

Zak Waipara \*

# Ka mua, ka muri: Navigating the future of design education by drawing upon Indigenous frameworks

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**Zak Waipara** is a lecturer in Digital Communications, School of Communications, at Auckland University of Technology, New Zealand. He has worked in animation, written and drawn comics and illustrated a range of books, and is currently working on doctoral research at the intersection of comics, children's books and indigenous storytelling.

<zwaipara@aut.ac.nz>

ORCID: 0000-0002-7535-5768

**Abstract** *As design practitioners and educators attempt to respond to a shifting world—in the Māori language, Te Ao Hurihuri—how might we manage such changes?*

*An indigenous precedent draws upon the past to assist the future: ka mua ka muri, 'travelling backwards into the future,' the past spread out behind us, as we move into the unknown. Indigenous academics draw inspiration from extant traditional viewpoints, reframing them as methodologies, using metaphor to shape solutions.*

*What is it about the power of metaphor, particularly indigenous ways of seeing, that might offer solutions?*

*In this paper, I describe explorations to extract guiding principles from Indigenous navigational knowledge. The goal: to construct a applicable structure for tertiary design teaching from two metaphorical models, based in Samoan and Hawaiian world-views, and related Māori concepts. The result was a Navigator framework, created for potential use in a collaborative, studio-style classroom.*

**Keywords** *Design, Education, Mātauranga Māori, Metaphor, Polynesian Navigation.*

### **Ka mua, ka muri: Navegando no futuro da educação em design com base nas estruturas indígenas**

**Resumo** Enquanto os profissionais de design e educadores tentam responder a um mundo em mudança - na língua maori, Te Ao Hurihuri - como podemos gerenciar essas mudanças? Um precedente indígena baseia-se no passado para ajudar o futuro: ka mua ka muri, “viajando para o futuro”, o passado se espalha atrás de nós, conforme avançamos para o desconhecido. Acadêmicos indígenas se inspiram em pontos de vista tradicionais existentes, reformulando-os como metodologias, usando metáforas para moldar soluções. O que há com o poder da metáfora, particularmente modos indígenas de ver, que pode oferecer soluções? Neste artigo, descrevo explorações para extrair princípios orientadores do conhecimento de navegação indígena. O objetivo: construir uma estrutura aplicável para o ensino de design terciário a partir de dois modelos metafóricos, baseados nas visões de mundo Samoana e Havaiana, e conceitos Maori relacionados. O resultado foi uma estrutura Navigator, criada para uso potencial em uma sala de aula colaborativa em estilo de estúdio.

**Palavras chave** Design, Educação, Mātauranga Māori, Metáfora, Navegação polinésia.

### **Ka mua, ka muri: Navegando por el futuro de la educación en diseño basándose en marcos indígenas**

**Resumen** A medida que los profesionales del diseño y los educadores intentan responder a un mundo cambiante, en el idioma maorí, Te Ao Hurihuri, ¿cómo podríamos gestionar esos cambios? Un precedente indígena se basa en el pasado para ayudar al futuro: ka mua ka muri, “viajar hacia atrás en el futuro”, el pasado se extiende detrás de nosotros, a medida que avanzamos hacia lo desconocido. Los académicos indígenas se inspiran en los puntos de vista tradicionales existentes y los reformulan como metodologías, utilizando metáforas para dar forma a las soluciones. ¿Qué tiene el poder de la metáfora, en particular las formas de ver indígenas, que podría ofrecer soluciones? En este artículo, describo exploraciones para extraer principios rectores del conocimiento de navegación indígena. El objetivo: construir una estructura aplicable para la enseñanza del diseño terciario a partir de dos modelos metafóricos, basados en las visiones del mundo samoano y hawaiano, y conceptos maoríes relacionados. El resultado fue un marco Navigator, creado para su uso potencial en un aula colaborativa con estilo de estudio.

**Palabras clave** Diseño, Educación, Mātauranga Māori, Metáfora, Navegación polinesia.

## Introduction

At the time of writing this article, the world has still not yet emerged into a completely COVID-free environment. The pandemic's impact has been felt in every sector of society, including education. Even before it made its presence felt, the delivery of education was already changing in new ways.

The future is fluid and remains unknown. As tertiary institutions morph under pressure, as design practitioners and educators attempt to respond to the shifting landscape, how might we navigate the constant changes this necessitates?

To Māori (the indigenous people of New Zealand), this ever-changing world is known as Te Ao Hurihuri. There is an indigenous precedent of drawing upon the past to assist with present and future states; as the proverb *ka mua ka muri* indicates, 'travelling backwards into the future'—viewing the past spread out before us, as we move into the unknown.

Indigenous academics often draw inspiration from extant traditional viewpoints, reframing them as methodologies, including drawing on metaphor to shape solutions. In this paper, I describe the exploration I have undertaken in examining the metaphor of navigation within tertiary teaching practice, informed by a number of Indigenous knowledge approaches.

## Indigenous frameworks drawing on metaphor

One of the frameworks already adopted in the field of education, Te Whare Tapa Whā (Figure 1), was initially developed as a health-based model. The four-sided house proposes that there are more aspects of a patient to consider than just the physical or medical, including the mental, spiritual, and familial (Durie, 1998). If any of these aspects are neglected, walls are left weakened, and the house is likely to collapse. So medical professionals are encouraged to engage with all aspects of a patient's wellbeing, and educators similarly might try to engage with students in a more holistic fashion. "The ethical responsibility of teachers, leaders and trustees is to consider, promote, balance and respond to all aspects of the student, including their physical, social, emotional, academic and spiritual needs" (Education Review Office, 2016, p. 4). This is sometimes easier said than done. In tertiary institutes, it presupposes that lecturers have perhaps more oversight and powers than actually exist.

The *tuakana/teina* (older sibling/younger sibling) model (Figure 2) describes the way that a more experienced student can assist a less knowledgeable student. This interaction occurs any time one student in a cohort passes on knowledge to another student, or assists them in some way. Usually, this kind of interaction is more likely to occur where students have formed friendships or collegial relationships, which is more likely to be fostered in face-to-face classroom situations than in online spaces.

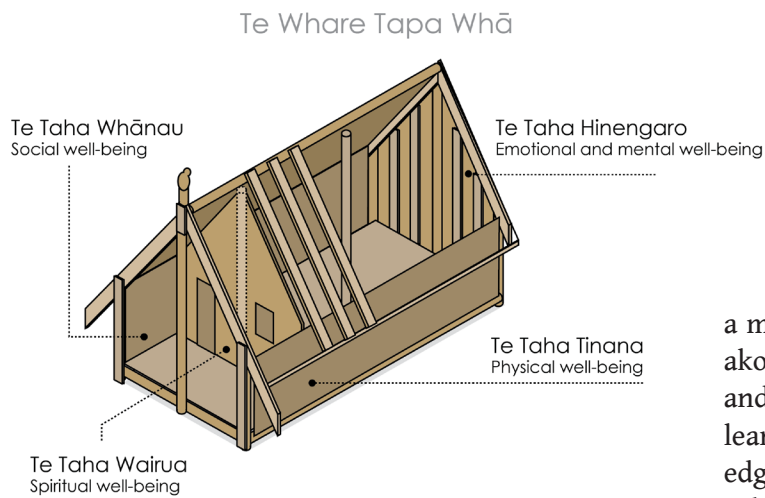


Fig 1. Te Whare Tapa Whā model  
Adapted from Durie, 1998. Artwork © Zak Waip

It also dispenses with hierarchy to create a more egalitarian relationship. The Māori word *ako* also has the benefit of meaning both learn and teach, and references the real relationship of learning-teaching, where information and knowledge can pass in both directions. This means the role of *tuakana-teina* can switch back and forth (Berryman et al., 2002, p. 143).

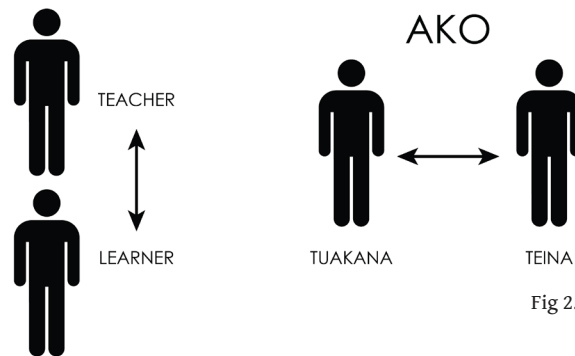


Fig 2. Tuakana/teina model

## The power of metaphor

What is it about the power of metaphor, particularly through Indigenous ways of seeing, that might offer solutions for both student and teacher?

Metaphors are powerful ways to frame ideas, and are present throughout mythology, storytelling and visual design, acting as bridges out of our experience that reach across to new understanding. Symbolism is the art of representing ideas or qualities through objects, events or relationships. Metaphors and symbols can be used to enhance communication through storytelling, especially since stories themselves are metaphors for how humans experience life on a deeper level. Māori storytelling and the language itself is inherently filled with powerful imagery, metaphors and symbolism.

The Navigator or Pacific voyager, as exemplar for the student, is one such metaphor, one which asserts, as Reilly (2009) points out,

...the value of the voice, the ties to place, and the authority of the self in Indigenous Studies, using examples drawn from Island societies located in Te Moana nui a Kiwa (the Great Ocean of Kiwa); a renowned navigator of the Pacific Ocean. (p. 3)

## Origins of the Navigator

In 2015, I first floated the idea of a navigator archetype with a cohort of tertiary animation students who were learning to develop storytelling by examining world mythology. Their programme was a new Bachelor of Animation degree that was being developed and taught for the first time. I had been hired as Programme Leader and Lecturer in Narrative Studies (in addition to teaching other papers), at Animation College (formerly Freelance Animation School), a private training establishment in Auckland, New Zealand. Founded in 1989 by John Ewing, ex-Disney animator, with approximately 160 students in Diploma and Degree programmes, Animation College has since been acquired by Yoobee Colleges.

This Narrative Studies paper was also tasked with introducing understanding aspects of tikanga Māori (Māori values and protocols), and, for me, the logical way to teach these concepts was via Māori creation narratives, where tikanga occurs quite naturally. It was also important to normalise these stories, using a comparative approach where a range of world mythologies were examined. Māori narratives would take their place alongside the great mythologies of the world, where they would be both unique and normal. After all, the word māori means normal.

It became important to me to find a symbol that could help students connect with these concepts: the Navigator.

“Wayfinding is a form of non-instrument navigation, a mental construct relying on memory, and holistic signs of nature such as positional stars” (Sullivan, 2016, p. 2).

Originally this had been a notional, aspirational paradigm that cast the students as navigators of their own educational story-journey. Students were encouraged to examine their own cultural backgrounds as a rich and meaningful resource to create new narratives. The Hero’s Quest/Journey was proffered as a starting point to assist in this undertaking.

Students eventually formed animation teams and worked closely together, and the teaching staff responsible also had to work closely, as all first year, first semester papers were integrated and inextricably linked; the other three papers being Visual Communication, 2D Animation and Life Drawing. Story concepts that were developed in Narrative Studies became visually realised in Visual Communication, and then animated in the 2D Animation paper. Life Drawing was used to support all three papers, since they required drawing throughout.

The Navigator symbolism was also used as a meaningful way to engage external educational agencies and stakeholders who would visit to assess the programme. Here the parts of the waka could be likened to the papers working in tandem (Figure 3).

First Semester, Year One.

## NARRATIVE STUDIES

Depicted here as a sail, the main paper that gathers wind, gains momentum and drives all the other connected papers forward.

the student

## VISUAL OBSERVATION

The deck is the robust part that connects all others. The Life Drawing paper provides a foundational support that sits underneath everything.

## VISUAL COMMUNICATION

The waka (canoe) with its tauihu (carved prow), this paper provides a solid introduction to visual worldbuilding.

## 2D ANIMATION

The ama (stabilising strut) of the outrigger style waka, is a means to both support and add motion.

Fig 3. Waka showing papers in Animation Degree

Artwork © Zak Waipara 2015

In 2019, at Auckland University of Technology, where I lecture in Digital Media, School of Communications, I was asked to join the working group on a new paper, Mahitahi: Collaborative Practice. Mahi means work, and tahi is one, so mahitahi means to work together, as one.

As Christina Vogels (Associate Head of School, School of Communication Studies) explains:

The paper began its life called Digital Work Futures Project, aimed at transdisciplinary project collaboration with an emphasis on possible work futures that our students may be exposed to. After significant consultation with Māori advisers across the Faculty, and the University, the paper now is called Mahitahi: Collaborative Practices, and while it still is a project paper that has a keen interest in transdisciplinary practices and work futures, it is now also underpinned by guiding principles of tikanga and mātauranga Māori. This is an exciting and unique approach which has not been done in the Faculty before. (personal communication, October, 23, 2019)

This developmental work was crucial since the paper would be taught not just in the School of Communications, but eventually in three other Schools: Engineering, Computer Science and Mathematics, Art & Design, and Creative Technologies (now the School of Future Environments).

I was tasked with investigating potential frameworks to assist with developing this paper. I wondered about refloating the earlier framework that posited the student as a voyaging navigator. This approach seemed to have some initial validity, since:

- The future is fluid and unknown;
- Calculated risks must be undertaken to navigate this space;
- The metaphor is both indigenous, pan-Pacific, and applicable to all Tauīwi (non-Indigenous settlers), in the context of arrival by vessel to these shores;
- The journey (learning) is as important as the destination (knowledge or artefacts);
- Voyaging is a group effort, requiring everyone's contribution.

On this last point, the Mahitahi paper is primarily concerned with teaching students to work well in groups. While it is true that students receive individual qualifications at the end of their journey, much of university life requires cooperation, and this paper in particular emphasises collaborative group work. Just because every journey is individual, doesn't mean it is undertaken alone.

## Intuition

The impetus for using this navigation metaphor was very much intuitive, and was influenced by my own creative work as an undergraduate student, where I crafted an animated music video that used a Polynesian navigator's voyage as a metaphor for a life journey (Figure 4).



Fig 4. Still images from *Leaving Paradise* (2008)

Artwork © Zak Waipara 2008

Intuition sits at the heart of heuristics, a practice based methodology I use as part of creative research within Art & Design. It seems an odd thing to reach for one experience/concept to help clarify another. However, I have found this approach useful in my postgraduate studies, describing how research and discovery (or heuristic practice) can be framed via a mythological metaphor.

In particular, my methodology draws on a transitional phase described in Māori creation narratives as Te Whaiao or Te Wheiao. It bridges the period known as Te Pō (the night) and Te Ao Mārama (the world of

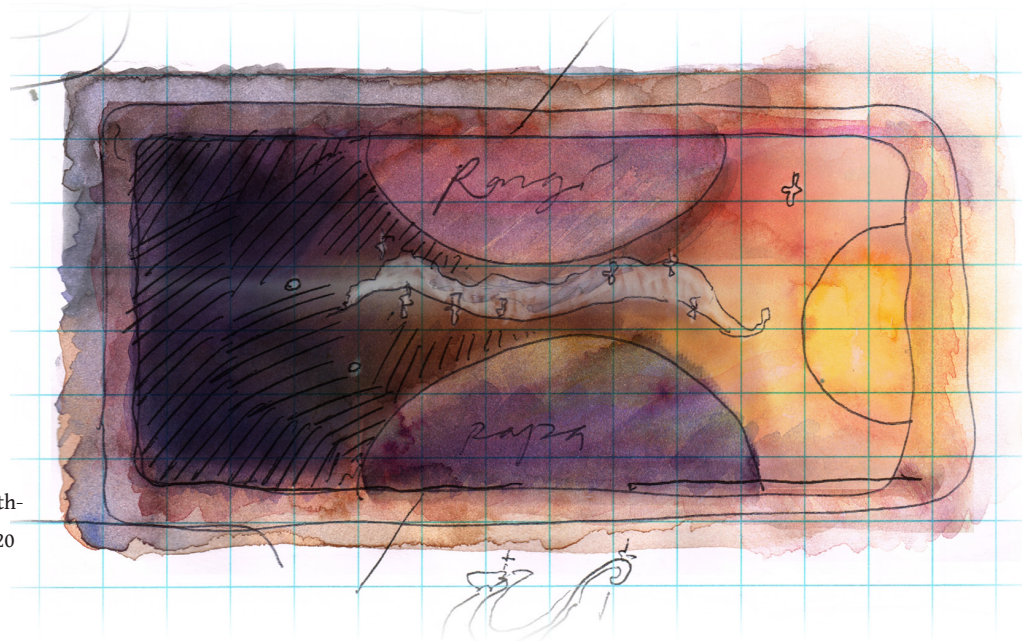


Fig 5. Te Whaiao

Visual metaphor of Te Whaiao methodology. Artwork © Zak Waipara 2020



Long periods of nights existed, one after the other, before life coalesced in the darkness. Ranginui and Papatūānuku (the Sky-father and Earth-mother) lay in close embrace in the darkness. Their children were trapped between them and resolved to escape. In separating Ranginui and Papatūānuku, the children of the gods actively sought to bring about change, and the world of light was born. Whai means to follow or pursue, so Te Whaiao, to pursue light, is the stage that precedes the world to come: one that leads to enlightenment, growth and creation. I draw on this creation narrative to make clear the artistic process of bringing something to fruition, making a parallel with the active pursuit of this new world.

## Existing navigational models

The convergence of navigation as inspiration in education is gaining momentum. Sir Ian Taylor (Ngāti Kahungunu) recently launched an online education programme to inspire Māori and Pasifika children to pursue science and technology. Taylor founded the company Animation Research to create real-time 3D graphics for America's Cup coverage. Learning about the navigational feats of Polynesian voyagers changed Taylor's view of his own success, and he realised that "innovation was a Polynesian trait that needed awakening in the young" (Niall, 2021). Currently, Auckland University of Technology is using this imagery in its Pasifika educational support; under the 'Oceanian Leadership Network' scheme, student mentors are dubbed 'navigators' and are drawn from across all faculties, schools and campuses of the university. "The term takes inspiration from our ancestry of voyagers and seafarers who used star constellations to navigate their wakas to new opportunities" (Auckland University of Technology, n.d.)

However, inspirational symbolism aside, when trying to design curricula, useful principles are required which lend themselves to creating pedagogical frameworks. While not myself an expert in Pacific navigation, I reasoned that surely some academic research had been done in this intersection of education and navigation as metaphor.

## Samoan/Pasifika model

Tanya Wendt Samu is a Samoan academic who has used Polynesian navigation and voyaging imagery specifically "as a tool to enhance clarity, counter hegemony and support the creation of a Pacific paradigm of meaning and analysis" (Wendt Samu, 2010, p. 1). She looked to find a more meaningful model, perhaps better suited for the Pacific-Polynesian diaspora located in Aotearoa-New Zealand, and draws on Pacific voyaging for "conceptualising the education of Pasifika peoples in the context of 21st century New Zealand" (p. 1). In Wendt Samu's view, Western theoretical

frameworks can be useful, “but these theoretical approaches and constructs should not be the only influences on the process of conceptualising Pacific experiences” (p. 2).

Rather than developing concrete actions, Wendt Samu (2010) derives a set of four concepts for framing important aspects of this metaphor.

- **Looking for the frigate birds, looking to the stars.**

These elements were used in guiding vessels: the stars were a chart that could keep a boat on the right direction, and the birds were indicators of land. Wendt Samu uses this concept to indicate that educators also need to be aware of their directions, and be attuned to the environment in which they teach, and where students are coming from.

- **Charting the currents**

This acknowledges that the world is in flux, and education is being impacted by massive global changes. These challenges are intensified for many Pacific migrant peoples settling in a new land. Here, charting the current is used as an umbrella term to describe a “Pacific worldview ... in tension with the knowledge economy” (p. 5), since many Pasifika peoples may have cultural obligations to their communities. Charting the currents seems to indicate a need to negotiate, as much as navigate, the challenges of two competing worlds, and a meridian zone where these two tides collide: a conflict for an Indigenous scholar.

- **The contemporary voyagers**

Here Wendt Samu lays out differing advantages and disadvantages to the collectivisation of Pacific peoples, who share many commonalities, and, over time, genealogical and cultural ties, but enter Aotearoa as part of a larger pattern of pan-generational migration – the contemporary voyagers. Wendt Samu alludes to Pacific scholars (such as Albert Wendt and Epeli Hauofa) who have forged paths through the spheres of Western academia. It is additionally an exhortation to Pacific academics to strengthen:

...academic performance and profile, progressing within the academe ... driven by the desire to contribute leadership and service in the construction of metaphoric ‘vaka’, or the material and intellectual vessels that can carry our peoples to better improved ways of life. (p. 3)

- **Preparing for the journey**

Any journey needs adequate preparation. In this instance, “Education should be a process that is grounded in diverse Pasifika cultures. Curriculum and pedagogy needs to be culturally informed and culturally responsive” (p. 8). As Wendt Samu notes, in establishing these concepts “a metaphoric vaka (boat) is now in place,” (p. 7) and, like the voyagers of old, this carries the aspirations of peoples into a new and undiscovered country.

Each of these four concepts is metaphorical in approach. Frigate birds and stars are signs that need to be used for wayfinding, the currents of the traditional world and the modern world in collision need to be negotiated, voyagers have come before us, and continue to offer guidance, while all undertakings, especially embarking on a new adventure or educational journey, require proper preparation. Wendt Samu points out that the use of terms like Pacific could “promote a myth of a homogenous migrant community,” (p. 6) but in her view it is a useful means to describe common interest and collaboration. As such, a pan-Pacific voyaging model has definite applicability.

## **Hawaiian Model**

Michael Hohl, an academic from the Faculty of Design, Anhalt University of Applied Sciences, Dessau, Germany, was teaching Design for Sustainability. He began to examine Hawaiian navigational knowledge transmission. Hohl (2015) explains his rationale: currently “learning to design with sustainability in mind is taking place in a culture that is living in a highly unsustainable manner, especially in industrialized countries,” and yet, by contrast, “people living on islands are highly aware of the limitedness of their resources, the precarious balance of their natural environment and the long wearing negative effects of unsustainable actions” (p. 1264). Hohl therefore investigated the Polynesian Voyaging Society (PVS), based on the island of Oahu, Hawaii, and their educational program, which fostered an awareness of ecosystems.

Central to the PVS programme is traditional Polynesian navigation, as an inspirational metaphor. Yet in the 1970s, traditional navigation techniques in Hawaii had all but vanished. Nainoa Thompson learnt from books, spent hundreds of hours in a planetarium, and finally had to travel to the island of Satawal in Micronesia to regain traditional navigation skills (Spidel & Inn, 1994).

According to Hohl (2015):

The members of the PVS ... have integrated their insights into an educational program that also is used to establish a basis for cooperative efforts in the community [where] learning is integrated with the values and needs of the social and natural environment. (p. 1266)

PVS identified eight key elements of education, derived from Nainoa Thompson's reflections on traditional navigation, and Hohl (2015) adapted these principles for design education:

- **Vision and values**

"Vision tells [the navigator] where to go; values tell them why. [The vision] embodies a traditional view of the world by which native Hawaiians were able to sustain life in the islands for centuries"

- **Exploration and challenge**

"Add[ing] to existing knowledge through exploration and discovery"

- **Observation and experience:**

"While the knowledge we teach includes reading and studying for preparation and orientation, observation and experience are an essential component of mastery"

- **Application and practice:**

"We learn most efficiently and effectively by acquiring and applying knowledge to a project or a goal that is meaningful to us, rather than by being asked to memorize knowledge with little or no application"

- **Outcomes:**

"Real and meaningful outcomes help motivate learning"

- **Culture**

"Pride in one's ancestral culture serves as a powerful motivation to acquire and master knowledge. While the knowledge in navigation and crew training includes Western knowledge, the PVS mission has been to recover and perpetuate indigenous knowledge and wisdom and apply it, through practice, in the modern world"

- **Home – place and community**  
 “The most relevant, meaningful, and significant context in which learners apply knowledge is the place and community that they are most directly connected to”
- **Life-long learning**  
 Analyzing information, critical thinking, teamwork, agility and adaptability

## Aligning principles

It seemed logical to align these two sets of Samoan and Hawaiian principles. By tweaking the order slightly (Outcomes is grouped with Life-long Learning, and Home is grouped with Culture), I arrived at a set of complementary values.

Figure 6 shows the principles side-by-side, expanded in greater detail, and as one might expect from related cultural groups, they seem to align rather strongly.

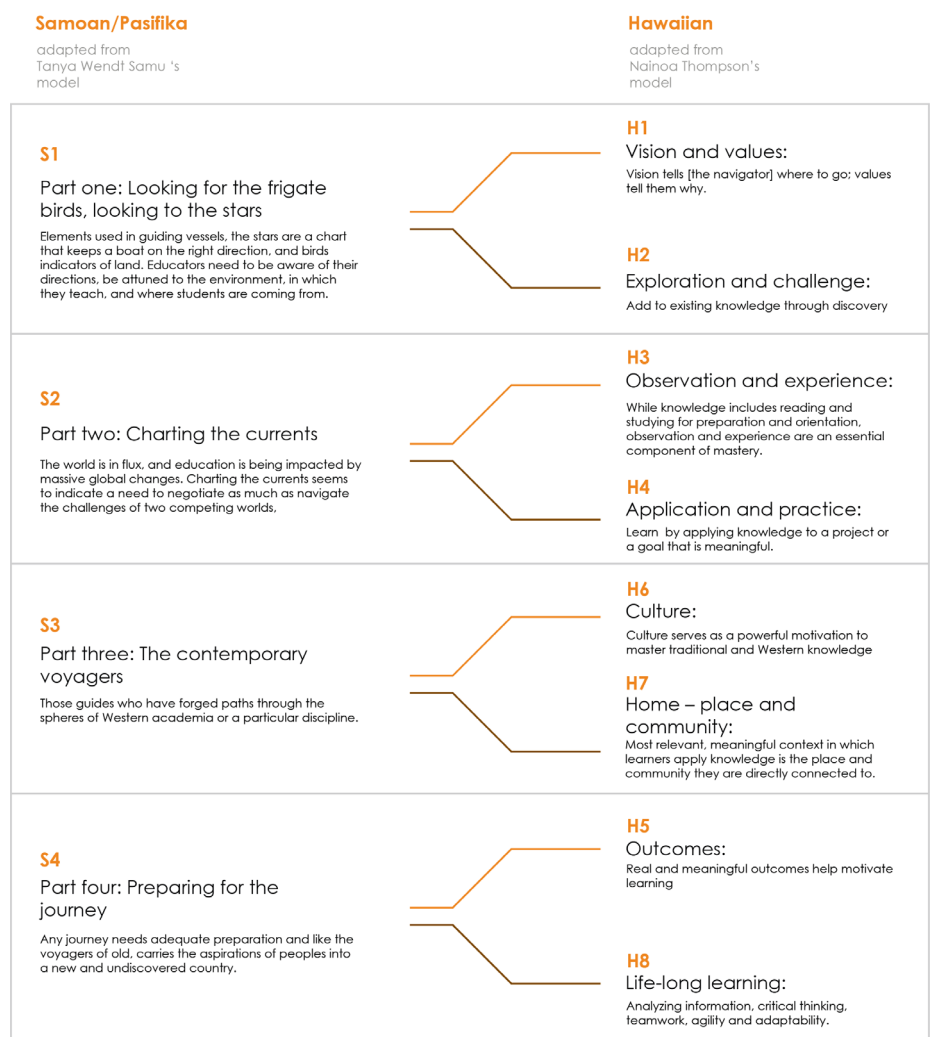


Fig 6. Te Principles Alignment of Samoan and Hawaiian education aspirations using the metaphor of navigation.

## Incorporating Mātauranga Māori

In the formative stages of developing Mahitahi, Herewini Easton, Maori Academic Equity Advisor at the Centre for Learning and Teaching at AUT (now AltLab), enthusiastically endorsed the idea, suggesting that “the Navigator could ‘be/inform’ the Graduate Profile and all of the papers within the programmes enhance The Navigator character” (personal communication, August 26, 2019). Given the part that mātauranga Māori (Māori knowledge) plays in the paper, Easton further recommended that research into Maori specific navigational models might be appropriate in this context. In assisting the process, he proffered a ‘waka as knowledge’ model he was using, adapted from Te Ahukaramū Charles Royal’s work in this area (Royal, 2007). Waka has an additional meaning of container, for carrying precious things. The relationship between waka (canoe) and waka (container) is made clear when considering those first voyagers, setting out, carrying their precious cargo of kin, with the plans of making landfall in a new world. As Pohatu (2013, p. 14) states, “knowledge and its meanings are travellers in perpetuity” [my emphasis].

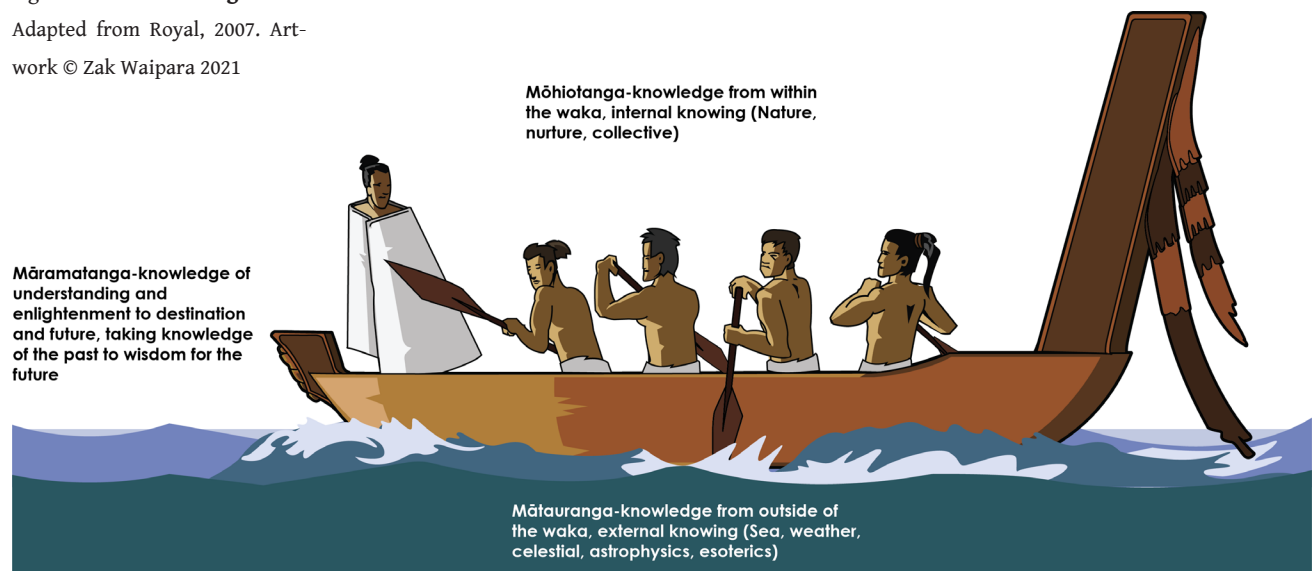
Knowledge in this context can be classified as internal, external and directional:

- **Māramatanga**  
knowledge of understanding and enlightenment to destination and future, taking knowledge of the past to wisdom for the future
- **Mōhiotanga**  
knowledge from within the waka, internal knowing (Nature, nurture, collective)
- **Mātauranga**  
knowledge from outside of the waka, external knowing (Sea, weather, celestial, astrophysics, esoterics)

In addition to Royal (2007), three other Maori models have been examined: He Waka Hiringa, He Waka Tino Whakarawea and He Waka Oranga.

Fig 7. Waka of knowledge

Adapted from Royal, 2007. Art-work © Zak Waipara 2021



## He Waka Hiringa

He Waka Hiringa was used in the design and implementation of a Master’s degree of Applied Indigenous Knowledge, “envisioned as a vehicle that enables communities to reach uncharted waters in innovative and novel ways” (Rangiwai et al., 2020, p. 1). The waka is used to divide up the stages of this Master’s degree, as a guide for students to visualise their journey over two years, including noho marae visits (cultural overnight stays at Maori centres). It incorporates Māramatanga, Mōhiotanga, Mātauranga (as explicated in Royal’s model), and an additional stage of Mauri Ora (wellbeing).

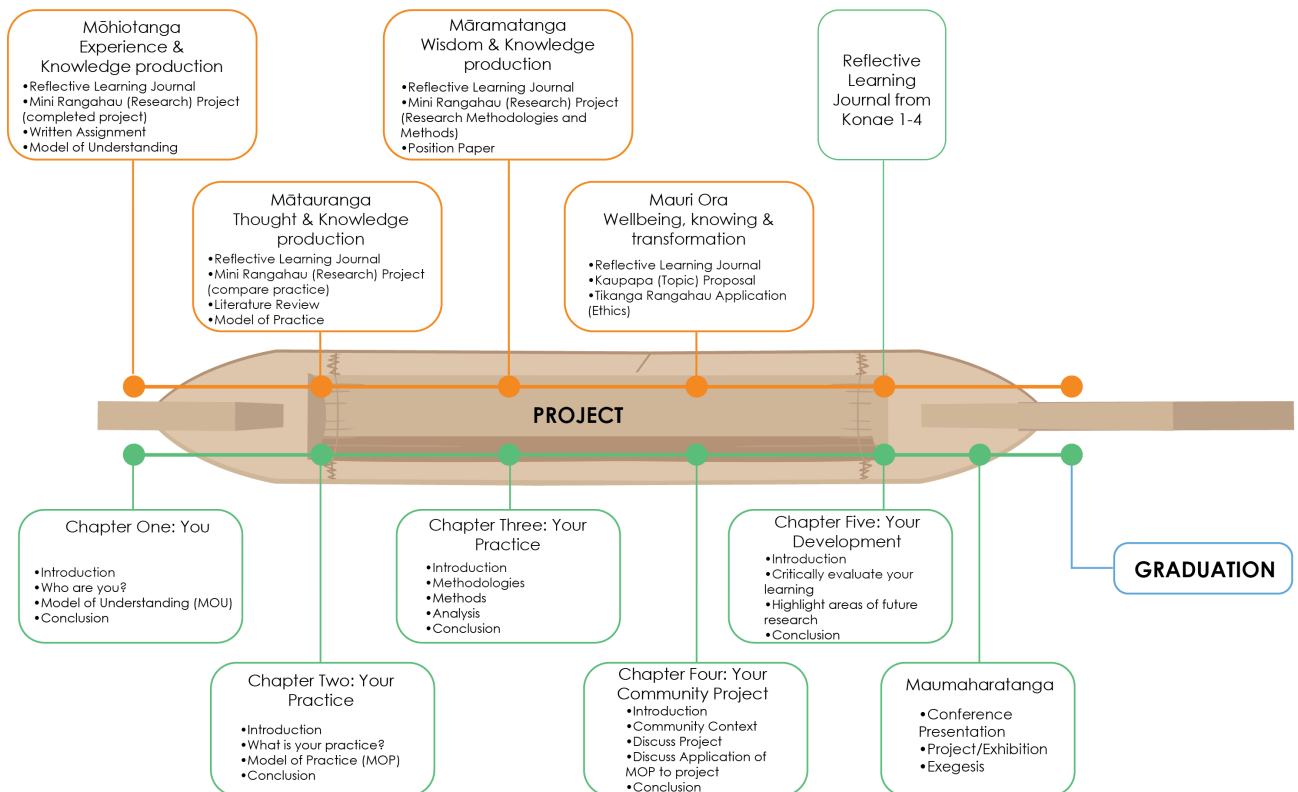


Fig 8. Waka Hiringa

Data sourced from Rangiwai et al., 2020. Waka artwork © Zak Waipara 2021

## He Waka Tino Whakarewea

He Waka Tino Whakarawea, or ‘a well-equipped canoe,’ is used to evaluate programmes for Māori learners. Jill Bevan-Brown (2002) examines how Māori learners with special needs have their needs met in a culturally appropriate, effective way, and identifies six key elements, located in six parts of a metaphorical waka:

- Participation & empowerment of parents, whānau & Māori community
- Kaupapa Māori: Important, relevant, beneficial
- Equality
- Accessibility (pathway)
- Appropriate, accountable personnel
- High quality, integrated provision

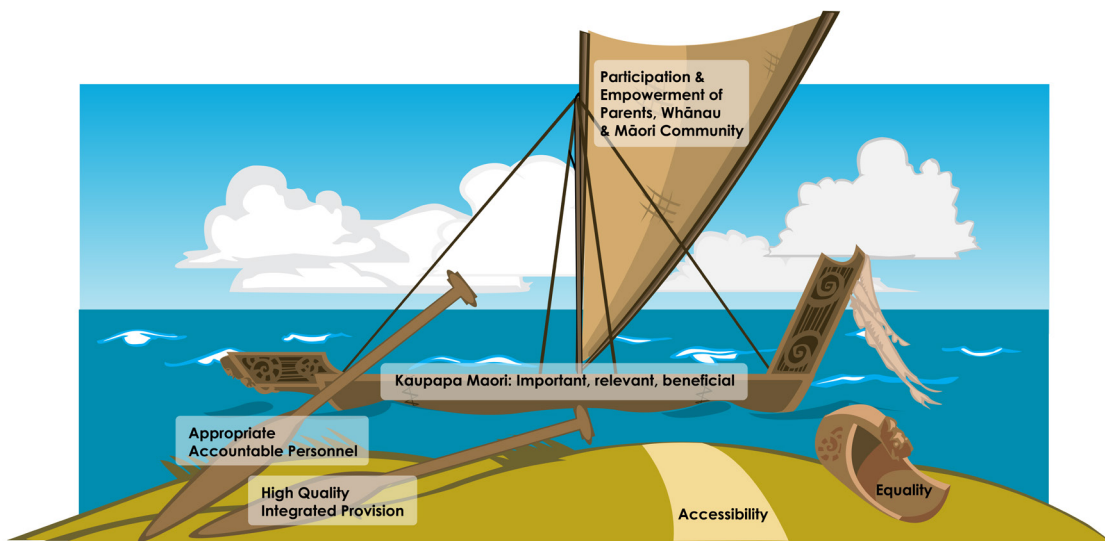


Fig 9. Waka Tino Whakarawea  
Adapted from Bevan-Brown, 2002.  
Artwork © Zak Waipara 2021

These first two models use the structure of the vessel as a framework, rather than the journey; yet learning is a process, and the journey is just important as the destination. However, students tend to focus on outcomes, and in academia the learning process is often harder to evaluate, so learning is captured in an artefact of some kind, which can then be assessed.

Many of the principles from these three preceding models might be placed or mapped alongside the strata of the either the Samoan (S1-S4) or Hawaiian (H1-H8) principles.



## He Waka Oranga

In this third model, Hall et al. (2012) connect the waka to environment and community. They introduce the model's logo by placing it within te ao Māori (the Māori world):

Firstly, we pay homage to our ancestors, and they are represented by and are imbued in all the aspects of our logo: the heavens, the water, the canoe, and the paddles. Our ancestors are omnipresent, and we are inspired and guided by their enduring spirits and, indeed, it is common Māori practice to seek direct guidance and intervention from our tupuna (ancestors). (p. 8)

Though only a single-hulled canoe is depicted in the logo, it is the double-hulled, ocean going waka that is referenced in the text:

The sea-ferrying craft which transported the migrating Polynesian inhabitants through the South Pacific Seas to arrive on the shores of Aotearoa were known as waka [...] large double-hulled sailing canoes sturdy enough to encounter the unknown vastness beyond the horizons and equipped with necessities considered essential for such a voyage. (p. 8)

The framework used comprises four primary elements: the star constellation Matariki (Pleiades), a waka, three hoe (paddles); and the moana (sea). "All are necessary components for the well-being of those who occupy the waka" (p. 9).



Fig 10. Waka Oranga

Logo Waka Oranga: National Collective of Māori Psychotherapy Practitioners (Mikahere-Hall, Morice & Pye, 2020)

- **Matariki (Pleiades): The heavens**

“Stars were—and still are—used by Māori as a way to calculate time and seasons, navigate oceans, preserve knowledge and stories, maintain customary practices, and inspire action and achievement... Matariki (Pleiades) sits in the realm of both the cosmos and the heavens and the tiny constellation of stars we know as Matariki remind us to seek wisdom and knowledge for the benefit of others from the highest sources” (p. 9). [maps to S1]

- **Te moana: The sea**

“On one level, the symbolic representation of the sea is linked to the nourishment and sustainability required for good health and well-being; on another level, it also reminds us of the great courage and strength our ancestors had when they first set out... The ever-changing currents, swells, calm and turbulent conditions of the moana keep us alert to the ebb and flow of our political and social environments, reminding us to keep the waka upright, balanced and on course” (p. 9). [maps to S2]

- **Te waka: The canoe**

“The waka acts both as a container and a transporter... Those who occupy the waka need two sets of skills: firstly, paddling skills to ensure that the waka remains afloat on the fluctuating waterways, streams, harbours and oceans it is destined to encounter; and, secondly, navigational skills, to ensure that the waka remains on a course that will steer us toward a better future with all the provisions necessary to make this journey possible” (p. 10). [maps to S4]

- **Nga hoe: The paddles**

“The first paddle represents our elders. They are our esteemed leaders...The second paddle in the waka represents the runanga (council/committee/board) ... The third paddle represents associate and institutional members” (p. 10). [maps to S3]

## Resistance

I should point out that when planning the Mahitahi course, there was some resistance to the incorporation of Māori values into curricula, from faculty members. Comments were made that questioned the purpose

of such inclusion, implying that Māori culture was outdated and antiquated, lacking any applicability to the modern world, and furthermore, that matters pertaining to Māori knowledge and ways of thinking would have no interest to international students. New Zealand still has a long way to go in honouring its Te Tiriti o Waitangi obligations (the Treaty of Waitangi being the founding document of New Zealand, signed between the British Crown and about 540 Māori chiefs in 1840) and moving towards becoming a truly bicultural nation.

Though it shouldn't need to be stated, as Professor Rangi Mātāmua points out, "science is part of Māori culture, we have been scientists forever. You don't travel and traverse, and then criss-cross that expansive water without knowing science" (Mātāmua, 2019).

Crowe (2018) affirms the achievements of Polynesian explorers:

However one views it, it is a mind-boggling dispersal of humanity and it was achieved more than two centuries before Europe's own so-called 'Age of Exploration' began. It is certainly an epic history, but one that sadly receives scant coverage in the media. (p. 14)

And Taylor (in Webb-Liddell, 2019) concurs: "My ancestors travelled across a third of the planet to get here [using] state-of-the-art craft and the stars and they knew exactly what they were doing. People need to know this story."

It remains important to challenge ignorant and uniformed assumptions. Assumptions are dangerous in the field of design, since they create blind spots, which is anathema to the creative problem solver. Because Polynesians did what Western nautical technology could not at the time, it was previously assumed in the West that either Pacific voyaging was unplanned and accidental, or that the islands were the mountain peaks of a sunken continent, and Polynesians were remnants of a stationary continental population. In fact, Polynesians approached travelling and mapping differently from European navigators. Eckstein (in Zaki, 2018) compares the two systems:

Europeans abstract space, they objectivise it, externalise it and fix it ... measure it with the invisible lines of latitude and longitude. Polynesians imagined a world where 'people didn't move,' but the 'world moved around them' ... If you know your bearings, the sea will throw out the island from the horizon and bring it to you. You see how completely opposite those kinds of world views are?

In cultural interactions, assumptions can create conflict. When the Endeavour's crew encountered Māori people for the first time in October 1769, the Indigenous greeting, in the form of a formal challenge by warriors from the Rongowhakaata iwi (tribe), was assumed to be hostile, and it was followed by the murder of local people by Captain James Cook's crew.

Furthermore, Grayzel (2019) believes that since "navigation [is] a major institutional repository of Polynesian civilization writ large," Polynesian exploration even offers understanding for "the coming dispersal of humanity into interstellar space" (p. 7). Lessons learned from island-to-island transmission of Polynesian survival and culture could contain wisdom for humankind's potential future endeavours, perhaps in voyaging from planet to planet. Crowe (2018) points out:

It is clear that the sea was not so much a barrier as a highway to Polynesians and Micronesians; not so much a vast oceanic wilderness with a scattering of islands randomly populated by the grace of prevailing winds, but rather a deliberately navigated and well-travelled territory. (p. 225)

In academia this approach requires courage, true partnership, and collaboration, "like two canoes, lashed together to achieve greater stability in the open seas ... we must work together to ensure our ship keeps pointing towards calmer waters and to a future that benefits subsequent generations" (Reilly, 2009, p. 22).

## Synthesis

This is still a work in progress. An ultimate goal would be to synthesise all the approaches briefly surveyed here alongside Māori-specific frameworks; for the reason that, although separated by time and distance, these worldviews are culturally closely related, and that looking for recurring themes within the literature could create a holistic framework within the Pacific. As Somerville (2009) notes:

an Aotearoa-inclusive Pacific considers the geographic region of the Pacific and notices that Aotearoa is a part of that area on the basis of cultural, linguistic, genealogical, and geographic proximity. (p. 3)

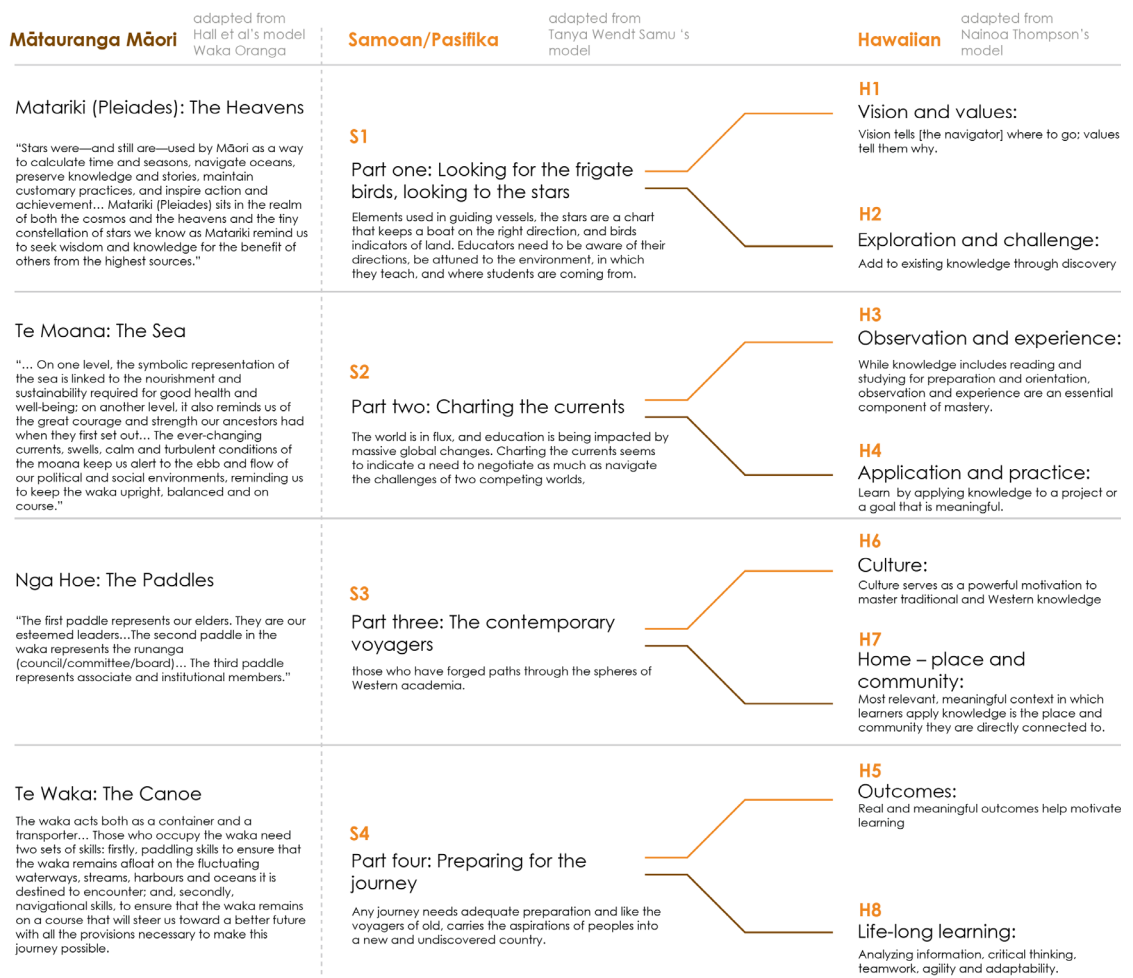


Fig 11. Synthesis

As discussed, the other attributes of Māori navigational frameworks could be aligned and structural curriculum be derived from the final model.

The developmental work on the Navigator metaphor that I was involved in paused, owing to other academic commitments, but some early ideas generated from this exercise include:

- Stages/assessments in any paper/course could be thought of as island destinations
- The journey is akin to the circular quest (voyage and return): start with noho marae, return to marae or whare (classroom)
- Any working groups could be organised into waka (vaka, va'a) groups
- Guides, akin to stars and birds (parameters, models, resources, etc.), exist to point towards destinations (assessments)

If these sound like gamification of the classroom, this might be because navigation is ideally suited to this approach.

The design and communications classes that I teach require problem solving, practice-based learning, creativity, and collaborative group work in a studio-style classroom model, with elements of tikanga Māori incorporated. Some calculated risks must be undertaken by students to navigate this space, as they venture into the unknown. The model of their previous secondary school education may not be well suited to this space. The Navigator metaphor may be suited to design education: a visually cogent metaphor suits visual thinkers; and an exploratory, open-ended, discovery-based approach to problem solving, without fixed answers, is well matched to the iterative design process.

## Concluding thoughts

Metaphorical frameworks need to be meaningful, and this is perhaps why some frameworks are proffered, but not implemented. If the metaphor doesn't have some personal associations, doesn't fit within a personal or cultural worldview, or clashes with a sense of identity, then there is no connection. The Indigenous frameworks discussed above draw on a futurism principle, that many challenges of the present and future can be addressed through the paradigm of past wisdom. These are time-tested approaches that have proven their value. It is not that students will sail the same journey we have made, but that they need the skills to undertake their own. A clearer understanding of our role in the changing world will certainly make it easier to navigate, and a succinct and appropriate Navigator metaphor might be the way to start.

As Ella Henry (2021) explains:

We were the first humans on every landmass in the South Pacific ... our people of Polynesia have an ocean that we call home ... our continent is made up of ocean. And people who make their home on the ocean learn to live with change. They have to be really responsive to their environment. They have to be extraordinarily curious and intelligent ... We may have moved away from our traditional waka homes, but I think we've still inherited all of those qualities and those characteristics.

In order to resurrect the ancient practice of wayfinding, Hawaiians called upon one of the last repositories of this knowledge, Mau Piailug, a Micronesian navigator from the island of Satawal, since these skills were no longer retained by any Hawaiian. In 1979 Mau helped train the young Hawaiian navigator, Nainoa Thompson. Including his previous efforts before he met Mau, Thompson trained for at least three years in total, until he could navigate solo (Finney, 2003).

Three years—here in Aotearoa New Zealand, that's the equivalent of a degree.

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