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WEAVING A PŪRĀKAU INTO EDUCATION

A tuakana–teina learning journey in mātauranga Māori

*Aidan Mark Harrison**

Abstract

This research investigated how mātauranga Māori through a pūrākau could be used to increase a tauiwi teacher's confidence and practice within a tuakana–teina learning relationship. Mātauranga Māori relates to the interwoven connections between humans and the world that inform tikanga. Relationship with the local hapū and their tikanga of partnership and whakamana provided a framework of whanaungatanga, through which ako occurred between the hapū and the tuakana–teina. The specific localised pūrākau presented a new pedagogical paradigm, inviting the tuakana–teina into an intensely collaborative, dynamic, personalised learning journey that promoted role modelling by the tuakana and risk taking by the teina. Further research is needed to investigate how this relationship could be replicated with other staff at different schools with different pūrākau.

Keywords

ako, education, learning relationships, mātauranga Māori, pūrākau, tuakana–teina

Mā te whakaatu, ka mōhio,
Mā te mōhio, ka mārama,
Mā te mārama, ka matau,
Mā te matau, ka ora.
By discussion, comes understanding,
by understanding comes light,
by light comes wisdom,
by wisdom, comes life.
—Pā Henare Tate (Barlow, 1994)

Do the best you can until you know better. Then, when you know better, do better.
—Maya Angelou

Background

The two whakatauākī above both allude to relationships in learning that can bring enlightenment. However, learning and growth occur only if this enlightenment is woven into thinking, attitudes, beliefs and ultimately actions. This research shows how enlightenment in ako can come from whanaungatanga—the fostering of family-like relationships between the local hapū and two teachers, as tuakana and teina.

* Master of Theology Researcher, Laidlaw College, Christchurch, New Zealand. Email: harrisonaidan@hotmail.com

I am a Pākehā who grew up immersed in te ao Māori of Te Tairawhiti, East Cape of the North Island, where the influence of local hapū was a natural part of our everyday life. I have been an educator for 24 years, which has included roles of integrating mātauranga Māori (MM) and its associated te reo me ōna tikanga Māori into teaching craft and curriculum. Within educational settings, I have experienced the flourishing of learning relationships when the MM of te ao Māori is outworked through tikanga, including tuakana–teina, ako, whanaungatanga and tūrangawaewae. R. Bishop maintains that MM enriches Māori as well as tauiwi students' learning (MOE, 2015). However, my own anecdotal evidence alongside that of other researchers suggests that many teachers are not well supported to meaningfully integrate MM into education (Tolbert et al., 2023).

With this background of MM and tikanga Māori improving learning outcomes in my own and others' teaching practice, I sought to formally investigate this learning. This research reports on a learning journey of me, as tuakana, and another teacher as teina. The purpose was to increase the confidence and practice of the teina of integrating a pūrākau into his teaching practice. The specific pūrākau was entitled *Taniwha and the Rakaia Gorge*, which was gifted to schools by Te Taumutu Rūnanga o Ngāi Tahu, who represent the local hapū (Gillon et al., 2019). Smith (2021) discusses the importance of Māori agency in Māori research; however, tauiwi involvement is not ostensibly excluded. As tauiwi tuakana and teina, we actively sought local hapū tikanga to guide learning relationships (Smith, 2021; Tolbert et al., 2023). Their tikanga emphasised partnership and whakamana. Whakamana is defined as empowerment through uplifting others' mana—their inherent personal value. The first learning relationship was with the iwi of Ngāi Tahu and the local hapū, Ngāi Te Ruahikihiki ki Taumutu from the Waitaha area of Te Waipounamu. Te Taumutu rūnanga are mana whenua that hold the tikanga and MM associated with the pūrākau. I have a longstanding, active and collaborative learning relationship with the rūnanga and their education facilitator, Liz Hill-Taiaroa of Kōia te Mātauraka, who gave permission for the use of their pūrākau. We regularly met before, during and after this research to advance educational outcomes for all students in our shared takiwā, and continue our collegial relationship today. One expression of this ongoing relationship is the rūnanga using portions from my larger study (A. Harrison, 2024) for their professional development with local high school science teachers. The second key relationship was between me, as tuakana, and the teina. The teina was seeking to increase his confidence and practice in weaving a pūrākau into a water science unit of work with Year 7 and 8 students.

This research sits within the Ngāi Tahu iwi takiwā of Te Waipounamu, which has inherent cultural differences from North Island iwi. Late 20th century research by O'Regan (2001) noted, for a variety of historical reasons, far fewer visible public connections to te ao Māori, including education, within the Ngāi Tahu takiwā. However, Liz named numerous initiatives and people over many generations that have faithfully promoted Ngāi Tahu educational aspirations (personal communication, 2 March 2026). One of the more recent events to strengthen relationships between Ngāi Tahu rūnanga and local schools followed the Canterbury earthquakes of 2010 and 2011. Mana whenua collaborated with the Ministry of Education (MOE) to rebuild and refurbish schools impacted by the earthquakes. In 2015–2016, several Ōtautahi Ngāi Tahu rūnanga were funded by the MOE to research and collate localised cultural narratives, including pūrākau, to be shared with local schools. These narratives highlighted and affirmed the importance of te ao Māori through Ngāi Tahutanga. This education research continues a resurgence of relationship building through partnership and resource sharing between Te Taumutu rūnanga and local schools through the pūrākau *Taniwha and the Rakaia Gorge*.

Literature review

Mātauranga Māori

Māori academics and leaders agree that MM is grounded in Māori ontologies and epistemologies of an interwoven holistic system of traditional, cultural and spiritual knowledge that informs interactions between the environment, fauna and flora, and humans (Marsden & Royal, 2003; S. M. Mead, 2003; Tate, 2012; Walker, 1990). H. M. Mead (2025) affirms the importance of MM as a taonga for Māori identity as well as for *all* New Zealand citizens, helping non-Māori identify more positively as citizens of New Zealand. MM, like other Indigenous knowledge systems, searches for expansive interwoven connections in contrast to some Western modes that focus inwards to detail knowledge in discrete units (Durie, 1999). MM is inherently connected to the environment, and learning is fostered and transferred through multiple generations (Hikuroa, 2017; O'Keeffe

et al., 2019; Pihama & Lee-Morgan, 2022; Semken & Butler Freeman, 2008).

Pūrākau, as part of MM, can be broadly defined as cultural narratives that are part of storytelling and knowledge transmission (Pihama et al., 2019). Pūrākau have been likened to local legends, myths or stories that may also teach tikanga as well as other forms of knowledge (G. Bishop, 2021; Ihimaera & Hereaka, 2019; Stansfield, 2020). Marsden and Royal (2003) explain that pūrākau, more than just stories, were deliberate pedagogical constructs employed by wise leaders to encapsulate and teach a worldview of woven relationships. A Ngāi Tahu example of a foundational pūrākau is *Te Waiatatanga mai o te Atua*, in which relationships are expressed through the divine singing creation into existence. This pūrākau was gifted to Rev Charles Creed by Matiaha Tiromōrehu in 1849, arguably an early example of partnership with tauiwi educators (Tiramōrehu et al., 1987). Local Ngāi Tahu leader and historian Te Maire Tau describes pūrākau as part of oral traditions that incorporate myth and history, and have a functional purpose to explain life and ways of living (Tau, 2003).

Pertinent to this specific research, although aimed at older students, *Mana Ōrite mō te Mātauranga Māori* (MOE, 2020) is an initiative to ensure equal status for MM in education. Also, research by Gilbert et al. (2005) discusses storytelling, including pūrākau, in science education that improves learning outcomes.

Tikanga Māori

MM informs tikanga Māori about the tika way of acting (Barlow, 1994; Royal, 2012). The key aspects of this research's tikanga were whanaungatanga, tuakana–teina and ako. In this study's context, the tikanga of whanaungatanga can be defined as the nurturing of schoolwide community relationships (MOE, 2011).

Tuakana–teina refers to relationships between people in which there is a gifting from the tuakana to the teina (S. M. Mead, 2003; Pere, 1994). Research by Kenny (2010), Harlen and Holroyd (1997), and Hipkins (2002) espouses the value of more experienced teachers sharing with novices to increase their confidence. From a pedagogical perspective, within spiral discourse, ako is shared in a reciprocal relationship (R. Bishop & Glynn, 1999). R. Bishop (1996) defines spiral discourse as part of whanaungatanga whereby a whānau-like relationship is fostered through collaborative storying and restorying within a trusting relationship. This space for shared discussion grows with commitment and connectedness, leading to an increased responsibility for professional learning.

Similarly, from a Western paradigm, Timperley et al. (2007) describe professional growth as the concept of "novice to expert" through developmental progressions. Lortie (1975) comments that teachers learn from other teachers, thus aligning with Vygotsky and Cole's (1978) research on the scaffolding of learning through social constructivism. Western ideas regarding learning, such as the teaching as inquiry cycle from the New Zealand Curriculum (MOE, 2007), can be reflected in the spiral discourse of te ao Māori as a woven learning journey.

Woven learning journey

This study used a pūrākau to promote learning through MM by responding to human and environment interactions as an interwoven whole. The different approaches of Indigenous knowledge, such as MM, and Western science can complement each other in a meaningful way that enriches learning in education (Mazzocchi, 2006). He Awa Whiria is a framework by Macfarlane et al. (2015) that details the successful integration of MM and Western science in education. Education research by Cliffe-Tautari (2020) affirmed how pūrākau could improve Māori *students*' confidence in learning and identity. In contrast, this research was an intervention to discover how a pūrākau could improve a tauiwi *teacher*'s confidence and practice. As tuakana, I would be supporting the teina to weave MM, as a pūrākau, using the tikanga Māori of tuakana–teina, ako and whanaungatanga into his teaching practice. Therefore, the research question was: How can a pūrākau and tikanga Māori enhance teaching confidence and practice?

Methodology

Case study with relativist paradigm

A case study methodology suited this intervention because we were researching *how* one teacher at one school could integrate one pūrākau to increase their confidence and practice (Lincoln & Guba, 1985). Case study methodology lent itself to drawing out and analysing our thoughts as the tuakana and teina about our challenges, successes and missteps on our shared learning journey (Baxter & Jack, 2008).

There are two important cultural considerations that, as the researcher, I acknowledged from the outset. First, as a tauiwi I have a valid, but contested, role to play in advancing educational research in te ao Māori (Smith, 2021). I am aware of past colonial methods of research that have

been detrimental to Māori and pūrākau (Berryman et al., 2017; Furness et al., 2016; Hill & May, 2013; Hotere-Barnes, 2015; Lee, 2009; Walker, 1990); therefore, I regularly sought out relationship and guidance from the local hapū to ensure appropriate tikanga was followed (R. Bishop & Glynn, 1999; Jones, 2012; Macfarlane et al., 2015; Smith, 2021). Secondly, I have a store of professional and experiential knowledge about pūrākau that I must consider carefully as I position myself alongside the local hapū and teina (Creswell et al., 2003). This knowledge was carefully referenced as I worked collaboratively with the teina to increase *their* confidence and practice (Atkins & Wallace, 2012; Liston & Zeichner, 1987; Punch, 2009).

The theoretical framework I used was a relativist paradigm, which acknowledges constructivist (Pitsoe & Maila, 2012) and interpretivist learning theories (H. Harrison et al., 2017). The relativist paradigm was well suited for this research on pūrākau because the participating teacher's reality was multiple and subjective, based on the meanings and understandings that were informed by his prior experiences and the case study research itself (Cohen et al., 2007). Constructivism suited this research because it proposes that teina construct knowledge over time through their experience. The learning experiences of the teina were initially modelled by me as tuakana for the teina to then adapt into his own practice as his own confidence grew (Vygotsky & Cole, 1978). Interpretivism is a framework that seeks to draw out and distil the subjective understanding of this new learning for the teina (H. Harrison et al., 2017; Lortie, 1975). Through tuakana–teina, we collaboratively learned through an iterative inductive ako approach (Punch, 2009). This methodology seeks to make meaning of a teacher's experiences using tikanga Māori concepts of whanaungatanga and ako in which our learning roles were reversed as appropriate.

Research design

Data collection included tikanga Māori methods such as participant-driven, kanohi-ki-te-kanohi hui, spiral discourse and collaborative storytelling through observations and interviews. Data were recorded, transcribed and thematically grouped (Berryman et al., 2017; R. Bishop & Glynn, 1999).

Purposeful sampling was based on a set of research criteria that included one pūrākau, one tuakana, one unit of work, in one school. Triangulation of data was carried out by analysing multiple data sets, including teacher perspectives of his students' work, photos and recorded role plays (Creswell et al., 2003). The study was given approval by the University of Otago's Human Ethics committee.

Research intervention

I met with the teina for a couple of weeks before teaching to discuss how we would integrate the study's pūrākau into the water science unit of work. The specific pūrākau follows the journey of a local taniwha working and calling in partnership (akin to a tuakana) to the fish and birds (teina) to help keep the water clean to meet the wider community's needs. The pūrākau concludes with an agreement from all, including people, to help keep the water clean. The teina had three different Year 7/8 classes, the first class of which I taught largely by myself. I then met with the teina to discuss pedagogy and plan how he would teach the second class. I mainly observed him teaching this second class; however, some team teaching and modifications were "made on the hoof". His third class was taught without supervision. It should be noted that for this third class he had a student teacher, which provided him with the opportunity to work with her as her tuakana. We met weekly after all three classes to discuss and record feedback and plan for future lessons. The pūrākau intervention took nine weeks in total.

Data analysis

Constructionist thematic analysis entailed searching for themes within the data, which were then condensed into three major themes that addressed the research question (Braun & Clarke, 2006). The three themes identified were tikanga Māori, pūrākau as a local narrative and the woven learning journey.

Results and discussions

Tikanga Māori

The first theme of learning from this research was the importance of tikanga Māori in weaving and strengthening relationships. The pūrākau itself highlighted the benefits of relationships, whanaungatanga, between its main characters through the birds and fish saying, "Don't worry taniwha we will help you keep the water clean" (Gillon et al., 2019, p. 24). The interaction of the characters within the pūrākau reflected the interwoven connections of whanaungatanga, in ako, between the hapū and us as tuakana–teina (S. M. Mead, 2003; Pere, 1994).

Mentoring of teina by elders or tuakana continues to be common tikanga within te ao Māori for the preservation and transmission of

values and knowledge (Buck, 1949; Elder et al., 1934; Moon, 2003; O'Regan et al., 2009; Pitama et al., 2002; Te Whāiti et al., 1997; Walker, 2001). Of primary relational importance to this research was the whanaungatanga that was interwoven between the local hapū, tuakana and teina through ako. Following Tolbert et al. (2023), I consciously positioned myself as teina in partnering with the hapū. This positionality then changed for me when acting as tuakana working with the teina to help improve his confidence and practice (Lortie, 1975). Throughout the research, the concept of ako learning being reciprocal, given and received, caused numerous role reversals of tuakana–teina as we, the teachers and hapū, all learned from one another. Whanaungatanga was a key part of the ako process as it allowed for an ease of role changes because of the family-like relationships that we had built with one another. The teina commented on how whanaungatanga from me instilled a sense of trust between us, which promoted his confidence in taking risks in his practice: "I felt more comfortable to try something new." The rapport that we had developed allowed for meaningful dialogue to challenge his previous assumptions of pedagogy, teaching content, order and timing (Lortie, 1975). Aligning with research by Kenny (2010) about professional learning relationships, the teina stated that "one of the biggest impacts to using the pūrākau" to increase his confidence and practice was a directly from "partnering with me" in the tuakana–teina relationship (Hipkins, 2002). The teina said, "I felt safe to try this new strategy/practice because … you are more experienced … knowledgeable … you presented it in a way I could understand … I could see the students engaging with it." These statements support research by King (2014), who suggests that teachers must have a conceptual understanding of practices for them to become embedded in their practice.

Aligning with research by O'Keeffe et al. (2019), the teina had a critical disposition to increase his confidence by being open to challenging his assumptions. He expressed a willingness to extend his depth of understanding and an ability to communicate his opinions and experiences in a reflective manner that provided a rich source of data (Palinkas et al., 2015). The teina admitted that past learning experiences impacted how he taught (Lortie, 1975), which included teachers espousing new knowledge, often as discrete units, to students as passive objects, containers to be filled, as tabula rasa (Milton & Rogers, 2021). However, as tuakana, I modelled how pūrākau pedagogy seeks interwoven connections between the learning and the learners, in contrast to a "sage on the stage", "information packets" teacher-directed learning approach. The teina saw and adapted his teaching practice to a more whānau-centric approach *with* his students, becoming more of a "guide on the side"—even an observer of his students' learning. The teina moved away from what Freire (1970) described as the "banking model" of education in which the teacher narrated the appropriate knowledge to the students, whose sole responsibility was to receive, file and store this as a deposit. He was pleased to see and hear how the students talked about their environment, their river, in ways that related to them, as "they made the connections themselves". As he saw their self-directed ako, he grew in confidence, which affirmed his changed practice (Hipkins, 2002; Timperley et al., 2007). The teina noted that he had taught this unit three years in a row with a teacher-centric approach. He acknowledged that using this pūrākau with whanaungatanga alongside the students and seeking their ideas of connection to content provided a far more effective style of drawing out latent student energy, agency and learning. As Lortie (1975) asserts, the value of adopting new pedagogies into practice is a skill of effective teachers. Using pūrākau, not just as a new teaching strategy but as a new pedagogical paradigm—a different way of thinking about interwoven connections—opened the teina to an innovative way of conceptually thinking about teaching and learning practices (King, 2014). The teina was able to make new connections between his thinking and teaching practice, which flowed into teaching and learning for himself and the students.

Due to our high level of trust, he also felt free to communicate his reservations about perceived competing coverage of the science and MM content (Liston & Zeichner, 1987; Lortie, 1975): "There is a tension around time. MM and science learning objectives … can't replace each other; they aren't complete substitutes … MM could take time away from the other." After one lesson in which we did not cover all the learning objectives, I affirmed I had successfully used this strategy and I was confident we would be able to do justice to both MM and science. Due to the trust we developed through whanaungatanga, he was able to put these concerns aside and follow my direction of teaching sequence and content coverage (Lortie, 1975).

As tuakana, I leveraged on this trust as well as mitigated his fear of "getting it wrong" by sharing related subject experience and knowledge, and role modelling this new strategy (Harlen & Holroyd,

1997). I interwove the pūrākau throughout the unit of work, repeatedly returning to its themes in each of the five successive lessons, leading to students constructing a role play or storyboard as evidence of their understanding. He commented:

> You gave me a picture of what it looks like to use one [pūrākau] … more holistically … to do this effectively ... it worked. The students were engaged and many managed to make connections between all three aspects of the unit.

In following lessons, we were both open to suggesting minor changes on the hoof as well as teachable moments when the students suggested possible deviations. Our whanaungatanga was increasing the confidence and practice of the teina as he saw the successful adaptation of delivery and content by responding collaboratively in the moment to engage student learning (Hipkins, 2002; Timperley et al., 2007).

Having watched my teaching practice, the teina then became the tuakana to his student teacher. The teina commented, "I felt more confident in guiding her because it went well with me." However, he also noted that he had much less time to develop whanaungatanga with her, and as a result, she made far fewer connections to the pūrākau: "Her confidence with this new strategy was limited." This contrast of integration of the pūrākau between the teina and his student teacher suggests that his growth in confidence and practice was directly linked to our whanaungatanga through the time and effort we had invested in our learning relationship.

In another aspect of whanaungatanga, I role modelled linking the pūrākau to my own personal story through showing whānau photos of our recent visit to the Rakaia Gorge. The students eagerly engaged with the photos and videos, asking questions about who my family members were and where the photos were taken. The teina said he "would often introduce and share about his family at the start of the year" but that he had not woven his personal story into later science curriculum content before. In a combination of the whanaungatanga and local place-based context, the teina shared that the Rakaia River was a place where he, as an immigrant, had made a deep connection to the beauty and "wow" of New Zealand as his home. This is further explored in the next section.

Pūrākau as a local narrative

We purposely chose a pūrākau that drew upon the Rakaia and local rivers that are close to where the teina and students live and learn. Culturally responsive pedagogy, improving student learning outcomes, espouses teaching content that reflects where students come from, what they value and what they already know (González et al., 2005). We also wanted to honour the local hapū, Ngāi Te Ruahikihi ki Taumutu, as they gifted their mātauranga-a-iwi for us to share (Glassey et al., 2023).

The teina and I discussed this background of the connection between the local environment and peoples flourishing through the pūrākau. The concept of community and whānau being connected to a local place is evident in two MOE initiatives. Tātaiako focused on place-based learning, tangata whenuatanga, alongside the local curriculum considering students' identities and cultures (MOE, 2011, 2019). The pūrākau, as Semken and Butler Freeman (2008) expound, allowed a leveraging of learning from the emotional and relational attachments that people have to places. The teina commented on how his past teachers and lecturers who had shared about their special places had "hooked" him into learning with them, and he was now experiencing that with the students. He stated, "That's how the pūrākau can bring out the best in science … makes it interesting, we all love … remember stories … especially local stories … a really useful tool … not isolated to somewhere else … it's local." The teina commented that "this was the most local context" of all the lessons he had taught. He could see how the content was more interesting and relevant to the students as they connected to *our* river or water. He felt his confidence increase as the students made multiple connections to the local animals and plants named in the pūrākau as well as the local river that runs along the school boundary: "I would just listen, and I could tell they're engaged … I should probably leave them to it because if I step in it kind of breaks the flow."

The teina was surprised to see how a planned five-minute revisiting of the pūrākau at the beginning of the lesson turned into 17 minutes: "There are so many connections they were making … there was more … ako between me and the kids through the local context." The teina was seeing himself and his students becoming more aware of their own learning as they asked questions (Ausubel, 2000). The teina noted how he was pleased to see his Māori and kapa haka students "light up" as they related te reo Māori words

such as taniwha, manu, ika, harakeke and toetoe to their own cultural understandings. As most students made meaningful connections to the pūrākau, the teina gained a sense that this was affirming a shared understanding of our culture as New Zealanders. The pūrākau promoted a sense of tūrangawaewae and kaitiakitanga for this land and water (S. M. Mead, 2003). As the sense of belonging and confidence of the teina and the students increased, the teina felt free to allow students to lead the learning because "they were coming up with connections that were relevant to them".

Visiting the local river in conjunction with the pūrākau invoked a visceral challenge within the teina, which he passed on to the class, to understand and act with kaitiakitanga towards the local environment (Buxton, 2010; Southgate, 2006). As we stood next to the local river, the teina remarked that this is "not just a lecture. [I am] relating to the kids' culture … knowing my kids and what engages them." The teina then took this a practical step further by linking their learning to their local school community:

> I was making it place-based so we focus on the local river … its health is not good … worst in Canterbury … [W]e have a role to play in changing that … learning about the science and ecology of our unhealthy local river … through this pūrākau.

In summary, the teina was beginning to see how greater whanaungatanga through shared school-wide learning relationships between the hapū, tuakana–teina, students and the local river was improving learning.

Woven learning journey

Using the tikanga Māori of whanaungatanga as tuakana, I was able to build the confidence of the teina to integrate the pūrākau into his practice. The teina was able to reconcile his view of the distinct divisions of Western science and to embrace the inherent interwoven nature of MM "to make connections" by using this pūrākau. Due to the whanaungatanga, the teina felt free to share his concerns (Liston & Zeichner, 1987; Lortie, 1975) of a perceived "shotgun spread" approach, of trying to link together the three science concepts of water cycle, water ecology, and water guardianship and sustainability. He acknowledged the more explicit connections of the pūrākau to water treatment and guardianship but felt the "tension of the water cycle being less strongly connected to the pūrākau". However, he was pleased to see two students make a novel connection between the water cycle and pūrākau in the taniwha and a water droplet becoming friends for a time in the river before separating out to sea. The teina continued this discussion by linking their learning back to the water cycle, where the water droplet would evaporate from the river or sea into the clouds, allowing the taniwha and water droplet to rejoin again later through rainfall precipitation onto the mountain and back again into the river. We both commented on how their initial idea sparked new ako for us as teachers. As teachers, we were the teina learning through ako from the students as tuakana.

The teina enthusiastically shared my observation linking the water cycle to the students' pepeha. This link details the water moving between the rangi, maunga, awa, roto and moana. One group of students readily connected their pepeha into the wider water unit with a character quoting their maunga and awa as part of the storyboarding final assessment. Tensions may arise regarding the cultural appropriateness of tauiwi claiming relational ties to a river that holds whakapapa significance to local hapū alongside more recent arrivals of tauiwi to this land. However, when discussing this perspective of the distinctive significance of the pūrākau and its river to local Māori, the hapū education facilitator quickly dismissed these concerns. Their stance towards education with local schools is with tikanga inspired by partnership and whakamana by working together to uplift the inherent value of all peoples, Māori and tauiwi. Local hapū sought to share and affirm responsibility in caring for *our* local river because an exclusive mana whenua ownership and responsibility for maintaining its health was considered completely untenable. This approach does not diminish the deeper layers and whakapapa connections that local hapū have to the river, but neither does it seek to exclude tauiwi from *our* shared responsibility for kaitiakitanga of rivers.

The teina was ecstatic about the students' novel self-directed connections:

> I didn't tell them that … this takes the pressure off me having to find all the connections myself … it was the pūrākau … and MM … that allowed that weaving together … I was surprised like how much they could actually combine all three [science concepts]; I think every group integrated all three things we asked for.

The teina also recalled a student referencing the Waitī (freshwater) and Waitā (saltwater) stars of

Matariki. The teina was able to see how the students readily took to the task of relating science concepts and the local context to MM in the pūrākau. This reiterated the premise stated by Macfarlane et al. (2015), in his appropriately named He Awa Whiria framework, that Indigenous knowledge and Western science can enrich learning as they literally weave and flow together. Aligning with Mazzocchi (2006), the teina saw how this pūrākau was "acting as a bridge between Western science … and MM concepts" because the students were weaving multiple connections and incorporating themselves into the summative assessment:

> I saw how this engaged my students, especially my learners who really connect to Māori or Pasifika cultures … but this pūrākau isn't just for them … this is grounded in a local context for all the students wherever they are from that are in my class.

This quotation gives evidence of pūrākau affirming not only Māori identity (Cliffe-Tautari, 2020) but all our shared culture as New Zealanders linked to this land (H. M. Mead, 2012; Semken & Butler Freeman, 2008; Tuan, 1977). The teina noted:

> [T]hey weren't just talking about the water cycle; they were singing about it ... acting it out … making stories ... [casting themselves] as guardians of the water with the taniwha … emphasising partnership and whanaungatanga … with this local place.

The teina was very surprised at how already high levels of student engagement increased as he showed his own photos and videos of himself at the Rakaia River. The personal connection the teina had to the local river seemed to be infectious in students' engagement. The teina noted that "some students could barely contain themselves, jumping off their seats … standing … raising their voices, … bursting with questions … making shared connections with my pictures of me at the Rakaia River". This affirms the tikanga of whanaungatanga leading to learning that the teina had made with his students and his past teachers who shared about themselves. His students now sought out more whanaungatanga—deeper connections with him. Just as ako is reciprocal learning, we saw them making reciprocal whanaungatanga connections with the teina. His students provided many of their own personal connections to the river, thereby supporting Tuan's (1977) research on places being imbued with meaning by human experience. However, it was the teina and his experience of place that the students connected to the most. The students sought and found meaningful connections to the local place, science concepts and MM in the pūrākau *because* of their teacher.

The teina acknowledged that his past teaching had tried to include all cultures. Ladson-Billings (2014) discusses how effective learning and understanding are both linked to a deep understanding and appreciation of culture. This pūrākau forced him to reframe his practice regarding science and culture in two ways: first, to use a pūrākau to teach science concepts; second, to present the narrative through one culture, that of the local hapū and their pūrākau. The specific pūrākau presents the river as our river. This intense personalising, personifying and subsequent kaitiakitanga of the river is common to MM (H. M. Mead, 2012; Tau, 2000) as well as other Indigenous cultures (Campbell, 2024; Tuan, 1977). Langer (2003) describes how we are part of nature, and the teina was struck by the "relative" ease with which the students became involved and identified with the river through an Indigenous perspective of the environment. The personalising of culture, place and river resonated in the students' ideas that the teina shared:

> [W]e came from the river ourselves … it provides water, food, entertainment … [W]e are 90% water … there is no way for us, or other animals or crops to survive without water ... [I]f we destroy the water, we destroy ourselves.

The teina felt a responsibility to be confident in his practice because the health of our local river, just as the pūrākau echoed, was, and is "under threat". We discussed how the pūrākau collectively called us all to play our part as kaitiaki, like the taniwha, to keep the water clean. Rather than a disconnected, distant place, the river of this pūrākau related to our local river, and the teina felt the shared responsibility to encourage the students to look after it. The teina noted that this was not just a figurative or hypothetical call but a challenge that needed to be honoured in his improved practice of integrating the pūrākau.

The pūrākau was not simply a new strategy that passively served the learning of teachers and students. As the tuakana, I discovered that the pedagogy of pūrākau means that they are constructed and portrayed with a purpose that promotes their own agency by inviting us into a relationship with the pūrākau itself. These interwoven relationships within the pūrākau were deliberate constructs to encapsulate a worldview,

to role model and to encourage similar practices of interweaving relationships outside the pūrākau (Marsden & Royal, 2003). The learning relationships of the pūrākau characters were presented within a context of ako through whanaungatanga. As the tuakana, I came to see the pūrākau actively modelling and inviting us, as hapū, tuakana–teina and students, to participate in these same relationships of ako through whanaungatanga.

Conclusions

This educational research intervention sought to document how a pūrākau and local hapū tikanga, within a tuakana–teina relationship, could enhance teaching confidence and practice. The MM and tikanga embodied in this local pūrākau, as well as the pūrākau call to whanaungatanga, connection and action, provided the teina with new ako learning opportunities to increase his confidence and practice. The pūrākau as a pedagogical paradigm invited the tuakana–teina and students to discover interwoven connections between the pūrākau, science concepts and the local area, where ako was enriched for all.

The confidence and practice of the teina in using the pūrākau grew as he saw the tuakana and students making novel connections. The teina noted that "the pūrākau brought out the best in MM and science together". Other tikanga themes of kaitiakitanga, as a vocational call, were interwoven with a second theme of promoting a sense of tūrangawaewae through connection and responsibility to a local place. The two themes of kaitiakitanga and tūrangawaewae within the pūrākau were woven together through ako in the water science unit. The sense of tūrangawaewae that the teachers felt strengthened the whanaungatanga of the tuakana–teina and hapū relationship, which helped the teina feel more at ease in taking risks with incorporating the pūrākau into his practice. The teina became convinced of the appropriateness of the pūrākau to promote learning as he saw the students find personal connections and tūrangawaewae through the pūrākau.

Throughout this research, it was the tikanga of whanaungatanga between us, as tuakana–teina and hapū, engaging with the MM and pūrākau paradigm of interwoven connections that enlightened our learning journey. This study shows how whanaungatanga brought enlightenment and wisdom to learning for us and the students alike, as alluded to in Pā Henare Tate's whakatauākī (Barlow, 1994). As we, tuakana–teina, students and hapū, learned together through ako, the confidence of the teina grew because he was led to understand the richness of the pūrākau as a new pedagogical paradigm that sought out interwoven expansive relationships (Durie, 1999). As the teina learned how to interact with this pūrākau better, in line with Angelou's whakatauākī, he did better in his teaching practice. In addition, his confidence was further informed by the novel connections that he and the students made through their understanding, making the curriculum relevant to *their* understandings of *their* local world. Further research would be required to determine whether the self-reported confidence of the teina using this pūrākau flows into his teaching practice with other units of work. Similarly, further research to include other teachers at different schools using different pūrākau would be beneficial.

Final thoughts

The holistic and authentic inclusion of this localised pūrākau as well as the relationship with local hapū, collaborative planning, dynamic team teaching and practical classroom experience were strengths of the approach. The tikanga of the local hapū, partnership and whakamana affirmed our positionality and encouraged our learning as tauiwi tuakana–teina. Their tikanga helped us to successfully integrate the pūrākau into a unit of science work through increasing the confidence and practice of the teina. The local hapū and pūrākau both advocated tikanga of whanaungatanga, kaitiakitanga and tūrangawaewae alongside the tuakana–teina relationship. This tikanga helped facilitate ako that benefited the confidence and practice of the teina in using the pūrākau. Together our contributions became greater than if separate, and their interwoven nature ultimately improved the ako of tuakana–teina as well as that of the students.

Glossary

ako	reciprocal learning
awa	river
awa whiria	braided river
hapū	subtribe
harakeke	flax
hui	meeting
ika	fish
iwi	tribe
kaitiaki	guardians
kaitiakitanga	guardianship
kanohi-ki-te-kanohi	face-to-face
kapa haka	Māori dance group
kōia te mātauraka	to dig for or to cultivate mātauraka

mana	inherent personal value
mana whenua	the tribal authority for an area
manu	birds
mātauraka/mātauranga	knowledge
mātauranga-a-iwi	local iwi Māori knowledge
mātauranga Māori	Māori knowledge and ways of knowing
maunga	mountain
moana	sea
Ngāi Tahutanga	Ngāi Tahu culture and identity (see https://ngaitahu.iwi.nz/te-runanga-o-ngai-tahu/our-work-pou/culture/)
Ōtautahi	Christchurch
Pākehā	New Zealander of European descent
pepeha	Māori tribal identity connection to a local place
pūrākau	local cultural narrative
rangi	sky
roto	lake
takiwā	region
tangata whenuatanga	place-based learning, place-based sociocultural awareness
taniwha	water guardian
taonga	treasure
tauiwi	non-Māori
te ao Māori	the Māori world
te reo me ōna tikanga Māori	Māori language and cultural practices
Te Tairāwhiti	East Cape of the North Island of New Zealand
Te Waipounamu	the South Island
tika	right
tikanga	Māori cultural practices
toetoe	giant tussock grass
tuakana–teina	experienced–novice
tūrangawaewae	belonging
Waitaha	Canterbury
whakamana	empowerment
whakapapa	intergenerational
whakatauākī	proverbs
whānau	family
whanaungatanga	family-like relationships

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