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Wai Puna: An Indigenous Model of Māori Water Safety and Health in Aotearoa, New Zealand

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Cover Page Footnote

This research was supported by the New Zealand Health Research Council, the University of Otago and Ngā Pae o te Māramatanga.

Abstract

Māori (the indigenous peoples of Aotearoa, New Zealand) are intimately connected to wai (i.e., water) yet are overrepresented in New Zealand's drowning statistics each year. On average Māori account for 20-24% of all preventable and non-preventable drowning fatalities, despite comprising only 15 percent of New Zealand's population. Drowning remains a significant issue posing a threat to whānau (i.e., families) through premature death being imminent and whakapapa (i.e., genealogy) being interrupted. There is limited research that has examined Māori and indigenous understandings of water safety within the literature and limited studies that have investigated the issue of Māori drowning from a distinctly Māori or indigenous approach. This paper proposes a theory of Māori water safety depicted as the Wai Puna model and draws on three core concepts pertinent to a Māori worldview: whakapapa, mātauranga (i.e., Māori knowledge and ways of knowing) and tikanga (i.e., customs, practices). Wai Puna provides the foundation for conceptualising Māori water safety in a New Zealand context and a way forward for other indigenous communities around the world to redefine water safety and drowning prevention from their distinct worldviews that reflect their unique beliefs and attitudes to water and thus to water safety.

Keywords: Māori, water safety, indigenous drowning prevention, Wai Puna water safety model

Introduction

Māori (the indigenous people of New Zealand) are intimately connected to wai (i.e., water) which is central to their identity, health, and wellbeing and is considered a taonga (i.e., treasure) with physical and spiritual properties attached to it (Henare, 2001; Durie, 2003). Many words and phrases in Māori include the term wai. For example, when asking who someone is in Te Reo Māori (The Māori Language) we ask: ko *wai* koe, nō *wai* koe? On the surface this question asks who are you and where are you from? On a deeper level, however, it is asking what waters are you and from where do your waters flow from? Māori identity is intimately connected to water.

Despite this strong cultural connection to water, Māori have a high rate of drowning within Aotearoa, New Zealand (Haimona & Takurua, 2007; WSNZ, 2017). Although Māori comprise approximately 15% of New Zealand's population, Māori accounted for 24% of all drowning between 2012-2017 (WSNZ, 2017). Water safety in New Zealand has become disconnected from Māori views to water and therefore may fail in reaching Māori whānau (i.e., families) and their communities (Phillips, 2019). At the heart of this issue is the limited research undertaken that has described Māori water safety and its important link to notions of health and wellness derived from the relationship Māori have to water. Māori water safety is ultimately grounded in a Māori worldview and is centered on connection to water (Phillips, 2019). It

encapsulates the importance of connection to water through whakapapa (i.e., genealogy), mātauranga (i.e., Māori knowledge and ways of knowing), and tikanga (i.e., customs, practices) of wai. The Wai Puna model is a theory of Māori water safety that draws on these foundations and has the potential to impact and improve well-being for whānau, hapū (i.e., sub-tribe, clan) and iwi (i.e., tribe) in, on, and around the water.

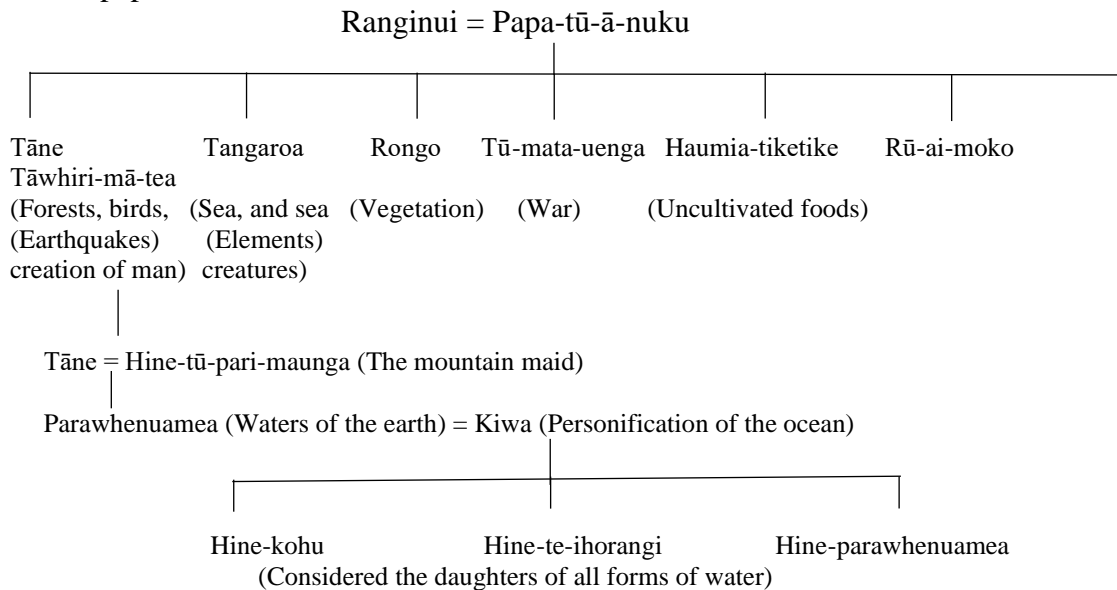
This paper describes the Wai Puna model and discusses its implications for Māori water safety and health in an indigenous New Zealand context. This paper begins by outlining the context of this research and argues the urgent need to adopt Māori and indigenous perspectives to water safety in order to reduce the high indigenous drowning rates around the world. Using a New Zealand context, the paper examines and contrasts the current notions of Eurocentric and Māori water safety in Aotearoa and highlights their key differences. Next I explain the Wai Puna model and emphasise the importance of whakapapa, mātauranga, and tikanga pertaining to wai for flourishing Māori health and subsequently to reduce the Māori drowning rate. Lastly, I discuss the translation of Wai Puna into practice and offer a specific example of how the model is applied in a Māori water safety programme. The aim of this paper is to provide indigenous Māori discourses on water safety and drowning prevention in a New Zealand context that highlights the importance of indigenous perspectives and views of water safety which is a significantly underserved area of research despite the overrepresentation of drowning statistics in indigenous populations (Phillips, 2019).

Māori Views of Water

Māori attitudes to water stem from whakapapa that traces their beginnings to the separation of the primordial parents Ranginui (Sky Father) and Papa-tū-ā-nuku (Earth Mother). According to the Māori creation story, Ranginui and Papa-tū-ā-nuku held each other in a tight embrace with their numerous children living in darkness between them. In order for the children to live in the world of light, their son, Tāne (God of forest and birds), separated them by propping his father up to become the heavens and pushing his mother below to become the earth, thus creating Te Ao Mārama, the world of light we live in today. The primordial parents and their numerous children then became the various elements of the natural world such as Tangaroa, the deity of the ocean and sea creatures, Tāne, the deity of the forest and birds, and Tāwhiri-mātea, the deity of the winds and elements, to name a few (Marsden, 2003b). The perpetual grief between the primordial parents was understood to be the first instances of water; rainfall was embodied as the tears of Ranginui for his wife, while the wellsprings and mist were the weeping of Papa-tū-ā-nuku for her husband (Morgan, 2006; Williams, 2006). This whakapapa, or genealogy story, explains why Māori have an intimate connection and affinity to the natural environment, as these places personify the pantheon of Māori gods.

The whakapapa table depicted below in Figure 1 traces the genealogy of water to the various atua (i.e., deities) and the primordial parents; it is a granular whakapapa explanation for all forms of water and illustrates the Māori belief that their ancestry to various forms of water are part of the ancient lineage back to the creation of time through Ranginui and Papa-tū-ā-nuku.

Figure 1
Whakapapa of water.



by M. Marsden, 2003a, in T. A. C. Royal (Ed.), *The woven universe: Selected writings of Rev. Māori Marsden*, pp. 2-23; J. Williams (2006) Resource management and Māori attitudes to water in southern New Zealand, *The New Zealand Geographical Society*, 62, p. 74 and Waka Huia (2016) *Erina Kai takes us down Te Wairoa river and reveals the genealogy of water*. <http://www.etv.org.nz>.

For example, based on Figure 1, the daughter of Tāne and Hine-tū-pari-maunga is Parawhenuamea, the tutelary deity of earthly or ground waters and the “personification of rivers and streams, especially flood waters” (Williams, 2006, p. 74). The whakataukī (i.e., proverb), “nā ko Parawhenuamea koia te matua o te wai” translates to “Parawhenuamea, the parent of water” (Best, 1976, p. 254). Her name reveals her primary function: ‘para’ is the rubbish, sediment, waste, vegetation, or nutrients and ‘whenua’ means the land. Hence, Parawhenuamea personifies the deluge or floods that flush out the sediment from the land out into the ocean. Parawhenuamea is the wife of Kiwa, who personifies the ocean; estuaries are considered the shared domain where the couple meets (Heke, 2013; Williams, 2006). From their union begat three daughters, Hine-kohu, Hine-te-ihorangi and Hine-parawhenuamea who represent other forms of water such as the rain and mist (Waka Huia, 2016; Heke, 2013). These narratives express Māori understandings of water and how whakapapa reveals the intimate connection of Māori to water. Whakapapa

explains that Māori are water; they comprise the waters that flowed from their parents and ultimately trace their ancient links to its source that originally flowed from Ranginui and Papa-tū-ā-nuku.

International Context

Drowning is a global public health issue and one of the leading killers in the world (WHO, 2017). For young people particularly (ages 1-24), drowning is among the leading 10 causes of death in every region of the world (WHO, 2014). According to the World Health Organisation (2014) “every hour of everyday 40 people lose their lives to drowning” claiming 372,000 lives worldwide each year (p. iii). Despite these statistics, drowning has remained a neglected public health issue (WHO, 2014). The International Life Saving Federation at the World Congress on Drowning (2002) defined drowning as “the process of experiencing respiratory impairment from submersion/immersion in liquid” (World Health Organisation, 2014, p. iix). Drowning “occurs by submerging and suffocating in water or another liquid ... it can be both fatal (mortality) and non-fatal (morbidity)” (WSNZ, 2012, p. 3).

For many indigenous peoples throughout the world, water is a highly revered source of sustenance, identity, and wellbeing (Jackson & Altman, 2009). Parallel with other Pacific peoples, Papa-tū-ā-nuku for example is considered “the mother who provides life for all living things through the waters in her womb” (Morgan, 2006, p. 129). Native Hawaiian narratives acknowledge Papa-hanau-moko “Papa from whom lands are born ... [and where] mankind [are] born out of the vast waters of the spirit world” (Becksmith, 1970, p. 294). Similarly, in Canada “many First Nations’ creation oral history cycles begin when there was just water on earth—it is the primal substance” (Blackstock, 2001, p. 3). Sylix Elder Harry Robinson (1989) explains, “God made the sun ... Then after that, he could see. All water. Nothing but water. No trees. No nothing but sun way up high in the sky” (p. 31). Later, “Cayote created earth by diving into the water to get a grain of dirt, which expanded into earth as we know it today” (Blackstock, 2001, p. 3).

Like Māori, indigenous peoples around the world are often overrepresented in their country’s drowning statistics each year despite their deep connection to water (Haimona & Takurua, 2007; Giles, Cleater, McGuire-Adams & Darroach, 2014; Wallis, Watt, Franklin, & Kimble, 2015; WHO, 2017). In Canada, “drowning rates amongst Aboriginal populations are up to 10 times higher than for non-Aboriginal ... Aboriginal children drown at a rate that is fifteen times the national average” (Giles, et al., 2014, p. 199). Similarly, in Australia they estimate that “Indigenous Australians have been found to have a drowning risk 3.6 times that of Non-Indigenous Australians” (Wallis, Watt, Franklin & Kimble, 2015, p. 2). Their study along with others have stressed the lack of available data and research into indigenous Australian drowning incidents which highlights the need for further research with indigenous

communities and their water safety interventions. In New Zealand, the fourth highest cause of unintentional death is drowning which gives us one of the highest drowning rates per capita in the developed world, almost double that of both Australia and the United Kingdom. For example, figures show the death rate per 100,000 people for New Zealand was 2.0 compared to Australia 1.1 and the United Kingdom 1.3 (WSNZ, 2015). For Māori to be overrepresented in this nation's already alarming drowning rate increases the urgency to address these sobering figures.

The issue of Māori and indigenous drowning fatalities has piqued interest in research amongst these “high-risk” groups; however, these studies have largely drawn from Western discourses of water safety and often place the blame on indigenous peoples themselves. The very notion of labelling indigenous groups as “high-risk,” for example, perpetuates the assumption that these distinct groups and individuals are somehow at fault. Perhaps the better term to use is “under-served” as this highlights the fault of the system, not the people. Giles and colleagues (2014) argued:

Drowning is commonly understood as a problem that has its roots in individuals' failure to learn to swim, a failure of adults to supervise children properly, or a failure to engage with safety practices (such as wearing a life jacket or boating only when sober) (p. 198).

The high drowning rates in indigenous populations across the globe are not caused by a failure to boat while sober, for example, but are the result of social, historical, and political environments that continue to disadvantage and marginalise minority populations (Giles et al, 2014). Similarly, the lack of Māori and indigenous views to water safety in their own communities means any attempts to reduce the drowning toll will likely fail.

In New Zealand, very little published information exists that examines why Māori have high rates of drowning despite their strong cultural connection to water. In a report commissioned by Accident Compensation Corporation (ACC), Price Waterhouse Coopers (2009) suggested that although the overrepresentation of Māori in drowning fatalities remains unexplained, it “may reflect greater exposure to environments as Māori have strong cultural links with lakes, rivers, and seas particularly as revered sources of food” (Price Waterhouse Coopers, 2009, p. 19). In other words, Māori spend more time in the water because of their investment in their cultural connection from an early age; however, this theory remains untested. Karapu, Haimona & Takurua (2007) suggested that although historically Māori have these strong cultural links with water, Māori “no longer have access to traditional knowledge and tikanga (practices) associated with water safety” (p. 133). Hauteruruku et al. (2016) similarly claimed issues connected to Māori drowning “stem from a

disconnection to Tangaroa [Māori deity of the sea]” (p. 26). Furthermore, the disintegration of traditional social structures through colonisation has resulted in limited “access to traditional ways of learning respect for water and the skills required for surviving in and around it” (Haimona & Takurua, 2007, p. 85). For example, Wikaere (2016) attributed the impact of colonisation on Māori participation in surf lifesaving by explaining, “Eurocentric ideologies and practices present barriers to Māori participation in the surf lifesaving movement” (p. 24). These issues stem from a disconnect between Western or Eurocentric notions of water safety and Māori views to the water. I discuss these key differences next.

Current Notions of Water Safety in a New Zealand Context

Current notions of water safety are largely described as cautious behaviours on, in or around the water (Gulliver & Begg, 2005); water safety knowledge, attitudes, and behaviours/practices (Moran, 2003, 2006, 2007, 2008, 2009; McCool et al., 2009; Moran & Willcox, 2010); swimming competency and ability (Moran et al, 2011; Maynard, 2013; Stallman et al., 2008); water safety messages (Moran et al., 2010); risky behaviours/perceptions and drowning risk (McCool et al., 2009; Moran, 2010, 2011); safe assistance and lifeguard rescue/self-rescue methods; (Moran, 2008; Moran & Stanley, 2013; Franklin & Pearn, 2011; Moran & Webber, 2014); active adult supervision (Moran, 2009) and; aquatic readiness and water competence (Quan et al., 2015; Langendorfer, 2015; Stallman et al., 2017; Kjendlie et al., 2010).

The overarching goal for water safety is the reduction of fatal and non-fatal drowning occurrences and injury; hence, drowning prevention is a term closely associated with Western understandings of water safety. Whilst these studies were formative in the shaping of drowning risk associated with aquatic recreation generally, they are inconclusive and remain untested from a Māori or indigenous focus. Recent studies, however, have argued for a more comprehensive measure of water safety (Quan et al., 2015; Langendorfer, 2015; Stallman et al., 2017; Kjendlie et al., 2010). In their view, they have considered all-around aquatic skill, local knowledge and risk perception, often referred to as aquatic readiness and water competence, which in fact highlight and encourage some synergies with Māori culture.

Kjendlie et al (2011) contended that water safety should focus on “(a) all-around aquatic skill and competence, (b) knowledge of general and local conditions, (c) an attitude of healthy respect for the elements and for human frailty and human error, and, (d) the ability to make correct judgments in risk situations” (p. 243). This conceptual definition of water safety claimed that all four elements are to be addressed in order to prevent drowning and injury; teaching one element is simply not enough. For example, focusing on swimming skill alone is not sufficient as “good swimmers still drown” (Kjendlie et al, 2011, p. 243). Although much of the literature noted above supported their

findings, points b and c (the importance of local knowledge and a mutual respect for the elements) were often missed or neglected in the literature and therefore from the delivery of water safety education (Kjendlie et al, 2011; Haimona & Takurua, 2007). From this viewpoint having the local knowledge and an ecocentric ethos or environmental ethic toward the water may be the missing link to high drowning statistics for Māori. In this respect, water safety becomes more than drowning prevention; it raises questions concerned with how we come to view the ocean, rivers, and lakes. This potentially leads to how we behave, act, and interact within these places. Further, the consideration of ‘local knowledge’ has synergies with Māori perspectives to water safety and mātauranga Māori, that is, Māori knowledge. Māori water safety moves beyond the conventional Eurocentric conceptions of swimming, risk perception, and traditional water safety knowledge and builds on the two elements that Kjendlie et al (2011) identified: one, understanding local conditions (related to mātauranga) and; two, developing an intimate respect for water (linked to discussions of whakapapa and tikanga).

Māori Notions of Water Safety in an Indigenous New Zealand Context

Māori water safety is fundamentally concerned with connection to water derived from a Māori worldview (Phillips, 2019). It was constructed on foundations of practice and knowledge of tikanga; traditional respect for the water; an indigenous worldview; the *kia maanu kia ora* (stay afloat, stay alive) concept; and traditional ways of learning skills for surviving in, on, and around the water (Karapu et al., 2007; Haimona & Takurua, 2007; Haimona, 2007). Others have added that Māori water safety is reawakening the connection to ancestors (Hauteruruku et al., 2016); *waka* (ancestral canoes) is important to the survival and wellbeing of Māori (Hauteruruku et al., 2016); connection to water is crucial (Hauteruruku et al., 2016; Mita, 2016); and looking after the environment has a key role to play (Hauteruruku et al., 2016; Mita, 2016). Māori water safety described in the literature has captured three core concepts central to Māori: whakapapa, mātauranga, and tikanga. These key concepts are used to depict a model of Māori water safety that is centered on connection to water and its significance for Māori health and wellbeing which is inherently tied to wai, to water. This model is called Wai Puna.

Wai Puna: A Model of Māori Water Safety

Wai Puna is an original and innovative approach to understanding and applying Māori water safety because (1) it draws together the strengths of Māori and non-Māori interpretations of water safety; (2) it is grounded in a Māori worldview; (3) it privileges Māori bodies of knowledge and ways of knowing; (4) it incorporates Māori ways of being and acting in, on, and around the water; (5) it is explicit in the importance of connection to water; (6) it has clear action points for operationalising the model through a reconnection to whakapapa, mātauranga, and tikanga of the water; and (7) through the importance of wai, it is fundamentally connected to notions of hauora (i.e., Māori health and

wellness). The elements of the Wai Puna model are listed in Table 1. The meaning or analogy behind Wai Puna stems from my Ngāti Hine (Northern tribe of New Zealand) upbringing and was inspired by an interview with Ngāti Hine kuia (i.e., female elder) Rangi Davis who shared her thoughts on wai:

When I talk about wai or water I think about whakapapa and puna being a wellspring. But if we add mātā to it, it becomes many or *the main source of the wellspring, the mātāpuna*. And then when you think about the source of all wellsprings that flows from the source, the idea is around life. Life and death really. Together. Life can't exist without death. So those things come together, then you have the tupuna [ancestor], which *I talk about the tūpuna as the wells of wisdom, because they gather the knowledge from the source*. And over generations of life these tūpuna journey with their water as themselves and whoever they are, whatever they connect with and *in years to come they share it with their moko-puna [grandchildren]; that's us*. So, we're *catching the wellsprings of information and knowledge to keep the next generations alive in terms of wai*. Ko wai koe? From which source of water did you flow? The puna is a very beautiful concept for the wellsprings and the sharing of the flow of the information and knowledge or well-being (R. Davis, personal communication, 2017, emphasis added).

Her dialogue illustrated the powerful message of Wai Puna as wellsprings of information and knowledge to be passed on to the future generation, the mokopuna or grandchildren. In a water safety and drowning prevention context, this means sharing the course of water safety knowledge (pertaining to whakapapa, mātauranga and tikanga) from one generation to the next (from the mātāpuna to the tūpuna and out to the mokopuna). In addition, the close association of the Wai Puna concept to the importance of wai for Māori and their relationship to water also has implications in a wider health context. Durie (2003) explained:

... good health will also depend on the nature and quality of the interaction between people and the surrounding environment – a recognition of the fact that the human condition is intimately connected to the wider domains of Rangi (the sky parent) and Papa (the earth parent). The close association of Māori to their rivers, lands, wāhi tapu (sacred places), forests and seas, has a number of implications for health: a clean environment impacts positively on healthy growth and development; the availability of food resources hinges on a bountiful environment; and clean water has always been and will continue to be vital to good health (p. 161).

The Wai Puna model comprises three different types of puna or springs; the mātapuna (i.e., source), tūpuna (i.e., ancestors) and mokopuna (i.e., grandchildren) which represent the three core pillars of Māori water safety (whakapapa, mātauranga and tikanga, respectively). Symbolised through a droplet and its two ripples (see Figure 2). Wai Puna is an innovative and original approach to understanding water safety and health for Māori.

Table 1

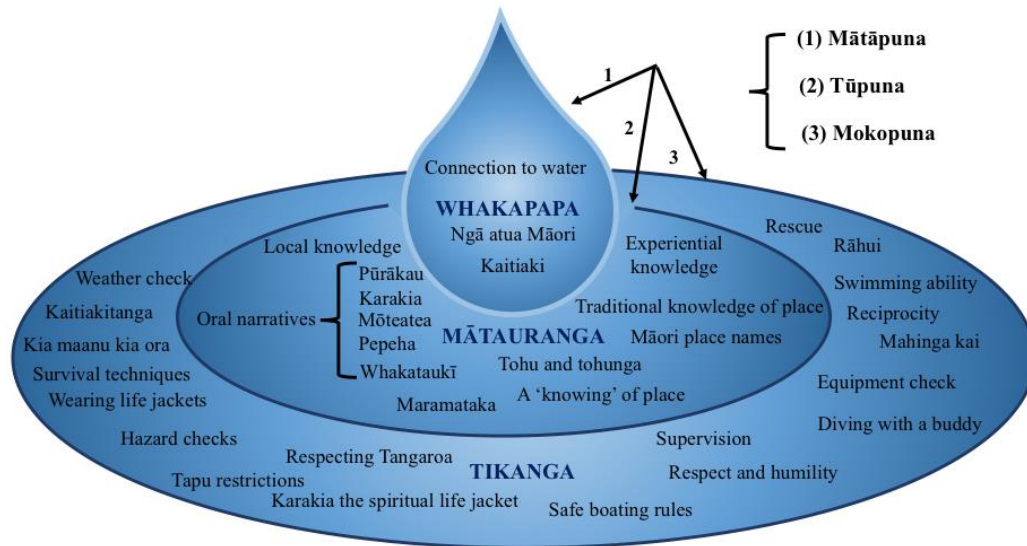
Elements of the Wai Puna model

Components	Symbolism	Nature of puna	Examples of water safety
Whakapapa (the source of knowledge)	The first drop	Mātāpuna (the source of wai, of life)	Connection to water, ngā atua, kaitiaki
Mātauranga (the deepening of knowledge)	The inner ripple	Tūpuna (the wellsprings of wisdom)	Oral narratives, forms of knowledge and ways of knowing (esoteric, traditional, local, experiential)
Tikanga (the application of knowledge)	The outer ripple	Mokopuna (who the wisdom is passed down to)	Ritual, tikanga, rāhui, kaitiakitanga, life jackets (physical and spiritual) swimming, survival techniques, rescue

Figure 2 illustrates the Wai Puna model within a water safety context across the three levels of whakapapa, mātauranga and tikanga. I describe these components in detail next.

Figure 2

Wai Puna model the intersection between Māori and Western notions of water safety



Whakapapa as the Mātāpuna

Whakapapa is essential for understanding Māori beliefs and attitudes toward the water. As a tool for transmitting knowledge, a primary function of whakapapa is to trace family and tribal ancestral lines; whakapapa also traces the genealogy of humankind back to the atua justifying why Māori have an inherent connection to the natural environment (Marsden, 2003b). Marsden (2003b) explained, “Man’s early ancestry traces back through its myth heroes to the gods to Mother Earth ... man is perceived as a citizen of two worlds with his roots in the earth and his crown in the heavens” (p. 63). Whakapapa in this sense, represents the genealogical and spiritual connection Māori have to the water and is the foundation of the Wai Puna model; the connection and relationship Māori have to their waterways.

A whakapapa relationship to water is both a physical connection and spiritual relationship. It is an intimate relationship. It is about knowing who you are and where you come from – knowing the water and your connection to it. Connection comes in many forms and layers. This part of the model is about encouraging, developing and strengthening a physical and spiritual connection to place. For example, it means returning often to connect daily to the waterways like the ancestors did in order to foster a deeper connection. With this type of physical engagement comes a deepening of knowing and an enlightenment wherein you begin to learn the secrets of a place, the way it smells, breathes and moves; you begin to feel its mauri (i.e., life force). You begin to perceive the divine within the waterways. It is about being attuned to all your senses, an emotional intelligence of ‘being’ and ‘knowing’ in a place. You share your mauri with that of the river, lake, or ocean. You know its spirit;

you understand its whakapapa, where it has come from, and in return where you have come from also. This connection is why whakapapa in terms of water safety is depicted as the mātāpuna. Mātāpuna represents the source of knowledge; the source of water safety knowledge is whakapapa.

Mātauranga as the Tūpuna

Mātauranga refers to what is known and how it is known within the Māori world (Jackson et al., 2017). Several authors offer insight into the complexity of mātauranga. For example, mātauranga is described as “dynamic and locally specific, based on long-standing interactions – through time and space – between people and their surrounding environment” (Harmsworth et al., 2013, p. 1). Mātauranga is a knowledge tradition that precedes Māori arrival to Aotearoa and encapsulates the epistemological foundations of Māori society (Duncan & Rewi, 2018). Mātauranga also is a Māori philosophy and Māori knowledge that is carried in the minds (Mead, 2003). Finally, mātauranga “represents the heritage of the Māori, the knowledge which the elders are said to pass on to their mokopuna” (Mead, 1997, p. 26). Whatarangi Winiata (2001) described mātauranga as

A body of knowledge that seeks to explain phenomena by drawing on concepts handed down from one generation of Maori to another. Accordingly, matauranga Maori has no beginning and is without end. It is constantly being enhanced and refined. Each passing generation of Maori make their own contribution to matauranga Maori. The theory, or collection of theories, with associated values and practices, has accumulated from Maori beginnings and will continue to accumulate providing the whakapapa of matauranga Maori is unbroken (cited in Mead, 2003, pp. 320-321, no macrons in original).

Mātauranga pertaining to water is an essential aspect of Māori water safety, as it is knowledge derived from Māori ways of knowing and being in the water. Mātauranga is represented by the inner ripple of Wai Puna, the tūpuna ripple, that is formed from the droplet. It is characterised by knowledge that comes from the source, specifically the wellsprings of wisdom; the tūpuna, who hold the knowledge derived from whakapapa. What stems from whakapapa is mātauranga, Māori knowledge and ways of knowing. The idea of the tūpuna being those caretakers of the knowledge reflects the notion that particular people or other sources of knowledge provide information for us to access and learn from. Other sources of knowledge that provide water safety measures are found in oral narratives such as pūrākau (i.e., stories), karakia (i.e., incantations), mōteatea (i.e., chants), whakataukī (i.e., proverbial sayings) and pepeha (i.e., tribal sayings), as well as different ways of knowing such as traditional, esoteric, local and experiential. These are all examples of different

wells of wisdom, extant archives and experiences that hold layers of knowledge of Māori perspectives of water safety.

Ultimately, it is the tūpuna who hold mātauranga in varying forms. Māori oral narratives were composed by the ancestors as they formed an intimate relationship with their environment – their special places. How they made sense of place, and how they embedded themselves in the land and seascapes is regularly told through these oral narratives, a corpus of profound cultural knowledge that we continue to have access many generations later. These are the sources of knowledge, a unique ancestral scholarship that the tūpuna entrusted to the future generations of Māori.

The role of mātauranga in Māori water safety discourse is about reinterpreting Māori bodies of knowledge and ways of knowing that were left by the ancestors. This means analysing Māori oral narratives for guidance around Māori water safety. The tenet of mātauranga encompasses the experiential and lived knowledge of the ancestors that have been passed down to us. This is similar to the idea of ‘local knowledge,’ always asking the locals about a particular body of water and whether or not it is safe for your desired purpose. Māori ancestors were the locals; they were the knowledge holders, and this information is encoded within the oral narratives and histories that they left behind for their descendants. The mātauranga element is about re-engaging with this traditional knowledge. This is how we deepen our knowing about a place, because ‘knowing’ provides the platform for how to ‘be’ in these spaces.

Tikanga as the Mokopuna

The final aspect of Wai Puna is tikanga and refers to the specific practices in, on, and around the water. Mead (2003) described tikanga as derived from the root word tika, meaning to act or behave in a way that is right or correct. He claimed

... tikanga is the set of beliefs associated with practices and procedures to be followed in conducting the affairs of a group or individual. These procedures are established by precedents through time, are held to be ritually correct, are validated by usually more than one generation and are always subject to what a group or individual are able to do (Mead, 2003, p. 12).

Similar to Mead’s description, Royal (2012) defined tikanga as “distinctive Māori ways of doing things and cultural behaviours through which kaupapa Māori are expressed and made tangible” (p. 30). Tikanga related to water describes how Māori interact and engage with water. This leads into the third aspect of the model which is illustrated as the outer ripple, the mokopuna ripple. This is characterised by how knowledge is passed down to future generations from the source to the tūpuna and finally to their mokopuna. This aspect I have ascribed as tikanga. I see this aspect as how to ‘be’ in the water;

what whakapapa and mātauranga tell us about appropriate actions and behaviour in the water. It encompasses an array of human action in the water. Examples of tikanga level water safety practices include weather check, equipment, boat safety, swimming skill, wearing life jackets (physical and spiritual), reciting karakia, adhering to rāhui (i.e., prohibition, restriction), respecting the water and many more. Tikanga is about what we actually do, but more importantly the right thing to do which is informed by whakapapa and mātauranga. Tikanga are Māori practices, how we practice what we have come to know. I argue that only when all three of these pillars of water safety are in place will we adequately operationalise Māori water safety.

The dominant discourse of water safety in this country today relies heavily at the tikanga level of this model; the other two pillars are seemingly neglected. Therefore, from a Māori perspective the current discourse of water safety in our country has only scratched at the surface. The tikanga aspect of Wai Puna is concerned with adhering to well-informed existential practice. In a Māori world, however, if that practice is not grounded in whakapapa, in who you are and does not emerge from mātauranga or Māori ways of knowing and being, then it is incomplete. To incorporate mātauranga and whakapapa into water safety education alongside tikanga is the step in the right direction for reducing Māori drowning rates and further understanding the importance of connection to water for Māori health and wellbeing.

Theory into Practice

A Wai Puna approach to water safety education and practice acknowledges one's connection to water as being paramount for their health and wellbeing. The cultural concepts of whakapapa, mātauranga, and tikanga are distinct ways in which this connection to water can be nurtured, deepened, and strengthened in culturally relevant ways. Wai Puna empowers Māori because it reflects our knowledge and cultural beliefs around the water. The basic premise of applying Wai Puna into practice is to consider how a water safety programme ultimately strengthens connection to wai. The three pillars act as the stepping stones or pathways to then achieving this strengthened connection.

Tikanga

For example, at the tikanga level consider your physical engagement with water and the practices you undertake in, on, and around water. Consider what practices your water safety programme utilises and how these practices change your learner's engagement and connection with wai. Western water safety practices include putting on a life jacket, actively supervising children, swimming with others, and knowing your survival strokes and positions. Māori water safety practices include reciting karakia as a form of wearing your spiritual life jacket, engaging in mahinga kai (i.e., customary food gathering) practices, being together with your whānau, and showing respect toward the water. These are all practices that apply to the tikanga element of Wai Puna and

help develop and nurture a sense of physical connection to water. For Māori there are numerous rituals and cultural practices that involve the water. A Māori water safety programme would prioritise these cultural practices and begin to reflect on why they are important to Māori and their overall connection to wai.

Mātauranga

At the mātauranga level consider the knowledge base of your connection. For Māori, it is important that this knowledge base validates and legitimises Māori knowledge and ways of knowing. Examples of mātauranga include Māori oral narratives (such as those identified earlier) and the cultural knowledge and information regarding our water safety that are embedded within these oral texts. Applying mātauranga to a water safety programme requires the recognition and inclusion of our stories and traditions of people in place. For example, your programme may use a pūrākau about an ancestor in your region to explore various water skills, practices, and knowledge derived from this traditional story to add value, meaning, and purpose for your learners.

Whakapapa

At the whakapapa level consider the genealogical connection Māori have to water and how, through water, Māori find their source of identity and sense of belonging. Whakapapa in the context of Wai Puna is about knowing who you are and where you come from in terms of wai. Applying whakapapa to a water safety programme requires a spiritual and physical connection to water. This may include activities and engagement in your own ancestral waterways, working with your own whānau and genealogical connections, or learning about the whakapapa of the people and waterways your programme directly engages with.

From a Wai Puna approach, water safety is not merely about teaching water skills. It starts with a deeper understanding and respect for wai, an understanding inherent for Māori, that can also lead to the provision of more purposeful drowning prevention for all New Zealanders. A recently funded Health Research Council of New Zealand (HRC) project entitled, *Tangaroa Ara Rau: Māori Water Safety Programme for Whānau* explicitly applies the Wai Puna model (University of Otago, 2019). The project lead of the study, Associate Professor Anne-Marie Jackson explains, “we recognise that every place has its own protocols and environments, but we think our work can be transferable to anyone in New Zealand – and ideally the world” (University of Otago, He Kitenga – Stemming the tide section, para 9). I discuss the project next to demonstrate the translation of Wai Puna into practice (see www.kmko.nz for further examples, videos, and resources of Wai Puna).

Tangaroa Ara Rau: Māori Water Safety Programme for Whānau 2019-2022

The *Tangaroa Ara Rau: Māori Water Safety Programme for Whānau* is a three-year project funded by HRC to develop a kaupapa Māori (i.e., distinctly Māori approach) water safety programme (University of Otago, 2019). Māori researchers will work alongside Tangaroa Ara Rau, a collective of national Māori water safety practitioners and researchers, and three Māori communities in the Northland, Waikato, and Otago regions of New Zealand. The programme will be tested, adapted, and re-tested according to regional differences and preferences (University of Otago, 2019). The overall research design of this project and subsequent water safety programme is framed by the Wai Puna model, which is evident in the overarching aim, the focus on intergenerational knowledge transfer, and the clear application of the three pillars of Wai Puna (whakakapa, mātauranga, and tikanga).

The primary kaupapa (i.e., goal, purpose) of the *Tangaroa Ara Rau: Māori Water Safety Programme* is to strengthen whānau connection to wai. Jackson states, “if we can get to a place where whānau are confident, with a strengthened relationship to the water, then we can see if we can solve this issue of drowning” (University of Otago, He Kitenga – Stemming the tide section, para 10). Akin to the philosophical underpinnings of Wai Puna reflecting the knowledge transfer from one puna to another (i.e., from the mātāpuna, to the tupuna and out to the mokopuna), this project similarly follows suit. The project focuses on the intergenerational transmission of whakapapa, mātauranga, and tikanga pertaining to wai within the three case study areas and embraces all generations of whānau; tamariki (i.e., children), pakeke (i.e., adults), and kaumatua/kuia (i.e., elders). The significance of a Māori water safety programme for whānau is to ensure the collective safety of the entire family unit and it encourages parents and grandparents to be in the water with their children or grandchildren, passing this knowledge down to them. The water safety programme is designed for parents and grandparents to teach water safety from their distinct Māori worldview to their future generations.

Whakapapa is essential for understanding Māori beliefs and attitudes toward the water as it represents the genealogical and spiritual connection Māori have to wai. Jackson reasserts, “as Māori we’ve always had a strong cultural connection to the water ... when you ask someone ‘who are you,’ you ask ‘ko wai koe,’ i.e., what waters are you?” (University of Otago, 2019, He Kitenga – Stemming the tide section, para 3). The *Tangaroa Ara Rau* project is grounded on the importance of whakapapa, namely with the researchers’ personal whakapapa links to Northland, Waikato and Otago. This genealogical connection the research team have to the case study areas is fundamental to strengthening the research project.

Mātauranga is an important aspect of Māori water safety, as it is derived from Māori ways of knowing and being in the water. Mātauranga is drawn upon when working alongside the three community groups and incorporating mātauranga ā-iwi (i.e., tribal specific knowledge). For example, the project draws on oral narratives such as pūrākau, karakia, mōteatea, pepeha and whakataukī relevant to the three regions to support the co-creation of an iwi or regional specific water safety programme and associated competencies appropriate to each area. Jackson explains, “it’s about recognising that there is an issue, and to solve it we have to look at the strengths of our culture and our communities, as therein lie the answer” (University of Otago, 2019, He Kitenga – Stemming the tide section, para 7).

Tikanga are the specific practices in, on, with, and around the water and describes how Māori interact and engage with water. Tikanga is incorporated in the Māori methods of the study through mahia te mahi (i.e., practical application of tikanga). Mahia te mahi refers to the practical in-water components of the programme and the water competencies that ultimately reflect iwi-specific tikanga distinct to the water bodies in each region. The research team draws “on their environmental and cultural knowledge around water-based activities (such as fishing, collecting food, and diving) to develop key Māori water safety competencies” (University of Otago, He Kitenga – Stemming the tide section, para 6).

Conclusion

Evidence has confirmed that Western water safety approaches have not worked for Māori and similarly for other indigenous communities around the world. Incorporating the Wai Puna model is key to reconceptualising Māori water safety because the starting point of this model is grounded in Māori ways of thinking and knowing. Wai Puna follows Māori metaphors (i.e., puna is a metaphor for wellsprings of knowledge, or water a metaphor for life), symbolism, and thought processes while it recruits a vast pool of knowledge, deepening Māori understanding of wai and informing their practice. Moreover, Wai Puna shares a powerful analogy of the significance of wai to Māori health and wellbeing. In summary, a strong understanding in all three pillars of the Wai Puna model, in conjunction with strengthening connection to water, is the key to reduce Māori drowning rates in this country and support positive health outcomes for Māori from a distinctly indigenous Māori worldview.

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Appendix: Glossary

atua	deity, god
hapū	sub-tribe
hauora	health, wellness
Hine-parawhenuamea	Daughter of all forms of water
Hine-te-ihorangi	Daughter of all forms of water
Hine-tū-pari-maunga	The mountain maid
iwi	tribe
karakia	incantations, prayer
kaupapa Māori	methodological approach for Māori by Māori
ki uta ki tai	from the mountains to the sea

Kia Maanu Kia Ora	Means to stay afloat, stay alive and is the name of the National Māori Water Safety Strategy
Kiwa	Personification of the sea
kuia	female elder
Māori	Indigenous Peoples of Aotearoa
mahia te mahi	Māori method, practical aspect
mātāpuna	source
mātauranga	Māori bodies of knowledge and ways of knowing
mauri	life-force
mokopuna	grandchildren, future generations
mōteatea	chants
Papa-tū-ā-nuku	Earth Mother
Parawhenuamea	Deity of earthly and ground waters
pepeha	tribal sayings
puna	spring
pūrākau	stories
rāhui	prohibition, restriction
Ranginui	Sky Father
rōpū	group
Tāne	Māori deity of forests and birds
Tangaroa	Māori deity of the sea
Tangaroa Ara Rau	Collective of Māori water safety experts/ practitioners
taonga	treasure
Tāwhiri-mātea	Deity of the winds and elements
Te Ao Mārama	The world of light
Te Reo Māori	Māori Language
tikanga	customs, protocols
tūpuna	ancestor
wai	water
Wai Puna	wellsprings, the name of the Māori water safety model
waka	ancestral canoe
whakapapa	genealogy
whakataukī	proverb, proverbial sayings
whānau	family