

HEI RAUKURA MŌ TE MOKOPUNA



Ko te mokopuna kei te toi o ngā whakaaro



Hei Raukura Mō te Mokopuna Strategy

A Te Reo Matatini and Pāngarau Strategy¹

¹ Hei Raukura Mō te Mokopuna (the name of this strategy) is in recognition of the purpose of this strategy (mō te mokopuna - for our mokopuna), and its link with the Te Tamaiti Hei Raukura.

HE MIHI

This paper was commissioned by the Ministry of Education and developed by experienced practitioners and leaders in the field of te reo matatini and pāngarau, professional learning development, pre-service teacher training, curriculum and resource development and effective pedagogical approaches to teaching in Māori medium education settings.

Prepared by key writers Cath Rau, Frances Goulton and Dr. Pania Te Maro.
Without their dedication and commitment this paper would not have come to fruition.

The Ministry of Education would like to sincerely thank the following people who were also involved in contributing to this paper. They include: Dr. Ian Christensen, Leeana Herewini, Hūrae White, Rosina Shandley, Ana Pipi, Ros Bartosh and Dr. Katarina Edmonds².

The Ministry of Education would also like to make special mention and acknowledge Core Education Ltd for facilitating wānanga with ākonga, raukura, whānau and kaiako that contributed significantly to the development of this strategy. The thoughts and experiences shared around the learning and teaching of te reo matatini and pāngarau have been invaluable.

Commissioned by the Ministry of Education, November 2021

This PDF published 2022 by Takarangi Education on behalf of
Te Tāhuhu o te Mātauranga, the Ministry of Education,
PO Box 1666, Wellington 6140.

All rights reserved.
Copyright this publication © Crown 2022
Enquiries should be made to the Ministry.

ISBN 978-1-77690-481-5 (Print)
ISBN 978-1-77690-482-2 (Online)

Please note all ideas within this paper will continue to evolve and develop over time and should not be considered final.

CONTENTS

BACKGROUND - HE KŌRERO WHAKAMĀRAMA.....	4
INTRODUCTION.....	5
GUIDING PRINCIPLES	6
GOALS	7
HEI RAUKURA MŌ TE MOKOPUNA.....	8
KIA RANGATIRA TE MOKOPUNA	9
HE ĀKONGA TE TAMAITI	11
HE PUNA KŌRERO TE TAMAITI	12
HE TANGATA TE TAMAITI	12
HE URI WHAKAHEKE TE TAMAITI	12
A STRATEGIC DIRECTION	15
REFERENCES	17
APPENDIX 1: HEI TAUIRA	18
APPENDIX 2: HEI TAUIRA	22
APPENDIX 3: HEI TAUIRA	23

BACKGROUND - HE KŌRERO WHAKAMĀRAMA

Hei Raukura Mō te Mokopuna, (a te reo matatini³ and pāngarau strategy) has been called for as part of the Ministry's redesign of *Te Marautanga o Aotearoa* and accompanying support materials.

Hei Raukura Mō te Mokopuna strategy aligns strongly with Te Tamaiti Hei Raukura, the emerging national curriculum statement for *Te Marautanga o Aotearoa*, and is a renewed call to reclaim the original intent of te reo matatini and pāngarau that better reflects Māori succeeding as Māori.

Hei Raukura Mō te Mokopuna takes full advantage of the renewed opportunity to shape learning and teaching for mokopuna in ways that are most meaningful for themselves, their whānau, hapū, iwi and communities.

Hei Raukura Mō te Mokopuna is a high-level document that supports transformative and ongoing conscientised praxis of, and for education, for Māori (Smith, 2005). Thus the initiatives this strategy seeks to be informed by and to inform require iterative development.

A process that allows for regular communication between this strategy and with other key developments enables a greater level of coherence, and for it to be as responsive as possible. This will also allow a line of sight to ensure kaiako practice and workload is appropriate, as well as ensuring the strategy remains relevant in this evolving space.

Parity for Mātauranga Māori in education is an integral component of this strategy.



INTRODUCTION

**He taonga te reo matatini ki tōku ao, hei ara rērere
ki te ao whānui**

**Te reo matatini, a treasured pathway
by which to access knowledge and understanding of
my world**



This strategy acknowledges the central role of te reo matatini in the achievement of successful education outcomes for mokopuna Māori. The curriculum refresh and national curriculum development provide the ideal opportunity to explore and create new ways by which to understand how kura, kaiako, whānau, hapū and iwi can leverage this opportunity.

The overall purpose of 'Hei Raukura Mō te Mokopuna' is to promote and enhance a mātauranga and kaupapa Māori understanding of te reo matatini and pāngarau across the curriculum. This is expected to result in increased well being, higher educational outcomes and qualifications, and better job opportunities for mokopuna.

Te Tamaiti Hei Raukura signals the necessity for a managed transition from *Te Marautanga o Aotearoa* to Te Tīrewa Marautanga, and the introduction of Tīrewa Ako.

This latter process has already started for pānui, tuhituhi, kōrero ā-waha and pāngarau with the development of Tīrewa Ako sourced from the current wāhanga ako (learning areas). Indeed it is an opportune time to re-introduce and build innovation around some of the ideas presented in this paper and in particular how the sector participates and contributes.

Hei Raukura Mō te Mokopuna acknowledges that:

- Tīrewa Ako for pānui, tuhituhi, reo ā-waha and pāngarau have already been developed. These have been derived in the first instance from the wāhanga ako and supporting materials and comprise foundation learning that cannot be left to chance
- Te Tamaiti Hei Raukura signals the scope for future extensions to these tīrewa ako and/or the development of complementary ones for universal use
- Te Tamaiti Hei Raukura also signals extended opportunities for whānau, hapū, iwi and kura to use existing tīrewa in ways that privilege reo ā-iwi and te mita ā-iwi
- Te Tamaiti Hei Raukura recognises the important role the marau ā-kura plays in localising and personalising tīrewa ako.

All of these contribute to a richer understanding of the potential of te reo matatini to expand our learning and teaching repertoire; therefore, our capability to explore beyond what we presently do. Hei Raukura Mō te Mokopuna is a vehicle for planning for the implementation of programmes of work that realise mokopuna potential.

GUIDING PRINCIPLES

This strategy is underpinned by these three guiding principles, *Ko te mokopuna kei te toi o ngā whakaaro, Te Reo Matatini and Mātauranga*. It is expected these principles will be embedded across the programmes of work and evident in each of the workstreams as practice. Not only are they important indicators of direction, but they also indicate how the vision and principles work in tandem to deliver an inspiring and innovative twenty-first century curriculum that focuses on mokopuna, ako/mātauranga and te reo matatini.

Principle 1: Ko te mokopuna kei te toi o ngā whakaaro⁴

Any workstreams and work generated as part of this strategy should be focused on the learning and teaching needs of mokopuna that are compatible with a mokopuna-centric curriculum as proposed by Te Tamaiti Hei Raukura (p.19).

Principle 2: Te Reo Matatini

Te Reo Matatini refers to the many 'faces or facets of language' - *ngā tini mata o te reo*. It takes into account the multitude of ways that language can be **linguistically, culturally, socially, spiritually, and academically** acquired, represented and expressed. Indeed it is far more expansive than the term 'literacy' with which it has unintentionally become synonymous.

This strategy seeks to position te reo matatini as having an inextricable link across the reo ā-waha pānui, tuhituhi, and pāngarau tīrewa ako, and in doing so, help reclaim its original intent as well as support the transition from wāhanga ako to tīrewa ako.

Principle 3: Mātauranga

Mātauranga is dynamic and fluid and for the purposes of Hei Raukura Mō te Mokopuna strategy, is best understood within the context of marau ā-kura (the localised curriculum) where whānau, marae, hapū and iwi have the opportunity to define what mātauranga is to them and determine how this is expressed in the teaching and learning programme. It is through principle 3 that we can embed principles 1 and 2.



*Ko te mātauranga te whakamāramatanga o tō tātou nei ao
Ko te reo matatini hei whakamārama i te mātauranga⁵
Hei Raukura Mō te Mokopuna*



GOALS

Hei Raukura Mō te Mokopuna seeks to:

1. Reclaim the meaning of te reo matatini to reflect its original intent and clarify its contribution to Te Tamaiti Hei Raukura (kia rangatira te mokopuna).
2. Emphasise the importance of te reo matatini for meeting iwi aspirations for language revitalisation and regeneration (kia rangatira te iwi).
3. Imagine the wāhanga ako of *Te Marautanga o Aotearoa* as tīrewa ako in Te Tīrewa Marautanga from understandings gained from the development of tīrewa ako for reo-ā-waha, pānui, tuhituhi, and pāngarau (kia rangatira te reo).
4. Emphasise the critical role of kaiako, both as learners and teachers of ngā reo matatini to maximise mokopuna success in the classroom and in their everyday lives (kia rangatira te kaiako).
5. Promote opportunities for mokopuna to make sense of their experiences and to make connections with their stories, cultures and communities, through increased access to and understanding of the role of te reo matatini and pāngarau.
6. Propose te reo matatini as an important leverage to social inclusion, and to take concrete measures to ensure that everybody has the opportunity to obtain the skills required for them to participate fully in society.
7. Ensure that whānau and kaiako have a primary role in the educational development of mokopuna through te reo matatini and pāngarau and that the support services in schools complement the work of the classroom teacher.

It is envisaged that from these goals, a set of actions will be developed and implemented as part of the work program in transitioning into Te Tīrewa Marautanga, Te Tīrewa Ako and Te Tīrewa Mātai.

HEI RAUKURA MŌ TE MOKOPUNA

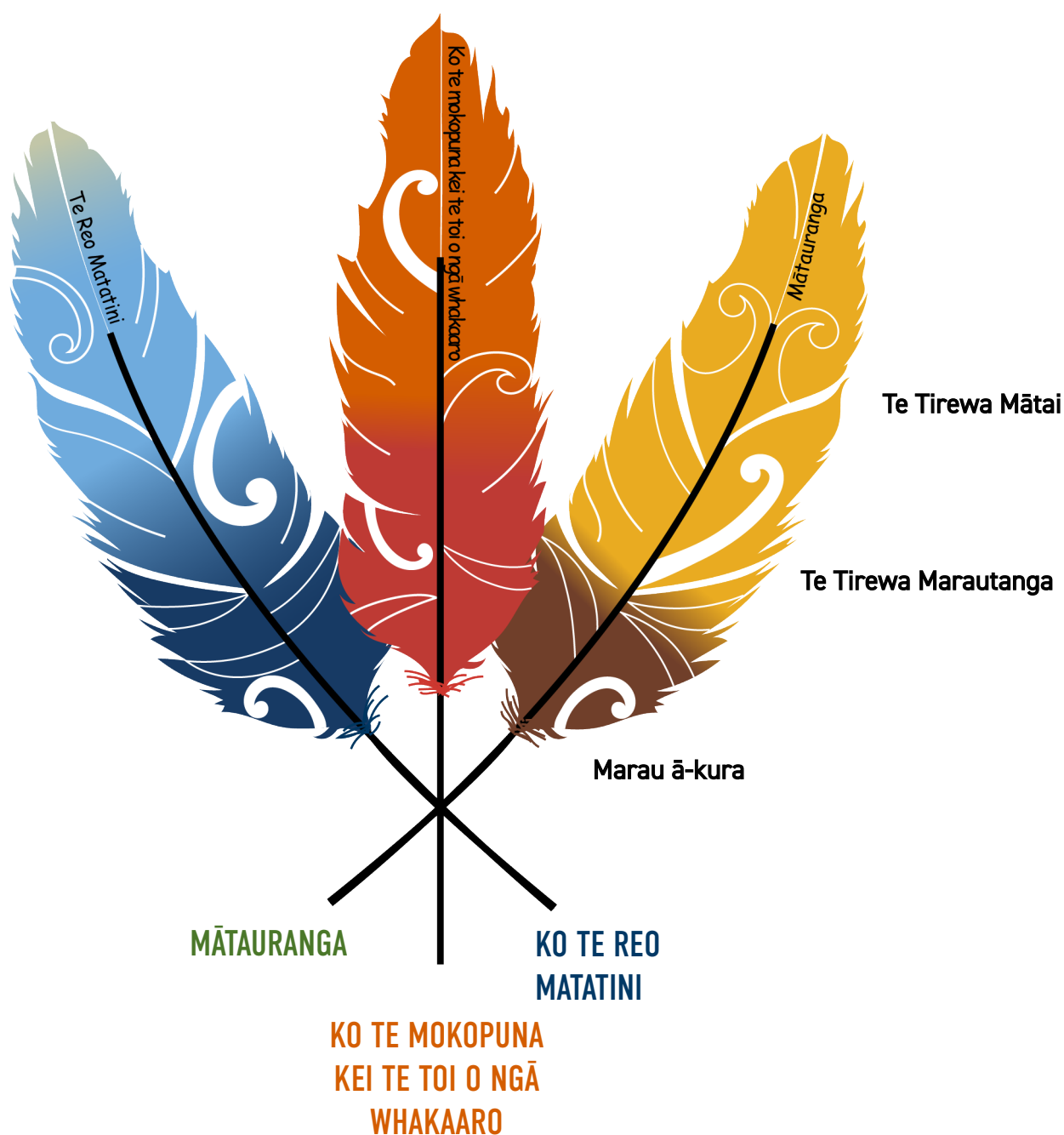
The inter-relationship

The following diagram illustrates the inter-relationship between and across the ideas and positions that have been discussed so far and supports a strategic and coherent approach to the programme of work and arising workstreams. The raukura (feathers) depict the need to draw on the principles and big ideas as presented in the lead statements to guide decision making and development. The points of inter-relatedness will make up the design of the programme of work.

HEI RAUKURA MŌ TE MOKOPUNA

HE TĀONGA TE REO MATATINI KI TŌKU AO, HEI ARA RĒRERE KI TE AO WHĀNUI

Kia rangatira te mokopuna, kia rangatira te kaiako, kia rangatira anō te reo, kia rangatira te iwi



Ko te reo Māori te kākahu o te whakaaro, te huarahi ki te ao tūroa

KIA RANGATIRA TE MOKOPUNA

Reclaiming the term reo matatini and clarifying its contribution to Te Tamaiti Hei Raukura

Reclaiming the term te reo matatini is necessary to release the limiting grip that its singular association with pānui and tuhituhi has had.

Towards a definition of te reo matatini

Te reo matatini - ngā tini mata o te reo.

(the many faces and facets of language)

The term te reo matatini is credited to Professor Wharehuia Milroy, Dr Huirangi Waikerepuru, and Pēti Nohotima who sought to capture the essence of what would be required to deliver a programme of learning that upheld the heart of 'te reo Māori' in ways that acknowledge the deep and diverse forms that it takes and the wide range of functions it performs.

Te Reo Matatini therefore, is a culturally located term and is so much more than what is suggested in our print saturated world. As articulated by the late Hirini Melbourne:

"...The ancient world of the Māori was surrounded by writing in their daily life: the carvings on posts and houses, the marks on cloaks, the very architecture of the great meeting houses..."

"...The fact that texts - compositions, speeches, ritual replies, and so forth - were memorized, not written down, does not mean that the ancient Māori inhabited a world from which writing [as we know it], was absent. It was a world in which a variety of forms, written and oral gave vivid and complex expression to a culture..."

His view presents an authentic pathway by which mokopuna can gain access to, and create mātauranga, where they learn to articulate their understanding of the past, interact with their present and influence their future world because there are multiple contributors and multiple ways to get there.

Towards a definition of pāngarau

Pāngarau comprises a distinct and valid body of mātauranga, tikanga and kaupapa Māori that equitably and authentically privileges te ao Māori while accessing mātauranga, tikanga and kaupapa mathematics for purposes that are authentically relevant to the future needs of mokopuna.

Figure 1. A Cultural Symmetry Framework



If we examine the diagram above, pāngarau is the intersection of all three elements represented. However, the missing fourth element that would be added is the purpose for our uses of mathematics. For example, to gain qualifications we learn mathematics that will help us pass assessment, or we use mathematics to improve indigenous lives when it is a useful tool to do so.

Historically pāngarau (a modern construct), in a similar vein to te reo matatini, has been treated as mathematics clothed in te reo Māori (Christensen, 1996) and has been cited as a Trojan Horse with huge potential for perpetuating colonisation of Māori thought processes (Barton & Fairhall, 1995).

Mātauranga, kaupapa and tikanga curriculum mathematics bring social, cultural and political views of the world into kura that have the power to format colonised and colonising identities of mokopuna, their whānau, hapū and iwi and we need to be vigilant about that. (Te Maro, 2019).

Due to assessment regimes, curriculum mathematics knowledge tends to be afforded higher status than mātauranga, kaupapa and tikanga Māori. Consequently, mathematics curriculum teaching and learning co-opts time, space and activity, pushing aside teaching and learning for mātauranga Māori (Te Maro, 2019). Pāngarau, however, has the potential to re-position mathematics to support kura to equitably privilege tikanga, kaupapa and mātauranga ā-iwi with tikanga, kaupapa and mathematical knowledge. (Te Maro, 2019). It is this view of pāngarau as a social, cultural, political and ethical system of utilising and instrumentalising mathematics for the purposes of the mokopuna and their iwi, hapū and whānau that is privileged in this strategy.

In the appendices, the pāngarau wāhanga ako from *Te Marautanga o Aotearoa* and te tīrewa ako: pāngarau are used to exemplify how they might be positioned within Te Tamaiti Hei Raukura with specific references to te reo matatini o pāngarau for illustrative purposes only.

The positioning of te reo matatini and pāngarau in Te Tamaiti Hei Raukura

Learning organised around subjects (wāhanga ako) or derived from tīrewa ako, kaupapa based, key constructs or important ideas or any combinations of these will rely on a teacher's ability to draw on their understanding of te reo matatini. Not only as an overarching concept to evolve their learning and teaching practice, but to also strengthen their knowledge of the relationship between āheinga reo (language purposes, context and function), puna reo (pool of language knowledge) and rautaki reo (language skills and strategies) to find expression. Typically, these terms have only been used in Te Reo Māori and Te Reo Pākehā wāhanga ako of *Te Marautanga o Aotearoa*, however, as organisational features, they need to also be utilised to support learning in other wāhanga ako, or to enhance conceptual understanding in significant ways.

Effective te reo matatini practices promote the development of concrete ideas into abstract ones through critical thinking and linguistic capability, which then go on to form the unique worldview of the mokopuna.

The relationship between acquiring and using language has a direct correlation to the development of cognition. Te Reo Matatini as a key component for conceptual understanding and articulation of comprehension of disciplinary knowledge (eg. te reo o te whare tāpere) has been recognised in the pāngarau wāhanga ako in *Te Marautanga o Aotearoa*, where one of the main aho is dedicated to te reo matatini o pāngarau. The aho of te reo matatini o te pāngarau can and should be easily transferred to te tīrewa Ako: Pāngarau.

HE ĀKONGA TE TAMAITI

Includes aspects such as imagining, predicting, creating models, risk-taking, innovative thinking, creativity, looking for patterns, generalising and describing relationships between things. Mathematics has a form of logical reasoning and uses quantitative calculation⁷.

When mokopuna show interest, they are introduced to even more challenging levels of idealisation and abstraction. It is worth keeping in mind here that numbers are a conceptual and abstract notion that can be demonstrated in concrete and visual ways, therefore we are already demanding high levels of conceptual and abstract thinking from young children when we discuss numbers with them.

Pāngarau, as a system, goes beyond mathematics to support mokopuna in an ever-changing world to utilise a range of skills to adapt and find social, cultural, political and ethical ways to understand and manage ordinary, unique and challenging situations. For example pāngarau is useful for supporting critical (social, cultural, political) understanding of mathematical modeling for COVID-19, climate change and global warming, what is happening to te reo Māori, and other wicked problems⁸. Pāngarau also serves us in everyday functions when we are calculating, interpreting data/graphs, traveling and much more.

⁷ Te Tamaiti Hei Raukura . Supporting the development of 'He Ākonga te Tamaiti' is promulgated through the understanding of te reo matatini as praxis, and through learning contexts.

⁸ A wicked problem is a social or cultural problem that's difficult or impossible to solve—normally because of its complex and interconnected nature. Wicked problems lack clarity in both their aims and solutions, and are subject to real-world constraints which hinder risk-free attempts to find a solution.

HE PUNA KŌRERO TE TAMAITI

Includes having the ability to engage with and use a range of literacies such as te reo Māori, te reo Pākehā, technical literacies (financial, mathematical, STEM), cultural literacies and the arts⁹.

Mokopuna are best served when we support them, through ngā matatini o te reo, to articulate what they are imagining, creating, discovering and predicting. When they utilise pāngarau as the vehicle for drawing from mathematics, te reo matatini provides them with the tools they need to describe everyday situations and wicked problems, patterns, data, generalisations they can (or cannot) find about solutions to situations. Pāngarau offers a broader perspective than mathematics, encouraging mokopuna to communicate mathematical ideas through te reo matatini o pāngarau that are tempered and balanced by socio-cultural and socio-political, Māori focussed lenses, that are relevant to discussing and debating ethical (Māori) solutions to wicked problems as well as everyday situations that require mathematical knowledge.

HE TANGATA TE TAMAITI

Includes aspects such as GRIT, determination, mental, physical, and cultural well-being as well as collaborating and having empathy¹⁰.

Pāngarau is a socially and culturally located system to which the field of mathematics contributes. Pāngarau is best utilised when mokopuna have the opportunity to operate as communities. Communities of mokopuna can be enabled to situate the mathematics they need to use to support them in solving wicked problems, as well as learning to deal with everyday situations that include a need for mathematics. Giving mokopuna the tools they need to choose the issues that they want to address and the problems they wish to solve by utilising all facets of ngā pānga rau, supports their levels of engagement, motivation and determination to see projects through, with the right kinds of involvement and support from kaiako, whānau, hapū and iwi, and the wider community.

HE URI WHAKAHEKE TE TAMAITI

Includes having cultural and linguistic confidence as the foundation for engaging in a global world¹¹.

Mathematics provides support for us to seek solutions for the wicked problems that have been created in the world. Pāngarau is a system that provides the cultural, social and ethical tools to support mokopuna to find solutions that are beneficial to Papatūānuku, to Māori, to others, and therefore can be seen to be a vehicle that can provide global solutions. (Indigenous kaitiakitanga of the world has been noted by eminent scholars and philosophers such as Naom Chomsky for example <https://ecoligise.in/2017/11/04/noam-chomsky-indigenous-people-are-the-only-hope-for-human-survival/>) Gutstein (2007); Greer & Mukhopadhyay (2012); Fasheh (2012); Pais (2012); Popkewitz (2004) and others have critiqued the colonising power of mathematics and have also discussed how mathematics can be positioned to support us to critique the inequities in the world and to enact social justice as global citizens. Pāngarau draws on mathematics, to help with enacting social justice ethically for the benefit of te taiao and vulnerable communities.

⁹ Te Tamaiti Hei Raukura . 'He Puna Kōrero te Tamaiti' is promulgated through the understanding of te reo matatini as praxis, and through learning contexts.

¹⁰ Te Tamaiti Hei Raukura . 'He Tangata te Tamaiti' is promulgated through the understanding of te reo matatini as praxis, and through learning contexts.

¹¹ Te Tamaiti Hei Raukura . 'He Uri Whakaeke te Tamaiti' is promulgated through the understanding of te reo matatini as practice, and through learning contexts.

Emphasising the importance of te reo matatini for meeting whānau, hapū and iwi aspirations for language revitalisation and regeneration (kia rangatira te whānau/hapū/iwi)

Opportunities to learn through te reo Māori were driven by the desire to revitalise and regenerate te reo. It was a drive that came from whānau who were committed and believed that their tamariki/mokopuna could be educated through the medium of te reo Māori, while at the same time having access to a high quality education. The development of a national curriculum, *Te Marautanga o Aotearoa*, and localised curriculum provided a framework by which this vision was able to be realised.

In more recent years, however, a call to respond to a greater level of input from whānau, hapū and iwi has been advanced, because it is through their contributions that they can directly influence the revitalisation and regeneration of te reo ā-iwi, te reo ā-hapū and te reo ā-whānau. Their input is important because the language of schooling (and revitalisation) must be readily recognisable to the community kura serve, while at the same time providing the platform upon which to continue to create, and/or evolve their own mātauranga and reo.

The proposed curriculum refresh and accompanying support materials align to continuing the strengthening between whānau, hapū and iwi reo and mātauranga.

Imagining the wāhanga ako of Te Marautanga o Aotearoa as tīrewa ako in Te Tīrewa Marautanga from understandings gained from the development of tīrewa ako for kōrero ā-waha, pānui, tuhituhi, and pāngarau (kia rangatira te reo matatini).

Tīrewa Ako¹² for kōrero ā-waha, pānui, tuhituhi and pāngarau have already been developed and are yet to be disseminated. These have been derived from Te Reo Māori and Pāngarau wāhanga ako from *Te Marautanga o Aotearoa*, and potentially provide a blueprint that could guide similar developments for other wāhanga ako, kaupapa ako, and/or learning contexts, such as marae and local places of importance.

Future developments provide a number of new opportunities such as:

- the ability to demonstrate the interrelated nature of learning and the increased integration and expansion of mātauranga Māori (free from a subject based focus)
- signaling broader and deeper learning experiences through context-based learning as opposed to subject focused learning
- other learning areas will get a stronger voice through the reclaimed te reo matatini focus
- knowledge systems can be strengthened in yet undiscovered ways
- āheinga reo, puna reo and rautaki reo could be used as a universal framework across wāhanga ako, tīrewa ako and/or kaupapa ako
- learning that cannot be left to chance could be embedded across different modes of learning and contexts.

¹² Tīrewa describes a progression of significant learning within a context.

The key outcomes to emerge from these opportunities are:

- The exemplification of a range of inquiry based kaupapa ako
- An indication of how tīrewa ako can be developed in classrooms and kura to show
 - how te reo matatini weaves across and within learning contexts, and the four dimensions of Te Tamaiti Hei Raukura
 - how aspects of tīrewa from a range of knowledge disciplines can be incorporated in a kaupapa ako matua
 - how tīrewa mātai are linked into the learning and teaching phases.

An example of a possible tīrewa can be found in appendix 3.

Emphasising the critical role all kaiako play as learners and teachers of reo matatini to maximise their success across all learning (kia rangatira te kaiako)

Given the interdependence of linguistic capability and cognitive development, as discussed earlier, it follows that this relationship also has significance for kaiako as learners themselves. To achieve this they require a commitment to continue to develop their professional knowledge, skillset in the art of teaching, developing language skills, technical vocabulary development, phraseology and specialised registers. Without taking up the opportunity to be a learner, kaiako will be challenged to meet the needs of mokopuna 'who are being prepared to live well' in the twenty first-century.

Therefore, regardless of what age group one is teaching, whether generalist kaiako or subject specialist, all need to be great learners and teachers of language and more priority needs to be given to this.

This also speaks to Initial Teacher Education and the need to ensure that all aspects of Te Tamaiti Hei Raukura and Hei Raukura Mō te Mokopuna are explicitly included in the development of future kaiako.

Panning out further from the in-service and pre-service professional development, is the political and cultural system that has historically played a part in the colonisation process. Conscientisation that leads to transformative praxis to decolonise education (even in kura) needs support from policy and decision-makers. The opportunities being afforded to Māori education at this moment are important ones to create, develop and utilise potential to give parity to mātauranga Māori in education.

A STRATEGIC DIRECTION

There are five strategic directives.

1. Whakarite Mahere

Develop a plan that will outline the reset work required to align and create the opportunities for learning what to do to meet the goals of this strategy.

1.1 Alignment Work

Seek to understand the alignment between the goals of this strategy, Te Tamaiti Hei Raukura, (He Tīrewa Ako, kōrero ā-waha, pānui me te tuhituhi, He Tīrewa Mātai, He Tīrewa Marautanga), *Te Marautanga o Aotearoa*, He Ara Ako i Te Reo Matatini and the Pāngarau Number Framework, including other contributions, and determine how they should be reflected in the resulting work programs.

1.2 Revisit and assess the action plans from the previous pāngarau and te reo matatini strategies.

Both the previous pāngarau strategy (2016) and the te reo matatini strategy (2007) identified key areas for development and promotion. To date not all areas have been progressed and remain key sources from which further **action plans** should be developed and current ones evaluated.

2. Rangahau/Research

Develop a research program that captures and supports the key propositions in this strategy. It is expected that each of the 6 strategic directives be informed by good information, informed direction, and especially make a positive impact on kaiako practice, mokopuna learning and whānau, hapū, iwi aspirations.

3. Rauemi Tautoko/Support Resources

Develop some early examples of Te Tīrewa Ako showing the integration of te reo matatini and pāngarau, embedded within other learning areas and/or kaupapa ako/big ideas.

3.1 Rauemi should:

- provide teachers with an appropriate level of support to teach content, reinforce context and then embed and demonstrate the nature and expansivity of te reo matatini
- demonstrate some key transition points or Tohu Ako, including how they support the teaching and learning process (including teacher planning)
- show cohesion and knowledge of how aromatawai informs learner progress across the marau ā-kura (as described in Rukuhia, Rangahia).

These examples/rauemi could be key ways by which to help kura and kaiako transition from *Te Marautanga o Aotearoa* to Te Tamaiti Hei Raukura, and from Ngā Wāhanga Ako to Ngā Tīrewa Ako, resulting in the development of Ngā Marau ā-kura. They will be key support mechanisms by which to reclaim, revitalise and enhance the learning and teaching of te reo matatini and pāngarau.

4. Hei Ako me te Aromatawai

An aromatawai plan is developed.

The work that is derived from this strategy must be underpinned by the philosophy of aromatawai set out in Rukuhia Rarangahia (Ministry of Education: 2014) and be representative of authentic learning and teaching experiences.

5. He Whakangungu Kaiako

The development of a robust and responsive PLD strategy that provides direction and guidance in the role and place of Te Reo Māori and Pāngarau within the context of learning and teaching through Te Reo Matatini, is an important feature of transitioning our understanding from *Te Marautanga o Aotearoa* to Te Tirewa Marautanga, and from Wāhanga Ako to Tirewa Ako.

Educators working in reo Māori learning contexts require a unique skill set in order to be able to deliver the 'intention' of te reo matatini. Focussed enquiries into some of the following areas will support the development of the unique skill set required of Māori medium educators:

- Best pedagogical practices
- Planning and the role of aromatawai
- Linguistic competence
- The relationship and correlation between teacher language and language development and success of the mokopuna
- Recognition of hegemonic and colonising practices, values and beliefs about teaching.

Utilising a design, implementation, and monitoring framework over five years in each of these areas should ensure coherence, equity and development are appropriate and match the desired outcomes of the strategy.

REFERENCES

- Melbourne, H. (1991). Whare whakairo: Māori literary traditions. In G, McGregor & M, Williams. (Eds). *Dirty Silence: Aspects of language and literacy in New Zealand* (pp. 25 - 41). Auckland:Oxford University Press.
- Barton, B., & Fairhall, U. (1995). Is mathematics a trojan horse? Mathematics in Māori education. In B. Barton & U. Fairhall (Eds.), *Mathematics in Māori education*. Auckland, New Zealand: The University of Auckland.
- Christensen, I. (1996). Māori mathematics. *He Pukenga Kōrero: A Journal of Māori Studies*, 1(2), 42-47.
- Te Maro, P. (2019) Mai i ngā rā o Mua. Dialectical and knowledge-power relations in the interactions of kura and maths education.

APPENDIX 1

NGĀ TIREWA

Tīrewa, traditionally, took various forms, sizes, and shapes depending on their intended use. All however, were designed as structures upon which things could be hung, draped or presented. Among their many forms, tīrewa were erected as scaffolding, or 'rangitupu', to raise the ridgepole for a new whare. More commonly, tīrewa were also constructed to grow food, hang harakeke or other fibres for drying prior to weaving, and to dry food (e.g., tuna, pātiki, karengo).

Given their varied uses, we could assume that tīrewa were modified as required to ensure their fitness for purpose. The diagonal posts of a tīrewa provide the strength needed for whatever its intended purpose. The 'test' of the tīrewa was in its strength to support its load and its ability to exist in the local environment. Without structural integrity the tīrewa would fail. Tīrewa were of various heights, and lengths. Those used for drying food, or harakeke for example, were constructed with a series of 'rails' upon which the food or fibre was hung. It was up to the builder of the tīrewa as to its length, height, and the number of rails. The tīrewa was constructed according to the needs of the users and designed specifically to meet those needs. It was likely that the users were also the builders of the tīrewa.

These concepts are key in the context of curriculum.



Figure 2 - drying harakeke on a tīrewa¹³.



Figure 3 - drying eels on a tīrewa at Wairewa (Lake Forsyth) in 1948¹⁴.

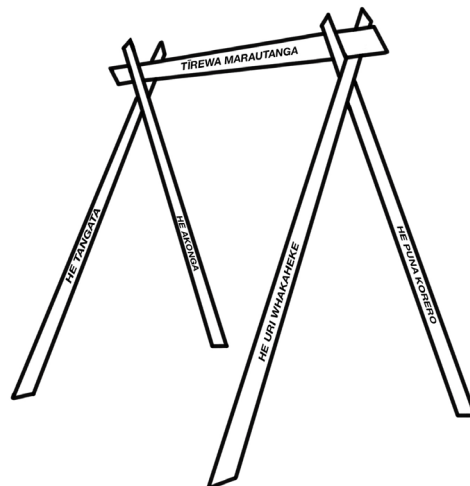
¹³ Te Raā Ringa Raupā. (15 August 2020). In Facebook [Facebook post]. Retrieved August 21, 2020, from https://www.facebook.com/groups/2194548750614650/?post_id=3116894645046718

¹⁴ Harvesting and preserving food was important in Māori communities. Archives New Zealand Te Rua Mahara o te Kāwanatanga, Wellington Office (National Library of New Zealand Te Puna Mātauranga o Aotearoa, Alexander Turnbull Library, Wellington, F400047 1/2 AAQT 6401.A6120). Treaty 2U, n.d. <http://www.treaty2u.govt.nz/thetreaty-today/the-ngai-tahu-claim/index.htm>

TĪREWA MARAUTANGA

Primary posts, symbolising the national curriculum.

In the proposed model, the national curriculum for Māori-medium compulsory education is conceptualised as a 'tīrewa' – a framework for hanging things upon.



Te Tīrewa Marautanga

Figure 4 - main posts of the tīrewa.

In a tīrewa intended to support progress, learning and achievement, the main posts represent the national curriculum – a structure with integrity which defines the purpose of education and scope of learning.

Those posts reflect the needs, values, and aspirations of the users, in this case our aspirations as Māori for our children. Currently, those aspirations are most likely to be given expression through the marau ā-kura. In this model Māori aspirations for our children would be reflected more explicitly in the marautanga ā-motu. Specifically, the Tīrewa Marautanga would comprise four 'pou', each reflecting a broader aspiration for ākonga to be confident, competent, and successful:

1. communicators (he puna kōrero te tamaiti)
2. representatives of, and contributors to their whānau, hapū and iwi (he uri whakaheke te tamaiti)
3. learners and thinkers (he ākonga te tamaiti)
4. managers of their own wellbeing, relationships, and personal attributes (he tangata te tamaiti).

This model attempts to more explicitly align the marautanga ā-motu with marau ā-kura by moving the aspirations reflected in marau ā-kura to the forefront of the marautanga ā-motu.

Transitioning to Tīrewa Marautanga

Establishing structural, internal and functional coherence is critical to building high trust partnerships and gaining confidence that will be necessary for evolving and opening up the curriculum. Moving to a new system of curriculum, progress and achievement for Māori-medium ākonga, whānau and kura will take courage and commitment to embracing new thinking, truly valuing mātauranga Māori, and engaging in a new level of partnership with kura and whānau.

The proposed model is one that disrupts the current approach to curriculum design and pedagogy borrowed from traditional Western schooling and provides for greater flexibility and a broader set of opportunities. However, it is still possible within the proposed Tīrewa model for kura and whānau who do not wish to fully adopt a new approach to retain parts of the current curriculum.

TĪREWA AKO

Rails, presenting the learning progressions

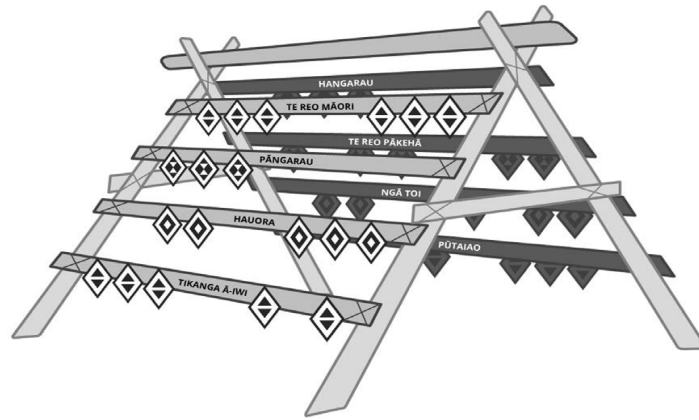


Figure 5 - tīrewa ako me ngā wāhanga ako

The rails of the tīrewa represent the various contexts for learning that kura identify to meet the expectations described in the national curriculum. These contexts may be subjects (wāhanga ako), kaupapa, key constructs or important ideas, or a mix and describe a progression of significant learning within each context. Importantly, kura would be supported to construct their own tīrewa ako to reflect the expectations of the national curriculum in the context of what is important also to the kura whānau. For some kura, the tīrewa ako will be synonymous with their marau ā-kura i.e., the tīrewa ako would be their marau ā-kura.

For others, the tīrewa ako may be only a part of a marau ā-kura that extends beyond the teaching and learning programme. What matters most is that the marau ā-kura is valued as the exemplification of the national curriculum, Te Tīrewa Marautanga, providing the links between and the context for exploring each of the four pou. Marau ā-kura, in this model, are not supplementary to the national curriculum, but give expression to the national aspirations within a local context.

TĪREWA MĀTAI

End braces, symbolising national monitoring.

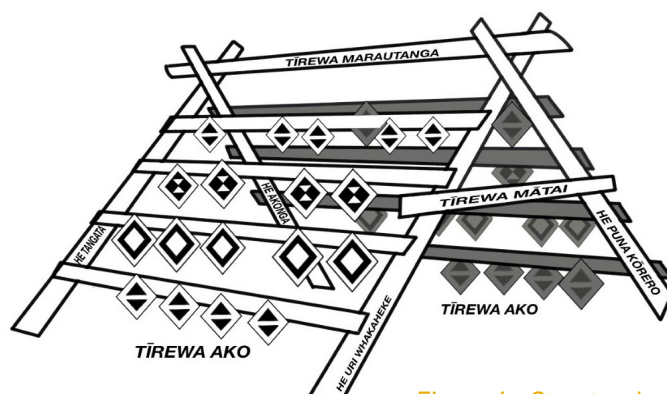


Figure 6 - Structural coherence Te Tīrewa Marautanga model

The third feature offering structural coherence to the tirewa are the braces at each end which contribute to the integrity of the whole structure, providing strength, stability, and reassurance. These braces represent a monitoring system. The Ministerial Advisory Group—Curriculum, Progress and Achievement proposed a national monitoring system based on a “high trust partnership model of information sharing [where] kura whānau ... agree to what information is important to share, and what information is required in order to know how well the system is doing to support the outcomes whānau deem valuable for their children” (Ministry of Education, 2019, p. 32)

APPENDIX 2: HEI TAUIRA

Te Ine me te Āhuahanga- How many hospitals, nurses, doctors, beds, ICU units are there and how far away are they from each where? How long would it take a whānau to get to hospital if someone got sick with COVID and how much time would be needed to get there?			
1	<p>Measurement Order and compare objects or events by length, area, volume and capacity, weight (mass), turn (angle), temperature, and time by direct comparison and/or counting whole numbers of units.</p> <p>Position and orientation Give and follow instructions for movement that involve distances, directions, and half or quarter turns. Describe their position relative to a person or object.</p>	<p>Mokopuna can: Practice computer-based mathematics to Google map the distance from their where to the hospital and talk about and show who lives closest to the hospital, who lives furthest away using mathematical communication and discuss different ways to express the different distances away using non-standard measurement.</p> <p>Create a floor map of their rohe and give instructions for how to get from different where to the hospital.</p> <p>Talk about where they are in relation to another mokopuna who is "traveling" from their "where".</p>	<p>Te reo Māori - ā-waha - give simple directions for someone else to follow.</p> <p>Talk about where they live in relation to where someone else lives.</p> <p>Write a simple sentence in relation to directions, or there address, or going to hospital, or?</p> <p>Read and follow directions that are written down for them.</p> <p>Draw their own symbols for directions (a map, or other).</p> <p>Social Sciences - express.</p>
2	<p>Measurement Create and use appropriate units and devices to measure length, area, volume and capacity, weight (mass), turn (angle), temperature, and time. Partition and/or combine like measures and communicate them, using numbers and units.</p> <p>Position and orientation Create and use simple maps to show position and direction. Describe different views and pathways from locations on a map.</p>	<p>What units do your mokopuna use now to talk about distance, can they devise a measuring tool (using computers) to support others to understand how far away the hospital is?</p> <p>Start to look at the scale of the maps drawn and figure out what measurements we should be using to talk about time and distance for the context we are using.</p> <p>As above, with more sophistication and using Google maps more.</p>	

APPENDIX 3: HEI TAUIRA

Context :

Iwi roadblocks to protect iwi rohe communities against COVID

Ākonga inquiries:

1. Why do we have to stop people from coming into our community?
2. Who would get sick if COVID entered our community?
3. How many hospitals, nurses, doctors, beds, ICU units are there and how far away are they from each where? How long would it take a whānau to get to hospital if someone got sick with COVID and how much time would be needed to get there?
4. How would we model the potential growth of COVID if a whānau member tested positive? What information would we need?

Pāngarau is required to answer each of these kinds of questions and ensures that we begin learning through authentic questions rather than through decontextualised mathematics, or contexts that are merely contrived for mathematics. There is a desire and empirical evidence that by approaching mathematics learning in this way, eventually mokopuna will approach learning where mathematics itself is the context.

Context: Iwi roadblocks to protect Iwi rohe communities against COVID		Links to other tīrewa ako/ wāhanga ako
Āheinga Reo	Who is the audience for your findings? What purpose might your findings serve? What ethical considerations are necessary?	Communities, letters to the editor, posters informing other citizens about why road-blocks are important, blogs. Take care of mokopuna voice in open forums. Keep their identities protected.
Puna Reo	What language resources do you need?	Te Tīrewa Ako: pānui, tuhituhi, kōrero ā-waha Te reo matatini o Pangarau Te reo matatini o Ngā Tikanga o Iwi Te reo matatini o Hauora Te Reo matatini o Pūtaiao
Rautaki Reo	What pāngarau strategies do you need to draw on? OTHERS	Communicating mathematical findings - how mathematical strategies were employed to investigate such a wicked problem.

