Digital Technologies

Hangarau Matihiko

Curriculum User Research

This report is a snapshot of findings and recommendations from research designed to inform the Ministry of Education's (MoE) implementation/deployment strategies and drive the successful uptake of the new DT | HM Curriculum content.

For the Ministry of Education
Authors Alex Hotere-Barnes and Christina Ward CORE Education

MINISTRY OF EDUCATION
TE TĀHUHU O TE MĀTAURANGA

CORE
EDUCATION
Tātai Aho Rau

New Zealand Government

Digital Technologies | Hangarau Matihiko
Curriculum User Research

Summary Report Prepared by: CORE Education

For: The Ministry of Education

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CONTENTS

1. BACKGROUND AND PURPOSE – TE HOROPAKI, TE PŪTAKE

This report is a snapshot of findings and recommendations from research designed to inform the Ministry of Education's (MoE) implementation/deployment strategies and drive the successful uptake of the new DT | HM Curriculum content.

We asked a range of user groups – kura, schools, whānau, industry, and tertiary sectors about:

- their awareness and understanding of the changes
- their levels of confidence and ability to implement the new curriculum content
- the support required for successful implementation.

This summary brings together high-level findings and recommendations from Māori-medium (Sciascia, 2017) and English-medium schools (Perry and Cox, 2017). We suggest reading the final reports for each medium for thorough descriptions, findings, and recommendations regarding the unique needs of each sector and user group.

2. MAIN FINDINGS – NGĀ KITENGA MATUA

How well do people understand the changes?

> *"There is a real silence around what hangarau matihiko looks like for Māori…"*
>
> *(Kura kaupapa Māori, kaiako)*

> *"We need to grow an in-depth understanding of the curriculum, then connect and enhance school-based curriculum."*
>
> *(Primary school leader)*

The vast majority of user groups do not have a strong awareness and understanding of the curriculum changes and their intent. There was a strong interest in knowing more about the vision and rationale. People want an opportunity to "unpack" the curriculum content and think through how it can benefit teaching and learning.

Ākonga and students were the most optimistic about the changes. While they were unaware of the shifts, they were the most adaptable. The majority expressed a willingness and readiness to take on the challenge of learning a new subject and incorporating this into their learning.

What levels of confidence and ability do people have to implement the new curriculum content?

"Me rata ki a koe te mahi, nā reira ka mahi. He pai ake ki ahau te hanga nā te mea ka kite au i te [hua]"1

(Ākonga, kura kaupapa).

"We've got many staff who would never have interacted with Scratch, with computer programming, even at its most basic level."

(Primary school teacher)

The majority of teachers and kaiako saw potential benefits in the new curriculum but have little to no confidence to implement the changes. All reported that they would need support and guidance to build their confidence.

The majority of kaiako and teachers held a misperception that the new curriculum is about digital fluency (using digital tools), as opposed to being about producing digital technologies (creating). Kaiako and teacher needs differ depending on the year level that they teach and the curriculum or marautanga they prioritise in their settings.

Again, ākonga and students were generally confident to cope with the specialist subject area. Many had some knowledge about the relevance of other subject areas like pāngarau or mathematics. They were excited about the prospect of being a producer of HM | DT, especially when exploring ideas such as app and game development and robotics.

Families and whānau reported a lack of information about the changes. They described their confidence in supporting the learning of their tamariki and children as low. However, they indicated that they want to play an active role in supporting the new curriculum change. Whānau and families could see how the changes could support learning and equip their tamariki and children for future employment.

The majority of industry and tertiary user groups reported that the new curriculum would have a positive impact on their industry by building and developing the skills of young people transitioning from wharekura or secondary schools.

What supports can help to ensure successful implementation?

"It doesn't mean that they're going to have to give up any of their Māoriness and they don't have to give up any of their tikanga because all of that stuff can come along with it."

(Whānau member)

"If you enjoy doing the work, you'll do it. I prefer creating things because I can see the results."

"The most sensible place is to start with specialists. We're thinking that some aspects of the curriculum could be taught and supported by teachers across the curriculum, especially computational thinking. But other aspects need to be done by specialists, especially developing digital outcomes."

(Teacher, Intermediate school)

Teachers and kaiako all identified that targeted, tailored, and practical professional learning and development (PLD) and urgent information sharing is critical for successful implementation. The majority believe that they do not have the expertise, knowledge, time, and resources to be able to confidently begin implementing the curriculum. They also reported that implementation may compete for priority with other drivers, programmes, assessment requirements, and frameworks.

There is a need for clear and consistent messages about the importance of HM | DT for all involved. This means providing a context where each user group can see themselves in the changes and understand the new curriculum's potential to enhance skill development and future careers. To this end, PLD must make explicit links between the new content and existing school and kura curriculum/content and marautanga/wāhanga ako.

Ākonga and students explained that successful implementation for them means having kaiako and teachers who are enthusiastic, confident, knowledgeable, and skilled in HM | DT. They also believe access to quality HM | DT resources will support the changes. For them, this includes accessing a range of platforms for learning (social media, gaming, robotics, coding), which reflect language, identities, and cultures.

Families and whānau want to be involved in implementation processes. For some, this includes the Ministry employing a marketing/communications strategy that promotes the curriculum changes, so that they can see how it will add value for their children and tamariki. Others suggested schools communicating the changes through their social media presence and organising workshops where parents can learn alongside kaiako, teachers, ākonga, students, and experts.

Industry and tertiary participants identified opportunities for cross-collaboration between industry stakeholders, kura, and schools. They saw a role in working with the education system to provide specialist knowledge and skills. However, cross-collaboration would involve allocating resources to support capability and resources.

3. RECOMMENDATIONS – NGĀ TŪTOHU

These recommendations are based on the level of priority across all user groups. They aim to inform the next stages of the curriculum implementation process by the MoE.
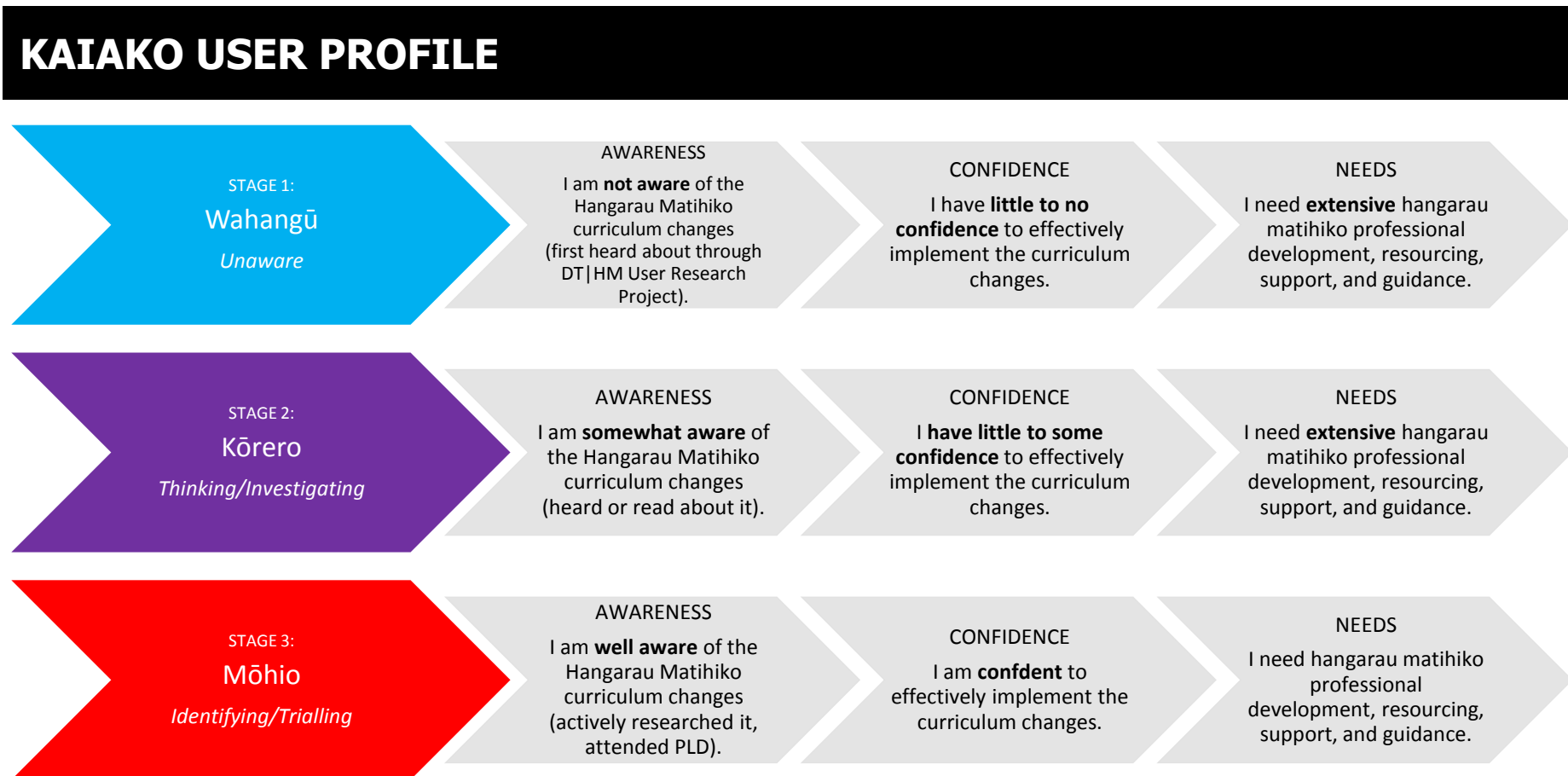
Recommendation 1: Provide bilingual information and curriculum materials that are easy to understand and access.

Recommendation 2: Provide targeted, tailored, and practical PLD for each medium.

Recommendation 3: Develop equitable resources that reflect languages, cultures, and identities.

4. USER PROFILES: MĀORI-MEDIUM

In this section, four user profiles are presented and provide a summarised snapshot of the capability, confidence, and needs of each of the user groups (kaiako, ākonga, whānau and ahumahi hangarau matihiko). The framework used in each profile represents three stages users are likely to identify as being at, with corresponding statements that relate to their awareness, confidence, and needs.

KAIAKO USER PROFILE

STAGE 1: Wahangū *Unaware*	AWARENESS I am **not aware** of the Hangarau Matihiko curriculum changes (first heard about through DT|HM User Research Project).	CONFIDENCE I have **little to no confidence** to effectively implement the curriculum changes.	NEEDS I need **extensive** hangarau matihiko professional development, resourcing, support, and guidance.
STAGE 2: Kōrero *Thinking/Investigating*	AWARENESS I am **somewhat aware** of the Hangarau Matihiko curriculum changes (heard or read about it).	CONFIDENCE I **have little to some confidence** to effectively implement the curriculum changes.	NEEDS I need **extensive** hangarau matihiko professional development, resourcing, support, and guidance.
STAGE 3: Mōhio *Identifying/Trialling*	AWARENESS I am **well aware** of the Hangarau Matihiko curriculum changes (actively researched it, attended PLD).	CONFIDENCE I am **confdent** to effectively implement the curriculum changes.	NEEDS I need hangarau matihiko professional development, resourcing, support, and guidance.

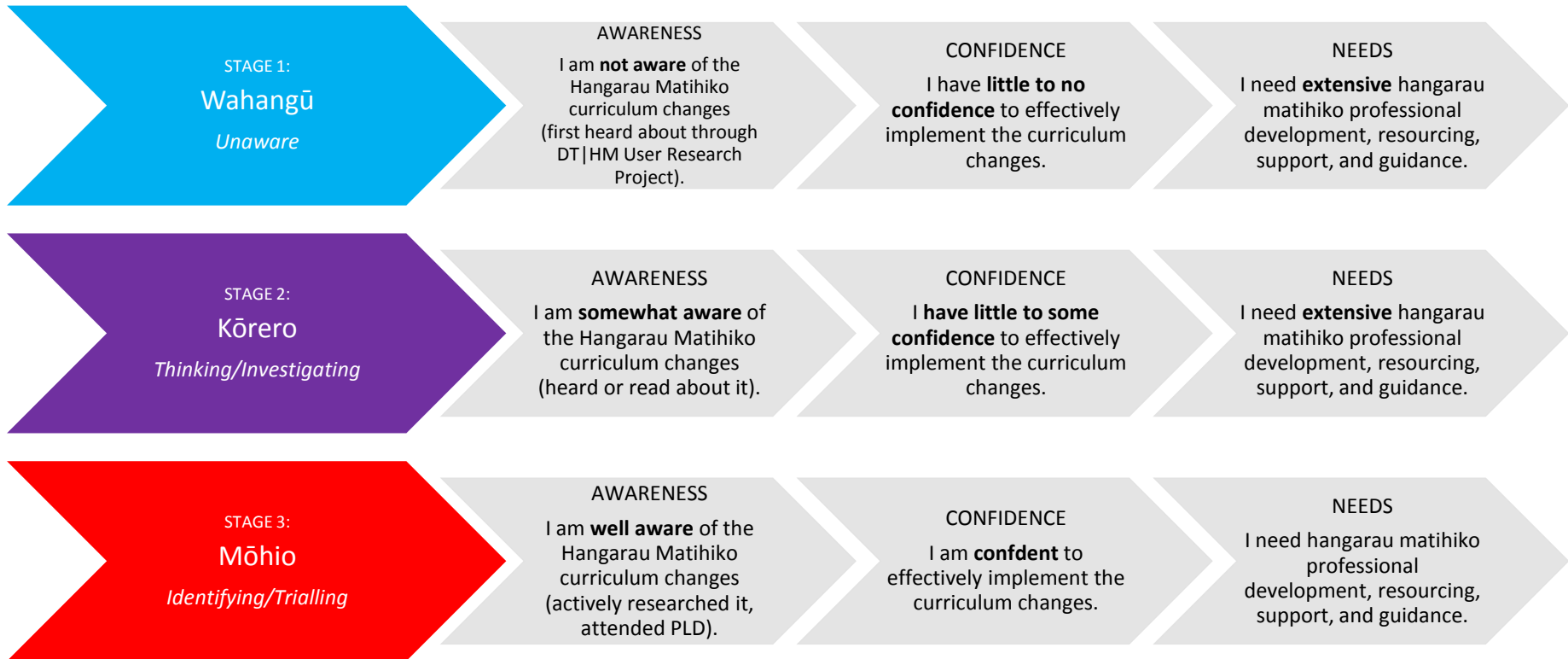| KAIAKO	STAGE 1: Wahangū (Unaware)	
Proportionality	**Kaiako at this stage**	**Support required by kaiako at this stage includes:**
21 of 28 kaiako interviewed are likely to be at this stage.	**Interest levels** • believed hangarau matihiko to be about digital fluency (being the user, rather than the producer of technology) • commented on the extensive capabilities of their ākonga to utilise hangarau matihiko for learning in the classroom • wanted to understand how hangarau matihiko would be implemented across the curricula (including within their own marau-ā-kura and marau-ā-iwi) • had some reservations around engaging in this space because of rapid changes and raised concerns about keeping up with hangarau matihiko developments. **Current experience, knowledge, and relevance** • are not at all aware of the Hangarau Matihiko curriculum changes • first heard about the changes through the DT|HM User Research Project • have little to no confidence to effectively implement the curriculum changes and require extensive support and training to effectively implement hangarau matihiko at their kura • believed hangarau matihiko to be about digital fluency (being the user, rather than the producer of technology) • include older kaiako (i.e., kaumātua) who discussed their difficulty in grappling with technology as users, let alone as producers • commented on the curriculum changes as not being a priority of theirs as their teaching loads and requirements were already at full capacity.	**Introduction and information sharing** • providing urgent information to kura, kaiako, and ākonga about the upcoming curriculum changes • clear explanations of the difference between digital fluency and digital technologies in the context of the new curriculum • clear messages about the importance of hangarau matihiko for ākonga i.e., providing the context where kaiako will see the importance of hangarau matihiko for skills development and the future careers of ākonga. **Professional development and learning** • PLD that spells out the new curriculum in clear and simple terms that kaiako can understand and contextualise into their unique teaching settings • PLD that spells out how kaiako can develop lesson plans for hangarau matihiko that consider specialised language, te reo Māori, vocabulary lists, and reo Māori hangarau matihiko resources • PLD that carefully explains how producing content, rather than just using devices, will continue to be a key focus • combination of face-to-face and online PLD could cater to kaiako and their workloads/commitments • mentoring programmes within kura that enable kaiako to be teamed up with a hangarau matihiko expert. **Implementation and design** • curriculum implementation that considers multiple layers associated within kura Māori, i.e., te reo Māori, whakaaro Māori, tikanga Māori and Te ao Māori • a localised programme that exemplifies how to integrate the new curriculum into learning and how it can be taught (in different ways and in te reo Māori) • clear guidelines and connections to show kura and kaiako the cross-curricula potential that could be beneficial for kaiako buy-in • excellent resources in te reo Māori that speak about hangarau matihiko and demonstrate the curriculum content in situ • regular and continuous professional development that is not fast-tracked but takes time to present the ideas and allow kaiako to understand and contextualise them • an exemplar of a hangarau matihiko classroom and skilled kaiako in action within a classroom would provide great insight into how things might work.

KAIAKO	**STAGE 2: Kōrero** (Thinking/investigating)	
Proportionality	**Kaiako at this stage**	**Support required by kaiako at this stage includes:**
2 of 28 kaiako are likely to identify with this stage. Kaiako in this group know slightly more than those at Stage 1. They have heard more about the curriculum changes and have sought out more information about it but not enough to feel confident for next year's implementation.	**Interest** • heard about the curriculum changes through the media and news • understood that DT | HM curriculum changes would affect them at some point, but were not necessarily preparing themselves or actively seeking out information about them • were concerned about the pressures of the new curriculum changes on te reo Māori and its being able to accommodate a new subject area • can understand the benefits associated with the new curriculum focus of hangarau matihiko and recognise that their ākonga would benefit from the new skills that will be gained. **Current experience, knowledge, and relevance** • had some confidence in exploring hangarau matihiko and learning more about it • had some reservations around levels of online access that ākonga would have with the new curriculum changes • would need support and training to being able to effectively implement the changes.	**Introduction and information sharing** • provision and resources to upskill a group of kaiako within the kura that can be hangarau matihiko leaders and transmit that knowledge to the rest of the staff • resources that assist kaiako to support ākonga access to appropriate resources, sites, and applications • understanding how Māori content can be drawn into the new curriculum in ways that privilege Māori ways of thinking and enable learners to see the relevance of their Māori perspective in a new subject area • online resources in te reo Māori that are easy for both kaiako and ākonga to use, as some kaiako commented that current online resources do not meet their needs. **Professional development and learning** • regular and continuous professional development • more examples of successful Māori taking up career opportunities, organisations or businesses working in the hangarau matihiko space to provide inspiration for ākonga Māori to pursue this subject area. **Implementation and design** • curriculum implementation that considers multiple layers associated within kura Māori, i.e., te reo Māori, whakaaro Māori, tikanga Māori and te ao Māori • understanding how hangarau matihiko can be taught within the existing marau (curricula) that kura operate within • clear guidelines and connections to show kura and kaiako the cross-curricula potential that could be beneficial for kaiako buy-in.

KAIAKO	STAGE 3: Mōhio (Identifying/Trialling)	
Proportionality	**Kaiako at this stage**	**Support required by kaiako at this stage includes:**
5 of 28 kaiako are likely to identify with this stage. These kaiako hold hangarau matihiko leadership roles within their kura and/or are actively involved in hangarau matihiko through their own personal interest. Their involvement in the hangarau matihiko space is considerable compared to that of kaiako at Stage 1.	**Interest** • are excited about the curriculum changes and welcome the opportunity to learn alongside ākonga • support hangarau matihiko leaders within their kura. **Current experience, knowledge, and relevance** • are aware of the Hangarau Matihiko curriculum changes and have heard about them through actively engaging with the curriculum development information available and/or PLD that has been offered for hangarau matihiko • understand that hangarau matihiko incorporates notions of computer science, design, and development • have established hangarau matihiko technicians at one of the kura to enable a team of dedicated experts to support kaiako.	**Introduction and information** • careful consideration as to how te reo Māori, tikanga Māori and te ao Māori will be woven into the content and made relevant for kura Māori • access to a Hangarau Matihiko dictionary for te reo Māori. **Professional learning and development** • PLD delivered by experts who have a knowledge and understanding of te reo Māori, tikanga Māori and te ao Māori – this will help kaiako to better connect with the facilitator, as well as to contextualise curriculum content in a Māori perspective and in te reo Māori • having similar resourcing to English-medium schools in terms of PLD resources for hangarau matihiko that experiment with different learning contexts and year groups • real-time modelling, using platforms such as YouTube and the sharing of resources through online platforms and forums • PLD that is clustered with other kura Māori within the rohe to enable content to be specifically developed and targeted to kaiako Māori • a combination of face-to-face and online PLD could cater to kaiako and their workloads/commitments. **Successful PLD models that could be revised and contextualised to** **hangarau matihiko might include:** • Poutama Tau – This resource has lesson plans for all levels of the marau. It provides scripting and scaffolds the teaching • Te Kotahitanga – provides videos of kaiako talking about and modelling implementation • Te Reo Matatini – shows the literacy learning progressions across the various levels of *Te Marautanga o Aotearoa* • Ako Panuku Course – this PLD programme was noted as being highly successful as it was inclusive, enabled whakawhanaungatanga (relationships building), and the lessons were retained by kaiako who attended this PLD.

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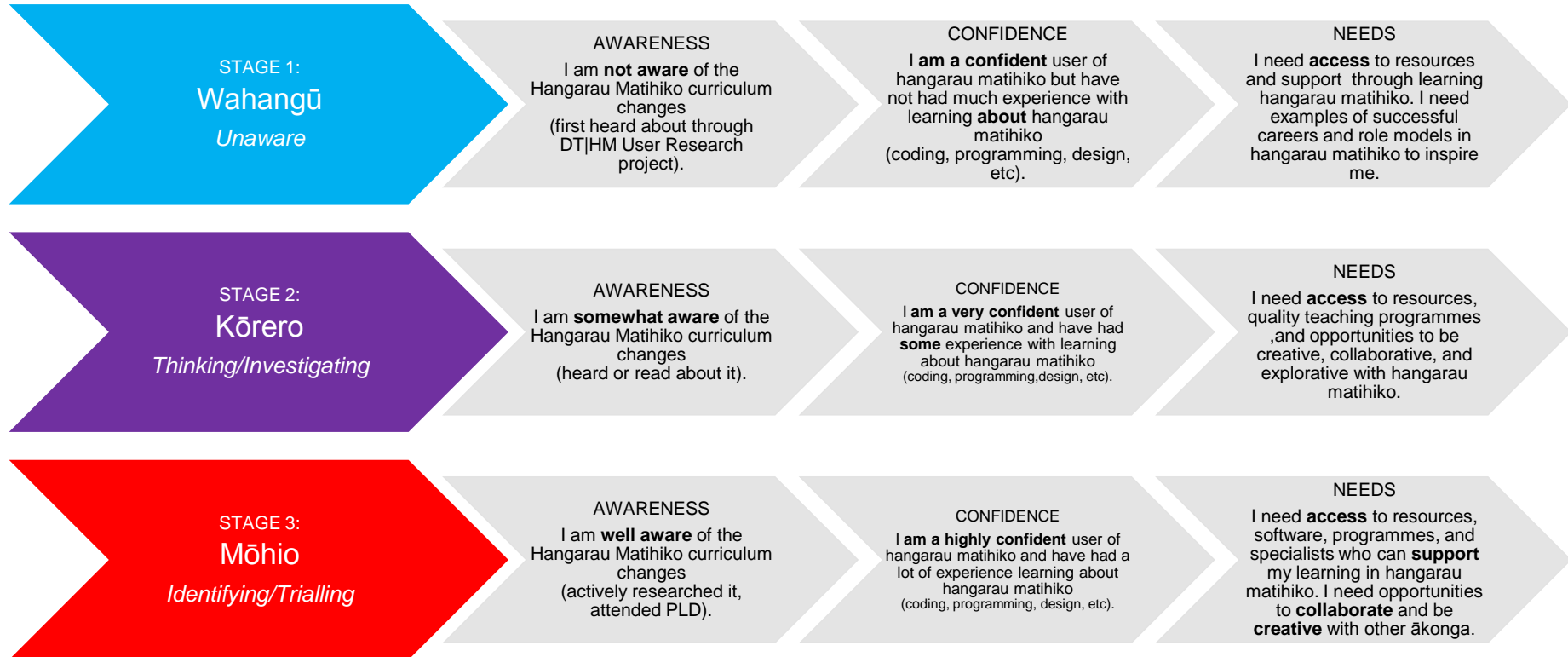| KAIAKO	STAGE 1: Wahangū (Unaware)	
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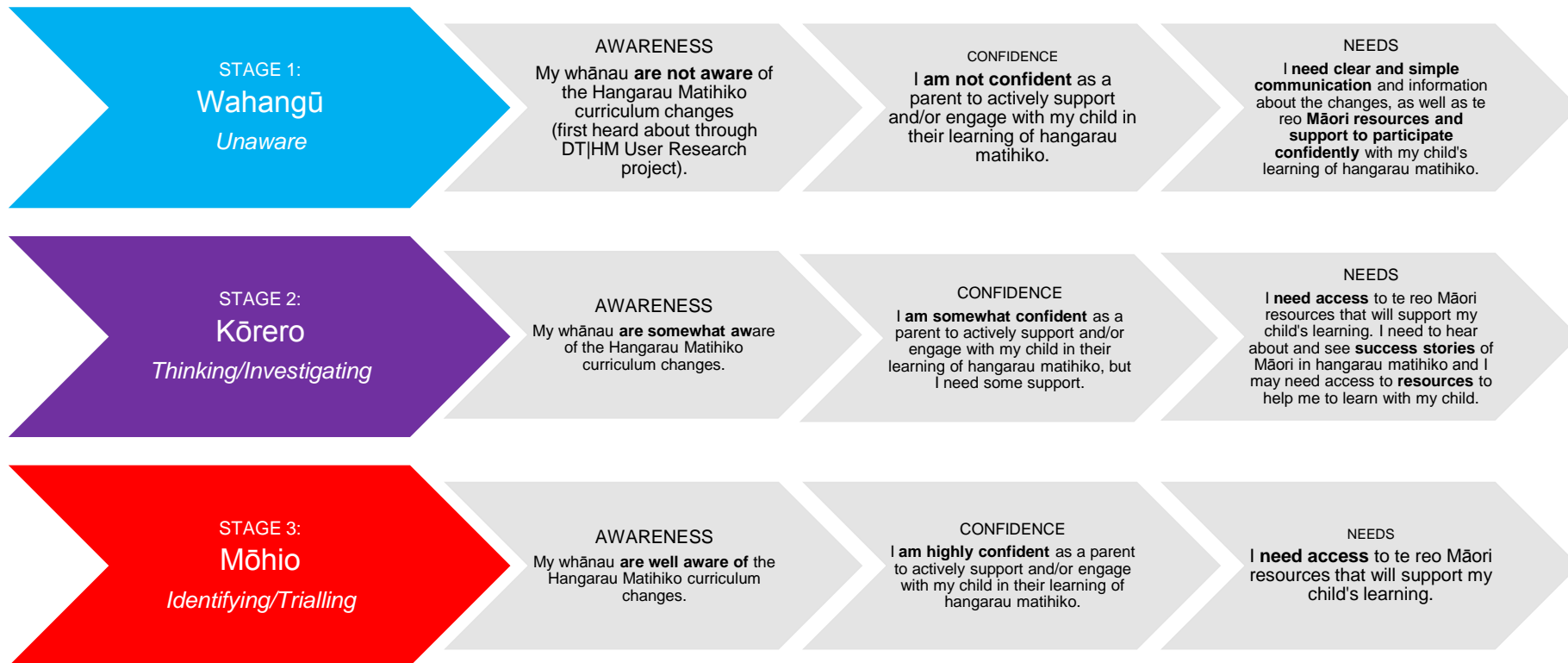| KAIAKO	STAGE 3: Mōhio (Identifying/Trialling)	
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ĀKONGA USER PROFILE

STAGE 1:
Wahangū
Unaware

AWARENESS
I am **not aware** of the Hangarau Matihiko curriculum changes
(first heard about through DT|HM User Research project).

CONFIDENCE
I **am a confident** user of hangarau matihiko but have not had much experience with learning **about** hangarau matihiko
(coding, programming, design, etc).

NEEDS
I need **access** to resources and support through learning hangarau matihiko. I need examples of successful careers and role models in hangarau matihiko to inspire me.

STAGE 2:
Kōrero
Thinking/Investigating

AWARENESS
I am **somewhat aware** of the Hangarau Matihiko curriculum changes
(heard or read about it).

CONFIDENCE
I **am a very confident** user of hangarau matihiko and have had **some** experience with learning about hangarau matihiko
(coding, programming,design, etc).

NEEDS
I need **access** to resources, quality teaching programmes ,and opportunities to be creative, collaborative, and explorative with hangarau matihiko.

STAGE 3:
Mōhio
Identifying/Trialling

AWARENESS
I am **well aware** of the Hangarau Matihiko curriculum changes
(actively researched it, attended PLD).

CONFIDENCE
I **am a highly confident** user of hangarau matihiko and have had a lot of experience learning about hangarau matihiko
(coding, programming, design, etc).

NEEDS
I need **access** to resources, software, programmes, and specialists who can **support** my learning in hangarau matihiko. I need opportunities to **collaborate** and be **creative** with other ākonga.

ĀKONGA	STAGE 1: Wahangū (Unaware)	
Proportionality	**Ākonga at this stage:**	**Support required by ākonga at this stage includes:**
30 of the 41 ākonga interviewed were likely to be at this stage.	**Interest levels** • were unaware of the Hangarau Matihiko curriculum changes • first heard about the changes through the DT|HM User Research project • were generally excited about learning hangarau matihiko • were excited about the prospect of being a producer of hangarau matihiko, especially when exploring ideas of app development, game development, and robotics. • **Current experience, knowledge, and relevance** • were highly proficient users of hangarau matihiko • had very little exposure to learning about, creating, and producing hangarau matihiko • were generally confident in themselves to be able to cope with the specialist subject area, as they were all highly proficient users of hangarau matihiko • had some knowledge about the relevance of other subject areas like pangarau as being a skill base that would be useful in learning hangarau matihiko • recognised that the skills gained through this new subject area could be beneficial in their careers and their lives.	**Introduction and information** • clear and simple explanations of the hangarau matihiko curriculum changes • specialised language, te reo Māori vocabulary lists, and reo Māori hangarau matihiko resources • quality hangarau matihiko resources that are developed in te reo Māori and are delivered through a range of platforms, including (and especially) YouTube • curriculum content that resonates with ākonga and engages them. **Implementation and design** • access to appropriate resources (software, programmes, apps, etc), However most kura had access to some devices. • curriculum implementation that considers multiple layers associated within kura Māori, i.e., te reo Māori, whakaaro Māori, tikanga Māori and te ao Māori • creating more platforms for learning hangarau matihiko through gaming and social media.

ĀKONGA	STAGE 2: Kōrero (Thinking/Investigating)	
Proportionality	**Ākonga at this stage**	**Support required by ākonga at this stage include**
No ākonga interviewed were likely be at this stage.	NA	NA

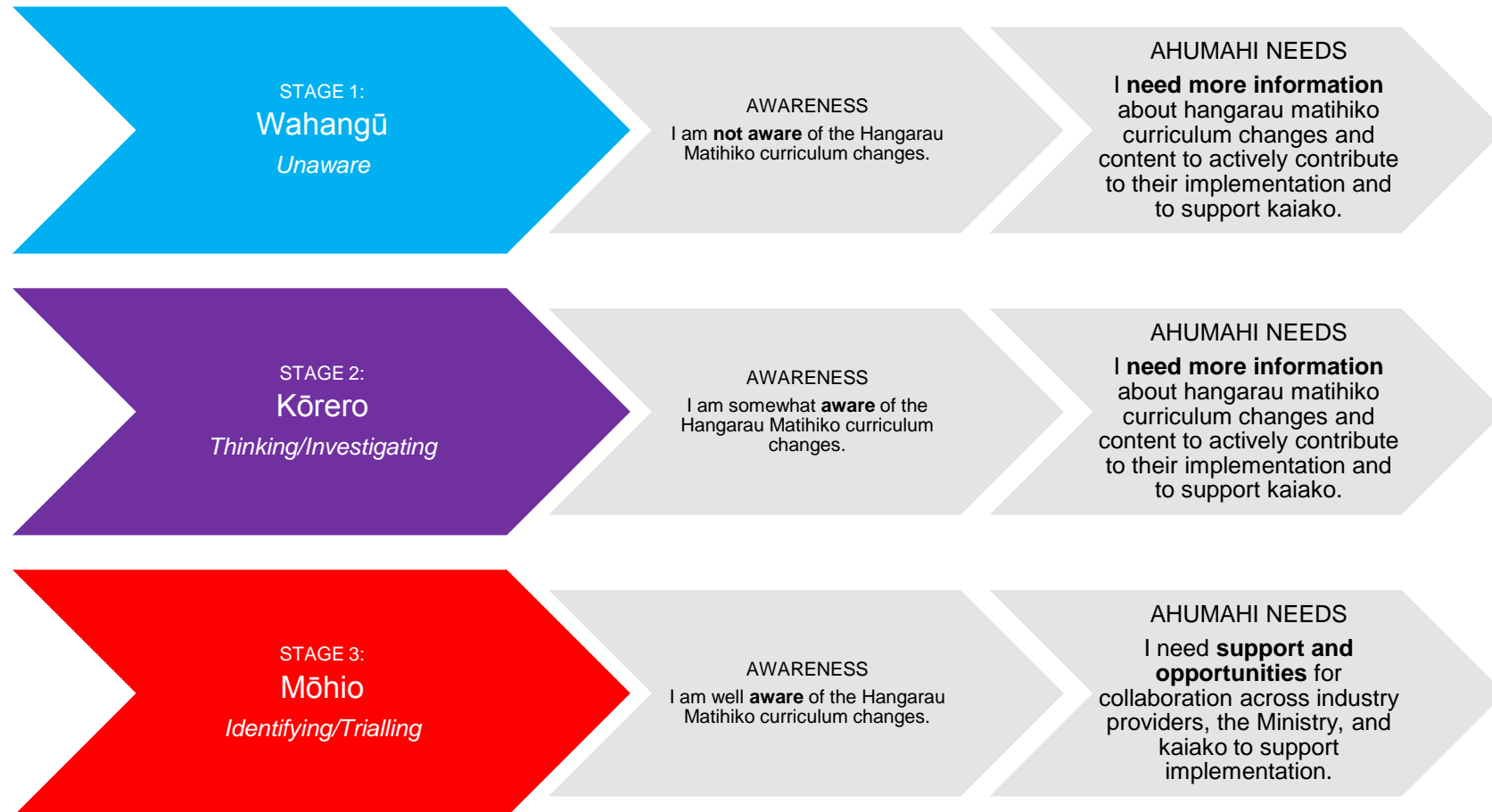| ĀKONGA	STAGE 3: Mōhio (Identifying/Trialling)	
Proportionality	**Ākonga at this stage**	**Support required by ākonga at this stage includes:**
11 of the 41 ākonga interviewed were likely to be at this stage.	**Interest levels** • are unaware of the Hangarau Matihiko curriculum changes • first heard about the changes through the DT|HM User Research project • had already gained experience developing games, apps or used robotics, which has fueled their passion for learning more about hangarau matihiko • recognised that the skills gained through this new subject area could be beneficial for their careers and their lives • talked about using and learning about programming, coding, and design software at home (outside of the classroom). • **Current experience, knowledge, and relevance** • gained experiences through lessons provided in the kura or through extra-curricula activities • were highly confident and motivated to be able to cope with the specialist subject area, as they were highly proficient users of hangarau matihiko • were knowledgeable about the relevance of other subject areas like pangarau and problem solving as being skill bases that would be useful in learning hangarau matihiko (making cross-curricula connections).	**Introduction and information** • clear and simple explanations of the hangarau matihiko curriculum changes • access to appropriate resources (software, programmes, apps, etc) Most kura had access to some devices. • specialised language, te reo Māori vocabulary lists, and reo Māori hangarau matihiko resources • quality hangarau matihiko resources that are developed in te reo Māori and are delivered through a range of platforms, including (and especially) YouTube • curriculum content that resonates with ākonga and engages them. **Implementation and design** • curriculum implementation that considers multiple layers associated within kura Māori, i.e., te reo Māori, whakaaro Māori, tikanga Māori and te aAo Māori • creating more platforms for learning hangarau matihiko through gaming and social media • curriculum content that enables ākonga to problem solve and use skills and knowledge they've gained from other curriculum areas in hangarau matihiko • opportunities for collaboration through learning across kura • support networks for advanced ākonga interested in working in hangarau matihiko with fellow ākonga from other kura (as numbers are not high and the subject area can be isolating and lonely) • it was commented that female support networks were a need, as one female identified by her kaiako as being an outstanding coder, was considering pulling out of her lessons as she felt isolated as the only female • support to attend national and international gatherings of other ākonga interested in hangarau matihiko (i.e., Silicon Valley and visiting Google Headquarters and Facebook, which might inspire ākonga to pursue hangarau matihiko careers • more examples of businesses and role models working in the hangarau matihiko space to inspire ākonga about career possibilities.

WHĀNAU USER PROFILE

STAGE 1:
Wahangū
Unaware

AWARENESS
My whānau **are not aware** of the Hangarau Matihiko curriculum changes (first heard about through DT|HM User Research project).

CONFIDENCE
I **am not confident** as a parent to actively support and/or engage with my child in their learning of hangarau matihiko.

NEEDS
I **need clear and simple communication** and information about the changes, as well as te reo **Māori resources and support to participate confidently** with my child's learning of hangarau matihiko.

STAGE 2:
Kōrero
Thinking/Investigating

AWARENESS
My whānau **are somewhat aw**are of the Hangarau Matihiko curriculum changes.

CONFIDENCE
I **am somewhat confident** as a parent to actively support and/or engage with my child in their learning of hangarau matihiko, but I need some support.

NEEDS
I **need access** to te reo Māori resources that will support my child's learning. I need to hear about and see **success stories** of Māori in hangarau matihiko and I may need access to **resources** to help me to learn with my child.

STAGE 3:
Mōhio
Identifying/Trialling

AWARENESS
My whānau **are well aware of** the Hangarau Matihiko curriculum changes.

CONFIDENCE
I **am highly confident** as a parent to actively support and/or engage with my child in their learning of hangarau matihiko.

NEEDS
I **need access** to te reo Māori resources that will support my child's learning.

WHĀNAU	STAGE 1: Wahangū (Unaware)

Proportionality	Whānau at this stage	Support required by whānau at this stage includes:
All whānau interviewed (6 whānau in total) were likely to be at this stage.	**Interest** • recognised that the skills attained through hangarau matihiko will be beneficial for their tamariki in whatever area or career they chose to follow • recognised that hangarau matihiko skills will set up their tamariki to be on the world stage, leading and trail blazing in hangarau matihiko • recognise that hangarau matihiko is an added value for their tamariki and believe that they will have more opportunities to enter into stronger career options. **Current experience, knowledge, and relevance** • are unaware of the Hangarau Matihiko curriculum changes • first heard about the Hangarau Matihiko curriculum changes through this user research project • want and need more information from the Ministry of Education and their own kura • feel that the information provided through the Ministry of Education's website is targeted towards educationalists and not to whānau (i.e., need simple and clear explanations) • feel that the lack of information is a real barrier to actively taking a role in supporting their child with the curriculum changes.	**Introduction and information** • employing an appropriate communications strategy to promote the curriculum changes so whānau can understand their value for their tamariki, build whānau confidence, support whānau reo development, and explain their cross-curricula application • te reo Māori guidance and support for mātua i.e. a dictionary with te reo Hangarau Matihiko would benefit whānau to support their tamariki • clear, simple messages about the curriculum changes that speak to a whānau audience (i.e., not policy or educational jargon, using everyday language that is easy to understand) • regular updates from the Ministry of Education about developments for hangarau matihiko • an understanding from both the Ministry of Education and kura Māori that whānau need support through this process • reo Māori support for whānau that enables them to have technical conversations in te reo Māori with tamariki when doing homework or exploring and understanding hangarau matihiko concepts • inspiring stories telling of Māori people doing amazing things in the hangarau matihiko arena, both nationally and internationally • sharing models that will help communities equip whānau with the right resources and devices to actively and meaningfully engage with their tamariki – kura need to provide access to such resources for whānau to support whānau to actively engage with their child's learning • more webinars/wānanga for whānau to learn about the curriculum changes in a supportive and non-threatening environment • providing elderly kaiako with appropriate resourcing and support, as they may need more support than kaiako who are computer literate • providing visual, online resources to support kaiako and in turn, have them support their tamariki.

WHĀNAU	STAGE 2: Kōrero (Thinking/Investigating)	
Proportionality	Whānau at this stage:	Support required by whānau at this stage includes:
No whānau interviewed were at this stage	N/A	N/A

WHĀNAU	STAGE 3: Mōhio (Identifying/Trialling)	
Proportionality	Whānau at this stage:	Support required by whānau at this stage includes:
No whānau interviewed were at this stage	N/A	N/A

AHUMAHI HANGARAU MATIHIKO USER PROFILE

STAGE 1:
Wahangū
Unaware

AWARENESS
I am **not aware** of the Hangarau Matihiko curriculum changes.

AHUMAHI NEEDS
I **need more information** about hangarau matihiko curriculum changes and content to actively contribute to their implementation and to support kaiako.

STAGE 2:
Kōrero
Thinking/Investigating

AWARENESS
I am somewhat **aware** of the Hangarau Matihiko curriculum changes.

AHUMAHI NEEDS
I **need more information** about hangarau matihiko curriculum changes and content to actively contribute to their implementation and to support kaiako.

STAGE 3:
Mōhio
Identifying/Trialling

AWARENESS
I am well **aware** of the Hangarau Matihiko curriculum changes.

AHUMAHI NEEDS
I need **support and opportunities** for collaboration across industry providers, the Ministry, and kaiako to support implementation.

AHUMAHI	STAGE 1: Wahangū (Unaware)	
Proportionality	**Ahumahi survey respondents at this stage:**	**Support required by Ahumahi at this stage includes:**
5 of 8 industry respondents had a low level of understanding about hangarau matihiko curriculum changes and were likely to identify with this stage.	**Interest** • felt that the new curriculum inclusion would have a positive impact on the hangarau matihiko industry • commented that the hangarau matihiko curriculum changes need to be flexible and fluid to accommodate the ever-changing nature of the world of technology. **Current experience, knowledge, and relevance** • are unaware of the Hangarau Matihiko curriculum changes • commented that improvements in technical skills are part of the foundation from which to develop fully capable and safe digital citizens • felt that rangatahi will have the space to create, design, and build on their ideas. Creative freedom and teaching digital graphic design, programming etc. will provide more flexibility in their career choices • felt that technical knowledge does not in and of itself create capability for online safety and so could potentially have a negative effect.	**Introduction and information** • providing information about the roll-out of the hangarau matihiko curriculum changes • collaborative opportunities to work together with the Ministry of Education • equipping teachers with the level of te reo Māori that upholds te kounga o te reo (quality of the language) – one industry provider is directly working on solutions for this • an easy-to-use app that guides kaiako, ākonga, whānau, and industry through the curriculum changes. • **Resourcing** • funding to support more training, especially for kura/reo resources.

AHUMAHI	STAGE 2: Kōrero (Thinking/Investigating)	
Proportionality	**Ahumahi survey respondents at this stage:**	**Support required by Ahumahi at this stage includes:**
No industry survey respondents were likely to be at this stage	NA	NA

AHUMAHI	STAGE 3: Mōhio (Identifying/Trialling)	
Proportionality	**Ahumahi survey respondents at this stage:**	**Types of support required Ahumahi at this stage includes:**
3 of 8 industry respondents had a high level of understanding about hangarau matihiko curriculum changes.	**Interest** • felt that hangarau matihiko skills are highly relevant in a constantly changing world that is adopting technology in all industries • commented that these curriculum changes would well prepare graduates for real-world scenarios and support them to approach challenges and problems with flexibility. • **Current experience, knowledge, and relevance** • indicated a strong understanding of the hangarau matihiko curriculum changes within their respective industries • commented that the curriculum must stay relevant for industry Digital technology is continuously evolving and so the curriculum must evolve with it • felt that normalising hangarau matihiko within low socioeconomic and rural Māori communities is key, and connecting through te ao Māori values will help achieve this.	**Professional learning and development** • providing mentoring and training for kaiako within kura Māori so that they are fully prepared for teaching hangarau matihiko (in te reo Māori). • **Implementation and design** • collaborating on a co-teaching model, where industry leaders and kaiako come together to deliver the curriculum within kura (industry leaders have the specialist knowledge and kaiako have the teaching skills to engage with ākonga) – through this kind of collaboration, the industry will be investing in its future kaimahi and specialists • adopting pedagogies that cater to creation and self-expression by ākonga and build on ākonga passions and interests (rather than prescriptive content and assessments) • embedding values and principles throughout the hangarau matihiko curriculum content (to ākonga) as well as delivery (to kaiako). •

USER PROFILES: ENGLISH-MEDIUM

In this section, five user profiles are presented and provide a summarised snapshot of the capability, confidence, and needs of each of the user groups (teachers, students, families and whanau, and industry and teacher educators). The framework used in the teachers' and students' profiles represents three different stages users are likely to identify as being at, with corresponding statements that relate to their awareness, confidence, and needs.

STAGE	AWARENESS	CONFIDENCE	SUPPORT NEEDED
Stage 1: **Whangū** (unaware)	I am **not aware** of the DT Curriculum changes. (first heard about them through the DT/HM User research Project)	I have **little to no** confidence to effectively implement the new DT Curriculum.	I **need extensive** professional development, resourcing, support, and guidance.
Stage 2: **Kōrero** (thinking/investigating)	I am **somewhat awar**e of the DT Curriculum changes.	I have **little to some** confidence to effectively implement the new DT Curriculum.	I **need extensive** professional development, resourcing, support, and guidance.
Stage 3: **Mōhio** (investigating/trialling)	I am **well aware** of the DT Curriculum changes (actively researched, attended PLD).	I am **confident** to begin implementing the new DT Curriculum.	I **need** professional development, resourcing, support, and guidance.

TEACHERS	STAGE 1: WHANGŪ (UNAWARE)	
Proportionality[2]	**Teachers at this stage:**	**Support required for teachers at this stage:**
Whangū (See methodology, limitations, p. 18). The focus groups indicated most of their colleagues in primary and intermediate schools are likely to be at this stage. Few, if any, specialist secondary teachers are at this stage, although the majority of secondary teachers who specialise in other curriculum areas, would be at this stage.	**Interest levels** will acknowledge the value and importance of the new curriculum when it is unpacked. **Current experience, knowledge, and relevance** wrongly assume the new curriculum is about digital fluency, (using), rather than about digital technology (creating) will find their involvement in implementing the curriculum daunting and may resist personal involvement are unaware that they likely to be engaging in teaching strategies and approaches that are consistent with the new DT Curriculum.	**Introduction and information** Facilitated unpacking of the curriculum statement and its rationale Hands-o PLD, aimed at demystifying curriculum content Online video support materials, explaining the curriculum and showcasing examples of good practice Support materials in simple language. **Implementation and design** Personalised and ongoing support from expert colleagues and/or external facilitators to develop effective teaching practice Sufficient time to develop a new set of competencies without experiencing PLD overload.

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[2] The English-medium focus groups did not reflect a representative cross-section of teachers across the stages 1-3 user profiles. The teachers who participated were at the *Stage 2 Kōrero* (thinking/investigating) and *Stage 3 Mōhio* (investigating/trialling) stages and generally held positions of responsibility or speciality for DT in their schools. The information included in the user profile for *Stage 1 Wahangū* (unaware) has been drawn from the commentary of these participants, as they reflected on the needs of their colleagues who have been less immersed in this area of teaching and learning. They indicated that this *Stage 1 Wahangū* group would include a majority of primary and intermediate school teachers.

TEACHERS	STAGE 2: KŌRERO (THINKING/INVESTIGATING)	
Proportionality	**Teachers at this stage**	**Support required for teachers at this stage:**
Kōrero – 12 of the teachers at the focus groups identified as being at this stage. These were most often teachers with general leadership responsibility. A sizeable minority of teachers in schools at all levels are likely to be at this stage.	Primary and intermediate teachers are*:* **Interest levels** enthusiastic about the intent and content of the new DT curriculum Exploring innovative and future-focused practice. **Current experience, knowledge, and relevance** not yet well-informed about the detail of the new curriculum or the intent and content of the wider technology curriculum will be supportive of the implementation of the new curriculum when they become aware of its intent and content involved in an e-learning leadership role likely to have been involved in organising opportunities for students' coding clubs and robotics programmes etc., usually outside the school timetable unlikely to be developing students' computational thinking to the level envisaged in the new curriculum likely to be responsible for leading implementation in their school likely to think their confidence level is inadequate not necessarily capable leaders or PLD facilitators; may observe that other staff are not confident, but don't have effective ways to help them shift through stages 1–3. Secondary teachers at this stage are: **Current experience, knowledge, and relevance** likely to have a related learning area specialisation, such as science, maths, or technology.	**Introduction and information** Opportunities to develop their own specialist PLD, related to the curriculum **Implementation and design** Support in planning and prioritising the implementation process Support to identify the resource, support and PLD needs of colleagues PLD in effective leadership and/or facilitation Opportunities to network and share teaching resources and ideas with other DT curriculum leaders, face-to-face in the local area, and online Allocated time to provide PLD opportunities for colleagues.

TEACHERS	STAGE 3: MŌHIO (INVESTIGATING/TRIALLING)	
Proportionality	**Teachers at this stage:**	**Support required for teachers at this stage:**
Mōhio = 20 of 32 teachers who attended the focus groups identified as being at this stage. These tended to be e-learning leaders and DT "specialists". A small minority of kaiako are likely to be at this stage.	**Interest levels** specialist computer science, DT (or similar) teachers at secondary level, or primary/intermediate teachers who have a personal interest and some specialised training related to the curriculum likely to be very enthusiastic about the DT curriculum content and the opportunity to bring it into the mainstream curriculum. **Current experience, knowledge, and relevance** likely to develop a good understanding of the intent and content of the new curriculum, link it to what they have been doing already, and recognise gaps that will need development. Secondary teachers place more importance on the development and release of the Level 1 NCEA standards and their supporting materials, than on the draft curriculum.	**Introduction and information** Opportunities and encouragement to contribute to the wider integration of the DT Curriculum Support to identify the resource, support, and PLD needs of colleagues. **Implementation and design** Ongoing provision of teaching resources and assessment exemplars Support in planning and prioritising the implementation process PLD in effective leadership and/or facilitation Opportunities to network and share teaching resources and ideas with other DT curriculum leaders, face-to-face in the local area, and online Allocated time to provide PLD opportunities for colleagues. Other forms of recognition of their increased responsibilities, including remuneration and role designation.

USER PROFILES: STUDENTS

STAGE	AWARENESS	CONFIDENCE	SUPPORT NEEDED
Stage 1: **Whangū** **(Unaware)**	I am **not aware** of the DT curriculum and what its implementation will mean for my learning.	I have **little to no** confidence with the learning outlined in the new DT curriculum.	I **need extensive** teacher, peer, and whānau support to learn about the DT curriculum.
Stage 2: **Mōhio** (Investigating/trialling)	I **aware of aspects** of the learning outlined in the new DT curriculum.	I have **some confidence** with aspects of the learning outlined in the new DT curriculum.	I **need ongoing** teacher, and peer, and whānau support to extend my learning about the DT curriculum.

STUDENTS	STAGE 1: WHANGŪ (UNAWARE)	
Proportionality	**Students at this stage:**	**Support required for students at this stage:**
The majority of students at primary level are likely to be at this stage. Fewer students will be in at this stage in schools that have active coding clubs, robotics programmes and the like, and in secondary schools with strong technology/DT departments.	**Interest levels** have no interest in joining DT clubs or programmes. **Current experience, knowledge, and relevance** may not have taken part in a club or programme related to aspects of the DT curriculum because opportunities were not available at their level or at their school. are likely to have some DT-related knowledge and skills developed through other learning areas.	**Introduction and information** Explanation about the relevance and importance of the learning Opportunities to engage or be hooked into the learning Support from peers whose learning is more advanced. **Implementation and design** Effective support from a teacher who is enthusiastic, confident, knowledgeable, and skilled Links with other learning areas made explicit Learning designed to meet students' diverse learning needs Equitable access to equipment, hardware, and software.

STUDENTS	STAGE 2: MŌHIO (INVESTIGATING/TRIALLING)	
Proportionality	**Students at this stage:**	**Support required for students at this stage**
A minority of students at primary level are likely to be at this stage. A greater number of students will be in at this stage in schools that have active coding clubs, robotics programmes and the like, and in secondary schools with strong technology/DT departments. The students in one focus group estimated that only about 10 students at each year level do coding.	**Interest levels** are likely to be very engaged and enthusiastic about their learning. **Current experience, knowledge, and relevance** are likely to have taken part in a club or programme related to aspects of the DT curriculum (primary and intermediate level). are likely to be taking a computer science, or equivalent, course (at secondary level).	**Introduction and information** Support from peers whose learning is more advanced. **Implementation and design** Effective support from a teacher who is enthusiastic, confident, knowledgeable, and skilled Learning designed to extend their learning, and meet their learning needs, particularly during the initial phase of implementation when the focus is likely to be on the learning needs of beginners Links with other learning areas made explicit Equitable access to the equipment, hardware, and software required.

FAMILIES AND WHĀNAU

Due to the tight timeframes and new topic area, schools were not comfortable with involving their whānau and families in the research. Subsequently, we relied on teacher reflections on family and whānau perceptions about the new curriculum.

Varied capacity to provide support

Teachers and students had varied expectations about:

- parents and whānau levels of awareness and knowledge about DT
- the level of support with the curriculum they expected parents and whānau to be able to provide.

Expectations of whānau knowledge and capacity to provide support tended to be higher in high-decile schools.

Involvement in implementation

All schools saw a role for parents and whānau in implementation.

Even in schools where there was a lower expectation of parents and whānau being able to provide support, it was seen as being important to make them aware of the curriculum and its importance, and showcase student work.

In some schools, parents may have high expectations of being kept informed. One school noted that their community is interested in related work the school has been carrying out in digital fluency, and that if some teachers in the school are doing this work well, and others are not, "*parents will ask why*".

Some schools were confident that there would be parents and whānau who work in technology and who would be able to help the school in some way. One school noted that they already tap into their community to access expertise and skills for other curriculum areas, and will do so for DT.

Schools discussed involving parents and whānau by:

- informing the community through the school website, newsletters, [Seesaw](#).
- parent evenings, focus groups, and whānau hui to inform about the new curriculum. One school described how this type of consultation would mean they could work through parents' concerns about issues such as screen time, equity of access, cyber safety, and their children's presence online, and that such dialogue would be an effective way to avoid resistance. They suggested that this consultation would be more successful if it were framed around the big picture and having some inspiring conversations – "have you thought about," rather than "your child must do this, because".
- workshops where parents can learn along with teachers and students. Three schools described how workshops could involve parents and whānau.
  - Having experts unpack the curriculum in an open seminar where teachers and the community can look at it together and discuss how it will fit their students
  - As part of a roll-out of digital devices – one school has run workshops where teachers and parents learnt from the students. These were very successful.
  - The principal at another school described workshops they had run for maths, where parents come in and learn. They found this worked well. *"If they know about it, then they can be enablers not barriers".*

INDUSTRY

Category

The consultation involved:

- representatives from organisations involved in sector training through either Vocational Pathways or ITO programmes. Sectors: Primary Industries, Health and Social Services, Service Industry
- The CEO of an IT sector-representative organisation
- Six individuals working in the software industry.

Description

Organisations and individuals tended to have low awareness of the new curriculum but noted many potential benefits of increased learning in schools about digital technologies. For example, they considered that having young people coming into their industry with these skills would enhance processes within the industry.

Only one potential negative impact was identified. There was a concern that an increased focus on technological skills could lead to a reduced focus on the interpersonal skills required in the health and social services sector.

IT sector respondents in particular saw much potential for their sector to support the new curriculum (through awareness-raising initiatives, workshops for teachers and students,

giving talks, and mentoring) and some respondents are already involved in providing this type of support in schools.

Many IT sector staff who provide support to schools are motivated by altruism and their organisation's values, rather than personal gain (four individual respondents). One respondent felt they may be more likely to provide support to their local school when their own children reach school age.

Barriers

- Awareness – a lack of awareness and knowledge about the specifics of the curriculum and of opportunities for organisations to support schools was identified as an issue by six respondents.

- Cost – the cost to industry organisations of providing support (staff being released from client work and the costs of providing workshops) was identified as a barrier by five respondents.

Other barriers mentioned that could affect the readiness or ability of organisations to provide support included:

- the potential impact on the privacy of client data (one respondent)

- sceptical attitudes to government programmes (one respondent).

Needs

- Clear curriculum information – All three non-IT sector respondents, (from ITOs and organisations involved in Vocational Pathways programme delivery) requested clear, jargon-free information about the specifics of the new curriculum. One respondent suggested that provision of workshops and case studies would be beneficial.

- Outreach to organisations – One ITO respondent and three IT staff respondents suggested that the Ministry of Education should advertise and use other methods of outreach to ensure that organisations are aware of opportunities and ways to provide support to schools.

- Funding – The IT sector organisation representative and two IT staff respondents requested funding to help organisations in their sector to provide support to schools. Funding was requested for devices, to assist with running workshops, and to cover the general costs of providing direct support to schools.

In addition, two IT staff responses mentioned:

- having access to insight into what works well, in terms of the types of support they are providing to schools

- provision for the licensing of industry intellectual property.

TEACHER EDUCATION

- Teacher education providers were surveyed, with nineteen responses from faculty programme leaders and management working in initial, undergraduate, and post-graduate-level teacher education for early childhood education, primary, and secondary education.

Needs

Resources:

- Examples of pedagogy, student work, classroom examples, digital exemplars, including videos, indicative resources and practical examples of ways of teaching the theoretical understandings within the new curriculum, at both adult and student level (eight respondents)
- Curriculum information and guidelines (three respondents)
- Links to relevant theory, which could be used as course readings (one respondent)
- Research in relation to DT and ECE (one respondent)
- An updated version of Foundation for Discovery (2005) (one respondent)
- Links to online activities that their students can use to upskill in DT (one respondent)
- List of links to organisations that provide support in DT (Teachers ask them for this information.) (one respondent)
- Reviews of relevant tools (one respondent).

Professional development:

- For the respondent and/or colleagues (five respondents)
- Two respondents also suggested professional development for both sides of the practicum component of teacher education courses
  - for practicing teachers to enable them to effectively lead student teachers when on practicum
  - with practicum partners in order to facilitate alignment.

Funding

Four respondents indicated that additional funding would be beneficial to support the new curriculum, specifically for:

- programme development (one respondent)
- professional learning (two respondents)
- purchase of equipment (two respondents)
- additional staff and/or expertise (two respondents)
- their outreach programme, which supports teachers.

Two respondents suggested that funding could be made available through targeted research grants, which benefit the sector through supporting the development of evidence-based material. One respondent suggested that funding could be sought through sponsorship.

Other support

- One respondent indicated that in their view, effective teaching of the mathematics curriculum is crucial to the effective implementation of the new DT curriculum, and that this must be better supported.

Changes to programmes

- Eight respondents indicated that programmes at their institutions are in the process of being revised to support the new curriculum. One is undertaking a revision across all programmes, which will be in place from 2019. Meanwhile, content will be added to their technology and maths programmes.
- Seven respondents indicated that decisions about changes to programmes at their institutions have yet to be made.

Concerns and suggestions related to implementation

- Lack of time – one respondent noted that they already struggle to adequately prepare primary teachers and that adding additional curriculum will add to this pressure and could lead to poor implementation, if not well resourced. They suggested that funding four years of teacher preparation might be a way to address this.
- Concern that practising teachers have adequate release time and professional development was mentioned by two respondents. One also suggested, *"Perhaps, if the Ministry overhauled the requirements of all teachers to undertake some professional development for certification purposes, and paid them appropriately, there would be more buy-in."*
- One respondent noted that although they are committed to ensuring student teachers learn about how pedagogy can be enhanced through DT, they themselves are only "competent users". They do not have the skills to be creators of DT.
- One respondent pointed out that with the emphasis on DT, it is important to ensure that *"Hangarau does not become synonymous with Hangarau Matihiko."*

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