

## LALANGA HA KAHA‘U MONU‘IA

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### Helping science educators to embed Indigenous knowledge, values and cultures in their courses for Māori and Pacific science student success

*Sonia Fonua\**

#### Abstract

Māori and Pacific students are not achieving in science in comparison with other ethnic groups in Aotearoa New Zealand. At the same time, evidence of engagement with their traditional ways of knowing and being in university science settings is limited. Most formal science curricula globally are founded on Western modern science, and this focus can contribute to the underachievement of Indigenous students in science, particularly if Indigenous knowledge is not included (Howlett et al., 2008). Culturally sustaining pedagogy (Paris, 2012) acknowledges cultural pluralism, yet many science educators lack the cultural capital to comfortably reference Indigenous knowledge in their teaching. In this article, I describe some of the tensions, benefits and considerations that need to be acknowledged and addressed when encouraging non-Indigenous university science educators to incorporate and embed Māori and Pacific values, culture and knowledge in their teaching practice and learning spaces. This article discusses findings from a research project on embedding Indigenous knowledge, values and culture in university science teaching, with a particular focus on relationship building.

#### Keywords

Indigenous knowledge, cultural values, science education, vā, relationality, critical self-reflection, Tonga, Pacific, Motutapu

#### Introduction

Over 15 years ago, Osborne et al. (2003) highlighted an increasing “recognition of the importance and economic utility of scientific knowledge and its cultural significance” (p. 1049). They also noted that fewer young people were studying science or pursuing a career in science, and scientific ignorance was increasing in the general populace. Despite its importance in pre-professional education and for enhancing societies’ scientific literacy (Coll et al., 2010), Bull et al. (2010) argued that science education did not fit with the needs of the

time. Although not recent, these concerns are still pertinent, particularly that

traditional science education, designed to prepare science-able students for science careers, is in fact turning many students away from science and it may not be serving any of our students particularly well—even those who are high achievers on current measures. (Bull et al., 2010, p. 32)

Similar concerns exist regarding university science education. Since the 1980s, market reforms

\* Professional Teaching Fellow, University of Auckland, Auckland, New Zealand. Email: s.fonua@auckland.ac.nz

have shifted the strategic economic and social objectives of universities nationally and internationally (Shore, 2010). In Aotearoa New Zealand, universities have increasingly aligned to a more business-style model of operation, introducing various performance measures and emphasising economic competitiveness within the “global knowledge economy” and “education for citizenship”. Some question the subsequent impact on what is taught and what counts as “proper knowledge” (Shore, 2010). Of particular concern is that the increasing number of university students enrolling has not corresponded to more teaching staff, which has often drastically affected teaching ratios (Shore, 2010) and the time academic staff have to teach students as individuals (Wilcox et al., 2005). The current situation remains problematic, particularly regarding whether students’ needs are being met, and whether the quality of their learning experience as students is becoming more and more diverse.

### ***Science education***

Basing formal science curricula on Western modern science creates a “learning gap” or tension between Western and Indigenous value systems (Little, 1990). This can contribute to the underachievement of Indigenous science learners, particularly if Indigenous knowledge is excluded from the formal science curriculum (Howlett et al., 2008), thereby maintaining the feeling that it is being “othered” or deficient in an educational institution’s culture (Bishop et al., 2014; Kahu, 2013). Including Indigenous knowledge in curricula celebrates multiple perspectives and challenges the “hegemonic role that Western science plays in a rapidly globalizing world” (Hammond & Brandt, 2004, p. 2). Indigenous knowledge has benefits for all students, their institutions and wider society (Thaman, 2003). However, many science educators lack the cultural capital to comfortably refer to Indigenous knowledge.

### ***Culturally sustaining pedagogy***

Culturally sustaining pedagogy seeks to “perpetuate and foster—to sustain—linguistic, literate, and cultural pluralism as part of the democratic project of schooling” (Paris, 2012, p. 93). It requires pedagogies to be responsive and relevant to multi-ethnic communities, supporting young people to maintain their own cultural and linguistic competencies while building cultural competence in the dominant culture. In Aotearoa New Zealand, an excellent opportunity for science educators to initiate a culturally sustaining pedagogy is to

consider how they are teaching Māori and Pacific students.

As a non-Indigenous university science educator, I embrace the idea of critical reflexive practice being more sustaining of the cultures and values of Māori and Pacific students and becoming more inclusive of Indigenous knowledge. However, improving the quality and equity of university science teaching requires an understanding of the culture of students who struggle in a system dominated by a different worldview (Fonua, 2018). In light of the low number of Māori and Pacific science educators in Aotearoa, it could be inferred that most university science educators have limited Māori and Pacific cultural capital. If true, this has implications for how culturally sustaining science educators can be without support, especially if we want to minimise the potential to further isolate Māori and Pacific science learners with potentially tokenistic, offensive or incorrect attempts to include them.

### ***Relationships in education***

Relationships have been emphasised in Māori and Pacific education research and policy for many years (Bishop et al., 2014; Hill & Hawk, 2000; Reynolds, 2018), in particular the need for educators to form “good”, meaningful or quality relationships with Māori and Pacific students because the quality of the teacher–student relationship affects engagement and achievement. However, what constitutes a good relationship is not universal, as cultures understand good in different ways (Thaman, 1998). Instead, the significance of the expression of the teacher–student relationship in relation to Māori and Pacific student academic outcomes must be recognised.

Deficit theorising of Māori and Pacific students by linking teacher expectations to student ethnicity has been clearly demonstrated for over 15 years, if not longer (e.g., Alton-Lee, 2003; Nakhid, 2003). Educators need to recognise their role in maintaining stereotypes, including how their actions continue or expand these problematic depictions of Māori and Pacific students, and how this affects the students themselves.

### ***Relationality***

From a Māori perspective, relationality refers to “our lived relation to other human beings, other living creatures, and to the non-living entities with whom we share our spaces and the planet” (Ritchie, 2013, p. 307). While often mistaken for relationships, relationality’s essence is broader, encompassing any type of association or link with

anything and replacing the linear idea of connection with a connection through an expanse or space. To be able to discuss relationality in a Pacific context, it is necessary to understand *vā*.

*Vā* is a viewpoint found in many Pacific countries, including the Kingdom of Tonga, Samoa and Fiji. *Vā* can be variably understood as the space where relationships or interactions occur, the “socio-spatial” connection, and is also associated with balance in relationships (Airini et al., 2010). The *vā* is never empty; it is filled with the relationship that exists between two people, groups or entities that both have responsibility for how the relationship works. From a Tongan academic perspective, *vā* “emphasises space in between. This is fundamentally different from the popular western notion of space as an expanse or an open area” (Ka’ili, 2005, p. 89). Therefore, understanding *vā* can help educators working in Aotearoa and the wider Pacific to consider the embodiment of relationality in their teaching and learning spaces (Ka’ili, 2005; Reynolds, 2018).

### Positionality

The framing of my research and teaching is influenced by my three “situated positions” (Samu, 2014): (1) university science educator, (2) non-Indigenous Pākehā educator and (3) member of a Tongan family. As a university educator, I have spent 20 years continually witnessing the inequitable outcomes in Māori and Pacific student achievement. For the past 15 years I have taught science exclusively to Māori and Pacific students. This has often been challenging, triggering extensive critical self-reflection, particularly regarding my Pākehā privilege, how I engage with cultural values and the power dynamic present when I teach Māori or Pacific students. My lived experience as a wife, mother, aunty, daughter-in-law and so forth in an extended Tongan family has also influenced my ontological and epistemological thinking. This is now shaped more by the contemporary expressions of Tongan culture demonstrated by my Tongan family, who maintain close ties to the Kingdom of Tonga, than the Pākehā culture I was brought up in.

I am not claiming to be Tongan (or an insider). However, I believe my worldview situates me as an “external insider”, someone who has become affiliated with an “outside culture” and who may adopt aspects of this culture, while critically regarding and rejecting many of the values and beliefs of the culture they were first socialised in (Banks, 1998). Johansson-Fua (2016) defines an Oceanic researcher as “one who is actively

involved in Pacific societies, working to change mind sets and expand power and control for the benefit of Pacific communities” (p. 37). Based on this definition, I consider myself an Oceanic researcher, but also an Oceanic educator. I feel I am now much better equipped to understand what it is about the wider university context that drives the inequitable achievement of Māori and Pacific science learners, a position that formed the basis of the project discussed below.

### Method

Previous research suggests that incorporating Pacific values, behaviours and concepts within the formal classroom curriculum and pedagogy of science may address Pacific students’ engagement and achievement in science (Kalavite, 2010). Influenced and informed through reflection and critique of my own teaching practice and ongoing doctoral studies, I developed a research fellowship project, “Lalanga ha kaha’u monu’ia—Embedding Indigenous Knowledge, Values, and Culture for Māori and Pacific Student Success”. The Tongan phrase “Lalanga ha kaha’u monu’ia” can be translated as “weaving together for a better future”. The goal of Lalanga was to enable science-focused educators to identify ways to embed Māori and Pacific values, culture and knowledge in their teaching and learning by creating safe spaces for Indigenous and non-Indigenous staff to undergo critical self-reflection. Indigenous experts (internal and external to the university) provided guidance, insight and perspective on the current content and delivery approach, helping to expand or develop more culturally sustaining approaches.

### *Pikipiki hama kae vaevae manava*

Methodologically, Lalanga is underpinned by “pikipiki hama kae vaevae manava” (to lash together to give or share from the heart). This Tongan metaphor describes the purposeful and deliberate connecting together of ocean-going vaka mid-journey to allow people to converse and share resources during long voyages. It is employed to demonstrate deliberate and purposeful ways of creating deep and honest connections, sharing information, knowledge and resources, and collaborative engagement alongside individual responsibility. The connections are strong like the lashing of vaka outriggers. They are also intentional and encourage sustainability and trust because they are connections that can be repeated as and when necessary and are reciprocal.

Lalanga focused on encouraging educators

who oversee curriculum design and assessment to consider the reality of Māori and Pacific science learners' lived experiences. Many Māori and Pacific students experience micro-aggressions (Nadal, 2011), stereotype threat (Steele & Aronson, 1995) and unconscious bias during their tertiary studies. Creating spaces to discuss and document why Māori and Pacific values, culture and knowledge should be expressed and experienced in the formal classroom highlighted these negative experiences. Furthermore, it encouraged educators to explore ways to address such experiences when previously they may have been unaware of or unsure how to deal with them.

A pikipiki hama kae vaevae manava approach encouraged connection and sharing opportunities. After one year, over 35 university science educators had participated in an intensive monthly reflective process documented by note-taking. Ten of these participants also engaged in an intensive course development process guided by Māori and Pacific experts external and internal to the university. Further, two faculty-sponsored talatalanoa opened up the discussion and sharing space, accumulating an interested audience of 150 academic and professional staff. Several talanoa sessions also collected Māori and Pacific student voice ( $N = 16$ ) regarding changes in teaching practice they noticed and their suggestions on how science-focused courses could better reflect Indigenous values, culture and knowledge. In addition, one year after the project began, talanoa were held separately with eight science educators to gather their stories of reflection and change.

### **Talanoa**

Talanoa, or “talking about nothing in particular, and interacting without a rigid framework” (Vaiolleti, 2006, p. 23), allows participants to reflect on the research topic, providing their own critique and argument. Talanoa is complex but flexible, allowing for formal or informal conversation in different contexts or settings for different purposes (Johansson-Fua, 2009). In Lalanga, it allowed unstructured conversation triggered by an idea or a question, rather than set interview questions (Johansson-Fua, 2009), enabling participants to determine the discussion focus so they were purposeful and deliberate conversations.

Our monthly hui lasted 90 minutes and provided ways to experience or consider relationality and to enjoy the journey with others, something that is not usually common, encouraged or emphasised in the university environment. My intention was to demonstrate what Waddell (1993) described

when responding to Hau'ofa's (1993) “Our Sea of Islands”:

the individual—the self—does not exist. One exists only in reference to others. Hence the practice of always consulting, meeting, talking matters out, such that all decisions are fundamentally collective ones, based on a remarkable degree of consensus. While such a way of proceeding may be tedious and unproductive to the rational, Western mind . . . there is something fundamentally generous about such a way of proceeding, where dialogue, debate and collective searching are at the centre of our preoccupations. It is of course a style, a manner of proceeding which is remarkably rare among scholars, where each is so often ensconced in his or her inviolable truth. (Waddell, 1993, p. xiii)

As expected in any Māori or Pacific context, we always recognise the importance of sharing food. Sharing food can build relationality, especially if it is handmade and connects the consumer to a particular culture or nation through stories, histories and explanations. Discussing values and how different cultures can consider the same value, such as respect, in different ways has been another point of connection. Lalanga participants are diverse with respect to gender, age, ethnicity, seniority in the institution, indigeneity to Aotearoa or the wider Pacific, migrant status or born in Aotearoa, teaching experience and educational background. Importantly, we embraced the presence of both academic and professional staff, ignoring the institutional hierarchy and considering everyone's contribution equal, whether they were academic deans or lab technicians. We also initiated opportunities for Māori and Pacific experts to attend and share their stories, knowledge and perspectives, as a way to provide intercultural support (Reynolds, 2017).

### **Findings and discussion**

The expectation to form positive relationships comes with very little explanation of what this means in practice. For example, *Tapasā*, a recent Pacific-focused document, expects a teacher to “establish[] and maintain[] collaborative and respectful relationships and professional behaviours that enhance learning and wellbeing for Pacific learners” and highlights the need to employ Pacific constructs to do so (Ministry of Education, 2018, p. 8). Although an admirable directive, most university science educators prioritise content delivery over investing in the learning environment where they deliver this content.

In other words, there is often limited focus on forming any relationship, regardless of whether it is a positive one. Yet, for many Indigenous students, the learning environment they experience is far more important than the content, and it can inform and influence their engagement and success (Fonua, 2018; Hill & Hawk, 2000; Reynolds, 2018). This creates an interesting tension, one that usually plays out according to who has the agency or power in this situation—often this is not the Indigenous student.

### *Sea of islands*

A good place to start considering *vā*, particularly the expectations, ethics and responsibilities of *tauhi vā*, is Hau'ofa's (1993) essay "Our Sea of Islands", which critiques how Oceania is considered. Hau'ofa described Oceania (Central and South Pacific) as a "sea of islands" rather than "islands in a far sea", offering a more "holistic perspective" that encompasses the "totality" of relationships and countering the dominant deficit "smallness" description associated with Oceania geographically and economically. Instead, Hau'ofa acknowledged the breadth of Oceania and its wealth of knowledges, cultures and history existing beyond imposed colonial boundaries and narrow perspectives. Hau'ofa raised the importance of ontological positioning; seeing the islands as connected (a sea of islands) or disconnected (islands in a far sea) will determine what is and therefore what is possible in that space.

Like other researchers embracing Hau'ofa's work, Reynolds (2017) notes parallels between the separation and connection of islands in Oceania and those in classroom relationships. My contribution is this: if we specifically shift the view of science educators away from Māori and Pacific students as islands in a far sea to a sea of islands that are connected socially and spatially, we highlight and emphasise the need to reduce the conscious (and unconscious) bias towards Māori and Pacific science learners. Educators also need to recognise that these connections and separations in classroom relations are perhaps more obvious when the subject being taught is one in which knowledge is derived from an investigative method that seeks to avoid subjectivity or human influence. More science educators will then recognise their role in acknowledging diverse viewpoints and knowledges in their classrooms and teaching spaces, and their role in maintaining the relational space. The following stories (using pseudonyms) demonstrate how the Lalanga participants explored a process of embedding Indigenous knowledge, values and

culture into their teaching practice along with some of the critical self-reflection they experienced.

Science is often positioned as objective, neutral and unbiased. As a result, science teachers often consider their role to be exclusively to deliver content, not to build a connection. Yet, for many cultures, an introduction is common practice to set the tone of an interaction, to position oneself and to demonstrate linkages and connections. In Māori and Pacific cultures, this often includes a spatio-temporal acknowledgement of geographically significant places and ancestral links, known as a *pēpeha* in Māori (Mead & Grove, 2001). In our first Lalanga hui, Indigenous cultural experts explained how a *pēpeha* demonstrates your positioning in relation to the world and creates connections and relationships by sharing who you are from.

As discussed above, relational links are often not made in science lectures. Instead, lecturers prioritise content delivery, perhaps introducing themselves professionally so as to qualify their academic position as the teacher. Unsurprisingly, the initial Lalanga discussions about introductions revolved around the time spent on introductions, usually considered a waste of time because of the content's importance. For example, in her first lecture, Eloise, a non-Indigenous lecturer, explained the need to "communicate [to the students] where I stand and how I work in terms of efficiency and being task-oriented so as to not 'shock' them if I come across as being blunt".

However, once the participants became better informed about *pēpeha*, they all expressed a desire to learn their own as a way of connecting with students of different cultural and ethnic backgrounds from theirs. For example, another non-Indigenous lecturer said:

I wanted all of my students to feel relaxed and comfortable in my class because I think that's important to allow them to achieve, and I'm interested in being able to build relationships as a part of that and I know it's easy for me to build relationships with students that I understand and they tend to be the ones that are from my own culture, but I am not so good at it with students who are not from my own culture. I need to make more of an effort and this is a way [through *pēpeha*] that I think I can make more effort. (Ella, non-Indigenous lecturer)

Despite their efforts, some participants felt unsupported by their colleagues when they expressed a desire to develop their *pēpeha*. Others were discouraged by their department because a *pēpeha*

would not “fix” Māori and Pacific student engagement. For example:

when I discussed this [project] with other academics and my desire to be involved to make a positive change. . . . They start to want evidence and science because that’s where I work. The kinds of questions I get are “why should you be doing this?”, “what’s the real point?” . . . The number one question from my department was “Is that just token, just throwing a bit of Māori in to your introduction? [It] isn’t going to do anything.” [Yet] they wanted to solve the problem [of Māori and Pacific success]. (Ella, non-Indigenous lecturer)

Many educators had avoided specifically engaging Māori and Pacific students because they did not know how, and were not ready, to admit their ignorance or lack of ability. Understanding pēpeha more deeply helped Hester, a non-Indigenous lecturer:

I came here 10 years ago . . . and I’d like to learn more but I have always been a bit uncomfortable with trying things like using the language and beyond sort of reading academic text, I haven’t become very versed in how to use things like the language in order to help people feel included and welcome and a part of things. . . . I really want to feel more comfortable talking about that and not just feel like I can parrot these words [of the pēpeha]. I want to know what pēpeha mean, what does it really mean to someone if I say it and I think if I feel confident of how it will build that relationship of that person who hears it then I feel I can defend saying it to anybody [i.e., colleagues], even if they don’t agree.

To be clear, the purpose of sharing these stories is not to excuse the inaction of science educators or absolve them of any responsibility; instead, it is intended to highlight the personal reality for many science educators who do not know what to do or where to start. Most felt unsupported by the university or were unclear about available resources, or even if there was an expectation that they would learn to engage Māori and Pacific students. Often, they had managed to avoid engaging in any personal development concerning Māori and Pacific student success because there was no clear directive to do so nor seemingly any consequences if they did not.

During the students’ talanoa sessions, how teaching staff interact and build connections in their first lesson was a key topic of discussion. They

felt that pēpeha made a hugely positive contribution to building relationships as it demonstrated respect. One Māori science learner, Te Huia, described it this way:

it warms you, aye, when somebody stands like this year, it doesn’t happen frequently at med school [but] when it does happen, it sends a warm fuzziness over you and . . . I don’t think that the lecturers realise that when they mihi, when it’s in Māori, they acknowledge that Māori are tangata whenua, when they do that it’s a good thing, that is coming from a place, from caring and aroha from them.

However, some students were concerned that staff considered a pēpeha or in-depth introduction was enough to engage Māori and Pacific learners. They wanted to ensure there was more to it:

[pēpeha is good] but does it stop there? [laughter] Because to be honest . . . it’s good, a nice culturally touching experience but in reality what’s being practised is totally different. . . . that’s a minute, maybe five minutes max at the beginning of a lecture. You have to ask, is that then it for the rest of the semester? “Kia ora”? (Tana, Pacific student)

For some educators, their pēpeha development and delivery was reasonably straightforward and had immediate benefits for their student interactions:

they remembered [me after my pēpeha] a lot more. And that was really special for me. . . . So, I think having that relationship, that, you know, because I was opening up a little bit to them . . . it really did. And I continue to do that, at the start of all my first lectures. And I think that’s really important for me. It’s not normally what I do, but, I was challenged, but I think it was a good challenge . . . so that’s a personal goal, that I felt, that I was able to do, I had confidence, I could see the merit in why I was doing this. . . . It gave me sort of a bit of more rapport with the students. (Evan, non-Indigenous lecturer)

While the Lalanga participants were keen to find ways to embed Indigenous values, culture and knowledge in their teaching and learning practice, they were very aware of their own insecurities and capabilities. They wanted to be able to do things better but felt challenged about acting immediately. For example:

for me, [this project] . . . taking the time out to think about and discuss and be challenged on some of my existing ideas [was important] . . . when we

started the whole journey with pēpeha . . . I sort of felt hesitant about doing it in the traditional way, which is how I've heard other people do it . . . [in English was] a different way, but at the same time authentic, it made connections to the audience and it led nicely into his talk. So, I think I need to leverage that idea and present myself and make connection with my audience in a more authentic way that I'm comfortable with. Um, and that may not necessarily be in the framework of a traditional pēpeha but, um, yeah. (Eloise, non-Indigenous lecturer)

When there is some pushback about not embracing a pēpeha or particular cultural practice immediately, I would argue that ensuring the cultural safety of the students and the educator is paramount. What we do not want to happen is for staff to take an idea and run with it in the wrong direction, as in the following example:

doing a mihi or introducing, them doing it not in Māori, how when lecturers just introduce themselves in English . . . I think that's cool . . . when they introduce themselves, that's the first thing you see of them, I think that's a good way for us to get to know them . . . but I think also they need to be more educated when they introduce themselves, not just introducing themselves in Māori but [if you say] my family were the first people in the South Island . . . when you are not educated, "Wow, she's cool because she is the first person in the South Island!" but then . . . you [were] not, you colonised and you took it all, you know . . . so making sure they are culturally aware and educated when they are doing something that is trying to be culturally appropriate. (Areta, Māori student)

Although the science educator (who was not a participant in the Lalanga project) referred to in the above extract seemed to be engaging in attempts to build positive relationships, in reality they demonstrated their ignorance (at best). Describing themselves as the first people in the South Island, when they are not Indigenous, entirely dismisses Māori as the first people of Aotearoa, which is hugely problematic and risks isolating Māori and Pacific students even further.

Engaging in developing their pēpeha had wide-ranging consequences for the participants. Some felt they were beginning to understand their Māori and Pacific students in ways they had not previously—these shifts had immediate implications for improving Māori and Pacific success in tangible ways. For example, Hester's deeper

understanding of Pacific relationships resulted in a tangible behavioural shift. Instead of refusing to shift assessment dates, with dire consequences for the student, because of her increased awareness and cultural understanding she:

allowed a student to sit a test early so she can go back to Samoa with her grandmother because I now understand how central family is to her, that she's been chosen and can't just say no—that her life is not that of the "strive to be what you can be as an individual" mindset.

### *Motutapu*

Lalanga had key goals: to increase connection between educators; to raise awareness of their teaching context, namely, Aotearoa and the wider Pacific; and to create a safe space for non-Māori and non-Pacific educators to meet, reflect, discuss and learn without feeling judged, as most had limited Māori and Pacific cultural capital. Although familiar with the third space concept, I was taken by the hybrid space suggested by Johansson-Fua's (2016) description of Motutapu, sacred islands found across the Pacific and considered safe spaces for travellers to rest. Building upon Hau'ofa's Oceanic philosophy, Johansson-Fua (2016) suggested Motutapu were "actionable" and "ethical" hybrid spaces where self-efficacy and awareness can be raised and where cooperative partnerships between Indigenous people and Western institutions can be negotiated.

Although Johansson-Fua (2016) was originally developing a space for Oceanic comparative and international education in the Pacific, I believe the concept translates easily to science education and attempts to improve it for Māori and Pacific students. For example, Johansson-Fua emphasises time and the importance of resting, waiting and considering the next part of the journey, rather than rushing to "finish". Sustainable transformative change must be true change; any change must be desired not forced and must allow time for each (science) educator to navigate their own journey, with expert guidance. I would argue that there is not just one way to become a culturally competent science educator; yet, to be able to embed Indigenous values, culture and knowledge in their teaching practice well, without being tokenistic, offensive or incorrect, educators need time to become confident and familiar with them. This benefits students because the delivery will then be appropriate, useful and relevant, which reduces the risk of isolating or marginalising Indigenous science learners.

The sanctity for critical reflection created by Motutapu assists science educators to engage in a process of discovery, providing them with somewhere “to rest until it is safe to continue their journey” (Johansson-Fua, 2016, p. 36). I believe it also aligns well with our pikipiki hama methodology by providing opportunities to come together and share resources, in this case somewhere to rest, and recuperate, together. University-level science is predominantly taught by non-Māori and non-Pacific teachers, as are most subjects at secondary or tertiary levels; often the teachers have limited intercultural relational experience. Our Motutapu helps educators to try, to ask, to think and to understand information that they might not otherwise be exposed to or have a place to explore safely. For Ella:

part of my preparation process has been if I want to be able to share this I want to expose my vulnerability in a way that I feel safe. I’m prepared to be very open with you, but not necessarily with people in power positions over me who affect my employability.

Being able to speak freely and openly does not often exist in higher education work spaces. However, together we have created a space “to explore something different, something new and perhaps unrecognisable, but in that process find new areas of negotiation, drawing new meanings and representation” (Johansson-Fua, 2016, p. 36). Although most Lalanga participants were not Indigenous to Aotearoa or the Pacific, they aspired to change their practice to benefit Māori and Pacific university-level science learners. Realising the value placed on connections and relationship building through the Lalanga process, these participants were keen to become more aware of values, or “the cornerstones of Indigenous culture that [I] can keep in mind or work with” (Eloise, non-Indigenous lecturer).

For me, the idea of Motutapu enables me to participate in a third space that:

enables other positions to emerge, it displaces, unsettles the histories that constitute it and at the same time it settles the “unsettled”. The third space sets up new structures of authority and new political initiatives; it is an ambiguous area that develops when two or more individuals/cultures interact. The third space is a place of continuous tension and negotiation. But if the third space is in Motutapu, then it can also be a place of

rejuvenation, a sanctuary, a place to launch new journeys. (Johansson-Fua, 2016, p. 37)

Perhaps this is one element that is missing from approaches attempting to improve Māori and Pacific science learner achievement.

The educators acknowledged the value of working closely with people, knowing that there was support and sanctuary:

[at university] people do critique things quite a lot especially when they’re not the ones who need to actually engage the students or implement something. So, when a suggestion is made about how I could do it or who I could approach, it’s like it’s easier to critique and be negative about something than it is to sit there and say “OK, how are we going to do this together?” (Evelyn, non-Indigenous lecturer)

the smaller group that we had . . . that small group, I thought I could you know, it was just because I was seeing them very often. . . . And there was that, a feeling of trust, and you could talk . . . you could discuss things and you could bring in your stories, they might not be relevant to that, but was just something, I felt that really was key . . . I think, yeah, being able to share my things and be able to then bring it back [to my work] . . . [because] you become really, sort of lonely soldier fighting against the system, which it shouldn’t be” (Evan, non-Indigenous lecturer)

We have created connections that did not previously exist—not just individual relationships, but broader and deeper connections based on shared philosophies, ethics, morals and, now, understanding. For example, understanding *vā* and considering the relational space created within science learning contexts at university was hugely important. For the Lalanga participants, learning about *vā* often resulted in “ah-ha moments”, when the realisation that the empirical understanding of relationships they were used to did not capture all the invisible factors that occur in any interaction (if they are even acknowledged), such as the emotional state of those involved.

Presenting this conceptualisation of socio-spatial relationships helped explain the necessity of taking time for introductions at the beginning of a lecture or class. *Vā* provided a framework for these educators to understand connecting, in particular why sharing where they were from, whether they had children and their interests was more important than listing academic qualifications



and scientific research projects, or not introducing themselves at all and spending that five or ten minutes teaching science content. Furthermore, such a simple but powerful change in their approach to their students would “speak” to Māori and Pacific (among many other) students who understand *vā*, or a similar epistemological position that holds maintaining positive relationships as a core value. Ultimately, embodying *vā* enabled us to contest the impression that relationships are not essential in science education.

### Conclusion

Many attempts have been made to improve Māori and Pacific academic success in the tertiary education space, yet Māori and Pacific students still do not succeed on par with other ethnicities. Instead of finding ways that Māori and Pacific students can change so that they succeed, I purposefully and explicitly focus my energies and efforts on the teaching staff as the locus for change. It is they who need to be assisted to build their cultural capital and critical self-reflection so that they can understand and engage with Māori and Pacific students, not the other way round.

Science educators must understand that Māori and Pacific science learners want and need to feel welcome, valued, respected and included in their learning spaces. Yet the current system, which emphasises delivering large volumes of Western modern science content according to Eurocentric ways of being, often contradicts core cultural values and practices such as *tauhi vā*. Such a system does not acknowledge or assist the cultural border crossing Māori and Pacific science learners must engage in to be successful in their university science studies. Science educators have the agency to challenge the current preference or habit of delivering science in a dehumanising manner. Yet often they are unaware of the cultural contexts Māori and Pacific students exist in and have no means to learn about them. By exposing them to some ways of knowing and being within Māori and Pacific cultures, science educators are able to begin to disrupt and decolonise university science learning spaces by safely embedding Māori and Pacific knowledges, values and cultures in them in a manner that will engage Māori and Pacific science learners, and benefit the learning of all science students.

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### Glossary

Aotearoa	commonly used as Māori name for New Zealand; lit. “the land of the long white cloud”
aroaha	kindness, affection, love, compassion
hui	meeting
kia ora	hello, best wishes
mihi	speech of greeting, acknowledgement, tribute
Pākehā	a person of predominantly European descent
pēpeha	personal introduction based on one’s identity and heritage
talanoa	talking about nothing in particular, and interacting without a rigid framework
talatalanoa	to continue to talk about
tangata whenua	Indigenous people of the land
tauhi vā	caring for socio-spatial relations
vā	relational space
vaka	canoes

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