk that their presence in every team might forestall important learning for other members of the team if they habitually deferred important practice decisions to kaimahi Māori. This interesting tension is unlikely to be easily resolved because both types of support needs are important and immediate.

From an indigenous perspective, Māori have been living with decolonisation challenges ever since European settlers arrived in Aotearoa. They do not need to do the work of recognising the problems and injustices that colonisation has engendered—that is work for those who would be allies. Within the project we have begun exploring the concept of allyship and will continue this thread of research into the immediate future.

Concluding comment

The processes we have documented in this report have taken time but have also been critically important to our overall aim of exploring how we decolonise our practice as an ongoing in-house learning journey. We have learnt that participants in these types of learning conversations need to be both vulnerable and brave. As we made sense of the overall process, after the workshop, it was helpful for the decolonising team to recall that working on our own relational positioning generated discomfort for some of us (tauiwi in particular) at the very beginning of the project—but these conversations also led to personal growth.

In their own ways, the next steps suggested by participants in the workshop speak to the importance of making the work on decolonising our research practice both an individual and a collective endeavour. This will be an ongoing learning journey that needs to be supported and resourced at an organisation-wide level. It is our hope that the opportunities, challenges, and tensions we have outlined for our own work context will be helpful for others who are embarking on a similar journey or inspire others who might be further ahead to also share their experiences and learnings.

Ngā tohutoro References

- Bishop, A. R. (1995). *Collaborative research stories: Whakawhanaungatanga* [Doctoral thesis, University of Otago]. https://ourarchive.otago.ac.nz/handle/10523/531
- Bowra, A., Mashford-Pringle, A., & Poland, B. (2021). Indigenous learning on Turtle Island: A review of the literature on land-based learning. *Canadian Geographies / Géographies Canadiennes*, 65(2), 132–140. https://doi.org/10.1111/cag.12659
- Bright, N., & Smaill, E. (2022). *He reo ka tipu i ngā kura: Growing te reo Māori in English-medium schools—Findings report.* New Zealand Council for Educational Research. https://doi.org/10.18296/rep.0024
- Bright, N., Smaill, E., Overbye, S., & Edge, K. (2021). *He reo ka tipu i ngā kura: Growing te reo Māori in schools—Literature review*. New Zealand Council for Educational Research. https://doi.org/10.18296/rep.0017
- Chiseri-Strater, E. (1996). Turning in upon ourselves: Positionality, subjectivity, and reflexivity in case study and ethnographic research. In P. Mortensen & G. E. Kirsch (Eds.), *Ethics and representation in qualitative studies of literacy* (pp. 115–133). National Council of Teachers of English.
- Cowie, B., & Hipkins, R. (2014). *Mediated conversations: A participatory method for generating rich qualitative data*. Sage Research Methods Cases. https://doi.org/10.4135/97814462730 5014537593
- Elkington, B., Jackson, M., Kiddle, R., Mercier, O. R., Ross, M., Smeaton, J., & Thomas, A. (2020). *Imagining Decolonisation*. BWB Texts. https://doi.org/10.7810/9781988545783
- Feinstein, N. W., & Mach, K. J. (2020). Three roles for education in climate change adaptation. *Climate Policy*, *20*(3), 317–322. https://doi.org/10.1080/14693062.2019.1701975
- Giddings, B., Hopwood, B., & O'Brien, G. (2002). Environment, economy and society: fitting them together into sustainable development. *Sustainable Development*, *10*, 187–196. https://doi.org/10.1002/sd.199
- Herr, K., & Anderson, G. (2005). The continuum of positionality in action research. In K. Herr & G. Anderson (Eds), *The action research dissertation: A guide for students and faculty* (pp. 37–59). SAGE Publications. https://doi.org/10.4135/9781452226644
- Hipkins, R. (2024). From key competencies to science capabilities and on to enduring competencies: Tracing the trajectory of an idea: *Set: Research Information for Teachers*, (1), 20–27. https://doi. org/10.18296/set.1547
- Hipkins, R., Talbot, S., Cowie, B. & Waiti, P. (2022). *Enduring competencies for designing science learning pathways*. Rangahau Mātaraunga o Aotearoa / New Zealand Council for Educational Research. https://doi.org/10.18296/rep.0025
- Hunia, M., Huria, J., & Spiller, L. (2024). *Ready for partnership? A tool for creating written and visual texts in Aotearoa New Zealand*. NZCER. https://doi.org/10.18296/rep.0058
- Kwauk, C., & Casey, O. (2021). A new green learning agenda: Approaches to quality education for climate action. *Center for Universal Education at The Brookings Institution*. https://eric.ed.gov/?id=ED610523

- McGrath S., & Deneulin S. (2021). Education for just transitions: Lifelong learning and the 30th anniversary Human Development Report. *International Review of Education*, 67(5), 637–658. https://doi.org/10.1007/s11159-021-09914-w
- Nusche, D., Fuster Rabella, M., & Lauterbach, S. (2024). Rethinking education in the context of climate change: Leverage points for transformative change. *OECD Education Working Papers*, (307), OECD Publishing. https://doi.org/10.1787/f14c8a81-en
- NZCER Rangahau Mātauranga o Aotearoa. (2021). Te rautaki a Rangahau Mātauranga o Aotearoa 2021–2025 / NZCER strategy 2021–2025. Author.
- Palmer, G., & Bright, N. (2024). *Definitions and uses of the term "decolonisation": A brief overview of key literature*. Rangahau Mātaraunga o Aotearoa / New Zealand Council for Educational Research. https://doi.org/10.18296/rep.0056
- Purvis, B., Mao, Y., & Robinson, D. (2019). Three pillars of sustainability: In search of conceptual origins. *Sustainability Science*, 14, 681–695. https://doi.org/10.1007/s11625-018-0627-5
- Reed, G., Brunet, N.D., McGregor, D., Scurr, C., Sadik, T., Lavigne, J., & Longboat, S., (2024). There is no word for 'nature' in our language: Rethinking nature-based solutions from the perspective of Indigenous peoples located in Canada. *Climatic Change*, (177), 1–34. https://doi.org/10.1007/s10584-024-03682-w
- Rousell, D., & Cutter-Mackenzie-Knowles, A. (2020). A systematic review of climate change education: Giving children and young people a "voice" and a "hand" in redressing climate change. *Children's Geographies*, *18*(2), 191–208. https://doi.org/10.1080/14733285.2019.1614532
- Smith, L. T. (1999). Decolonizing methodologies: Research and Indigenous peoples. Zed Books.
- Tolbert, S., Hipkins, R., Cowie, B. & Waiti, P. (2024). Epistemic agency, Indigenous knowledge, and the school science curriculum: Reflections from Aotearoa New Zealand. *International Journal of Science Education* published first online. https://doi.org/10.1080/09500693.2024.2356229
- Tuck, E., McKenzie M., & McCoy, K. (2014). Land education: Indigenous, post-colonial, and decolonizing perspectives on place and environmental education research. *Environmental Education Research*, 20(1), 1–23, https://doi.org/10.1080/13504622.2013.877708





Rangahau Mātauranga o Aotearoa | New Zealand Council for Educational Research

www.nzcer.org.nzfacebook.com/nzcer

🥑 @NZCER

in www.linkedin.com/company/new-zealandcouncil-for-educational-research