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MĀRAMATANGA

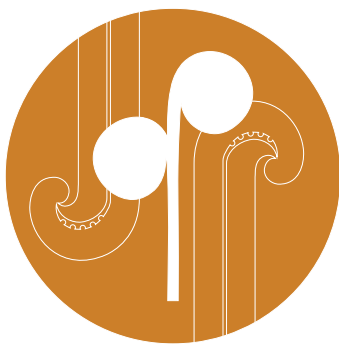
NEW ZEALAND'S MĀORI CENTRE
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INDIGENOUS RESEARCH EXCELLENCE

Tangaroa Ara Rau: Tangaroa the Atua of Human Movement



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TE TAI AO:
THE NATURAL ENVIRONMENT

ngā Ākonga Report - 18INT01

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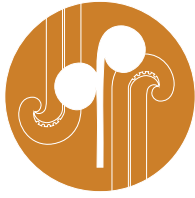
(Ngāti Whātua, Te Roroa, Ngāpuhi, Ngāti Wai, Ngāti Kahu)

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Tangaroa Ara Rau: Tangaroa the Atua of Human Movement

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This research report has been titled Rākau-nui as an acknowledgement to the full moon phase in the Maramataka (Māori lunar calendar). Rākau-nui also represents the collected journey to which this full report has been constructed from. The Maramataka is a repository of ancient and traditional knowledge orally handed down throughout the generations by our forebears to ensure the sustainability of a healthy environment and thus healthy people (Tawhai, 2013).

WHIRO - A New Beginning

This chapter is titled Whiro, which is the first day of the Maramataka and represents the new moon. Like Whiro acknowledges a new beginning, this chapter highlights my beginning, and the importance of understanding our beginnings in kaupapa Māori research.

*I te taha o tōku Pāpā
Ko Kahuranaki te maunga
Ko Ngaruroro te awa
Ko Omahu te marae
Ko Takitimu te waka
Ko Ngāti Hinemanu te hapū
Ko Ngāti Kahungunu te iwi
Ko Dimitrious Rangī Te Kapapi Te Kahurangi Hanara
te ingoa o tōku Pāpā
I te taha o tōku Māmā
Ko Marangai te marae
Ko Aotea te waka
Ko Ngāti Rangī te iwi
Ko Jessica Mary Hanara te ingoa o tōku Māmā
Ko Georgia raua ko Rhian ōku tuāhine
Ko Taine tōku tuākana
Ko Benjamin Dimitrious Hanara tōku ingoa
Nō Heretaunga ki Te Kauwae-a-Māui ahau*

Above is an acknowledgement to my whakapapa (genealogy). This whakapapa allows you, the reader, to familiarise yourself with who I am before engaging with my writing. Whakapapa is an extremely important and fundamental aspect of what it is to be Māori. Whakapapa is not only a genealogical construct of who we are and where we are from, but it narrates our life through the people and places we come from (Roberts, 2013). More importantly, it is a cultural tool used in connecting us to the environment which in turn, spiritually denotes a relationship to the atua (gods) who personify and represent these realms. Whakapapa therefore dictates our genealogical link back to our natural environment and therefore the atua that reside within these domains.

Māori atua exist as personifications of the natural world. Māori atua are derived from Māori mythology, theology, knowledge and history passed down as tradition through generations (Heke, 2016). The domains they represent are inherited by Māori and these environments become not only part of our culture, but part of our whakapapa. For me, atua are an almighty presence and offer a sense of Māori champions in a world dominated by western philosophies on mythology. My research into Māori atua has grown over the years as I have been given the opportunities to explore the world of atua as a means to positively impact Māori health and well-being. This includes the creation of Te Wai Mātūturu, a health model based on the domain and substance often affiliated to the great atua Tangaroa (deity of the ocean). Following along my Tangaroa journey, I also completed a Postgraduate dissertation that examined Tangaroa within human movement titled, *Mā te tai o Tangaroa, Mā te Mauri o te wai: Tangaroa Atua of Human Movement*. Through this research I discovered an extreme passion and realisation that Tangaroa is fundamental for life, sustenance, maintenance, and creation. This led to the discovery of the Maramataka, otherwise known as the Māori lunar calendar. Although separated by layers of atmosphere, Tangaroa and the moon have an extremely significant relationship which the following report will seek to examine.

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Ngā Pae o te Māramatanga's (NPM) ngā Ākonga Series provides a platform for NPM Māori summer intern research reports to be published online. The internships are an opportunity for Māori students to participate in a research project, gaining experience and skills alongside established Researchers. The ngā Ākonga series is published annually.

Cultures throughout the world although extremely different from one another have one thing in common which is crucial to understanding life for that culture. This being the mystical knowledge of history and cultural reality, granting understanding of the physical and meta-physical components of the world (Marsden, 2003; Campbell & Moyers, 2011). Embedded in these mythologies is the realm of the gods. Gods which personify and represent all aspects of the world from land to the sea, to the stars and the sky (Jordan, 1992; Te Ahukaramū, 2006). These personifications grant us, the inhabitants of the domains, a deeper understanding and chance to reflect on the reason and purpose of life.

Unlike Western cultures, Māori culture and mythology are engrained with the knowledge and history of atua (Best, 1982). They exist to give meaning and a spiritual connectedness between people and the environment. Atua are a key component in what is known as the Māori worldview. The Māori worldview is home for Māori knowledge, history, mythology and theology (Schwimmer, 1966). The Māori worldview is steeped in tikanga (customs) which is fundamental for being and living as Māori (Mead, 2003); tikanga is often associated with the various atua and the correct and right rules of engagement to them in their respective realms. Thus a fundamental aspect of the Māori worldview is the realm of atua. Hundreds of atua exist in Māori culture and personify the physical and meta-physical environment. Key atua which are often acknowledged as prominent figures in Māori culture include Ranginui (Sky Father) and Papatūānuku (Earth Mother). These two atua are said to have a long line of offspring who personify all aspects of the world (Te Ahukaramū, 2006). The following are seven of these atua who are predominantly acknowledged through Māori mythology: Tūmatauenga, (god of war, hunting, fishing), Tāwhirimātea (god of wind, weather and storms), Tānemahuta (god of the forest and birds), Tangaroa (god of the sea and all it inhabits), Rongomātāne (god of peace and cultivation), Haumiatiketike (god of fernroot and uncultivated plants), and Rūaumoko (god of earthquakes and seasonal change). The significance of atua allow Māori to connect not only to the physical components of the world, but also spiritually to the personifying atua and the spiritual world of Māori gods (Marsden, 2003).

Although all atua contribute a significant role in the Māori worldview, the key focus for this research is the acknowledgment of Tangaroa as a key determinant of enhancing Māori health. I discuss the specific aims and purpose of this research report in further detail later in this chapter.

Māori Health

Māori health is about acknowledging and improving the well-being of Māori people and the Māori culture by providing a world for Māori to be Māori. Māori health is holistic (Durie, 1982). Durie (1982) developed the health model Te Whare Tapa Whā which is used in all levels of education and within the health sector throughout New Zealand. Durie's model is symbolised by a whareniui (meeting house) of a marae (meeting grounds) in order to depict the four components crucial to Māori health: wairua (spiritual), tinana (physical), whānau (family and relationships), and hinengaro (mental and emotional). This figure exhibits the importance of each component in order to maintain the stability of the whareniui, much like maintaining the stability of our hauora (health).

This research will also discuss a health model known as Te

Wai Mātūturu (Hanara, 2018) which I developed in explicitly incorporate Tangaroa. Te Wai Mātūturu comprises of four components and symbolises a body of water, each vital to understanding the relationship between Māori health, water and Tangaroa. This will be further discussed in the following chapter.



Fig. 1. Te Whare Tapa Whā framework

Maramataka

The Maramataka is the Māori conceptualisation of the lunar calendar and follows the moon through its eight phases (Roberts, 2004). The Maramataka is an environmental aspect of the world which as Māori help us understand the Māori world (Roberts, Weko & Frank, 2006). The word itself is translated to the turning of the moon, a literal representation of changing through its phases. According to Roberts, Weko & Frank (2006), the Maramataka is divided into twelve lunar months, with each lunar month lasting 29.5 days. The first beginning in May-June. Each month is represented as the intertwining of the two. Each day of the month is detailed with the effects that the moon has on the day for harvesting and fishing which were crucial for traditional Māori society in relation to health and sustenance.

Māori life was and is still very dependent on the Maramataka (Clarke & Harris, 2017; Hikuroa, 2017). As 70-80% of the earth is saturated by water through oceans, seas, rivers and lakes, the Maramataka should be understood as a key effector to sustaining life. Māori utilised their understandings of the Maramataka to construct a schedule around harvesting, as certain periods and phases favour the crops (Devonshire, 1997). This exhibits one prime example of how the Maramataka has been used in order to benefit one's hauora.

Phases of the Moon

Besides the Māori lunar calendar, general astrology exhibits eight key phases to the moon during the duration of the lunar calendar. These phases include waxing (growing) and waning (diminishing) of the moon through the calendar. Similar to the Maramataka, these phases are outlined to have a specific effect on not only the environment, but to person's self; this being spiritually, socially, physically and mentally (Durie, 1982; Roberts 2004; Tasso & Miller, 1976). The moon acts on the inhabited water throughout the earth. It actions the tides and therefore, has a large effect on the water which essentially drains into the ocean and seas. Although the change is not as significant as the rise or drops of the oceans tides, it is important to understand that all water on earth is affected in some manner by the gravitational pull of the moon. Humans, similar to the world we live in, are composed of roughly 70-80% water. In acknowledgement to this we can determine the importance of water as an effector on our health and well-being. Therefore, the phases of the moon are bound to have an extreme significant effect on our hauora.

The eight phases which I will discuss throughout this report are the following; New moon, waxing crescent, first quarter, waxing gibbous, full moon, waning gibbous, last quarter and waning crescent. Similar to the days of the Maramataka, each phase of the moon highlights a significant change in the environment and also to personal components such as one's own tinana (body), wairua (spirit), hinengaro (mentality) and whānau (social) well-being.

Tangaroa

Tangaroa-whakamau-tai is the name of the atua of the oceans and seas who reigns control over the water's tides. Son of the Sky Father and Earth Mother, Tangaroa was given control and authority over the oceans and seas alongside all creatures which inhabit these domains. This research acknowledges Tangaroa due to the role he has as a controller of the tides which coincides with the moon. According to Best (1982), Tangaroa was one of three atua appointed guardianship and control over the seas. The other two being Kiwa and Kaukau. Kiwa is the second most common of these three atua as he is often represented through the name Te-Moana-nui-a-Kiwa, or the great ocean of Kiwa.

Although Māori mythology acknowledges Tangaroa as one of the prime controllers of the oceans, seas and tides, he also has whakapapa which connects him to all bodies of water throughout the world (Roberts, 2013). All these bodies inherently having a connectedness with the phases and movement of the moon whether big or small. Tangaroa has whakapapa to connect the waters that rain down on our mountains and down through our valleys, fresh waters that run through our land, water that nourishes our soil, to the waters that we consume and comprise 80% of our human body.

Tangaroa is a crucial atua within this research as our planet is inherited by his resounding domain. It is important to note that atua are not limited to a creation of physical beings, but more of a spiritual guardian of the domains they conquer (Te Ahukaramū, 2006). This spiritual connection being an exuberant reflection of the connection between Māori and the environment.

Significance

The significance of this research is to address the need for more Kaupapa Māori based research within health and education. With the significance, this research aims to better help understand the connection between Māori and the environment in order to enhance and benefit all areas of hauora. This research privileges the legitimisation of Māori knowledge and history in a westernised world of health while recuperating and decolonising Māori mythology.

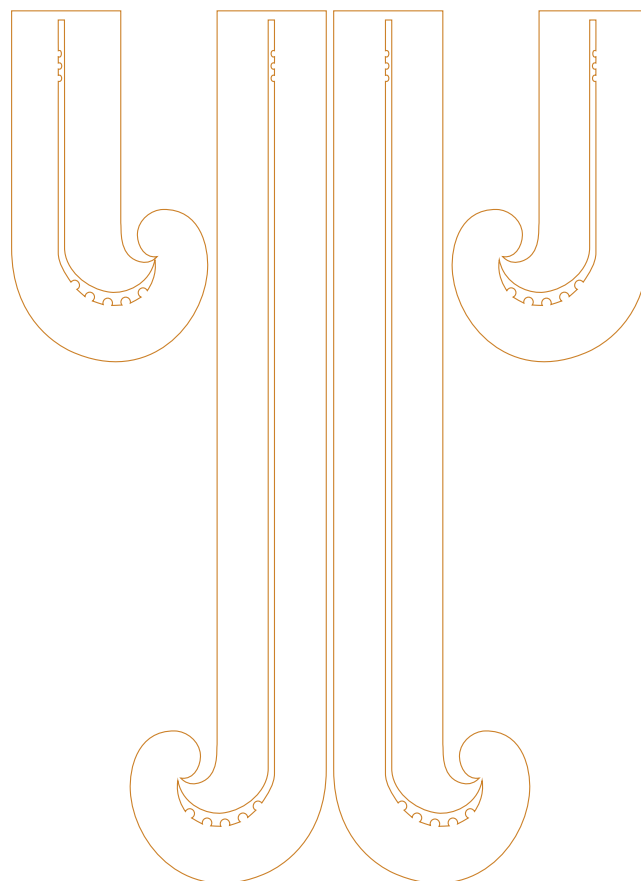
The significance of utilising the Maramataka invites a cultural understanding to the world and its processes. By adapting the Maramataka with a westernised understanding of the phases of the moon, this research attempts to administer a link between the environment and the people.

Aim & Purpose

The aim of this research was to establish a link between the Māori Maramataka and its environmental effects and the westernised understandings of personal effects from the moon examining its phases. The key question for this research project is the following.

- Why is the relationship between Tangaroa and the Maramataka important for Māori health?

This research question will uncover and examine the key purpose of this research which is to grant Māori a better understanding of how the Maramataka not only effects the world around them, but how it inevitably affects them and their human body. The purpose is to also articulate the important role of Tangaroa through each of these processes.



ŌUENUKU - Energy & Inspiration

The following chapter will discuss the key themes of Māori health, Tangaroa and the Maramataka and aligning literature within this research. This chapter is titled Ōuenuku – Energy and Inspiration and pays tribute to one of the days of the Maramataka within the second phase of the moon. This phase reflects the burst of energy that immediately follows after a new moon. This chapter will expand on the discussion of Māori health and Māori health models, more specifically introducing Te Wai Mātūturu. It will then explore the literature surrounding the Maramataka, understanding the phases of the moon, and Tangaroa.

Māori Health

As briefly discussed, Māori health is about providing acknowledgement and improving the overall well-being of Māori people and the Māori culture. This includes all things within the culture such as the knowledge, customs, tradition and language. Māori health through this research is about acknowledging how the link between the westernised world and Māori worldview can be beneficial for the hauora of Māori people and culture.

Hauora

Hauora is a Māori perspective on health. It is crucial to acknowledge that hauora is first and foremost, a cultural philosophical approach to understanding our well-being. There are several health models across public health and education that are utilised to better understand the holistic nature of Māori health. Many are also used to legitimise Māori culture within a westernised world of health. The philosophy as stated, envelops a view on health and well-being through four components. These being portrayed through Durie's (1982) model, Te Whare Tapa Whā.

Te Whare Tapa Whā

As introduced in the previous chapter, Te Whare Tapa Whā was developed by Durie (1982) to express a Māori perspective on health. The model itself symbolises a whareniui and expresses the importance of all four walls to maintain its structural integrity. This metaphorically represents the four components of health in order to maintain and sustain positive and healthy well-being. The four components are outlined below.

- Taha Tinana: This aspects of Te Whare Tapa Whā represents the role and importance of physical health. This includes the well-being of our physical body, taking care of it, development and growth. Taha Tinana is often a common expression and visual representation of measuring the health of a person. However, it is misconstrued as the most important as it is one of the only components which has quantifiable variables. It is equally important to the overall well-being of a person as the following three components (Durie, 1982).
- Taha Wairua: This component of Te Whare Tapa Whā exhibits the importance of spirituality towards well-being. Spiritual health determines key ideologies of how people decide to live providing meaning and purpose. Spirituality is a key component which influences personal identity (Durie, 1982).

- Taha Hinengaro: Hinengaro is translated as the mind, therefore, this component of Te Whare Tapa Whā is about the mental emotional aspect of health and well-being. Alongside wairua, hinengaro is also a key component which influences personal identity. It acknowledges the process of how one thinks, acts, and expresses themselves in society (Durie, 1982).
- Taha Whānau: Whānau is a cultural understanding of family and extended relationships. Therefore, this aspect of Te Whare Tapa Whā represents the social aspect of health and well-being. Whānau provides a fundamental system of belonging within a community. Māori have aligned their living within whānau institutions with the examples of iwi (tribe), hapū (sub-tribe), and marae (Durie, 1982).

Since the introduction of Te Whare Tapa Whā there have been a number of health frameworks emerging such as the following: Te Pae Mahutonga (Durie, 1999) which symbolises the Southern Cross as a model for modern health promotion, and Te Wheke (Pere, 1991), a model for whānau health. These models have influenced the emergence of developing health models, one of these being Te Wai Mātūturu.

Te Wai Mātūturu

Te Wai Mātūturu is a health model based around water for water (Hanara, 2018). This model was developed through a summer research internship by myself to promote water as the drink of choice while acknowledging the overarching health benefits we can obtain from water. This model also identifies the importance of the relationship between atua, environment, and Māori, more specifically Tangaroa. Te Wai Mātūturu symbolises a body of water and adheres to the gap in mainstream health of frameworks which adopt an atua into delivering its message on hauora.

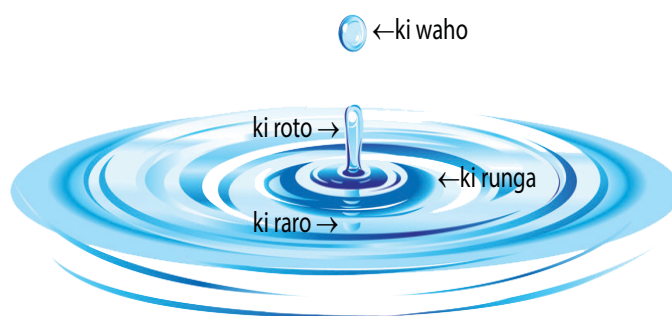


Fig. 2. Te Wai Mātūturu health model

'Te Wai Ma' refers to the concept of our wai being pure. Te Wai, the water, Ma, to be pure. Mātūturu means that our waters are pure and authentic, tūturu. Te Wai Mātūturu therefore stands to represent our pure and authentic waters. There are four aspects to the model which assesses and discusses overall the importance of water to health. The ripples in the model represents growth in all four aspects of Te Wai Mātūturu for Māori health, physical activity, and nutrition.

- **Wai ki Runga:** Wai ki runga represents the physical component of hauora as a means of interaction on and within water as a form of physical activity. This component is represented by the droplet which is yet to enter the water. Water provides a natural environment which Māori utilised as a tool to travel and settle. Since then, Māori have engaged in water-based activities as a tribute to ancestral and cultural history. These include things such as waka sailing and waka ama. Surfing, swimming and diving are also notable activities which provide support to maintaining positive health (Hanara, 2018).
- **Wai ki Raro:** Wai ki Raro translates to waters beneath and beneath waters. Therefore, this component of Te Wai Mātūturu represents the nutritional aspect and properties of water. Beneath waters inherently explores the nutritional properties which exist in our waters from kaimoana to water in its purest form as drinking water. Waters beneath represents the waters beneath our soil which nourish our plants, seeds and crops. This component is crucial in acknowledging how water can create, maintain and sustain life.
- **Wai ki Roto:** Wai ki Roto represents the waters within or inner waters. This aspect embodies the main idea of identity, and more specifically cultural identity. It acknowledges the moana, our awa, and the water which flows through our blood. For Māori, water is a key component of our whakapapa often acknowledged in our pepeha. As we are made up of roughly 70% water, knowing our waters essentially means to know who we are, ko wai au. To know the waters of where we have come from, nō wai au (Hanara, 2018).
- **Wai ki Waho:** The final component of Te Wai Mātūturu is Wai ki Waho which represents the complexities external to water that impacts and effects it. This creates space in this model for an environmental component. Wai ki Waho encourages a kaitiakitanga (guardianship) aspect for us and especially for Māori. In order to allow water the ability to nourish our soil, our food resources and our bodies, we must first reciprocate in a positive manner by looking after our water and maintaining them in its purest form.

Te Wai Mātūturu was developed to not only express the importance of water as a tool for healthy living, but also acknowledges the importance of connecting to our atua as a means to benefit overall wellbeing.

Summary

In regard to the selected topic for this research, acknowledging Māori health is crucial as it creates the space to enhance Māori health and hauora. Health models as explored above work to create a prominent presence of Māori culture, history and knowledge within the world of Western perspective of health. This then works to validate, recuperate and legitimize Māori culture.

Tangaroa

One of the many children of the primal atua Ranginui and Papatūānuku is Tangaroa who reigns as atua over the sea (Best, 1982). For Māori, Tangaroa is the equivalent of how Greeks relate to Poseidon, or Romans relationship to Neptune (Jordan, 1992). Tangaroa has many roles according to Māori Mythology (Best, 1982; Te Ahukaramū, 2006; Roberts et al, 2012; Heke, 2016). Best (1982) details the important role Tangaroa was given in control over the tides. As stated in Chapter one, Tangaroa was assigned the role alongside two other atua, one remaining as a prominent one within Māori culture as Kiwa (Best, 1982). For this reason, Tangaroa has been utilised in this research due to his relationship with the movements of the tides. It is also noted that Tangaroa is therefore associated towards representing a role of kaitiakitanga over all sea creatures.

The following will detail the two main accounts of how Tangaroa has been depicted throughout Māori mythology. The first being the telling of Tangaroa from the North Island. The second being the Kai Tahu narrative of Takaroa (Ngāi Tahu dialect for Tangaroa).

As initially stated, Tangaroa in this first story is noted as the son of Ranginui and Papatūānuku. Brother of many, including Rongomātāne (atua of Peace), Tānemahuta (atua of the forest), Tāwhirimātea (atua of the winds), Haumiatiketike (atua of uncultivated foods), Rūaumoko (atua of earthquakes and volcanoes) and Tūmatauenga (atua of war), Tangaroa and his siblings rule and personify the respective realms of the world from the sea, forests, sky and beyond. Tangaroa was one of the many children involved and saw the repercussions of Tāne separating Ranginui and Papatūānuku. This separation caused conflict between the atua, more specifically to Tāwhirimātea who resented the thought of separating their parents. Tāwhiri expresses his rage through his control over the weather and how it continues to beat down on the domains of his siblings who remained with Papatūānuku. Some of this reflected on Tangaroa as the rage caused a separation of the sea creatures as some fled to land and the others fled deep into the ocean. Other adaptations from this story include how rain personifies the tears of Ranginui in his lust to reunite with Papatūānuku, whereas the morning mist personifies the tears of Papatūānuku. According to Meredith (2006), humans as the descendants of Tūmatauenga continue to hunt and gather fish which reflects the continued battle between the brothers, a personification of the continuing war between Tangaroa and Tūmatauenga. This depicts how Māori interact within the realms of the natural world due to Māori mythology. The story of Tangaroa as an offspring of Ranginui and Papatūānuku is an East Coast kōrero (narrative) I grew up understanding from Ngāti Kahungunu.

The next story aligns with the Kai Tahu kōrero (Dittmer, 1907). This story differs from the first mentioned and begins with Tangaroa as the initial husband of Papatūānuku rather than a son and reflects the close relationship between land and sea. Papatūānuku was seduced by Ranginui during the time she was with Tangaroa and this caused conflict between Tangaroa and Ranginui. Ranginui was sent up into the sky and majority of Papatūānuku was sent to the other side of Tangaroa, this being reflective of how the moana (ocean) covers 70-80% of the earth and separates the land and sky. The beating of the waves on shore is symbolic of Tangaroa crying for his previous partner Papatūānuku (Dittmer, 1907).

Summary

Tangaroa is an important figure in Māori mythology towards understanding the environment around us. The kōrero surrounding Tangaroa often portray why the world is like it is. He also personifies sustenance and maintenance of life due to his domain surrounding a large majority of our world. Tangaroa has been adapted in this research as a key player in understanding the tides and the following section will discuss his relationship with the moon through the Maramataka.

Maramataka

The Maramataka is a Māori monthly calendar which runs in accordance to the movements and phases of the moon (Roberts, Weko & Frank, 2006). It has been noted as an ancient practice for how Polynesians would structure their lives (Tawhai, 2013). For Māori, the Maramataka identified key moments throughout the phases of the moon which would be ideal for practices such as fishing, eeling, planting and harvesting crops (Tawhai, 2013; Devonshire, 1977). These being crucial practices for the maintenance and sustenance for marae, iwi and hapū. Key activities outlined by the Stardome Observatory include some of the following activities: Ploughing garden beds crayfishing, planting kumara, planting seed crops, boat fishing, rock fishing, sailing, trapping and catching eels, collecting shellfish and staying indoors. All these things aligning with essential living for Māori pre-European contact.

Roberts, Weko & Frank (2006) detail how European contact with Aotearoa saw a colonisation of Māori customs and protocols, one of these being the utilisation of the Māori Maramataka. They also explain how the Maramataka provided consolidation between the spiritual connection of Māori with the environment and physical interaction for sustenance. This aligning with Devonshire (1977) as it provides the basis of key horticultural and agricultural understandings for Māori, these being a relationship with the environment. The teachings and knowledge which Māori gained from the environmental connection with the moon and its influence on the people, land and water was being traded for European tools such as watches, clocks and calendars based from the movements of the sun. In turn, Māori practices were slowly becoming diminished with the advancement of European technology. Losses from this included the loss of connection with the movements of the moon, planets, stars and tides, not to mention awareness of fishing, planting and harvesting methods (Ritchie, 2013).

It is crucial to note that the relationship between the environment and Māori is much deeper than just providing a home. The environment exists as the personifying world of Māori atua (Marsden, 2003). Therefore, alongside the loss of cultural knowledge goes with it the connection of Māori to atua.

The Maramataka consists of one full phase of the moon and usually runs for a total of 30 days. Each day having its own unique role within the many processes of Māori living (see Table 1).

Summary

The Māori Maramataka is about understanding the world around us by connecting and learning about the world around us. It is no mystery that there are much larger forces than ourselves impacting how life runs through day to day processes, and the Maramataka is an excellent example of how Māori acquired the knowledge of undergoing many of these processes. It is also a crucial tool in connecting Māori to the environment and our atua.

Phases of the Moon

In general, there are 8 phases of the moon further split into two categories. These being waxing seasons (growing of a new moon) and waning seasons (diminishing of a new moon). The eight phases of the moon include the following; New moon, waxing crescent, first quarter moon, waxing gibbous, full moon, waning gibbous, last quarter, waning crescent. Western philosophy has further constructed an understanding on how the moon phases influence a human's overall well-being through the rotation of the moon. Zimecki (2006) explores the behavioural changes that occur through humans and animals during the moons phase changes. Tasso & Miller (1976) also researched the effect of the moon on human behaviour. Owens & McGowan (2006) provide a psychological insight to the moon and how it affects us. These are just a few examples of how both Māori and Western research acknowledge the extreme significance of the moon in relation to how we interact with the world.

Owens and McGowan (2006) explain and discuss the phenomena of which the moon influences brain functioning through its lunar phases. A large reason behind this being our body as well as our brains are comprised of roughly 85% water (Lieber, 1978). Therefore, the gravitational effects from the sun and the moon have an effect on us because of our biological make up. Zimecki (2006) also explores how the lunar phases of the moon further influence hormonal releases within the body which effects how our body reacts to the changing of the moon. This also reflecting the significance of our biological make up being primarily water, the key substance relating us to the moon. As the moon governs and controls the water on earth which includes our bodies, it then has a role in controlling the energy which runs through our bodies. Energy also being a crucial influence on our behaviour and physiology. Furthermore, Tasso & Miller (1976) presented research on criminal activity throughout phases of the moon and found that the highest rates occurred during a full moon. These examples explore the term known as the 'lunar effect', which is understood as the effect of the moon on human physiology and behaviour (Lieber & Agel, 1978). As mentioned, energy is a key component of which makes water the life source it is. The increase and decrease of energy due to the moons gravitational effect on water is a factor which these examples signify by playing a key role in human behaviour.

Summary

Akin to the Maramataka, western ways of thinking have also questioned the effect of the moon on not only the environment, but its people. The 8 phases detailed above reflect key moments in the change of energy distribution throughout our body, similar to the Maramataka with the environment.

ARI-ROA - Plan of Action

The following chapter will outline the process of which this research was undertaken. It is named after the day Ari-roa from the Maramataka which is in the first quarter phase. This phase is faced with a challenge of momentum, therefore a plan of attack is made to understand succession through this phase. This chapter will first explore the key methodologies involved in examining the key topic of Tangaroa and the Maramataka. It will then involve the development of a framework which examines and identifies the relationship between the Maramataka and the environment and understanding our physiology and behavioural manners throughout the lunar cycle.

Methodologies

Kaupapa Māori Theory

Kaupapa Māori Theory is a critical methodology within this research as it expresses traditional ways of thinking, acting, and being Māori within research (Eketone, 2008). Kaupapa Māori Theory was introduced by Smith (1997) to pierce the western world of academia with a Māori lens. Kaupapa Māori Theory therefore provides the space and validity for a Māori worldview within academic research. This research adopts a Kaupapa Māori Theory into its practice to provide a safe space for traditional Māori knowledge. These being the knowledge of Tangaroa, the Maramataka, hauora Māori and Māori health models.

Pūrākau

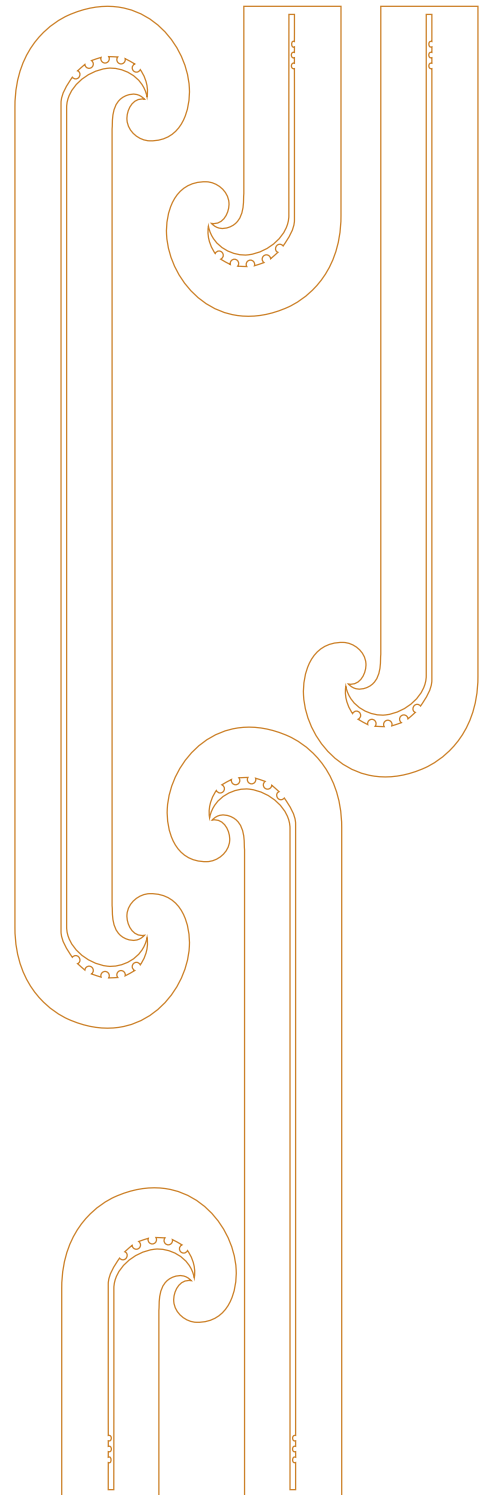
Pūrākau are cultural narratives which hold traditional and fundamental knowledge of the Māori culture (Lee, 2005). Pūrākau were for Māori, a form of pedagogy within whānau, hapū and iwi institutions (Lee, 2005). They provide cultural insight to understanding the world around us. The most traditional form of Pūrākau for Māori was oratory. Nowadays, Pūrākau are expressed through various forms such as written texts, waiata (song), karakia (prayer), haka (traditional war dance), and kemū (games). This research adopts Pūrākau as a key methodology as it creates the space to examine cultural texts and history in order to develop knowledge of the Māori worldview and understanding its universe.

Atuatanga

Atuatanga is understood as everything and anything that has to do with Māori atua. Rangiwai (2018c, p. 179) states atuatanga is considered “all things atua”. Atuatanga provides the space for the revitalisation of Māori atua within a westernised world of academic research, education and health. Atua such as Tangaroa, represent every physical and meta-physical component of the world and universe. For Māori, the relationship between people and the atua are crucial as they provide a link for us to exist in a world we understand. Atua are not just supreme beings who provide guardianship to our world and universe, they are physical manifestations in our world and universe that we connect and engage with. Atuatanga is critical in this research as it provides acknowledgement to Tangaroa, the atua whose role coincides with the Māori Maramataka.

Method

This research was undertaken by qualitatively examining Pūrākau of Māori text of the Maramataka and Tangaroa and comparing it with the understandings of westernised research surrounding the phases of the moon interacting with human physiology and behaviour. Through this, I constructed a table which highlights the days of the Maramataka alongside their environmental effects, and the lunar phases alongside their behavioural effects. The following chapter is titled Ohua, named after the period of the Maramataka where in relation to behavioural gestures, we reach creative action.



Days of the Maramataka	Effects (environment)	Phases of the Moon	Behavioural Gestures
Whiro	<i>Unpleasant, moon enters new phase</i>	New Moon	<i>Blank canvas, new beginnings</i>
Tirea	<i>Reasonable for crayfishing</i>		
Hoata	<i>Eeling, crayfishing and planting</i>		
Ōuenuku	<i>Planting and fishing go ahead</i>	Waxing Crescent	<i>Fresh energy and inspiration</i>
Okoro	<i>Planting and fishing</i>		
Tamatea-ngana	<i>Planting, eeling, fishing. Beware of weather</i>		
Tamatea-kai-ariki	<i>Planting. Weather improves</i>		
Huna	<i>No planting or fishing. Food is wary</i>	First Quarter	<i>Momentum is challenged</i>
Ari-roa	<i>Bad weather. Use to mark time</i>		
Maure	<i>Fine desirable day</i>		
Māwharu	<i>Favourable planting, fishing, crayfishing and eeling</i>		
Ohua	<i>Good to work, plant food</i>	Waxing Gibbous	<i>Development and creative action</i>
Hotu	<i>Unpleasant sea will be rough</i>		
Atua	<i>Bad day for fishing and planting</i>		
Turu	<i>Pleasant day to collect seafood</i>		
Rākau-nui	<i>Staple food found in the sea. Bountiful crops</i>	Full Moon	<i>Peak energy, blessing and gratitude</i>
Rākau-matohi	<i>Very good for fishing, vigorous plant growth</i>		
Takirau	<i>Fine weather, bountiful food but small</i>		
Oike	<i>Less favourable for planting food</i>		
Korekore-te-whiwhia	<i>Bad night on shore and sea</i>	Waning Gibbous	<i>Manifestation of release</i>
Korekore-te-rawea	<i>Food is scarce, await the tide turn</i>		
Korekore-hahani	<i>Weather improves, food is plentiful</i>		
Tangaroa-ā-mua	<i>Good for fishing, eeling and planting</i>		
Tangaroa-ā-roto	<i>Productivity for fishing and planting</i>	Last Quarter	<i>Prepare for readjustment and transition</i>
Tangaroa-kiokio	<i>Excellent day for fishing</i>		
Ōtāne	<i>Favourable day for eeling</i>		
Ōrongonui	<i>Favourable day for productivity in planting and fishing</i>		
Mauri	<i>Unfavourable, food is scarce, fish are restless</i>	Waning Crescent	<i>Rest, restore, reflect and transform</i>
Ōmutu	<i>Bad day, the moon is now darkened</i>		
Mutuwhenua	<i>Bad day, night sky is now pitch black</i>		

Table. 1. The Maramataka aligned with Phases of the moon and their associated effects from Clarke & Harris (2017), Tasso & Miller (1976), and Zimecki (2006).

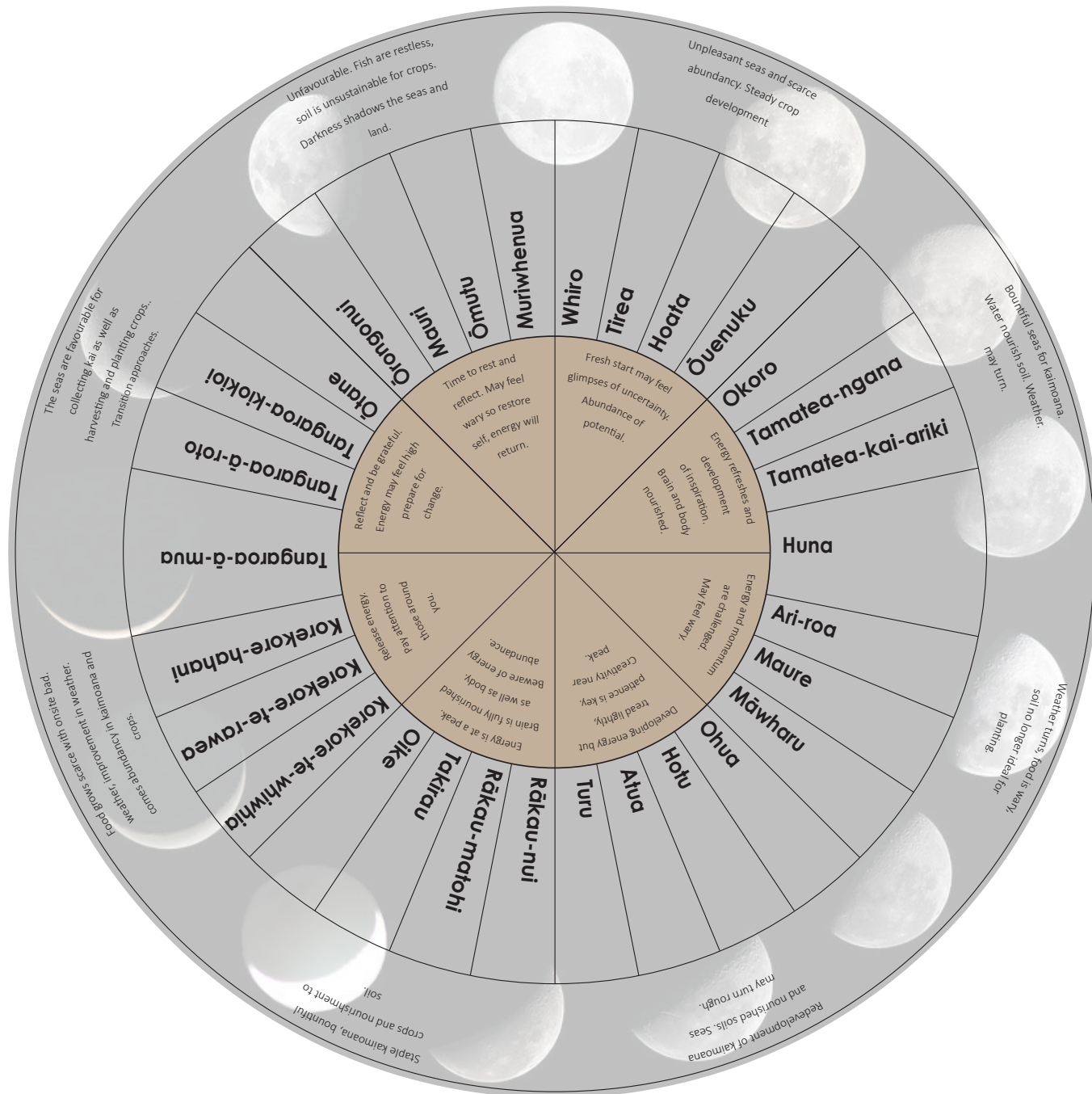


Fig. 3. Maramataka environmental and behavioural effects chart adapted from Clarke & Harris (2017), Tasso & Miller (1976), and Zimecki (2006).

OHUA - Creative Action

This chapter is titled Ohua, after a day in the Maramataka that aligns with the fourth phase. This phase shows an increase in environmental productivity and calls for creative action. Therefore, this chapter will introduce two components of this research which allowed me to better grasp an understanding between the relationship of Tangaroa and the Maramataka.

Maramataka Table

Table 1 shows the 30 days of the Maramataka and their aligning environmental effects. It also parallels the lunar phases and their aligning behavioural influences drawn from a westernised perspective. This table has been adapted from Clarke & Harris (2017), Tasso & Miller (1976), and Zimecki (2006). Clarke & Harris (2017) present their work on understanding the environmental effects from the Maramataka for Māori. Clarke & Harris (2017) and Zimecki (2006) discuss the physiological and psychological effects from the moon during its calendar. [Refer Table 1 on page 10].

Maramataka Pinwheel

Following this table, I further developed a chart which can be used to identify key moments of the Maramataka and their environmental effects and how it makes sense for certain behavioural effects. The behavioural effects were acknowledged and suggested as I analysed the comparisons between the Maramataka effects above and behavioural gestures. I then aligned them with energy flow and constructed ways of how energy within the environment may align with energy in our bodies. This figure has also been further adapted from Clarke & Harris (2017), Tasso & Miller (1976), and Zimecki (2006).

The comparisons of environmental and behavioural effects influenced by the moon show the importance of understanding how and why Māori connect so intimately with the environment. The following chapter will further explore these relationships and inherently outline the importance of Tangaroa with understanding the Maramataka. [Refer Fig. 3 on page 11].

KOREKORE-TE-WHIWHIA: Manifestation of release

The following chapter will examine in a narrative fashion, the relationships outlined in the previous chapter between the Maramataka, the environment and behavioural gestures. It is titled Korekore-te-whiwhia. This day of the Maramataka follows the full moon and therefore reflects a manifestation of energy release. This chapter will be sectioned into 8 themes, each aligning with the 8 phases of the lunar cycle; new moon, waxing crescent, first quarter, waxing gibbous, full moon, waning gibbous, last quarter, waning crescent. Furthermore, I will discuss the significance of Tangaroa and the Maramataka towards benefitting Māori health.

New Moon

The new moon brings with it a new story. The new moon itself reflects its phase with the term 'new'. This immediately identifies a key component which will be further reflected through the environment and behavioural changes. Table 1 and Figure 1 both portray this phase of the moon as the first four days of the Maramataka, Whiro to Ōuenuku. The Maramataka according to Roberts, Weko & Frank (2006) suggest that the environment will be scarce in terms of kaimoana to align with the unpleasant seas. There will be a lack of planting and growth but as the days go on, a slow development will occur. This inherently suggests that the current phase brings new beginnings. Regarding the behavioural features, the way we may feel and behave coincides with what the environment is going through. It is a fresh start and uncertainty may be present due to new beginnings offering a magnitude of unknown potential. Energy is at a level where it is scarce yet the potential for it is unfathomable. This can also align with Tasso & Miller (1976) as they contend crime rate is lower than usual around this time. This just shows that due to the minimal interaction between the moon and earth, the effects are being administered not only by the environment, but also by people. This is also supported by Zimecki (2006) as he acknowledges that human behaviour and physiology are subject to cosmic elements such as phases of the moon. These effects reflect how Tangaroa influences water on earth, with water being a key carrier of energy for the environment and for the people. The new moon effects the environment by offering a new perspective and refreshment of potential much like it does for human behaviour.

Waxing Crescent

This phase of the moon moves into a stage of development and resulted growth. As the second phase of the moon, it is inevitable that something comes of it as it has been preceded by an unfathomable amount of potential. Figure 1 highlights the abundancies which come to the seas and the soil as detailed by Roberts, Weko & Frank (2006) in their work on the Maramataka. This examines a restoration or refreshment of a previous scarce energy. These being the energies that are carried via water through the water ways and soil which align with the environmental effects outlined in Table 1 and Figure 1. It is at this stage where Roberts, Weko & Frank (2006) acknowledge the going forth of planting, harvesting and fishing. On the behavioural aspect, this also brings a new refreshment of energy through our bodies. Our body tissue is nourished and with that comes a fresh flow of energy to the brain, much like the environmental effects occurring. In saying this, our bodies will react in a similar way by producing new energy and with it, new thoughts, thought processes and other

physiological and psychological entities. This aligns with Owens & McGowan (2017) who describe the effects of the moon having psychological effects on human, and human behaviour.

Tangaroa throughout this phase is acknowledged as not only atua of the seas, but also an atua of whom possess energy and therefore, has a critical role in energy distribution.

First Quarter

The third phase of the Maramataka sees a change in flow of energy as the first quarter passes. Like all components of the lunar cycle, the first quarter of the moon as expressed through the Maramataka has a large influence on quantity and quality regarding environmental factors (Roberts, Weko, & Frank, 2006). Food is wary and planting is highly unfavourable for a large portion of the phase, meaning there will be a significant decrease in environmental productivity supporting Roberts (2004) that the Maramataka has a significant role on horticultural and agricultural productivity. It is outlined in Figure 1 that the days surrounding the first quarter of the Maramataka is where environmental momentum is also challenged. Therefore, the quarterly phase is a crucial indicator to pay special attention to not only energy flow, but overall health. This supports Zimecki, (2006) and Owens & McGowan (2006) as they detail animal behaviour on earth will become increasingly tedious due to increase stress levels and decrease energy levels. This stage as suggested in Table 1 and Figure 1 for human behaviour suggest similar qualities as stated above. We may feel uneasy due to the decrease of energy flowing through our body. Therefore, it is acknowledged as a crucial time to pay specific attention to one's health. Considering the life sustaining properties of water, it is easily understood to see how and why the moon influences positive energy flow. The quarterly phase also has a critical role of representing Tangaroa as not only a carrier of energy, but the importance of paying attention to health during the pits of energy flow.

Waxing Gibbous

This stage of the lunar cycle is followed by the full moon. Therefore, there is a significant increase of environmental productivity in terms of food abundancies and plant fertility (Roberts, Weko, & Frank, 2006). However, as Figure 1 states, the seas will turn and become rough over the course of this phase due to the power increase from the moon becoming full. Regarding human behaviour, Roberts, Weko & Frank (2006) discuss the increase of an environmental flow of energy, energy will be on an increasing development due to the effect of a larger moon. This being that the moon is getting larger therefore increasing its influence on human behaviour (Zimecki, 2006). Similar to the environmental factors, it is crucial to tread lightly and be aware of the incoming full effects. It is here where patience is key as the full moon approaches. Earth is soon to become hydrated with sustenance and abundancies and it is important not to rush the process. As stated, like the environment experiences a change in flow, the body will in turn, experience this change.

Tangaroa is reflected through this phase as his domain starts to gain full potential. He can be noted as the key atua of providing not only for aquacultural purposes, but for agricultural and horticultural purposes as well. His domain not only becomes abundant with kaimoana, but his domain is a key instigator of providing nourishment to the soils which in turn, act as a source of nourishment for us (Roberts, 2013).

Full Moon

The full moon is well and truly the stage of full abundancies and not only environmental (Roberts, Weko, & Frank, 2006). This stage represented earth at its fullest saturation due to full effects of the moon and its entire enormity (Zimecki, 2006). It brings light to the night times and is said to be extremely favourable for fishing with vigorous plant growth (Roberts, Weko, & Frank, 2006). Environmentally, a full moon is ideal for fishing, planting and growing crops as the earth is at saturated due to the gravitational pull of the moon at its fullest. Energy is carried not only through the water ways, but the soil is nourished which in turn causes the vigorous growth.

Like the environment, human and animal behaviour acts in the same manner with the influence of flowing energy. As figure 1 details, energy flows thoroughly the body. Our brains, muscles and other organs are fully replenished and nourished and therefore, energy levels will be more significant in comparison to a new moon where the moon is at its darkest. As energy is at a peak, it is understood that behavioural and psychological activity is at a peak. Although energy flows strong through our body, it is also important to be aware that this is occurring and be cautious as to not clash with others in high energetic moments (Owens & McGowan, 2006). Owens & McGowan (2006) cover the issue of erratic behaviour due to the full moon effects. This in turn is portrayed in the term 'lunatic' as it suggests erratic behaviour due to the lunar effect. This also aligns with Zimecki (2006) in how the study showed peak criminal activity during a full moon. Although this looks towards negative statistics, it supports the idea of energy flow at its peak.

Tangaroa through the full moon is represented as an atua of peak energy. His domain not only feels the full effects of the moon, but the land is also nourished due to the movements of Tangaroa in synchronisation with tidal pulling.

Waning Gibbous

Come the turn of the full moon, this phase represents the beginning of the moon becoming once again, dark. This being the turn towards heading into a new moon. Throughout this phase the environment experiences a drop-in quality and quantity in terms of kai abundancies and soil efficiency (Roberts, Weko & Frank, 2008). This being reflective of the moon beginning to decrease its effects on the world. All the energy that arrived with the onset of the new moon has now been or is in the process of being released. On a behavioural aspect, this stage will reflect this release of energy as we may start to feel the effects of exhausting our energy stores. This stage is then critical in paying attention to not only one's self, but also to others. In terms of health, this stage will be useful as to represent the whānau aspect (Durie, 1985). As a collective both human and environmental, we all notice and feel that change in energy therefore, live and act together in accordance to these feelings (Tawhai, 2013).

As the atua of the oceans, seas and tides, Tangaroa has a direct link to the flow of energy and therefore, the sustenance and maintenance of hauora. This phase encourages us as Māori to connect on a spiritual level with not only each other, but with Tangaroa as to remain at peace with the changing of the tides. Again, this reassures the inter-dimensional relationship between people, the environment and atua.

Last Quarter

As the final stages of the moon phases draw to a close, energy is diminishing by the day. The last quarter is the last productive phase for both agriculture and horticulture purposes and its days include Tangaroa a mua, Tangaroa a roto and Tangaroa kiokioi (Hoeta, 2019). It sees the surge of a final burst of productivity from the remaining flow of energy running through our water ways and soil. For Māori, it allowed one last phase of environmental productivity such as fishing and harvesting before a series of unfavourable weather (Hoeta, 2019). On the behavioural aspect, this phase gestures towards not only having one last phase of productivity, but to also take time to reflect and be grateful. As Figure 1 states, energy may be feeling low and this is a sign to rest, reflect and prepare for change and the transitioning of the new moon. Although opportunities may arise, it is crucial to take note of where they may lead over the following few days. In accordance with Zimecki (2006), Tasso & Miller (1976) and Owen & McGowan (2006), behavioural activity creeps to a low heading into the new moon. This behavioural feature gestures towards a link in productivity between both the environment and humans.

Spiritually, this phase is a nod to Tangaroa as a means of providing one last moment of favourable and fruitful conditions. It is also a means to connect spiritually as a form of gratitude to what the past lunar phase has brought through the previous calendar.

Waning Crescent

The final phase of the Maramataka is surrounded by a series of unfavourable and unsustainable conditions as darkness shadows the land and sea (Roberts, Weko & Frank, 2006; Calendar, 2006). These are the darkest nights as the moon completes its final phase of the Maramataka (Calendar, 2006). The fish hide and the soil is at an unsustainable state for productive plant growth. In a similar fashion, behavioural gestures suggest our actions be reflective of the environmental change. This also coheres with Zimecki (2006) in the study where findings show low criminal activity during a new moon. This being reflective of behavioural activity lessening as the skies grow darker. This final phase serves as time to rest and reflect. Energy will be significantly low, so it is advised to rest and don't exert any unnecessary energy.

As the world waits in darkness for the return of the moon lit skies, energy for the environment and the people are at a low. As much as we wait in patience for the return of energy, Tangaroa does the same. The seas run quiet, the soils stay unproductive, and we as inhabitants of the planet feel the wrath of this dark time. So we wait...

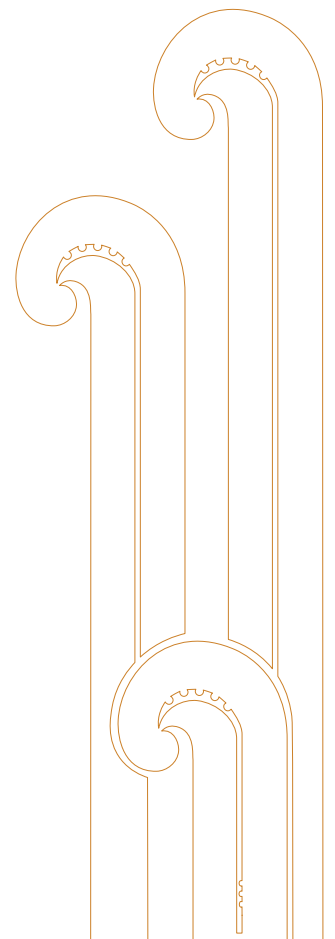
Conclusion

The preceding sections all instigate their own journey with the environment, with the people, and with Tangaroa. If we collate these three themes, we gain insight on how they all link to inspire and influence a Māori way of living, and Māori health. First of all, in order to influence and inspire Māori living and health, we must recap what we know which is that Māori health or Hauora Māori, is a cultural perspective on health existing as a multi-dimensional concept (Durie, 1982). Therefore, health consists of multiple components as does the Maramataka and Tangaroa.

The Maramataka is a system of phases which allow Māori to construct ways to interact with the environment.

Tangaroa personifies the domain which covers 80% of the planet. This domain consisting of many components from the tides, oceans, seas, and all that it inhabits.

Hauora Māori, Tangaroa and the Maramataka all reflect the holistic view to which Māori look and understand their world. Tangaroa is the personifying atua of the ocean and seas and the Maramataka is a critical component of the movements of the oceans, seas and water ways. Considering our biological make up is composed of 70-80% water, there has always been wonder on the effect on the moon towards human behaviour both psychologically and physiology. Therefore, the Maramataka and Tangaroa should have a pivotal role in regard to Māori health, both as individuals and as a community. The knowledge within the Maramataka and the many kōrero of Tangaroa help to keep the Māori culture well and truly alive. The movements of the water should reflect how we as Māori interact with the natural world.



TANGAROA-A-MUA: Final Surge of Fruitfulness

This chapter will conclude this research and highlight key findings collating from the relationship between Tangaroa, the Maramataka, and Māori health. It is titled Tangaroa-a-mua as an acknowledgement to final surge of productivity as the moon goes through its final phases.

First and foremost, I am extremely passionate about Māori mythology which influenced my role in engaging with Tangaroa, the Maramataka, and Māori health in the first instance. The atua have always fascinated me as they champion Māori culture, people and the environment. What they represent is what we live. Tangaroa especially takes my interest as he personifies the most abundant substance our earth contains. Therefore, how can we not suggest he has a pivotal role in influencing Māori health?

The Maramataka again takes my interest as it expands beyond understanding our world. It ventures out to begin understanding cosmic entities and how they affect life on earth. Not only that, but it acknowledges that we as humans and inhabitants of the earth, are miniscule in comparison to the daily effects our planet goes through. The Maramataka shows that as Māori, life will flow much efficiently if we listen to what the environment is telling us.

Māori health will improve with the rise of our understandings of Māori knowledge. As the Māori worldview begins to pierce western ways of thinking and doing, society is being challenged to start thinking and acting not against the forces of nature, but to co-exist alongside them. Understanding the relationship between Māori and Tangaroa and Māori and the Maramataka, is a small but influential step to enhancing Māori health.

MAURI - Reflection

The following will briefly discuss a personal reflection upon completing this project. It will then examine future implications going forward from this research and conclude with a whakatauki based on the acknowledgement of Tangaroa.

Personal Reflection

This research has given me a greater insight to the world of Māori aligning to the natural phenomena of the moon and its effect on all living creatures. It has enabled me to acknowledge the importance of understanding our environment in order to understand ourselves.

As a Māori researcher, my passion is about helping Māori to understand our own health and well-being by understanding the important relationship with our atua. To understand that our atua personify and exist as the natural phenomenon we experience in everyday life is a crucial and inevitable influence on our life. Therefore, grasping at least the smallest insight on understanding Tangaroa through the Maramataka is one step closer to understanding how we can better our lives by connecting to the world around us.

Future Implications

As I reflect upon my research into Tangaroa and the Maramataka, I envision how this will influence my further studies going into my Masters. Tangaroa was always going to be the atua I privileged within my Masters research. This is not taking anything from how I feel towards the hundreds of other atua, it is just acknowledging my connection to the sea first and foremost as a young tāne Māori from the East Coast.

This research has connected me to the many components, faces and characteristics of Tangaroa. I have always understood Tangaroa as the great deity of the ocean, the seas and the waterways. However, engaging in this research takes the realm of Tangaroa and my understanding of this to a new level; a cosmic level where he has a relationship and connection to all the atua and systems within our solar system. My future research will begin to explore the many areas of Tangaroa where we would not necessarily consider his domain. For example, my Masters will explore our understandings of Tangaroa within the brain and how this impacts on one's overall health and wellbeing. This being how is he present within our brains, within our minds, within our body and within our actions. The research has shown me that there is a vast world out there, and Tangaroa as a great atua is very much present throughout its entirety. The following is a whakatauki I have developed from previous work and it acknowledges the significance of Tangaroa and water to healthy living. By doing so, it also signifies a sense of the Maramataka by acknowledging the movements of the tides via Tangaroa-whakamau-tai.

*Mā te tai o Tangaroa, ka whakapiki te tangata
Mā te mauri o te wai, ka ora ai te iwi*

*By the tides of Tangaroa we move
By the life force of water, we live.*



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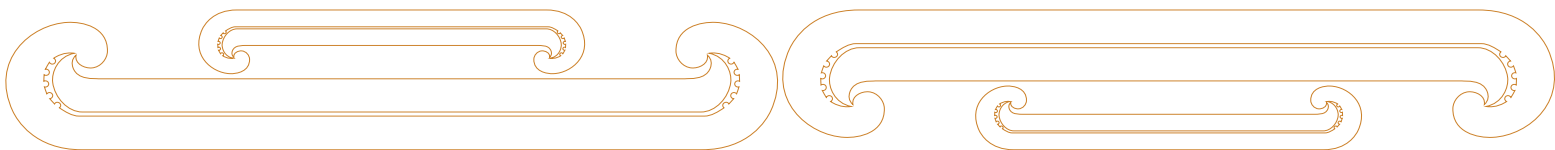
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Figures

Fig. 1. Te Tapa Whā. Retrieved from: <https://www.thecentreforhealth.co.nz/maori-health/>

Fig. 2. Te Wai Mātūturu health model. Free image retrieved from: <https://imgbin.com/png/0SD9M7q3/ripple-drop-water-drawing-png>

Fig. 3. Moon Phases curtesy of Sergio Jr. Photography February 2019. Image retrieved from: <http://flickrhivemind.net/Tags/moon,phases/Interesting>



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