

Kia Takatū ā-Matihiko

Final evaluation report

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Rangahau Mātauranga o Aotearoa | New Zealand Council for Educational Research
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www.nzcer.org.nz

<https://doi.org/10.18296/rep.0033>

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May 2023

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Executive summary

Kia Takatū ā-Matihiko, the National Digital Readiness Programme, was a bilingual and bicultural programme designed to support teachers, kaiako, principals, and tumuaki to feel confident and well equipped to be ready to implement the new Digital Technologies and Hangarau Matihiko (DT & HM) curriculum content that had been added to *The New Zealand Curriculum* and *Te Marautanga o Aotearoa*, respectively. Kia Takatū ā-Matihiko was funded by the Ministry of Education and designed and delivered by multiple organisations led by CORE Education. The programme contract began in April 2018. The programme was launched in June 2018 and ended in December 2020.

Over 3 years, Kia Takatū ā-Matihiko designed and delivered online and face-to-face workshops, resources, learning opportunities, and support for teachers and school leaders in Māori-medium and English-medium settings. The programme operated over six 6-month phases, allowing for review of evaluative data from each phase, iterative adjustments in the design and the delivery of the programme, and implementation of new components as they were ready to launch. During the 3 years of the programme, several “resets” requested by the Ministry of Education were implemented into the programme’s design and delivery. One significant change was a shift away from a numbers target for the programme (a target to reach 44,000 individual teachers and kaiako) towards an approach that focused on the extent of reach and impact for schools and kura as whole units of change.

Evaluation of Kia Takatū ā-Matihiko

The New Zealand Council for Educational Research (NZCER) was an embedded evaluation partner for Kia Takatū ā-Matihiko. Through the collaborative development of theories of change, the evaluation helped to clarify the ideas and assumptions that underpinned the design and delivery of Kia Takatū ā-Matihiko, identify the programme’s intended outcomes, and develop measures to track how the programme’s activities contributed to achieving these outcomes.

The evaluation was originally designed around four high-level evaluation questions, focusing on formative improvements that could be made to the programme, and impacts and outcomes for individual users of the programme (teachers, kaiako, digital leaders, principals, and tumuaki). A fifth evaluation question was later added to address school- and kura-level outcomes, and to understand the contributions Kia Takatū ā-Matihiko had made to ongoing, sustainable networks of support for schools and kura as they continued to prepare to implement Digital Technologies and Hangarau Matihiko into their local curriculum and marau-a-kura in 2021 and beyond. This final evaluation report was completed and submitted to the Ministry of Education in February 2021.

Evaluation question 1: Who is using the programme and what are their needs?

By the end of 2020, 85% of schools and kura on the Ministry of Education school database had at least one user registered on the Kia Takatū ā-Matihiko website. Three-quarters (75%) of schools or kura registered with the website had at least two registered users, and 58% had three or more registered users. Of schools or kura that had at least one registered user, 93% had had at least one person visit the site in the past 6 months.

The most-used online component of Kia Takatū ā-Matihiko was Te Tokorima-a-Mahuika, the Self-Review Tool (SRT). More than 11,000 people had used it at least once and just under 2,000 had used it more than once. Fewer users (5,659) had attempted pīkau, but of those who had, 62% had attempted at least two pīkau. At least 5,450 people had attended at least one online or face-to-face meetup during the 3 years of the programme, with more than 13,000 registrations for 658 events. Several hundred people registered as Pouahi/digital leaders, accessing additional support from the programme to lead and support Digital Technologies and Hangarau Matihiko implementation in their school or kura.

The needs of users varied considerably. Apart from the common need to develop shared high-level understandings of the new curriculum content, there were different needs depending on the student year levels taught, location, and many other school context factors including the extent of existing leadership and capability development in relation to Digital Technologies and Hangarau Matihiko, the degree to which it was a priority for the school or kura, the nature of existing support networks, schools' ability to access additional supports such as centrally funded professional learning and development (PLD), and the nature of local curriculum design in each school or kura.

There were also different needs depending on medium. It was recognised from the beginning of the programme that Māori medium would have a different starting point than English medium. It was known that there was a shortage of hangarau subject-specialist kaiako in Māori medium, and a chronic shortage of quality resources in te reo Māori. Kia Takatū ā-Matihiko aimed to address the needs of Māori medium as a key priority, in addition to the other variable needs, within the time, budget, and other fixed parameters of the programme. This was done through:

- bilingual and bicultural design of the programme
- resources and facilitation offered in te reo Māori
- persistent efforts to have at least some engagement with every Māori-medium setting
- developing different kinds of resources (pīkau, rauemi) and meetups in both languages, targeting different needs, including “introductory” resources and meetups for beginners, specialised resources and meetups for Pouahi/digital leaders and senior leaders, and resources and meetups for teachers teaching at different year levels or teaching in different disciplines
- regional-level planning to try to ensure all regions had access to meetups, and efforts to connect with Ministry of Education digital champions in each region
- developing additional rauemi/resources requested by the Ministry of Education and schools and kura throughout the programme
- continuous improvements made throughout the programme using evaluative data and user feedback.

Evaluation question 2: What could be strengthened?

Kia Takatū ā-Matihiko made numerous changes and adjustments to the programme over 3 years, utilising evaluation data and other user feedback to identify ways that the programme could better meet diverse user needs. Key areas that were strengthened included:

- iterative improvements to the website to improve usability and accessibility and fix identified issues
- the addition of a group review tool function to the SRT, at the request of schools and kura
- iterative improvements to the planning, design, and delivery of meetups based on evaluative feedback in each phase
- a rapid COVID-19 response, quickly re-orienting the programme for completely online delivery with the focus to support teachers to integrate DT & HM into their distance learning

- extending the use of Facebook live to reach more users, including whānau, during the lockdown period
- enhancing communications strategies to drive engagement and use of the programme and website
- actively tracking engagement with Māori-medium settings in order to identify kura that were not yet connected with the programme, so that proactive efforts could be made to engage those kura
- development of many additional resources/rauemi
- iterative improvement to the evaluation approach, including annual review and refinement of the evaluation questions, theories of change, and data collection instruments and approaches.

Evaluation question 3: How well is the programme meeting diverse needs?

The evaluation data indicated many kaiako, tumuaki, teachers, and principals were very happy with the support they had received from Kia Takatū ā-Matihiko. Most feedback about meetups, pīkau, Te Pā Pouahi, and other components of the programme was positive. Some users who were interviewed in 2020 said Kia Takatū ā-Matihiko had provided all the knowledge, content, and support their school would need to confidently implement DT & HM into their local curriculum.

There had been very positive feedback from Māori medium about the bicultural design of Kia Takatū ā-Matihiko. Kaiako, tumuaki, and whānau appreciated being able to connect and relate Hangarau Matihiko to tīpuna and matauranga Māori and having access to resources and facilitation in te reo Māori. Some kura said it was the first PLD of any kind that they had had in te reo Māori for many years. Some English-medium users also praised the bicultural and bilingual design of the programme and appreciated access to resources that support them to understand and embed DT & HM in cultural contexts.

Other schools and kura benefited from their use and engagement with Kia Takatū ā-Matihiko but described themselves as still “just getting started” and expressed a desire for continuation of support to meet their needs. Many schools and kura wanted the key components of Kia Takatū ā-Matihiko support to continue, including having continued access to all the online materials and resources. Some schools, and particularly kura, wanted ongoing opportunities for face-to-face support.

Some schools and kura had less engagement with Kia Takatū ā-Matihiko. Some Māori-medium settings were only just making their first connections with Kia Takatū ā-Matihiko in the final phases of the programme. Some Pouahi interviews and surveys suggest that DT & HM had been a lower priority for some schools and kura, or that plans for focusing on this in 2020 were somewhat disrupted by the COVID-19 lockdown.

Some users said the programme has been most effective in supporting primary schools, with some secondary school users saying they still need more explicit support about what was expected for schools teaching at these levels, and guidance about how to integrate DT & HM in secondary school curriculum contexts.

Finally, some people who provided evaluative feedback on the programme indicated their specific needs were not met, or they wanted forms of support other than what Kia Takatū ā-Matihiko was providing. A common ideal was to have someone to come in and work with their school or kura in person, in more depth. Where schools or kura had applied for centrally funded PLD to support digital technologies, some had been satisfied with the facilitated support they received. Others had been declined in their applications or were not satisfied with the support they had received from other PLD providers.

Evaluation question 4: How well is the programme supporting increased understanding of new curriculum content, and incorporation into practice?

Where there had been engagement with Kia Takatū ā-Matihiko, there was strong evidence that it had supported the development of knowledge, confidence, and understanding in relation to the new DT & HM curriculum content. Many who used the Pouahi/digital leaders programme said Kia Takatū ā-Matihiko provided them with the background knowledge, resources, and guidance they needed to plan for ongoing professional learning for staff in their school or kura, and they intended to keep going back to this resource.

There was also evidence that Kia Takatū ā-Matihiko had supported teachers and kaiako to incorporate DT & HM into their practice. However, schools and kura were still at different places with their practice. The nature of practice development also related to school-level contexts, including the extent of prior expertise in the school or kura, the degree to which it had been a priority for school-wide PLD, and whether leadership roles had been established within the school or kura to develop, strengthen, and support this aspect of the local curriculum.

Evaluation questions 5: How well is the programme supporting school- and kura-level “readiness” to incorporate DT & HM in local curriculum?

The final evaluation question identified several high-level outcomes for schools and kura with respect to the ongoing implementation of DT & HM in local curriculum. The achievement of these outcomes was a shared responsibility, with Kia Takatū ā-Matihiko, the Ministry of Education, other Ministry-funded programmes, other national, regional, and local system supports, and school and kura all contributing to these outcomes.

- ***Awareness and shared understandings of the revised DT & HM curriculum content and the intentions of the revised technology and hangarau learning areas***

Evaluative feedback indicated that Kia Takatū ā-Matihiko had made a significant contribution to this outcome. Pouahi in particular found Kia Takatū ā-Matihiko useful in helping them to understand the “why”, so that they could support their colleagues’ understanding as they further unpacked how to put DT & HM into practice. However, where schools and kura had lesser engagement, there was still evidence of some confusion about how the DT & HM content connects with or differs from digital fluency. There was also evidence that the technology and hangarau learning areas were not necessarily well understood or enacted even before the introduction of the DT & HM revisions. This meant that there was a lot of groundwork to cover to support schools and kura to be able to understand and work effectively with this part of the curriculum.

The revised DT & HM content sits within the technology and hangarau learning areas. The evaluation data showed that there was a strong motivation in many schools and kura to weave in and integrate this knowledge into other learning areas. Facilitators and Pouahi often sought to show teachers that it does not have to be another thing to “add on” to their practice: once they understand what the concepts are about, they can be supported to incorporate or strengthen these concepts within many areas of their current practice.

- ***Building leadership capabilities in DT & HM within schools and kura***
- ***Strengthening capability to make informed decisions about planning and resourcing DT & HM implementation***

Feedback from Pouahi indicates that Kia Takatū ā-Matihiko had contributed to these outcomes. Some Pouahi noted that “middle leaders” don’t always have access to resources and support they need about how to lead and support change within their schools, and saw Kia Takatū ā-Matihiko resources as a valuable contribution to this gap. Some Pouahi had goals and ambitions for ongoing DT & HM implementation within their school or kura. They appreciated having Kia Takatū ā-Matihiko resources that could help them make a case to their principal for why a particular approach or strategy should be prioritised or implemented with the backing of senior leadership.

Some users said they still needed or wanted more support and advice to support ongoing decisions about planning and resourcing DT & HM, particularly with respect to choosing specific tools and platforms to support their learning and teaching programmes in DT & HM.

- ***Beginning to integrate DT & HM into learning programmes***

Most schools and kura were beginning to integrate DT & HM into their local curriculum. Some schools had made considerable progress, while others were still in “early stages”. Many Pouahi said Kia Takatū ā-Matihiko had given them confidence to continue to support PLD for their colleagues. Many users appreciated access to practical, “classroom-ready” rauemi/resources and guidance. In terms of ongoing support needs, most Pouahi said their school or kura would benefit from more examples of what other teachers and students were doing with DT & HM in the classroom, and more examples of how to use the progress outcomes. PLD facilitators who had supported schools and kura with DT & HM agreed that schools and kura still need these kinds of support, as well as additional guidance in how to develop and sustain DT and/or HM in local curriculum.

- ***Supporting access to sustainable support networks***

Kia Takatū ā-Matihiko recognised the importance of supporting schools and kura to establish knowledge and connections that could sustain their progress with DT & HM beyond 2020. Over 3 years, Kia Takatū ā-Matihiko worked hard to ensure as many schools and kura as possible were reached and knew how to access the support that was available through the programme. Connections between schools and kura were one form of ongoing support that could be sustained beyond the programme. Interestingly, the evaluation data suggest that DT & HM had not been a priority in many Kāhui Ako. However, some schools and kura had been proactive in networking and making connections with other schools/kura to support Digital Technologies and Hangarau Matihiko. Kia Takatū ā-Matihiko face-to-face meetups helped some schools and kura to establish these connections. In other cases, schools and kura had done this themselves, or leaned into local (city- or region-level) support networks.

The partnership approach of Kia Takatū ā-Matihiko brought together respected organisations and people to support and grow their existing ecosystems of support for schools and kura. Digital Technology Teachers Aotearoa (DTTA) and Code Club Aotearoa were respected partners with UC CSERG. Code Club Aotearoa brought Code Club 4 Teachers which supported Pouahi to lead their own sessions and grow small hubs of support that met fortnightly. DTTA’s membership

did increase over the life of the programme, and the subject association will continue to support members and welcome new teachers to grow their Digital Technologies and Hangarau Matihiko connections.

Another form of support was centrally funded PLD. Feedback from Pouahi suggests schools had variable experiences with centrally funded PLD, with some satisfied and others disappointed, either through having applications be declined, or finding that PLD did not meet their needs. Some users of Kia Takatū ā-Matihiko had also benefited from other Ministry-funded Digital Technologies and Hangarau Matihiko support programmes, or support from digital technology companies.

Some PLD facilitators said the programme should have done more to engage with, and support, PLD facilitators outside the partnership that delivered Kia Takatū ā-Matihiko. While PLD facilitators praised many aspects of the programme, some also provided critique and suggestions for how support for schools and kura could be strengthened to ensure equity for schools and kura across the network.

Kia Takatū ā-Matihiko sought to engage regional Ministry of Education Digital Technologies champions. During Phase Four, Kia Takatū ā-Matihiko and the Ministry of Education's Digital Technologies regional champions had initial contact with each other, and by Phases Five and Six a trusting relationship was established. Kia Takatū ā-Matihiko created a 2-day workshop to understand the needs of each region and created a meetup plan for each of the 10 regions. This plan became the focus for meetups, both virtual and face to face. To ensure that Kia Takatū ā-Matihiko was meeting the needs of each region, monthly hui were set up to work collaboratively. In Phase Six, all Ministry offices were sent rauemi/resources for both English and Māori medium to support education advisers to have conversations with their schools regarding DT & HM.

Conclusion and recommendations

Based on our evaluation findings, we identified several key messages to support the Ministry of Education's ongoing and future design plans for any nation-wide PLD support approach:

- Build future approaches based on the strengths of Kia Takatū ā-Matihiko, including the bicultural foundation of the programme's design and implementation.
- Plan for sustainable change, recognising that schools and kura are at different starting points and will need different support at different stages.
- Co-construct a robust theory of change with providers, evaluators, and the school and kura sector, and use evaluation to iteratively test, revise, and improve the theory of change.
- Provide consistent support and stewardship from the Ministry of Education to ensure Ministry-contracted programmes will have the best chance of success. This includes working with programmes to ensure clear and consistent messaging to schools and kura, and clear guidance about expectations and goalposts.

1. Project background

About Kia Takatū ā-Matihiko

Kia Takatū ā-Matihiko, the National Digital Readiness Programme, was one of several support programmes funded by the Ministry of Education after the government introduced new curriculum content to strengthen and support Digital Technologies and Hangarau Matihiko (DT & HM) in the curriculum. Kia Takatū ā-Matihiko was designed and delivered by multiple organisations led by CORE Education. The partners included Kia Ata Mai, NZCER, Open Polytechnic, Te Papa, University of Canterbury Computer Science Education Research Group with AATEA Solutions Ltd, Digital Futures Aotearoa, University of Canterbury Education Plus, Code Clubs Aotearoa, Digital Technologies Teachers Aotearoa, and Nikora Ngaropo Design and Motion.

Kia Takatū ā-Matihiko aimed to support teachers, kaiako, digital leaders, principals, and tumuaki to feel supported, confident, and well equipped to implement the new DT & HM curriculum content through the provision of online and face-to-face learning opportunities, resources, and support for teachers and school leaders in English-medium and Māori-medium settings.

The programme contract began in April 2018. The programme was launched in June 2018 and ended in December 2020. The programme operated over six 6-month phases, allowing for review of evaluative data from each phase, iterative adjustments in the design and the delivery of the programme, and implementation of new components as they were ready to launch. Resources produced for the programme can now be found on CORE Education's website.¹

Programme design

The model for Kia Takatū ā-Matihiko was based on a Māori conceptual framework based around ahi (fire). Mātauranga Māori is the foundation of this model to enable Māori-medium kura and kaiako to connect themselves and their kura philosophy to new learning, and to support everyone who engages with Kia Takatū ā-Matihiko to navigate Digital Technologies and Hangarau Matihiko through a uniquely Aotearoa lens. As the original programme proposal explained it:

At the heart of our model and programme is a pūrākau (story) about two important Māori deity—Mahuika and her mokopuna, Māui. The pūrākau is about how Māui brought fire to his people by acquiring Mahuika's fiery fingernails (Māui and the fire). Māui in Māori mythology is often associated with innovation, taking chances, being adaptable, agile and pushing the boundaries. These are also the skills and attitudes to learning that leaders and kaiako will need to adopt in order to grow their digital readiness. The metaphor of 'fire' represents one of the most important and earliest innovations of our history from which many technologies were crafted.

Kia Takatū ā-Matihiko included a mixture of online and face-to-face components, including:

- a website portal, providing access to resources, exemplars, communities, and courses
- Te Tokorima-a-Mahuika/Self-Review Tool

¹ See https://core-ed.org/en_NZ/free-resources/kia-takatu-a-matihiko-digital-readiness/

- Pīkau/Toolkits (interactive multimedia digital modules and webinars)
- Ki te Ahikāroa/Local meetups
- Te Pā Pouahi/Digital Leaders course
- Ngā Kiriahi/Communities of practice
- Te Tahu Ahi/Stories of practice.

Users needed to register and log in to the website portal to access the tools and resources, or to register for meetups. The purpose of registration was to enable the programme to track the engagement and reach of the programme, and to evaluate what was or wasn't effective to inform ongoing development. Face-to-face components included local meetups and kura visits, wānanga, as well as the Kia Takatū ā-Matihiko programme providers presenting at other conferences and workshops.

2. Evaluation methodology

The purpose of evaluating Kia Takatū ā-Matihiko was to strengthen the programme, maximise its effectiveness, and ascertain emerging outcomes. NZCER designed and conducted evaluation for Kia Takatū ā-Matihiko throughout the programme, as an embedded evaluation partner.

NZCER used a participatory approach, guided by the kaupapa Māori principles identified in the Tirohanga Māori Framework developed by CORE Education and Te Wāhanga–NZCER (Appendix 1). We worked with the partners to co-design aspects of the evaluation to build shared understandings of what the programme aimed to achieve, for example, through the development of shared theories of change, and working with both the English-medium and Māori-medium teams to ensure that the appropriate evaluation approaches and methods were used in each context. A wide range of formative and summative evaluation data were collected throughout the programme. Evaluation reports were prepared for Kia Takatū ā-Matihiko and the Ministry of Education at the end of each phase of the programme.

Evolving theories of change for Kia Takatū ā-Matihiko

Through the collaborative development of theories of change, the evaluation helped to clarify the ideas and assumptions that underpinned the design, delivery, and iterative development of Kia Takatū ā-Matihiko, identify the programme's intended outcomes, and develop measures to track how the programme's activities contributed to achieving these outcomes. Developing theories of change helped to:

- clarify **shared understandings** about what the initiative was intended to do, and how it would work (how the different activities would lead to positive change or outcomes)
- **surface assumptions** that were built into the programme and its activities, including assumptions about user needs, assumptions how change will occur, etc., so that these could be noticed/discussed/tested with evidence
- **support evaluators** to identify what kinds of data could be gathered and analysed to provide useful formative feedback on the programme's goals, aims, activities, and summative information about whether and how it was achieving its intended outcomes.

In the first year of the programme, we worked with the members of the project team to develop an initial programme logic model, an overall Kia Takatū-ā-Matihiko programme theory of change, and a theory of change specifically for Hangarau Matihiko in Māori medium. This iterative process occurred through close analysis of Ministry of Education draft theories of change, multiple workshops with the programme team, and input from Te Ahi Kōmau, the governance group for the programme. The initial theories of change focused on the changes the team thought would occur for individuals because of their engagement with the chosen interventions or programme components (see Appendix 1).

In Phase Four, NZCER worked with the programme to develop complementary theory of change (Appendix 1, third diagram) to explain the changes that Kia Takatū ā-Matihiko intends to contribute to kura and schools as whole units of change. Both theories of change were used to guide our data collection and analysis to answer the evaluation questions.

Evaluation questions

The evaluation was originally designed around four high-level evaluation questions, largely focusing on impacts and outcomes for individual users of the programme (teachers, kaiako, leaders, tumuaki). In Phase Four, we reviewed and reset the evaluation approach to ensure fit for purpose. This involved reviewing and tweaking the original evaluation questions and adding a fifth evaluation question focused on school- and kura-level outcomes. Table 1 presents the finalised evaluation questions.

TABLE 1 Evaluation questions

	Evaluation question	Sub-questions
Formative focus	1. Who is using the programme and what are their needs?	<p>What components are they using or not using?</p> <p>What are users' starting points, needs, and perceptions about what they will need to be "ready" to implement Digital Technologies and Hangarau Matihiko?</p>
	2. What could be strengthened?	<p>What assumptions underpin Kia Takatū ā-Matihiko?</p> <p>Is the programme working as intended?</p> <p>What features of the Kia Takatū ā-Matihiko programme could be strengthened to maximise its effectiveness?</p>
Outcome-focused	3. How well is the programme meeting diverse needs?	How well does the Kia Takatū ā-Matihiko programme meet the diverse needs and capabilities of school leaders, tumuaki, teachers, and kaiako in diverse schools and kura?
	4. How well is the programme supporting increased understanding of new curriculum content, and incorporation into practice?	<p>How well does the Kia Takatū ā-Matihiko programme provide teachers, kaiako, school leaders, and tumuaki with an understanding of the new Digital Technologies and Hangarau Matihiko curriculum content and the intentions of the revised technology and hangarau learning areas?</p> <p>How well does the Kia Takatū ā-Matihiko programme support teachers, kaiako, school leaders, and tumuaki with an understanding of how to incorporate this into teaching and learning programmes?</p>
	5. How well is the programme supporting school- and kura-level "readiness" to incorporate Digital Technologies and Hangarau Matihiko in local curriculum?	<p>How well does the Kia Takatū ā-Matihiko programme <u>contribute</u> to these outcomes for school and kura:</p> <ul style="list-style-type: none"> • awareness and shared understandings of the revised Digital Technologies and Hangarau Matihiko curriculum content and the intentions of the revised technology and hangarau learning areas • building leadership capabilities in Digital Technologies and Hangarau Matihiko within schools and kura • strengthening capability to make informed decisions about planning and resourcing Digital Technologies and Hangarau Matihiko implementation • beginning to integrate Digital Technologies and Hangarau Matihiko into learning programmes • supporting access to sustainable support networks?

Note: Achieving these outcomes is a shared responsibility. The Ministry of Education, Kia Takatū ā-Matihiko, other Ministry-funded programmes, other national, regional, and local system supports, and school and kura all contribute to these outcomes.

Success measures

Success measures for the programme were derived from the five evaluation questions and the outcomes identified in the theories of change (see Appendix 2). For individual users of the programme, success measures related to growth in motivation and confidence, knowledge, and practice in relation to DT & HM. For schools and kura, success measures related to the extent to which schools and kura were being reached by the programme, and school-level outcomes including:

- schools and kura are aware of DT & HM revised curriculum content and school and kura leaders are motivated to prioritise DT & HM
- schools and kura share a common understanding of DT & HM
- schools and kura identify and support staff to lead DT & HM implementation
- senior management and boards of trustees in partnership with their community develop a plan to integrate DT & HM into their local curriculum
- schools and kura make informed decisions about resourcing DT & HM implementation.

Data collection methods

The evaluation team collected quantitative and qualitative data about the different components of Kia Takatū ā-Matihiko and synthesised the data to form a picture about the effectiveness and impact of the entire programme. We worked with other programme partners to set up and continuously improve embedded data collection systems, and processes for accessing and sharing evaluation information with key stakeholders.

Users who registered on the Kia Takatū ā-Matihiko website were informed that anonymised data about user activities would be collected for evaluative purposes, including selected demographic information (e.g., region, school type, medium), self-review tool (SRT) scores, use of pīkau, registration for meetups and Te Pā Pouahi, and interactions on ngā kiriahi.

In addition, users could voluntarily give anonymous feedback through online evaluation forms for pīkau and meetups. In 2019 and 2020, additional voluntary surveys were designed for Pouahi/Digital leaders. In 2019 and 2020, phone or face-to-face interviews were carried out with several dozen users of Kia Takatū ā-Matihiko who volunteered to be contacted by NZCER for evaluative purposes. Further information about the programme was gathered through feedback forms from meetup facilitators, and facilitators who visited kura. Contextual understandings and interpretations of data were checked through conversations and workshops with designers and facilitators, and reviews of programme documentation.

Analysis of data

Qualitative data

Qualitative data, including written comments and interview data, were coded and analysed thematically to highlight themes from the users' point of view. Qualitative data from designers and facilitators in the form of written records of workshops, discussions, minutes, and other documents were analysed and synthesised to tell a story about some of the Kia Takatū ā-Matihiko programme-wide themes from their insider perspective.

Quantitative data

Quantitative data were cleaned and analysed by NZCER's statistician, and various analyses were carried out under the instructions of the evaluation co-leads to explore what the data could tell us in relation to the evaluation questions.

Limitations of the data

Because most of the user data were gathered through users' interactions with the online programme components, feedback from face-to-face programme components, and voluntary feedback from users who agreed to be surveyed or interviewed, we have little data from non-users of the programme.

3. Kia Takatū ā-Matihiko end users

Website portal

The Kia Takatū-a-Matihiko website was the portal into most components of the programme, although, particularly in 2020, the programme made use of external platforms such as Facebook Live to extend the reach and engagement with some aspects of the programme outside of the main website. Users could navigate the Kia Takatū a-Matihiko website in English (for English-medium content/New Zealand Curriculum content) or te reo Māori (for Māori-medium content/Te Marautanga o Aotearoa content). The website went through iterative development, adding features and functionality as the programme developed and other components came online. Further changes to improve navigability of the website were implemented in Phase Six based on user feedback.

To access the resources on the website, users had to register and create a profile, including their name and email address,² and other demographic information (Table 2). The school or kura name was optional when the programme first launched but was made compulsory for new registrations during Phase Four due to a Ministry of Education contract reset.

TABLE 2 Required demographic information

Field	Options
Region	18 New Zealand region options, including Chatham Islands, and “Other”
Year levels	Years 1–6, Years 7–10, Years 11–13
Medium	English medium, Māori medium
Kura designation	Te Aho Matua kura, Te Marautanga o Aotearoa kura, Both
School role	Teacher, leader, other
Name of school or kura	Autocomplete text field

Registrations and visits per user

Website usage data were downloaded for analysis on 1 November 2020. Our analysis indicates there were 13,925 complete, unique user registrations by that date.³ Forty-five percent of these users had visited the site three or more times (Table 3). A third (33%) had visited the website within the past

2 This identifying information is stored securely and can never be accessed by evaluators or any members of the project team other than the administrators.

3 This count excludes “incomplete” registrations that do not include all the information required for our analyses (e.g., no school or kura name supplied, other incompleting registrations, or bounces). This count also excludes users from the Kia Takatū ā-Matihiko programme (e.g., facilitators, administrators, developers, and evaluators).

6 months (Table 4). There were 1,698 new unique user registrations since 12 May 2020, the data cut-off for our previous evaluation report. Seven percent of new registrations in this period were from Māori medium.

TABLE 3 Number of visits per unique user (n = 13,925)

Number of visits	% responses
1	38
2	18
3+	45

TABLE 4 Recency of last visit, per unique user (n = 13,925)

Recency of visits	% responses
Past month	6
Past 3 months	18
Past 6 months	33
More than 6 months	67

Registrations and visits per school or kura

Most schools and kura in Aotearoa New Zealand appeared to have engaged with the website. Our analysis indicated that 85% of schools and kura on the Ministry of Education school database had at least one registered user. Table 5 shows the number of registered users per school or kura, where the names of schools or kura could be matched to a Ministry of Education school number, compared with previous phases.⁴ As of 2 November 2020, 75% percent of schools or kura that were registered with the website had at least two registered users, and 58% had three or more registered users. Of schools or kura that had at least one registered user, 93% had at least one person visit the site in the past 6 months.

TABLE 5 Number of registered users per school or kura

Number of users per school/kura	% schools or kura		
	Phase Four (n = 1,813)	Phase Five (n = 2,091)	Phase Six (n = 2,172)
1	37	19	25
2	19	17	17
3	11	10	11
4+	32	54	47

⁴ Eight hundred and forty-four of the users in this dataset could not be matched to a school or kura name.

TABLE 6 Recency of last visit, at least one user per school or kura (at 2 November 2020)

Recency of visit	% schools or kura registered on website
Past month	19
Past 3 months	38
Past 6 months	93

Te Tokorima-a-Matihiko/Self-Review Tool

Te Tokorima-a-Matihiko/The Self-Review Tool (SRT) allowed users to rate their knowledge, confidence, and practice knowledge in relation to DT & HM in relation to 13 slider scale statements, grouped into three constructs relating to the metaphor of building a fire (Table 7), tying in with the Maui and Mahuika story.

TABLE 7 The three dimensions of the Self-Review Tool

Dimension	What it seeks to measure
Te Tahu/Igniting the flame	Willingness and confidence to learn about the DT (or HM) curriculum, and supporting the learning of others
Te Kora/Fuel	Knowledge about the DT (or HM) curriculum content
Te Hāora/Oxygen	Awareness and use of the resources available to support learning about the DT (or HM) curriculum content

The original intention was that individual users could use this tool to get a sense of what they would need to do to build their confidence, knowledge, and capabilities to implement DT & HM and then chart their own learning pathway using the online and offline learning opportunities available through the programme. The SRT was designed with a strengths-based view of users. Items were worded carefully to support users not to feel diminished, put off, or overwhelmed if they were very new to DT & HM. The tool was designed to help individuals to see existing strengths they could build on, as well as identifying areas where they might need specific support. It was also hypothesised that users would go back to review themselves on the SRT again at a future time, providing a means for evaluating shifts and growth over time. As a result of feedback from schools and kura, a “group review tool” function was introduced to allow schools to see the collated scores of their user teams, so that schools and kura could evaluate their own starting points and track their growth over time. Feedback from users indicated the group review tool function was valued.

NZCER analysed SRT data periodically through the course of the programme. For ethical and statistical reasons, we only analysed individual SRT data, not group review tool data, as the latter could be traced to specific schools or kura.

When the SRT was launched in 2018, it included two open questions:

- Overall, how would you describe your/your school’s readiness to effectively implement the DT curriculum content?
- What key supports do you/your school require in order to effectively implement digital technologies in your school’s curriculum and teaching programme?

Open responses were coded and analysed for the first evaluation report (Bolstad & Bright, 2018). On NZCER’s advice, the open questions were removed in 2019 and replaced with a 5-point rating description of the “overall readiness” of a school or kura.

By December 2020, 6,840 people had rated the overall readiness of their school or kura on the 5-point scale (Table 8).⁵ Most people indicated that their school or kura was either “in the early stage of exploring” DT & HM (38%) or “beginning to integrate Digital Technologies and Hangarau Matihiko into learning programmes” (47%). Around 10% described their schools as “confidently delivering” DT & HM learning. A small percentage (approximately 4%) described their school or kura as “not at all ready”, and at the other end of the scale, only 1% considered that their school or kura was “seen as a leader” in DT & HM by other schools and kura. The proportion of people who judge their school to be “beginning to integrate” or “confidently delivering” DT & HM programmes grew incrementally since this question was first included in the SRT.

TABLE 8 Individuals’ assessment of their school’s overall readiness to effectively implement DT & HM – all responses to date (n = 6,840)⁶

Level of readiness	%
Not at all ready.	4
We are in the early stages of exploring digital technologies.	38
We are beginning to integrate digital technologies into learning programmes.	47
We are confidently delivering digital learning programmes in authentic and meaningful contexts.	10
We are seen as leaders in integrating digital technologies by other schools.	1

Repeat use of the SRT, and changes over time

Our analysis indicates that 11,358 people had used the SRT at least once, and just under 2,000 users had used the SRT more than once. For users who completed the SRT more than once, we identified a subset of users whose scores could be analysed to look for any changes over time: users who completed the SRT at least once in 2019, and at least once in 2020. The most recent scores were used for those who had completed the SRT more than once in a year. Data from 2018 were excluded from the analysis, as this would have required significant cleaning due to iterative changes that were made to the SRT that year. Approximately 500 people’s SRT scores could be compared using this method of analysis.

Table 9 shows how these people rated their schools’ readiness in 2019 and 2020. Overall, there was growth in the percentage who said their school was at least “beginning to integrate”, and a decrease in the percentage who said they were “not at all ready” or “in the early stages”.

⁵ As some users have completed the SRT more than once, we have only included their most recent score in this analysis.

⁶ This closed question was added to the SRT around March 2019, which is why there are fewer responses to this question than the overall number of people who have completed the SRT since it was launched.

TABLE 9 Level of readiness, changes in scores where SRT used more than once

Level of readiness	% 2019	% 2020
Not at all ready.	5	2
We are in the early stages of exploring DT & HM.	46	31
We are beginning to integrate DT & HM into learning programmes.	43	57
We are confidently delivering digital learning programmes in authentic and meaningful contexts.	6	8
We are seen as leaders in integrating DT & HM by other schools.	0	1

Table 10 shows the same repeat users' mean scores⁷ on each of the SRT sliders in 2019 and 2020. Again, the analysis indicates general growth in mean scores across all the dimensions for people who repeated the SRT in 2019 and 2020, with particular growth in the Te Kora and Te Hāora dimensions.

⁷ The slider generates a score between 0 and 100 depending where the slider is dragged to by the user. However, users do not see this numerical scale when they use the slider.

TABLE 10 Scores on all SRT sliders, changes in mean scores between 2019 and 2020

	Teacher	Leader variation	Mean 2019	Mean 2020	
Te Tahu	T1*	I am eager to learn about the Digital Technologies curriculum content.	I am willing to support my colleagues to learn about the Digital Technologies curriculum content.	75.9	93.4
	T2	I am comfortable taking risks and making mistakes as I learn about the Digital Technologies curriculum content and I see this as part of the learning process.		82.3	83.7
	T3	I believe learning about the Digital Technologies curriculum content is vital to our learners' future and I see the benefits of change for all of us.		81.3	83.1
	T4	I support my colleagues to learn about the Digital Technologies curriculum content.		77.2	79.5
Te Kora	K1*	I design Digital Technologies learning programmes that are derived from the Principles of the New Zealand Curriculum including the technology strands.	I support my colleagues to design Digital Technologies learning programmes that are derived from the Principles of the New Zealand Curriculum including the technology strands.	31.0	64.7
	K2*	I am able to effectively teach the Computational Thinking area.	I support my colleagues to effectively teach the Computational Thinking area.	30.6	62.5
	K3*	I am able to effectively teach the Designing and Developing Digital Outcomes area.	I support my colleagues to effectively teach the Designing and Developing Digital Outcomes area.	27.4	61.3
	K4*	I can integrate the new Digital Technologies content into our school curriculum in authentic and meaningful ways.	I can support my colleagues to integrate the new Digital Technologies content into our school curriculum in authentic and meaningful ways.	37.8	65.9
	K5*	I can use an iterative design process with students when teaching the Digital Technologies curriculum content.	I can support my colleagues to use an iterative design process with students when teaching the Digital Technologies curriculum content.	27.7	56.4
	K6*	I draw on my students' prior knowledge and experiences to co-construct learning activities in Digital Technologies.	I can support my colleagues to draw on my students' prior knowledge and experiences to co-construct learning activities in Digital Technologies.	39.8	61.1
Te Hāora	H1*	I use a variety of Digital Technologies and systems to support students' learning.	I support my colleagues to use a variety of Digital Technologies and systems to support students' learning.	45.7	70.7
	H2*	I connect with others to strengthen and grow my learning in Digital Technologies.	I seek opportunities to strengthen and grow my school's professional relationships to support our learning in Digital Technologies	49.5	77.3
	H3*	I am aware that our school having an effective e-Learning/ICT Strategy is not necessarily effectively implementing the Digital Technologies curriculum content.	Our school understands that having an effective e-Learning/ICT Strategy is not necessarily effectively implementing the Digital Technologies curriculum content.	56.4	72.5

Pīkau/Toolkits

Pīkau/Toolkits are online digital resources or learning toolkits that users can work their way through to support their learning about DT & HM and how to implement the revised DT & HM curriculum content into their practice. There are 27 English-medium and 23 Māori-medium pīkau/digital toolkits, including four Te Pā Pouahi pīkau (English-medium) and four Te Pā Pouahi (Māori-medium) pīkau.

Pīkau are built on the iQualify platform. Each pīkau contains a mixture of video (with transcript), written explanations and commentary, activities for the user, and quizzes. Some pīkau include links to downloadable resources and additional material relevant to the pīkau.

Pīkau are designed to take between 45 minutes to 1.5 hours to work through completely, though this may vary depending on the user and the nature/content of the pīkau. Users can work their way through each pīkau at their own pace, over a single sitting or multiple sittings, and can revisit any part of the pīkau at any time. Each pīkau includes an evaluation link, where users can give feedback on the pīkau, and a link to a discussion area associated with that pīkau on ngā kiriahi.

How many pīkau did individual users engage with?

Our analysis (to 2 November 2020) indicated 5,659 people had attempted at least one pīkau, and 3,056 had “completed” at least one pīkau. A significant proportion of people registered on the Kia Takatū ā-Matihiko website had not yet attempted any pīkau. Given that 38% of completely registered users had only visited the website once, the finding that many had not yet attempted any pīkau was not too surprising. Around twice as many people have used the SRT as had attempted any pīkau, and it is possible that some teachers went onto the site specifically to do the SRT, at the request of leaders within their school, as part of a school-wide self-review process. However, surveys and interviews with Pouahi also showed that, in some schools and kura, pīkau were sometimes shared in staff meetings—so more people may have viewed bits of pīkau content (for example, videos) in this way.

Table 11 shows the number of pīkau attempted and completed per individual user. Of users who had attempted any pīkau, 62% had attempted at least two pīkau. More than a quarter (26%) had attempted five or more pīkau, and 6% had attempted more than 11 pīkau.

TABLE 11 Number of pūkau attempted and completed per user

Number of pūkau	Attempted		Completed	
	Frequency (users)	% users who have attempted any pūkau	Frequency (users)	% users who have attempted any pūkau
1	2,157	38	890	16
2	852	15	438	8
3	649	11	385	7
4	510	9	340	6
5	385	7	251	4
6	271	5	146	3
7	171	3	146	3
8	144	3	95	2
9	105	2	75	1
10	81	1	52	1
11+	334	6	238	4

Which pūkau did users engage with?

Detailed usage data for all English-medium and Māori-medium pūkau are shown in Appendix C. The most used pūkau in both mediums were the first few introductory pūkau. These pūkau were the most important ones “for all” users to have engaged with, particularly users who were very new to this area of learning. Other pūkau were increasingly more complex in exploring the curriculum content. Teachers were encouraged to do the pūkau that best suited their learning needs and the level of their students. It was not expected that all users should engage with every pūkau. Some of the later pūkau were more relevant for DT & HM subject specialists, and some pūkau were more relevant for people with leadership responsibilities to plan and implement DT & HM in their school curriculum or marau ā-kura.

The most-used English-medium pūkau was “Pūkau 00: Intro: Why Digital Technologies?” By 2 November 2020, 3,958 users had attempted this pūkau. Over 2,000 users had attempted the next three English-medium pūkau that introduce computational thinking for DT, designing and developing digital outcomes, and explain how to get the most out of pūkau.

The most used Māori-medium pūkau was Pūkau 1: He whakatakinga. By 2 November 2020, 343 users had attempted this pūkau.

User feedback about pūkau

In total, 1,748 people provided feedback on at least one pūkau (about a third of those who completed pūkau). Over 60% of people who rated pūkau rated two or more pūkau (Table 12). A small number (6%) of pūkau raters rated 11 or more pūkau.

TABLE 12 Pīkau ratings per user (at 2 November 2020)

Number of pīkau rated	Frequency (users)	% of pīkau raters
1	663	38
2	298	17
3	192	11
4	160	9
5	110	6
6	76	4
7	43	2
8	38	2
9	34	2
10	29	2
11+	105	6

Users' feedback scores for the usefulness of each pīkau, on a 10-point scale, are shown in Appendix D. Most pīkau had mean ratings of 7 or higher. Many users included a comment with their rating. For this report, we analysed feedback comments for key “clusters” of pīkau that were likely to be used by different types of users; for example, pīkau for beginners, Pouahi, and anyone who might have responsibilities for planning how to integrate DT & HM into local curriculum. The pīkau that were included in the clusters are shown in Appendix E.

Feedback about introductory pīkau

Most comments about the introductory English-medium pīkau were positive. Many people said they liked the videos and transcripts. Many complimented the clarity and simplicity of the explanations. People liked seeing students and teachers in the videos, and many found the classroom examples helpful.

I found the basic overview very simple to follow and it wasn't overwhelming as a real beginner on this learning journey! I like the videos and diagrams. (Pīkau 00: Intro: Why Digital Technologies?)

I got three aha moments from this Pīkau. That this is a new language and an important one (looking forward to learning more about the Jargon aspect too). That it goes beyond just digital devices—promotes creativity, problem solving, trouble shooting. And that sometimes constraints can bring more creativity. (Pīkau 00: Intro: Why Digital Technologies?)

The videos of teachers' practice is really useful. (Pīkau 11: DDDO PO1: Digital outcomes—Getting started with progress outcome 1)

The video explanations and showing actual programs that can be used and how to apply knowledge of programming to these was helpful—in context. (Pīkau 07: CTD: What is programming?)

Māori-medium users also commented positively on the introductory pīkau for Māori medium. Some described how they could see themselves implementing activities in the classroom, and benefits for tamariki and kaiako.

The information is easy to follow and navigating the pīkau is very user friendly (Pīkau 1: He Whakatakinga)

I found information very good. I am not good with technology but this will support me no end in implementing Hangarau Matahiko into my akomanga. (Pīkau 2: Hangarau Matihiko i Te Marautanga o Aotearoa)

This is a great learning resource for children. They can take turns in being the coder, maker & karetao. This is one learning tool to work together respect, have patience & have fun. The teacher can do her assessment and reflections for each child. Plus this makes the child learn to be independent, and management skills. (Pīkau 5: Whakaaro Rorohiko 1)

Māori-medium users also commented positively on the kupu hou.

He ako au ki te ahuatanga o te tangata me te rorohiko, ka mahi tahi, ka noho tahi. Anō hoki he ako ki ngā kupu hou arā, wheako, tepenga, kawekawe, tāuru, tāputa, tukutanga kokiritanga, tukanga, hōkaiipurangi, hohenga, namahipa, taupānga pāhekohekotanga, wheako-ā-kai whakamahi, pehi, pawhiri, miri, hohenga, patopato. Maha nga kupu hou mōku. (Pīkau 4: Tangata me te Rorohiko 1a)

Rawe ki te ako i ngā kupu hou o te ao Hangarau. (Pīkau 4: Tangata me te Rorohiko 1a)

Suggestions to improve introductory pīkau

Some users commented on ways to improve pīkau. The two most common comments were around difficulties finding and navigating pīkau, and requests for more material that was specific to the year levels or contexts taught by users (e.g., more primary or secondary examples).

I don't find the website the easiest to navigate. All 3 of my colleagues encountered different home pages when we followed the same link so not sure what that was about. Also don't like the fact that if you click on a video or article link as suggested, you can't return to the same page you were on, instead having to go back to the toolkits page—unnecessary and quite ironically contrary to the subject matter (computational ...). (Pīkau 00: Intro: Why Digital Technologies?)

Ideally, the videos would all fit my target group (primary, not high school video clips). (Pīkau 03: Intro: What is Designing and developing digital outcomes?)

Feedback about curriculum planning pīkau

Feedback on the English-medium pīkau relating to curriculum planning was also generally positive; for example:

The templates and other downloads are helpful. (Pīkau 20: Create your Digital Technology learning programme)

I have found this useful for evaluating the programme I just created. (Pīkau 23: Evaluating your learning programme)

This taonga is amazing. It highlights areas where I need to improve within my planning. Rawe! (Pīkau 20: Create your Digital Technology learning programme)

Four people gave feedback about a Māori-medium design-thinking pīkau, all positive.

Ko te painga ki au ko te tiro a-Māori, me te whakamahi i ngā pūrākau i roto i nga horopaki. (Te Pā Pouahi 3: Te Tukanga Hoahoa Whakaaro)

Suggestions to improve curriculum planning pīkau

Two main suggestions were made about how to improve this cluster of pīkau: including more examples relevant for primary learners and having editable templates.

More examples from other year levels, such as primary levels 1–3 of the curriculum. (Pūkau 20: Create your Digital Technology learning programme)

I was disappointed that all video examples were technology teachers or secondary teachers with nothing from primary and especially junior teachers (Pūkau 21: Incorporating authentic contexts)

One recommendation would be to have the planning templates in Word and in Google Doc. I can't edit a pdf. (Pūkau 20: Create your Digital Technology learning programme)

Feedback about Pouahi pūkau

Feedback about the Pouahi pūkau and programme is also discussed in Chapter 4. Feedback on English-medium Pouahi pūkau was largely positive.

Very detailed with invaluable ideas and resources. Fabulous facilitators. Thank you. (Te Pā Pouahi Pūkau 4)

Reflective questions are very useful as a starting point to really think deeply about each area. (Te Pā Pouahi Pūkau 3)

I found the ideas for staff meetings very useful and they were practical and easy to copy and use straight away. (Te Pā Pouahi Pūkau 3)

Feedback on Māori-medium Pouahi pūkau was also generally positive.

E pai ana te whakamāramatanga he aha anō Te Pouahi. (Pūkau 3: Te Pā Pouahi)

I think that if I or any staff chose to become a Pouahi that will be fully supported in leading this program. (Pūkau 3: Te Pā Pouahi)

Suggestions to improve Pouahi pūkau

Most suggestions to improve Pouahi pūkau related to navigability, fixing links that didn't work, or other small things that Pouahi were having trouble with. A few users suggested additional kinds of information that would be of value to Pouahi.

Tēnā pea, he rārangi ingoa o ngā Pouahi me he rakau īmera ki ngā Pouahi. (Pūkau 3: Te Pā Pouahi)

More on where to get funding for equipment, not all schools/centres have a budget for Digital Tech. (Te Pā Pouahi Pūkau 4)

Ki te Ahikāroa/Meetups

Ki te Ahikāroa/Meetups were delivered to groups of teachers, kaiako, leaders, and Pouahi either face to face or virtually via online webinars. In 2020, some face-to-face meetups occurred prior to the COVID-19 national alert lockdown. In March 2020, the Kia Takatū ā-Matihiko programme cancelled all future face-to-face meetups and shifted to completely online “virtual meetups”. After a short period of 10 days for planning and redesign, a fortnightly schedule of several daily virtual meetup offerings began in mid-April. These took a range of different forms and formats, and provided an opportunity for the programme to provide different kinds of sessions. Virtual meetups were planned in blocks of 2 weeks at a time and continued to be offered as schools returned to on-site teaching and learning in Phase Six. Most of the virtual meetup sessions were short (e.g., 30 minutes) and sessions were available at different times of day. Livestreamed video panel sessions and “Ask me anything” sessions were also presented via Facebook Live from April onwards.

In Phase Six, the virtual meetups programme was designed to align with the Ministry of Education’s Digital Technologies implementation support tool, starting from “Now underway” through to “Leading and innovating”. A final tranche of face-to-face meetups were run in Phase Six, with a particular focus on senior management and Pouahi/Digital leaders.

Meetups attendees were asked to provide evaluative feedback through an online form. Response rates were variable throughout the project, for a range of reasons discussed in previous evaluation reports. In April 2020, the feedback form was revised and simplified. Attendees were asked to use nine sliders to indicate their agreement about the impacts or benefits of attending the meetup (Table 13).

TABLE 13 Feedback rating items for meetup participants

English statement	Te reo	Boxplot label
I feel more confident to support my students to learn about DT & HM.	Kua kaha ake taku māia ki te tautoko i aku ākongā ki te ako e pā ana ki te Hangarau Matihiko.	Feel more confident
As a result of attending this session, I can use the new strategies I have learned in my teaching practice.	Nō taku taenga atu ki tēnei awheawhe ka taea e au ngā rautaki hou kua ākona te whakamahi i au e whakaako ana.	I can use the strategies
As a result of attending this session, I have a better understanding of the new DT & HM curriculum content.	Nō taku taenga atu ki tēnei awheawhe kua mārāma ake ahau ki te ihirangi marautanga hou o te Hangarau Matihiko.	Understand the content
How would you rate the facilitation?	I pēhea ki a koe te whakarātonga?	Rate the facilitation
This session helped me to understand what support and resources are available for teaching DT & HM.	Nā te huinga kua mārāma kē atu au ki ngā tautoko me ngā rauemi e wātea ana hei whakaako i te Hangarau Matihiko.	Understand the support
I will share what I have learned with colleagues in my school.	Ka tiri au i tāku i ako ai me aku hoamahi i taku kura.	I will share
As a result of attending this session, my school will be more prepared to teach DT & HM.	Nā te haere ki tēnei huinga, ka pakari kē atu ngā mahi whakaako a taku kura i te Hangarau Matihiko.	My school will be more prepared
I made useful connections with other schools and kura at this meetup.	I whakawhanaunga atu ki ētahi atu kura i tēnei huinga, me te puta anō o ētahi hua nui.	Useful connections
I can access ongoing support for DT & HM implementation in my region.	Ka taea e au ngā tautoko te toro ā ngā rā e tū mai nei mō te Hangarau Matihiko i taku rohe	Access ongoing support

Figure 1 shows all feedback responses from all meetups from April to November 2020.⁸ Most participants gave high ratings to the facilitation. Most indicated they would share their learning with colleagues at school and said the meetup had helped them to understand what support was

⁸ This includes all meetup feedback data received since the feedback form was modified. Meetup feedback from previous phases of the project was presented in previous evaluation reports, including how feedback was used by the programme team to continuously improve the design and delivery of meetups.

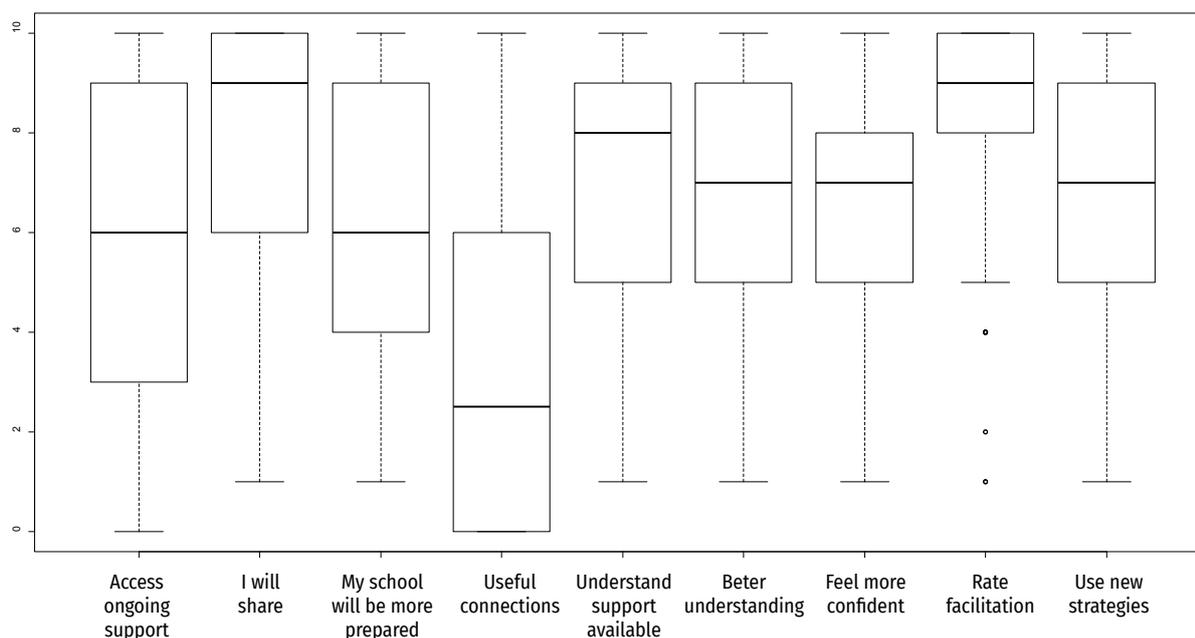
available for DT & HM. Most other items in the feedback form were rated middle to high, with two exceptions. People were divided about whether they felt they could access ongoing support for DT & HM implementation in their region, and most did not indicate that the meetups had helped them make useful connections with other schools and kura. In 2020, this is probably because most meetups were delivered online, many were bite-sized, and school-to-school networking was less feasible in this scenario.

How to read a boxplot

There are four parts to a boxplot—the lower whisker, the lower quartile (lower half of the box), the upper quartile (the upper half of the box), and the upper whisker. Each of these four parts of the boxplot is displaying a quarter of the responses given for a particular rating scale. The line in the middle of the box is the median; this is the midpoint of all ratings given.

Some general observations about the responses to each rating scale can be made from the boxplots. If a boxplot is short, the respondents gave a similar rating to a particular scale, and if the boxplot is tall, there is a larger range of ratings (respondents are less similar to each other). If different sections of a boxplot are uneven in size, this shows that respondents are more similar or more varied in their rating at different parts of the rating scale.

FIGURE 1 Feedback ratings on meetups April–November 2020 (n = 242)



One hundred and thirty-two meetup attendees, including 29 from Māori-medium contexts, commented on virtual or face-to-face meetups between June and November 2020. Almost all feedback (89%) included a positive comment or comments about the meetup. Some comments (11%) included feedback about how the meetup could have been improved.

Positive feedback about meetups

Things people commented positively on included the quality of the facilitation, the relevance and applicability of the content, and finding out what resources and supports were available.

The information and slides were really good—very useful to help me think about how I might approach delivery of DT in my classroom. I would have loved seeing some examples of apps or programs being used well; I find that is the best way for me to be inspired. The webinar was right on time and ran to time which I appreciated as I was having a super busy day. (Meetup: Why digital fluency is needed for DT)

Well facilitated [by] two tohunga in their fields. Nga mihi maioha ki a kōrua. (Meetup: How binary digits rule the world)

Constructive feedback on meetups

Constructive feedback on meetups during this phase included feedback about one multi-day meetup and several one-off meetups. Constructive feedback included suggestions for more effective use of time, or the need for content that was more specifically matched to different participants' needs.

It was recommended that members of every learning faculty of my kura attend this two-day workshop. It was useful to have time to work together as colleagues to come up with a plan for implementation in our school, but not all workshops were relevant nor useful to those of us teaching outside of technologies. (Meetup: Pou Rarama)

I did not find this session as good as previous sessions. Yes, there was talk on how people are undertaking DT but I found it difficult to relate it to our situation at the college. I do have some ideas which I need to develop and take to senior management but these thoughts were already getting sown before this session. (Meetup: Senior Leaders and Digital Technologies)

The title of the session did not really reflect session content, which seemed to focus on using CS unplugged. (Meetup: Light up your staff meetings with Digital Technologies!)

Kura visits

Kia Takatū ā-Matihiko facilitators kept records of all Māori-medium kura they engaged with through kura visits and hui. Cross-referencing data from different sources, Māori-medium kura and settings that were not known to have yet engaged with Kia Takatū ā-Matihiko were identified at the start of 2020. Facilitators made a concerted effort to engage these kura.

A reflective hui was convened with the Māori-medium facilitation team in December 2020 to discuss successes, progress, and challenges for Māori-medium kura over the course of the 3 years, and what facilitators thought kura still needed in 2021 and beyond. Themes from the hui are discussed in Chapter 5.

Marketing and communications changes in behaviour

From July 2019, the programme had dedicated staff focusing on marketing and communications channels. A review of the strategy led to more value-add content being delivered across events and digital channels.

Marketing materials

A key part of the strategy was to identify face-to-face opportunities to engage directly with teachers and kaiako. The supporting materials were not simply advertising the programme, but provided useful resources such as flyers about the curriculum content with activities that could easily be implemented right away. These materials were used at all Kia Takatū ā-Matihiko meetups, shared with key networks and stakeholders like the Ministry, TENZ, and DTTA networks, and used at conferences where the programme had a presence.⁹

Digital engagement

From July 2019, there was a strong focus on growing digital marketing content in an integrated way using email, the Community of Practice platform, and two primary social media channels (Facebook and Instagram). Through regular emails to promote events, social media content being delivered at the same time, engagement increased across all media, with social media posts performing well above international benchmarking for education sector posts. Email marketing also saw higher than average engagement, with open rates sitting at around 40%–60% depending on the segmented audience. Event emails were highest read, particularly when regionally focused and during the COVID-19 lockdown.

These channels were a funnel to the website, which, overall in the past 6 months, boasted a 38% bounce rate.¹⁰ This is considered a well-performing website with average bounce rates hovering around 55%–65%. On some weeks, the bounce rate was as low as 11%. This indicates most users were navigating to more than one page on the website.

⁹ Programme staff attended more than 10 conferences over 2019–2020 in various capacities, with six of them attending as exhibitors.

¹⁰ A bounce rate indicates the percentage of people who leave the website from the page that they land on, meaning they did not go further than the home page.

4. Pouahi/Digital leaders

Te Pā Pouahi is an online, self-directed course for Pouahi/Digital leaders, comprising four 5-hour pūkai, six recorded webinars, and a specific group within ngā kiriahi to empower and support Pouahi to grow a team to lead the implementation of DT & HM into their local curriculum. The foundation of this course was on the learning from the Connected Learning Advisory work that focused on the change management needed to successfully implement new curriculum content. In 2019 and 2020, face-to-face and virtual meetups were designed to specifically support Pouahi and senior leaders within schools and kura. These were created in collaboration with the Ministry of Education's regional Digital Technologies champions. A 10-part series of 30-minute virtual meetups was also designed and delivered to spotlight the important steps in the Pouahi course. Several hundred people self-registered as Pouahi.

Māori-medium kaiako were invited to 3-day kanohi ki te kanohi events where Māori medium and English medium worked collaboratively to grow relationships and create co-ordinated opportunities for their kura. The final of these was Whakahihi 2020 where Māori medium created an opportunity for tumuaki and kaiako to come together to explore Hangarau Matihiko and explore opportunities.

Survey and interviews with Pouahi

One hundred and nineteen people responded to the 2020 Pouahi survey.¹¹ Of these, 114 taught in English medium, four in Māori medium, and one in dual medium. Details about survey respondents' school types and regions are included in Appendix G. The Pouahi were working within a wide range of school types including full and contributing primary, intermediate, secondary schools, and composite schools. Twenty-two percent of respondents taught in schools with students in Years 9 and above. Responses were received from all regions, with the most responses from Auckland, Canterbury, Otago, and Canterbury regions (see Appendix F).

Most Pouahi surveyed indicated they were classroom teachers (62%), and some had middle leadership responsibilities with respect to technology/hangarau such as curriculum or syndicate leadership in technology/hangarau (43%) or were subject specialists in DT & HM (31%). A few Pouahi were assistant or deputy principals (16%) or principals (9%). Some Pouahi held multiple roles.

A subset of Pouahi volunteered to be interviewed in November 2020. Interviews were carried out by phone or face to face with 12 people in English medium (EM), and six people in Māori medium (MM).¹² Key themes from phone interviews are woven into this chapter to enrich findings from the survey data.

¹¹ The invitation was sent to 265 people who had registered for the Pouahi programme on the Kia Takatū ā-Matihiko website, and who agreed to receive emails from Kia Takatū ā-Matihiko.

¹² A few interviewees were not Pouahi but responded to general invitations to be interviewed as part of the evaluation. Their comments are also included in this chapter.

School readiness

Pouahi rated their school's level of readiness on the same 5-point scale used in Te Tokorima-a-Mahuika/The Self-Review Tool. Just under half (47%) said their school is beginning to integrate DT & HM into learning programmes.

TABLE 14 School or kura level of readiness (n = 119)

Level of readiness	% responses
Not at all ready.	8
We are in the early stages of exploring Digital Technologies and/or Hangarau Matihiko.	29
We are beginning to integrate Digital Technologies and/or Hangarau Matihiko into learning programmes.	47
We are confidently delivering Digital Technologies and/or Hangarau Matihiko learning in authentic and meaningful contexts.	16
We are seen as leaders in integrating Digital Technologies and/or Hangarau Matihiko by other schools and kura.	1

Kāhui Ako

Just under three-quarters (74%) of Pouahi said their school or kura belongs to a Kāhui Ako. With regards to the implementation of DT & HM, just under a quarter (24%) said it has been a “major focus” in their Kāhui Ako, 40% described it as a “minor focus”, and 28% said it was “not a focus”. The rest were unsure.

Most Pouahi who were phone interviewed confirmed that DT & HM was a minimal focus or not a focus at all within their Kāhui Ako. This was a disappointment for many.

No, I am a bit disappointed. We are a faith-based [Kāhui Ako]. Other schools haven't been in the same place as us with DT. We have just carried on doing our own thing (Pouahi, English-medium primary school)

As a Kāhui Ako I have received absolutely zero out of it. They have done some work on it, but for me it's amounted for me absolutely nothing. (Pouahi, English-medium primary school)

I think our [Kāhui Ako] is still in the formative stage—struggling to find direction and work out what we are meant to be doing still. (Pouahi, English-medium secondary school)

One exception was a Pouahi primary school principal with a passion for DT who had instigated this as a focus within her Kāhui Ako, and led a work programme with five teachers, mainly deputy principals, from other schools in the Kāhui Ako.

I guided them on our journey in getting the message through to schools [in our area]. We created a little programme together. I had such motivated staff; it was great for me to meet staff from other schools who were passionate about the same thing as me. We started to go through the Kia Takatū ā-Matihiko programme and looking at how we could use these with schools without overwhelming them. We worked on how to get it into school through the principal, then how to work through the DT and some pathways, depending on where things were in their schools. (Pouahi, English-medium primary school)

The principal was keen to continue this collaborative work with other schools; however, it was no longer a priority for the leaders of the Kāhui Ako, to the disappointment of this principal.

Usefulness of Te Pā Pouahi programme elements

Seventy percent or more Pouahi rated the online panel sessions and Te Pā Pouahi pīkau as being useful or very useful (Figure 2). The least-used element was face-to-face meetups, fewer of which occurred in 2020 due to COVID-19. More than half said they had not used these, with 8% not being aware of them. However, most who had attended face-to-face meetups said they had been useful or very useful.

FIGURE 2 Usefulness of Te Pā Pouahi programme elements

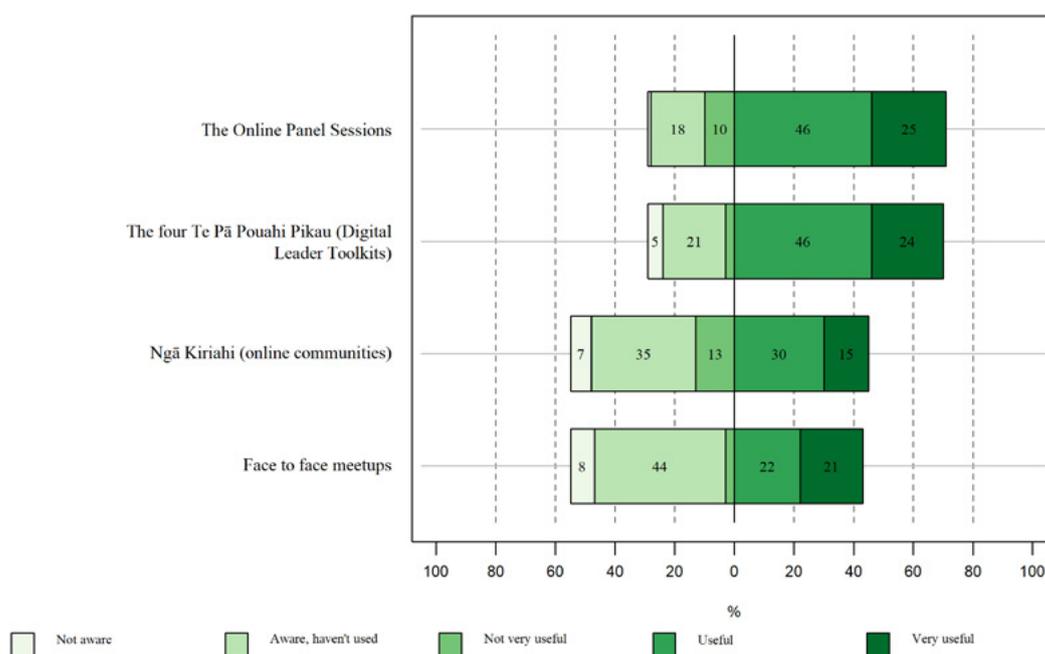


Table 15 shows what Pouahi found most useful about the programme. Half or more said the most useful things were being supported to plan and lead professional learning (54%), learning about or playing with digital resources they may want to use in their school or kura (53%), and finding out what supports are available for DT & HM (50%).

TABLE 15 What Pouahi found most valuable about Te Pā Pouahi (n = 119)

What has been valuable	% responses
Being supported to plan and lead DT & HM professional learning in my school or kura	54
Learning about or playing with digital resources that we might want to use in our school or kura	53
Finding out what supports are available for DT & HM	50
Being supported in how to plan for DT & HM in our local curriculum	38
Having a place to ask questions and/or clarify what's expected of schools and kura	36
Making connections and sharing experiences with other schools and kura	33
Finding out what supports are available for DT & HM in my region	25
Access to resources in te reo Māori	14
Facilitation in te reo Māori	6
Other	5

Interview comments provide further insights into what Pouahi found most useful. Some described how pūkai had helped them gain clarity around key messages to share with their staff in PLD sessions, how to plan and support change within their school or kura, including gaining the support of senior leaders.

[What I have found most useful is] all the stuff about the 'why'. All the readings about the 'why' is what I have tried to focus on with the teachers, if they don't have the 'why' about authentic problems to solve. (Pouahi interviewee, English-medium primary school)

The explanations of where the curriculum is going, and giving me support when I go to see the senior management to ask for approving the curriculum resources. It's really good to be able to go to them and say ... here's the document and we need to be doing this. It's good to have the backing. (Pouahi interviewee, English-medium primary school)

The Te Pā Pouahi pūkai and other pūkai to support planning and leadership were especially valued.

The four Te Pā Pouahi pūkai. He tino whai tikanga Very useful. (Pouahi interviewee, Māori medium)

The leadership tools were great to be able to have that process laid out—especially for not being a principal—when I was a principal that tool would have been great too! A lot of middle leadership doesn't have access to that kind of resource. There is not really support or training for people who are starting out in those middle leadership positions, but they are often charged with impossible tasks like bringing change across the school! Those tools are really good. (Pouahi interviewee, English-medium intermediate school)

I have completed the leadership [pūkai] and the committee, there are three of us, have done the teacher part online. We found the online absolutely brilliant. We liked the modules because you can go in and do it [in your own time]. The links to resources were just amazing. (Pouahi interviewee, English-medium primary school)

Some Pouahi had not attended many or any meetups, while others said these had been particularly helpful.

They (facilitators) were unpacking the language of matihiko and they started at a high ceiling task and how it's broken down. I like that. How a high ceiling task can be adapted to suit the levels. So much you can do with just one of the digital outcomes. (Pouahi interviewee, Māori medium)

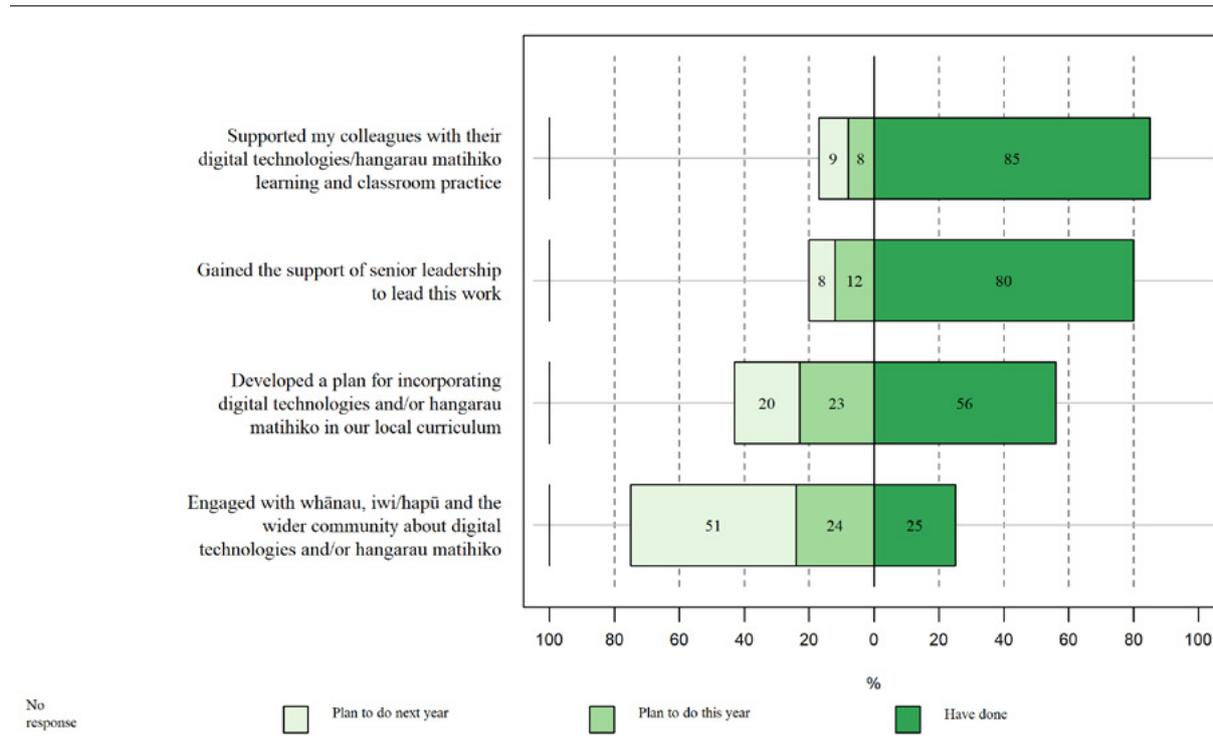
Thank you to the team that took us for the wānanga last time. We learned from that last time. The PD has been implemented last time and mentor our kuia and at different levels. The online webinars provided are of real value. You get that half hour with our Māori-medium staff. Being able to meet up with other teachers around Aotearoa is useful. Those are really useful. If they could continue—to go back and reflect on if you miss a session—do a rewind. (Pouahi interviewee, Māori medium)

Actions Pouahi have taken in their school or kura

Strategic leadership actions

Most Pouahi said they had supported their colleagues with DT & HM learning and classroom practice (85%), and gained the support of senior leadership to lead this work (80%). Just over half (56%) had already developed a plan for incorporating DT & HM in their local curriculum, with the remainder intending to do this in 2020 or 2021. It was less common to have engaged with whānau, iwi/hapū, and the wider community (25%), but most signalled an intention to do this. We gathered some feedback from Māori-medium Pouahi about whānau engagement and responses (see further below).

FIGURE 3 What Pouahi have done in their school or kura (n = 119)



Supporting staff within their schools and kura

Forty-one percent of Pouahi said they lead and support all or most of the staff in their school or kura with DT & HM. Just under a third (32%) of Pouahi said they lead or support any staff member who expresses interest or seeks their support, and 13% lead or support just within their syndicate or

department team. Ten percent of respondents said they are not yet leading or supporting other staff in their school. Table 16 shows what was most often the focus of Pouahi support for other staff; in particular, sharing learning activities that staff can use in the classroom (87%) and helping them to understand the new curriculum content (78%).

TABLE 16 Focus of Pouahi support for their staff and colleagues (n = 119)

Focus of support	% responses
Sharing learning activities that can be used in the classroom	87
Helping them to understand the new Digital Technologies and/or Hangarau Matihiko curriculum content	78
Helping them to understand the progress outcomes for Digital Technologies and/or Hangarau Matihiko and how to use them	65
Helping them to understand how the new content fits within the revised technology and/or hangarau learning area	64
Showing or helping them access and use Kia Takatū ā-Matihiko National Digital Readiness Programme	54
Other	5

Some Pouahi we interviewed described ways they had supported learning amongst their staff and colleagues, utilising resources from Kia Takatū ā-Matihiko.

A few of our staff, I buddy them up and get them to do particular ones, to try them out. [It's good that they are in] 30-minute bites, then webinars attached to what the teachers actually need ... So they have someone to clarify how knowing that knowledge is going to help them in their classroom with their students. (Pouahi interviewee, Māori medium)

Every now and then at staff meetings we use the pīkau, the facilitator notes that come with it. It has helped me to ensure that I am targeting the right messages. (Pouahi interviewee, English-medium primary school)

We basically did a mini version of some of those [pīkau] modules in a staff meeting. So [teachers] would understand the curriculum, and what it means. So they didn't think 'Oh I am just doing coding' and not understanding what the DT curriculum is about. (Pouahi interviewee, English-medium primary school)

A key message that many pouahi aimed to share with their staff, particularly at Years 1–8, was that DT & HM did not have to be “another thing added on” but can be woven into things teachers and kaiako already do in maths, literacy, and other parts of the curriculum.

Tuatahi, I advise kaiako and give suggestions on how they could implement Hangarau Matihiko, within what they're already doing. First week of school holidays we do planning. In planning and listen to the upcoming term, [we] might do some data representation with maths, do some whakaaro rorohiko, hatepe with this piece of reo. When we see opportunities that could be [woven in] we would usually suggest them and it would usually hit the mark. (Pouahi interviewee, Māori medium)

Engagement and response from whānau

Kaiako in Māori medium noted mixed reactions from whānau about HM. Many whānau seemed positive.

A lot of them like it. It always produces something that they can see. (Kaiako interviewee, Māori medium)

Most are supportive of it. They haven't responded in a negative way. They see it as being the new 'new' for the kids. It's part of society today and they're all for it. A lot of the time they're trying to figure it out for themselves and the kids can have a role in that. (Kaiako interviewee, Māori medium)

Whānau at one kura had thought the new curriculum was already being used, when in fact it was only being introduced. In that case, whānau had high expectations and wanted to know why it was only being unpacked this year.

Some whānau expressed concerns about the amount of time children spent online, and perceptions of what children were using devices for.

Some think that they're just playing games. E.g., touch paint looks like a game. Scratch can look like a game too. (Pou reo, Māori medium)

During the COVID-19 lockdown, whānau in one kura said they did not want their children to be learning only on digital devices, raising concerns about screen time. Kaiako responded by keeping zooms to only 30 minutes, and gave whānau unplugged activities to do.

They did like the DDDOs, it is the unplugged learning. Lots of whānau were engaged in the unplugged challenges. They didn't realise that Simon Says is like computational thought. Or making maps in house, coordinates around a whare. Had some cool stuff. Just to get our parents thinking more ... about the possibilities. (Kaiako, Māori medium)

Confidence to lead and support DT & HM in their schools and kura

We asked Pouahi how confident they felt to lead and support their schools and kura to implement DT & HM in their local curriculum. Survey respondents were divided about this. While 39% said they were confident, and 20% said very confident, more than a third (35%) were only slightly confident, and 6% were not at all confident.

Phone interviews suggested that Pouahi levels of confidence were linked with school-level contexts, the extent to which their school or kura had supported or prioritised DT & HM over the past few years, and what ongoing supports would be available. Pouahi who saw their school as being "on track" said that Kia Takatū ā-Matihiko had given them confidence to lead and support their school or kura.

Yes, I am a lot clearer on how it all fits together with the curriculum, and how we should be delivering it. (Pouahi interviewee, secondary school)

Yes, I don't think I would have had as much enjoyment in working with the staff if I hadn't had Kia Takatū ā-Matihiko. It's just well set up, the overview and notes, the videos, makes it enlightening when I'm working with staff. (Pouahi interviewee, primary school)

Several people we interviewed did not hold formalised leadership roles for DT & HM in their school. Some were digital technology subject specialists who had used Kia Takatū ā-Matihiko to support their own practice. They were hopeful that their schools would provide more support for other staff to develop capabilities in DT & HM in the near future.

Others from my school have not engaged—they see it as my job. But having said that, we are in the process of getting a new building. We are in the process of changing our pedagogy [to work in] flexible learning environments. I have mooted to my senior management that I would go to everybody's room to try to incorporate DT into what they are doing [in their everyday teaching]. The principal is up for the idea, but only if it can work in the timetable and budget. (Pouahi interviewee, Digital Technologies specialist)

Changes Pouahi have noticed in their colleagues

Pouahi were asked what, if any, changes they have noticed in their colleagues. Many said staff were becoming more confident and familiar with the concepts associated with the new curriculum content.

I think they're becoming more confident, seeing more connections between using the tools in a way that supports what they are doing in the classroom and extends into the DT curriculum. Definitely braver to give things a try and see where they end up. Probably starting to ask for more help which I think also is a good step too, it means they are trying and seeing new ideas and seeing the potential. (Pouahi interviewee, intermediate school)

They discuss the DT curriculum more, using the language of CT and DDDO. We haven't formalised that, we are just checking out what everyone is doing. They are relatively confident in use of DT too. (Pouahi interviewee, secondary school)

A few commented that the COVID-19 lockdowns had accelerated staff engagement with digital technologies, seeing its value for flexible and remote learning, and using digital tools they were previously reluctant to adopt. However, some said the COVID-19 disruptions had put the actual DT & HM curriculum implementation on the back burner, as other priorities around student and staff wellbeing came to the foreground.

I think it has not been high on our list of discussions because the focus has been on wellbeing and getting kids back on track, on an even keel [after COVID-19 lockdown]. It has been a slow process to get the kids back on the learning page. For staff it's been about less meetings, less time on that so we can support our kids to be back in the groove of learning. (Pouahi interviewee, English-medium primary school)

Other supports schools and kura have used

Other PLD supports

Some schools had accessed additional support through centrally funded PLD or other Ministry-funded support programmes for schools and kura. Some were satisfied with the quality and value of these other supports.

The school has had a contract with an outside provider to PD across the school. For teachers and lead teachers to unpack it, get some activities happening in the classrooms, and share leadership across the school, those who are more 'techy' will support those who are less so. (Pouahi interviewee, primary school)

We had an organisation that came in and did Years 3–6 programmes. That [involved] coding and using devices, Beebots, and things like that. Binary numbers, working directly with students. That was really good because that got us motivated. He did three lessons, so [it was] really practical, the teachers were really motivated. (Pouahi interviewee, primary school)

Several other schools had applied for centrally funded PLD and been declined. This was the experience of a principal from a sole-charge rural school.

It was a just waste of time, we didn't get [the funding]. I tried making an application on my own, they said 'No you have to do level 1'. I said 'I don't think I need to as our school is at this level.' They turned down our application, saying 'You're not part of a Kāhui Ako making an application.'

Some had accessed centrally funded PLD, but were dissatisfied with the quality of the facilitators.

We had [name of provider] in but that was an absolute failure—the presenter was not up to standard from my point of view. (Pouahi interviewee, primary school)

Some schools had used various other resources such as The Mindlab, CS Unplugged, and curriculum exemplars on TKI.

Networking with other schools

Some schools had reached out to other schools for ideas and advice as part of their implementation process. This included local schools, and, in some cases, networks with schools in other parts of the country.

When we have gone to see implementation in other schools it has made it real to the teachers, to see that it can be simple. (Pouahi interviewee, primary school)

Manaiakalani has been helpful and given examples in staff meetings. The head of curriculum has gone to other schools. The Kāhui Ako hasn't had a big role in this at all, they haven't done anything. (Pouahi interviewee, secondary school)

Amongst Māori-medium interviewees, there was little evidence that kura were in networks specifically for HM and DT. A shortage of relief teachers in Māori medium can be a considerable challenge for kura. One kura talked about not being able to get relievers to cover staff to attend a cluster hui where Kia Takatū ā-Matihiko was presenting. Some kaiako spoke about their desire to network with other kura.

I'd like to start a Community of Learning with other schools. When doing it by yourself, you only have yourself to compare to. I'd like our school to belong to a cluster, so resourcing is easier. Or maybe to share ideas. Or maybe using the 21st century skills to develop a deeper understanding of the digital hangarau learning outcomes. (Pouahi interviewee, Māori medium)

Most interviewees said Kia Takatū ā-Matihiko hadn't particularly helped them to be more connected with ongoing local support and expertise, apart from meeting other schools at face-to-face meetups, which was valued.

Ongoing support needs

Pouahi were asked in the survey and interviews what ongoing supports they thought their school or kura would need as they continued to implement DT & HM in their local curriculum. The most-requested forms of support were examples of what other teachers and students are doing with DT & HM in the classroom (93%), and examples of how to use progress outcomes (80%). Reo Māori resources and support were important to Pouahi in Māori-medium and dual-medium settings. Some Pouahi in English-medium settings also identified this as important.

TABLE 17 Ongoing supports that would be valuable for schools and kura (n = 119)

Type of support	% responses
Examples of what other teachers and students are doing with DT & HM in the classroom	93
Examples of how to use the progress outcomes	80
Face-to-face opportunities to share ideas and experiences with colleagues from other schools	62
Virtual meetups or webinars to support Digital Technologies and/or Hangarau Matihiko in your local curriculum	47
Guidance in how to work with the revised technology and/or hangarau learning area	44
Reo Māori resources and support	14
Other	8

“Other” supports Pouahi asked for in the survey included help in creating an “action plan” for the school, guidance about how to implement it into the school curriculum, and more time and teacher release funding. The comments indicated some of the struggles individual Pouahi and schools were facing.

The biggest issue I have is unwilling staff. (Pouahi survey response)

I am a subject specialist in DT, but it is my school’s decision as to who leads the implementations. I have no control over that, so I support from the sidelines when required. I do what I can, but others have been chosen to lead the initiative. (Pouahi survey response)

Actual support from our Kahui Ako. I offered to be an across school lead in DT but was turned down as it ‘wasn’t a focus’ this year—the year the new curriculum was expected to be implemented. (Pouahi survey response)

I would love a package to pick up that can be delivered to a whole staff. Doing all of the pīkau is too much of a big ask for everyone. Small, interactive and immediately accessible sessions. (Pouahi survey response)

Resourced time and teacher paid release. Struggling to effectively implement as unable to get release for teachers due to budget constraints. (Pouahi survey response)

Implementation concerns for schools and kura

While some Pouahi felt confident they had everything they needed to continue to support their school or kura, others were concerned about what would happen beyond 2020. Some were still struggling to get clarity about whether they were correctly interpreting the expectations of what their curriculum should comprise. Some secondary schools were still wondering how to integrate it into their curriculum. One Years 7–13 school had moved to an “integrated modules” curriculum in Years 7–10 and were wondering whether they should focus on integrating DT into existing integrated modules, if they should add on standalone modules to ensure computational thinking (CT) and designing and developing digital outcomes (DDDO) were covered.

We still have some discussions about whether they are strands and therefore compulsory over the years, or whether they are more like outcomes? It has never really been made clear to us and to schools and the district ... It’s a stumbling block. The expectations are not clear. Are we the only ones that are not sure? Is it easier if you have a DT class? (Pouahi interviewee, English-medium secondary school)

Another secondary school Pouahi also commented on the need for ongoing clarity about “where all this stuff fits, and what we should be doing”.

The more stuff that interprets what we need to do and the more Ministry requirements of what we have to deliver, the better. That is the stuff that makes a difference when I go to the principal and senior management. That’s the stuff that they really listen to. At the end of the day I have to justify why doing an hour on this a week is justified in relation to an hour spent on other subject learning. (Pouahi interviewee, English-medium secondary school)

Pouahi from Māori medium said their kura would need more ongoing support to move from their early starting points to where they wanted to be.

Kia Takatū a Matihiko is definitely filling a need. It’s when they leave where we’re still having problems. Not sure how we could improve on that. Whether PLD is longer, or it is provided more often. This is a really new field for teachers on the coast, so it’s probably the same around the country. The one day [meetup] is not really enough ... it’s a lot of concepts that are new to people and I’d be surprised if they picked it up in their one day. (Pouahi interviewee, Māori medium)

Additional comments

Just under a third of survey respondents—37 people—wrote additional comments at the end of the survey. Just over 75% of these comments gave positive feedback on the programme, with many offering very strong praise.

Thank you so much for your guidance and support with online learning. I’d never accessed your knowledge and expertise before this year and have been impressed with how easy, user friendly and knowledgeable the support has been. Such a great resource to access and use on our digital readiness journey.

I have loved the vast variety of ways that I can access information about the curriculum.

Many Pouahi who praised the programme indicated they would like to continue to have access to these supports.

Thanks for all the great resources that are on Kia Takatū website. I have really become more confident with DT through this and the face-to-face meetups I attended last year. Looking forward to more of these as soon as it is possible.

I find it easy to use—valuable and I would like to continue using this in the future as would the staff ... please don’t take it down.

I am so disappointed, with Covid, to have missed the face-to-face meetups. I hope these will go ahead next year??

A third of comments offered suggestions for improvement or strengthening support for schools and kura. The most common critiques were about challenges some staff faced in accessing and navigating online content.

The staff have said they would like more webinars as some of our staff really find getting onto Zoom and internet connections difficult and challenging.

I appreciate that it has been a unique year, but the webinars as a main way of sharing information and support has proved challenging. People didn’t want to commit as felt it was just more screen time.

The Kia Takatū ā-Matihiko site has great content but is very hard to access and navigate even for the more computer savvy staff.

Others offered suggestions for extending the impact of the programme.

Being able to export a video from a toolkit to show separately from having to log in and navigate to that video—when facilitating a staff meeting it would be good to have the video available to put in a slideshow.

Maybe set up a small community of learners to share ideas around what others are doing in their environment and have someone from this group lead it.

If you can add more resources for running robotics in schools [that] would be great.

I would love to see more resource sharing.

It's been good but just a taster really. I feel like I need a lot of retraining. The more I learn the more I realise how little I know, which makes me feel less confident about what I am doing.

5. Impact on the ecosystems of support for schools and kura

Impacts for partners delivering Kia Takatū ā-Matihiko

The design and delivery of Kia Takatū ā-Matihiko through a partnership provided an opportunity for the programme to integrate diverse knowledge and ways of working. Reflections from programme partners during and near the conclusion of the programme highlighted strengths and challenges of working in partnership. The bicultural approach built into the design and operation of the programme was one of the key strengths noted by many within the partnership. This was an area where everyone seemed to feel they had experienced growth. English-medium team members identified the learning they had gained through collaboration with Māori-medium team members, and through the conceptual design and delivery of the programme. Māori-medium team members talked about the depth of knowledge and understanding they had gained about DT & HM from partners who had expert knowledge in this domain. Māori-medium team members also commented appreciatively about the advocacy they had seen from key people in the English-medium team, who helped champion the need for equity for Māori-medium support and resourcing.

The partnership approach of Kia Takatū ā-Matihiko brought together respected organisations and people to support and grow their existing ecosystems of support for schools and kura. DTTA and Code Club Aotearoa are respected partners with UC CSERG. Code Club Aotearoa brought Code Club 4 Teachers which supported Pouahi to lead their own sessions and grow small hubs of support that met fortnightly. DTTA's membership did increase over the life of the programme, and the subject association will continue to support members and welcome new teachers to grow their DT & HM connections.

Given the scope of the programme and the logistics necessary to deliver on outcomes for each phase, there were also some challenges. Early in the programme there were many workstreams working in parallel to build and establish all the programme components, across both English and Māori medium. Over time, the programme evolved its programme management structures to reduce complexity and ensure a smaller team had oversight across the whole programme and could support faster communication and troubleshoot challenges more quickly as they arose.

Good relationships were essential to the success of the programme partnerships and the programme itself. The team described these relationships as caring and built on trust and generosity. They allowed space and provided support for issues or tensions to be discussed and resolved and enabled knowledge sharing for the good of the programme. Facilitators talked about the value of being able to “pick up the phone” and talk to others in the programme who were known as the experts in particular areas, to get help solving problems as they arose.

Massive mihi to all, it has been amazing to work alongside some of the heavy hitters. Acknowledging people I've worked with along the way, and many background workers who made things work. It has been a massive learning. (Māori-medium facilitator)

Key programme personnel and facilitators also talked about the impacts on wellbeing, health, and stress levels that accumulated over the programme's 3 years. The pace and pressures of work required to deliver on agreed outcome at each phase and responding to changing external conditions and Ministry of Education requests, meant that some staff were working long hours for sustained periods, and needed to be available for and responsive to communications most of the time. For some staff and facilitators, the work involved in pivoting the programme's delivery during and after the COVID-19 lockdowns added additional workload and very little "downtime" during an already stressful period.

Successes and challenges for Māori medium

It was recognised from the beginning of the programme that Māori medium was starting from a different place than English medium, due to system-wide equity issues. Kia Takatū ā-Matihiko aimed to address the needs of Māori medium as a key priority. It was known that there was a shortage of hangarau subject-specialist kaiako in Māori medium, and a chronic shortage of quality resources in te reo Māori. There are also different issues, and therefore approaches, needed within the different types of Māori-medium settings including rūmaki, kura ā-iwi, and kura kaupapa Māori.

In December 2020, Māori-medium facilitators reflected on the key successes and challenges for Māori medium and talked about the types of ongoing support needed to continue implementation of HM in kura.

As a team, they valued being able to work together online and work collectively as a whānau. Facilitators included whanaungatanga, providing support kanohi ki te kanohi and in te reo Māori, and connecting learning to te ao Māori in their descriptions of Māori-medium successes.

The value of kanohi ki te kanohi and whanaungatanga

For the facilitation team, a benefit of the programme was the opportunity to connect and build relationships with kura and kaiako they had not previously worked with. Facilitators also talked about the energy and laughter at meetups and kura visits, and seeing things click into place for kaiako and tumuaki.

Seeing the shift from fear of technology to excitement. It feels good to see that change and know that they will use the learning. (Facilitator, Māori medium)

Whakahihiko was amazing for the Kura Kaupapa Māori. [They] started in Te kore, and as each day continued, the understanding and depth increased. They created a Te Aho Matua group, and have done activities in their classroom, and created their own. (Facilitator, Māori medium)

Facilitators noted that one of the most rewarding successes was how easily kaiako could connect to HM concepts "once they understood they were not creating something new, but were doing it already" in other parts of their teaching.

[Seeing the] penny dropping as to what computational thinking is, what tangata me te rorohiko is. They left with their cups full. (Facilitator, Māori medium)

Facilitators noted that it made a big difference when tumuaki were engaged and present and could show leadership and support for HM in their kura.

Connections with tīpuna and mātauranga Māori

Helping kaiako make connections between HM and te ao Māori was another success. This was discussed by facilitators as well as kaiako who were interviewed for the evaluation.

Realisations about what is technology, and understanding that our tipuna were into that stuff, making our lives easier. Questions re how does this align with te ao Māori, and when you go through it they can see their own marae narrative in the Beebot work, e.g., realising you can tell a story. (Facilitator, Māori medium)

Kids can relate to Māui and Mahuika. That was a cool way of saying well we have our own mātauranga Māori and use it so kids can relate to it and become the ringa raweke with it. (Kaiako, Māori medium)

When [I] first saw it I thought wow, that's amazing using Māori characters because I could relate to that. Just the other day [I] was thinking a bit more. You can see it, the igniting of passion inside of you. I get that. I also get that Mahuika has the goods and need rules. Not sure if I like seeing them like that ... [The Māori-medium sessions are] not just teaching you about 21st century skills, but get it to interrelate to te ao Māori. I'm doing Māui this term; I would use coordinates and Beebots to mimic Māui's path. (Kaiako and subject specialist, Māori medium)

Being able to offer resources and facilitation in te reo Māori

Facilitators talked about the positive impact for kura of having access to facilitation and many resources in te reo Māori. One facilitator talked about a meetup that brought together people from eight kura, two people from each kura, who “hadn't had reo-speaking PLD for five years”. The group of kura was so happy to have this opportunity “they want the same thing every term”.

Facilitators were proud of the many resources in te reo Māori created for the programme, and being able to reassure kaiako that, yes, they had the resources they needed. Facilitators talked about kaiako engaging with the programme “because of the hunger for the reo”. They reflected on how some others (not kaiako) had engaged with the resources purely because they were in te reo Māori. The reo Māori resources are part of the legacy of this kaupapa for kaiako.

Ongoing challenges for Māori medium

The challenges for Māori medium continue to be exacerbated by systemic issues concerning equity of access to PLD and resources in te reo Māori, and a shortage of kaiako. Facilitators saw part of their role as being advocates for Māori medium to address these and other inequities.

Facilitators noted that a particular challenge for rūmaki within English-medium schools is that, if their PLD needs, in this case for HM, are not seen as important by school leadership, then they are not able to get release time to attend PLD. For some Māori-medium kura, there simply aren't relief teachers available to enable them to attend PLD.

With these challenges in mind, planning PLD hui in a way that allows kaiako to attend is difficult. Facilitators found that organic meetups driven by kura were fairly successful, with good outcomes for minimal input. They found that attendance at online hui was not as good when facilitators set time frames.

Working to support Māori medium through COVID-19 lockdown was challenging for facilitators and their whānau personally, as they went the extra mile to be responsive to kura at whatever time of the day was necessary. Sometimes this dedication to the kaupapa was to detriment of their own hauora.

Feedback from wider network of PLD facilitators

In December 2020, a short survey was sent to a wider network of PLD facilitators and providers who are part of the ecosystem of support for schools in relation to DT & HM.¹³ Fifty-five responses were received, from 51 English-medium, and four Māori- or dual-medium facilitators. Just under half (45%) of respondents had been a facilitator or presenter for Kia Takatū ā-Matihiko, and 56% had not.

All but one respondent said they have provided PLD support and facilitation to schools and kura in relation to the revised DT & HM curriculum content in the past 3 years (to December 2020). Table 18 shows the most common ways facilitators supported schools and kura in relation to DT & HM.

TABLE 18 What support PLD providers have given to schools (n=54)

Type of support	% responses
Sharing learning activities that can be used in the classroom	96
Helping them understand the new Digital Technologies and/or Hangarau Matihiko curriculum content	91
Showing them different digital resources and how to use them	89
Supporting leaders within the school to lead strategic implementation of Digital Technologies and Hangarau Matihiko	87
Helping them understand how the new content fits within the revised technology and/or hangarau learning area	80
Helping them understand the progress outcomes for Digital Technologies and/or Hangarau Matihiko and how to use them	78
Showing or helping them access and use Kia Takatū ā-Matihiko National Digital Readiness Programme	70
Other (please specify)	19

Other supports mentioned by facilitators included support for schools and kura to integrate DT & HM into local curriculum, including integration across curriculum contexts, “how to make connections between what is required and what this looks like in practice”, and “helping them understand the technology learning area more generally, before being able to talk about digital technologies”. One respondent provided specialist PLD to schools in the areas of “online safety, digital citizenship and wellbeing” and “what’s needed to foster the skills, attitudes and values, and knowledge of the online environment so that young people can flourish in their learning and living online and offline”.

Facilitators’ use of, and feedback on, Kia Takatū ā-Matihiko

Most (91%) respondents said they had recommended or used components of Kia Takatū ā-Matihiko to support schools or kura they work with, and most (89%) had engaged with components of Kia Takatū ā-Matihiko to support their own learning and understanding of the revised DT & HM curriculum content, and how to implement it in schools and kura.

¹³ This included PLD facilitators in the Ministry of Education’s facilitator database who can provide support for DT or HM, and providers of other Ministry-funded DT & HM support programmes that were part of the government’s package of supports for schools and kura.

Figure 4 shows how PLD facilitators rated the usefulness of different components of Kia Takatū ā-Matihiko. The most useful components in their view were the SRT, rauemi pīkau, pīkau, and teaching resources. Components that some facilitators were less aware of, or had not used, or didn't find useful, included ngā kiriahi, meetups, posters and flyers, and stories of practice.

Figure 5 shows facilitator's views of the value and impacts that Kia Takatū ā-Matihiko has had for schools and kura. Just under three-quarters (74%) agreed or strongly agreed that it offers high-quality resources to support teaching practice in DT & HM, and just under two-thirds said it helps schools and kura to plan and lead professional learning for staff in DT & HM (63%) and plan how to implement it into their local curriculum (62%). Facilitators who have presented or facilitated for Kia Takatū ā-Matihiko were more likely to agree or strongly agree with these statements than facilitators who had not.

Over a third (36%) disagreed that Kia Takatū ā-Matihiko was the go-to place to ask questions or clarify what's expected of schools and kura. With regards to te reo resources and facilitation, many facilitators skipped this question (presumably because they were English medium did not feel they were in a position to make a judgement). Almost all who did answer the question agreed or strongly agreed that Kia Takatū ā-Matihiko offers high-quality resources and facilitation in te reo Māori.

Figure 6 shows facilitators' views on the impacts of Kia Takatū ā-Matihiko for the wider system of ongoing supports for schools and kura. Two-thirds (67%) said it has helped the sector to develop a shared understanding of the revised DT & HM curriculum content and that it models what an effective bicultural approach to PLD provision can look like (66%). Few disagreed with this, though around a quarter skipped this question. Facilitators who have presented or facilitated for Kia Takatū ā-Matihiko were more likely than those who have not, to agree that the programme has helped to ensure equity of access to support for schools and kura. Overall, fewer facilitators agreed that Kia Takatū ā-Matihiko has changed the way they plan for and deliver PLD to schools and kura (39%), or that it has created a sustainable ecosystem of support and collaboration amongst PLD providers and organisations (38%).

FIGURE 4 Facilitators' views of usefulness of Kia Takatū ā-Matihiko components (n = 53)

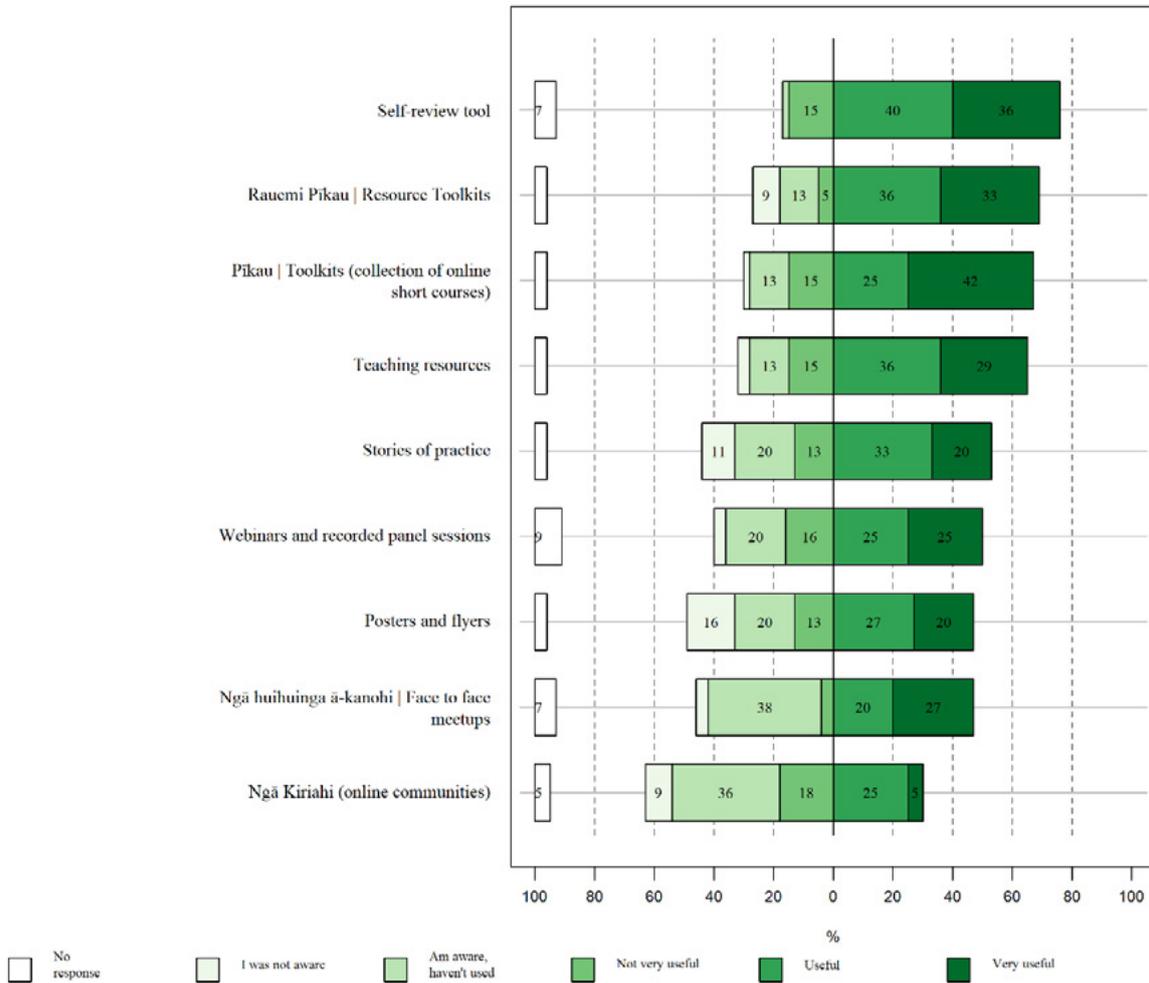


FIGURE 5 Facilitators' views of impacts for schools and kura (n = 53)

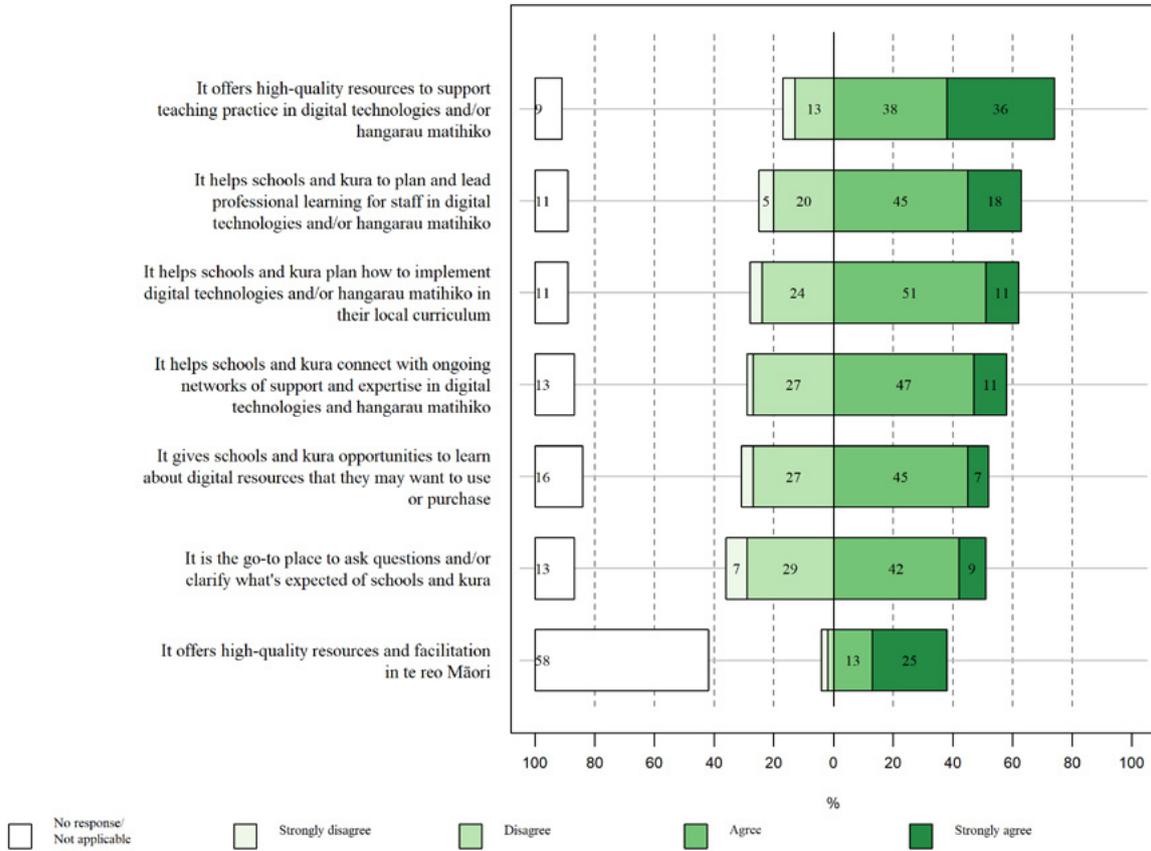
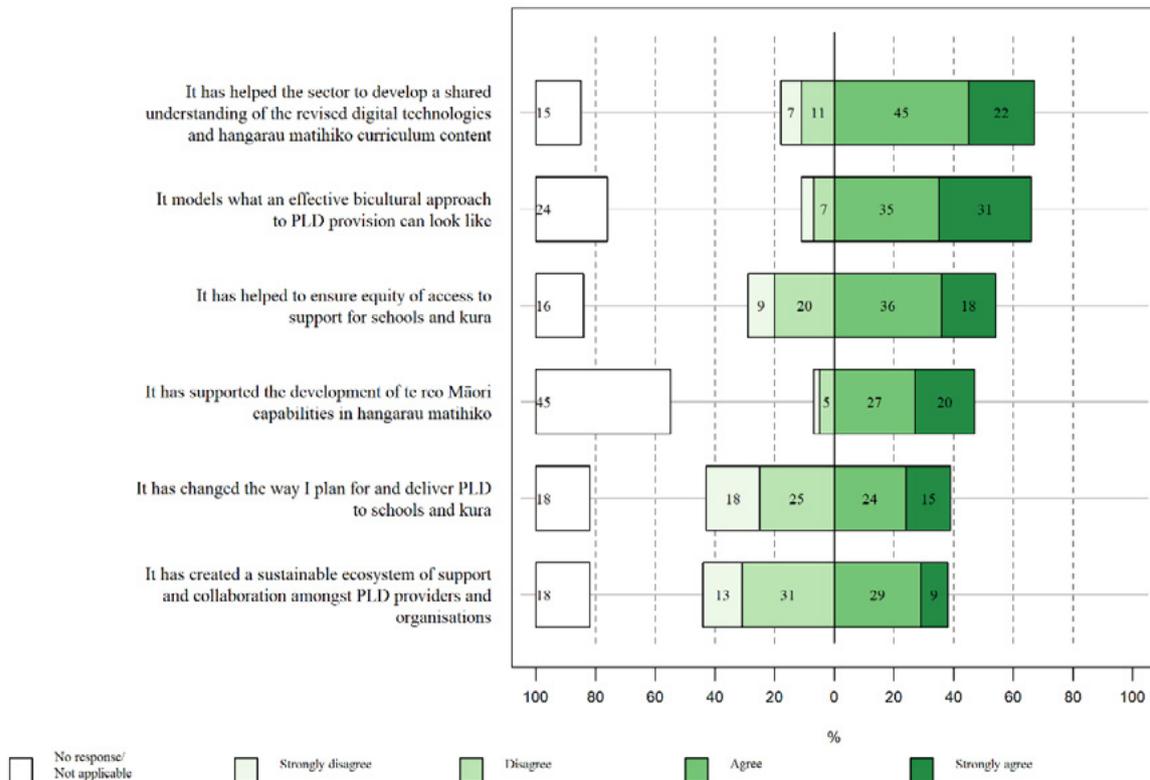


FIGURE 6 Facilitators’ views of the impacts for the system of supports for schools and kura (n=53)



Around half the respondents wrote feedback comments about Kia Takatū ā-Matihiko. This included many positive comments, as well as some critique. Positive comments included:

It has grown into being a valuable resource and a place to go for ideas and support.

It is awesome! Thank you for going virtual. Loved the short, sharp, specific focus of the webinars. Super friendly and nicely paced, easily accessible for all abilities. The facilitators lifted the learning off the pages and made it real. Thank you also for making the materials and webinars accessible for everyone in the education sector. You rock!

What a great bilingual/bicultural PLD programme.

Metaphor of Maui and Mahuika really resonates with kaiako.

The fact that the programme has a strongly bicultural feel and has been a collaborative effort has been very positive.

However, some facilitators provided critical feedback about the programme. The most common issue raised was the usability and accessibility of the website.

The website was extremely problematic. The sign-on option was not ideal. Registering for workshops was not an easy process and many teachers I talked with gave up because it was so difficult. It was difficult to find resources or search for them within the site.

The website has quality resources but navigating the site and finding where you’ve left off is far too cumbersome—this is a barrier to any teachers who may already be reluctant to engage with the content. If the site were to continue, it would need a comprehensive overhaul to make it more user friendly and less overwhelming to use.

The self-review tool in itself looks very useful, but some of the recommendations for pīkau it gives make no sense (e.g., when someone has scored very highly, they were recommended to go back to some of the beginner pīkau).

Some facilitators critiqued other aspects of the programme, including content and facilitation approaches.

I find the Kia Takatū ā-Matihiko self-review tool flashy and meaningless.

I'm sure the intention is good, but like many things provided by large providers, it becomes a roadshow where an off the shelf box is provided for schools and a one-size-fits-all approach is taken.

The feedback was that some of the kanohi ki te kanohi hui were dry, and chalk and talk with irrelevant information for the audience.

The majority of secondary school kaiako feedback [I heard] was that it was too primary-centric, and even if it had been updated, they didn't go back.

Overall I see Kia Takatū ā-Matihiko mainly as an accumulation of resources around Digital Fluency, some DT learning, but it is lacking the cross-curricular application of DT learning and how to embed this learning into a school's local curriculum.

A few facilitators said the programme should have done more to engage with, and support, PLD facilitators outside the partnership that delivered the programme.

There was never an opportunity as a provider to learn about the program and how this could be used to support schools, unless you were part of the program. The feeling was that unless you were a Kia Takatū ā-Matihiko facilitator, you weren't qualified to share the mahi, it almost felt a bit elitist.

Even though I have been a registered DT/HM facilitator since 2018 and an active user of Kia Takatū, I never received any information about [being part of a community of PLD support]. I would have liked to have been given the chance to join in. It would have been very valuable to kōrero with others about this kaupapa.

I have been disappointed by the approach of flying in facilitators from out of the area without any connection to our region and our local area. The local schools would have really benefited from someone with a local understanding. I have offered to support such a meetup (free of charge), but it appeared that my offer was not welcome, it didn't fit into their pre-set plan for the day.

Ongoing supports for schools and kura, from facilitator perspectives

Facilitators were asked what ongoing supports they thought schools and kura needed as they continue to implement DT & HM in their local curriculum (Table 19).

TABLE 19 Facilitator views on ongoing supports needed by schools and kura (n = 51)

Nature of support	% responses
Exemplars of how to incorporate the progress outcomes	92
Additional guidance in how to develop and sustain Digital Technologies and/or Hangarau Matihiko in local curriculum	90
Examples of what other teachers and students are doing with Digital Technologies and/or Hangarau Matihiko in the classroom	88
Face-to-face opportunities to share ideas and experiences with colleagues from other schools	76
Additional te reo Māori resources and support	71
Virtual meetups or webinars to support Digital Technologies and/or Hangarau Matihiko in their local curriculum	57
Other (please specify)	18

Other supports facilitators thought schools and kura still needed included “cross curricular resources focusing on secondary school contexts”, and support for schools in “curriculum integration [for example] planning for the inquiry focus and weaving the Digital Technologies through”. Some facilitators said schools needed more support, guidance, and advice around particular digital tools and platforms they could use to support students’ DT & HM learning. One facilitator specialised in supporting schools with “online safety, digital citizenship and wellbeing”, and felt this area needed to be further strengthened within the support around DT & HM to avoid “inequitable opportunity for schools to be supported in this area”. Another facilitator noted that:

Many schools are still in need of face-to-face PLD to support them [to] effectively implement Digital Technologies and Hangarau Matihiko learning into their local curriculum. Many schools are still on the ‘Not yet started’ or ‘Now underway’ stages of the Implementation tool.

Several facilitators suggested that, however useful the Kīa Takatū ā-Matihiko resources, many schools had not yet engaged, or had only minimally engaged.

I think this programme did so much to support schools and kura but there probably needs to be something to continue this support so schools that came on late can still engage.

As a PLD facilitator—many schools I start working with even now are unaware of this resource—they are not sure how to use it and even when I prompt staff to sign up, self-review and show them how to use pīkau they do not prioritise this work.

It’s a shame [that] teachers haven’t all taken up the opportunity to use the [Kīa Takatū ā-Matihiko] site as it’s amazing. Good [that] it will still be there as the resources will still be used and in high demand. I think many schools now realise DT is not going away so [they] will have to do things now.

6. Conclusion and recommendations

Based on our evaluation findings, we have identified several key messages to support the Ministry of Education's ongoing and future design plans for any nation-wide PLD support approach. These messages are relevant for any programmes of work designed to help schools and kura to implement new or revised curriculum, or new pedagogical practices, into their local curriculum or marau-a-kura.

Build future approaches based on the strengths of Kia Takatū ā-Matihiko

These strengths include:

- the bicultural foundation of the programme's design and implementation, impacting both Māori-medium kura and English-medium schools
- prioritising support for Māori medium, recognising that there are existing inequities in the system that must be addressed from the beginning, so that these inequities are not exacerbated further
- delivery by programme partners with different strengths and expertise, so that all partners can learn and benefit from each other's areas of strength
- the use of co-design approaches that build on the combined strengths of partners
- an iterative approach to the structure and management of the programme
- delivering and reviewing the programme in 6-monthly phases, allowing for flexibility in the evolution of the programme in line with changing needs, evaluation insights, and wider system factors (especially during lockdown).

Plan for sustainable change

Research tells us that change in schools often takes 3–5 years or more, and requires effective, sustained support, particularly when it involves teachers and school leaders taking on new knowledge and expanding their pedagogical repertoire. Sustainable change in school settings is influenced by a complex combination of individual, social, and organisational characteristics that exist within schools, and in the wider system around them (Fullan, 2007; Supovitz & Weinbaum, 2008). Schools and kura may be juggling many different PLD and school change priorities at a given time, and internal arrangements for who will lead and support change within schools can vary. Our evaluation shows that some schools and kura engaged early and often with Kia Takatū ā-Matihiko, while others were only just beginning to engage with, and benefit from, the resources and supports in the final phases of the programme.

With this in mind, we make the following recommendations:

- Plan for sustainable support, recognising that schools and kura are at different starting points, and will need different support at different stages.
- Increase the lifespan of programmes of support, understanding that 3 years is likely too short to effectively reach and support all schools and kura, and include a plan for a reduced form of ongoing support for late adopters.

- Draw on existing New Zealand research about the nature of PLD and other supports that are effective in assisting sustainable curriculum and pedagogical change within schools. For example, whole-school PLD that has the support of senior leadership is more effective in creating change (Robinson et al., 2009).
- Plan for schools and kura to have sustained, easy ongoing access to resources and supports that have been generated, beyond the life of the programme.
- Acknowledge what else is going on in the system during the time of implementation and make efforts to align support with other practices to increase coherence for schools.
- Use or gather timely information about the current capabilities of schools and kura, including the barriers they may be facing. Incorporate this information into planning and design of programmes of support.
- Recognise that, while online support and resources will meet some users' needs, online modes will not necessarily be used by, or meet the needs of, all schools and kura. Mixed modes of delivery including high-quality face-to-face support will be necessary as part of any nation-wide PLD support programme.

Co-construct a robust theory of change that can be tested, revised, and improved with evaluation data

The ability to develop, test, and revise and update theories of change for Kia Takatū ā-Matihiko was a key strength resulting in evidence-based, co-constructed, regular improvements to the programme. It was made possible because evaluation was embedded into the programme from the beginning. We therefore recommend:

- co-design of PLD approaches with providers, evaluators, and the school and kura sector
- inviting the main programme partners (NZCER and the Ministry) to review the theory of change together once more—at the programme's conclusion—to support an open, honest, and data-based discussion about how it went and what we would change or do differently “next time”, and how the theory of change can support and inform new programmes of work
- adapting/building on the theories of change we have developed for Kia Takatū ā-Matihiko as a starting point for theories of change to guide new programmes of work to support schools and kura with new curriculum developments (for example, with te reo Māori and Aotearoa New Zealand histories).

Provide consistent support and stewardship from the Ministry of Education

Over the life of Kia Takatū ā-Matihiko, there were shifts in wider system messaging and prioritisation of focus on DT & HM implementation amongst other new priorities. There were also several changes of contract management relationships. While there was initial information about the Ministry's overall evaluation for the package of supports funded to support DT & HM implementation, over time there was less engagement and feedback about how the evaluation findings would be used to support the Ministry's work programmes in this area. We therefore recommend:

- setting realistic goals and time frames for implementation of curriculum revisions, based on knowledge from previous New Zealand research and evaluation
- providing stewardship to ensure Ministry-contracted programmes will have the best chance of success, including working with programmes to ensure clear and consistent messaging to schools and kura, and clear guidance about expectations and goalposts
- ensuring that central and regional Ministry staff are informed and engaged to support the effectiveness and success in every region, and for all schools and kura.

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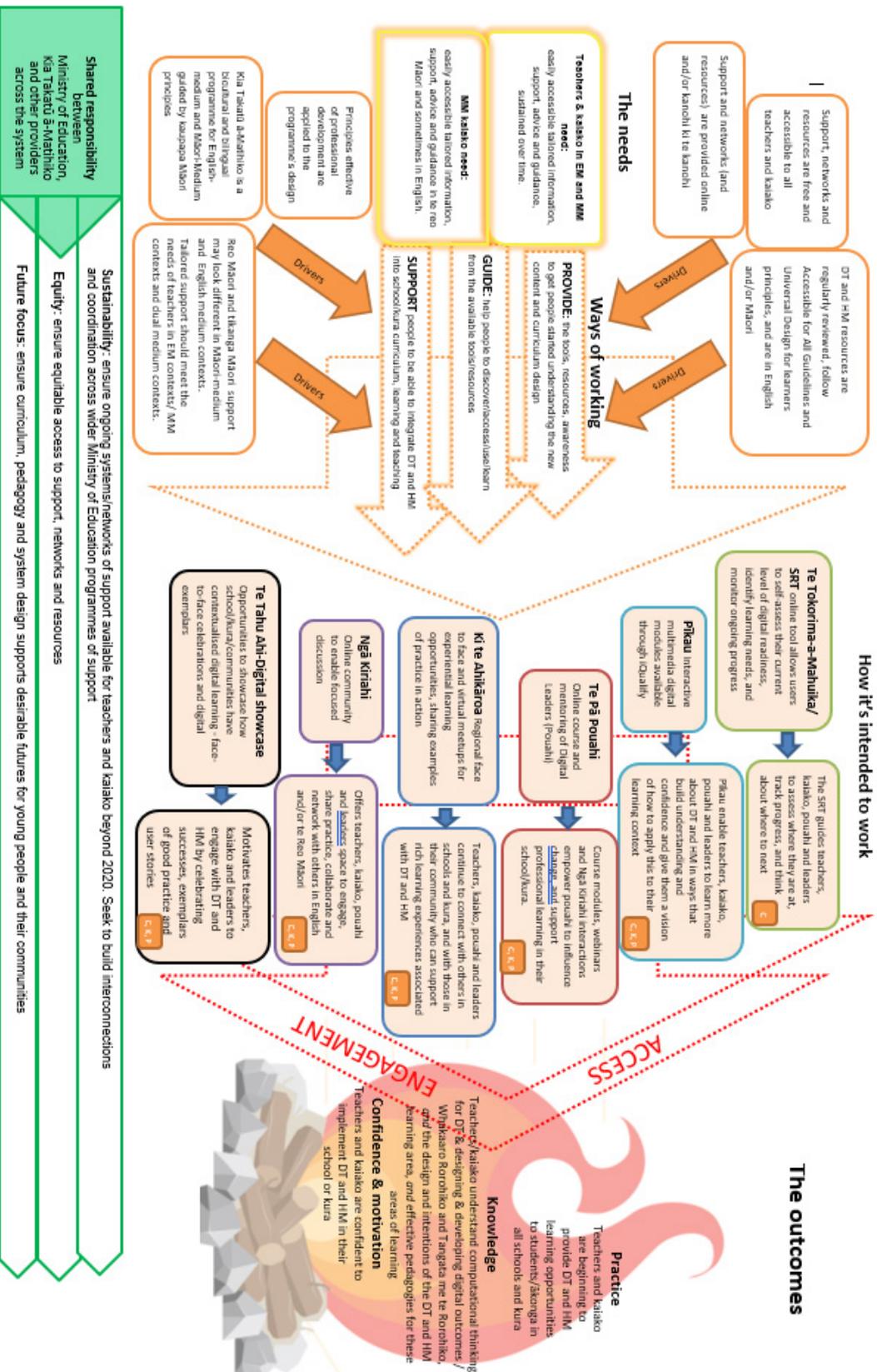
APPENDIX A

Tirohanga Māori Framework evaluation principles

Te reo me ōna tikanga	<p>Data collection instruments (the questions posed within surveys, workshops, etc.) will be in Māori and English whenever appropriate.</p> <p>Participants in evaluations can respond in the language of their choice.</p> <p>The approach to data collection and evaluation is inclusive.</p> <p>The data collection instruments will be translated into other languages appropriate for particular audiences when necessary. We recognise and respect the right of other cultures to be communicated with in their own languages.</p> <p>Data collection instruments will be universally designed whenever possible to ensure they are accessible and inclusive to and for as many people as possible.</p>
Mātauranga Māori/ Mātāpono Māori	<p>Mātauranga Māori knowledge and understandings are acknowledged, respected, and valued.</p> <p>All forms of cultural knowledge and understandings are acknowledged, respected, and valued.</p> <p>The measures used to evaluate progress or success (in learning/teaching) should be meaningful and useful.</p> <p>Feedback from participants about the data collection instruments (through a trialling process) informs the development of such instruments.</p>
Mana	<p>The reporting of the data will be strengths based and will highlight Māori concerns and interests where appropriate. We will test our assumptions to ensure that the analysis represents the interests of different groups.</p> <p>Ensure that the evaluation experience is easy to participate in and ethical.</p> <p>Communicate with participants about the evaluation “big picture”, including sharing the findings.</p>
Mana Mokopuna	<p>The perspectives and voices of different groups, particularly Māori learners whether they be ākonga/pouako/tamaiti/Mātua are heard and included.</p>
Whakawhanaungatanga	<p>Design of research questions and data collection instruments is undertaken in collaboration with our partners. We need to work with a common understanding of what we are trying to achieve and how we will achieve it.</p> <p>Invitations to participate in evaluation activities are given by trusted people/groups.</p>
Mahitahi	<p>Evaluation exercises are designed in collaboration with partners.</p> <p>Ensure we share a common understanding of what we are trying to achieve and how we will achieve it.</p>
Pōhiri/Whakatau/ Mihimihi/Karakia	<p>Participants in research and evaluations are informed about the project, what we may ask of them, and what their information will be used for. Participation is voluntary and confidential.</p> <p>Researchers/evaluators who are part of a community being researched (e.g., a kaiako at a kura who is collecting information about their ākonga) clearly identify their role as a researcher/evaluator to the community.</p>

Kanohi ki te kanohi	Ensure information gathering processes are consistent, but also responsive to the tikanga and kawa. For example, meet participants face to face when that is the most appropriate way to connect.
Manaakitanga	Genuine relationships are maintained with integrity and sincerity. These include relationships with our partner organisations, and with any participants involved in the project especially as trialists of the instruments, or through workshops and focus groups.
Aroha, Tika, Pono	<p>Data gathering is done through ethical processes, enabling honest, emphatic, compassionate, and fair relationship interactions.</p> <p>The information people share with us is treated with respect.</p> <p>Participants are not harmed in any way as a result of participating in the project.</p> <p>It is important that participants feel free to share their thoughts without negative consequences. For example, the usual practice is that participants in surveys and workshops/focus groups will not be identified in reporting. However, there may be occasions where it is appropriate to identify people by name or organisation if they want to be. Permission to do so will always be negotiated with them first.</p> <p>Questions are designed and framed in ways that work for different audiences; for example, in particular languages, or using particular phrases or wording.</p> <p>Guidelines for youth safety are adhered to.</p> <p>Diversity of voices, perspectives, and participation is expected, valued, and planned for.</p>
Whānau	Understand that whānau and the concept of collective responsibility are central to Māori society. Evaluations should therefore consider how whānau might be involved at strategic points and be framed by Māori, for Māori.
Tītiro, whakarongo, kōrero—Look, listen, speak	<p>Observe and inquire.</p> <p>Document the delivery of each programme (process evaluation); how it is working, what worked well, and what could be improved.</p>
Ngākau iti, Ngākau Māhaki	Ensure that data collection and evaluation is conducted in a respectful manner so that participants feel safe about sharing their information.

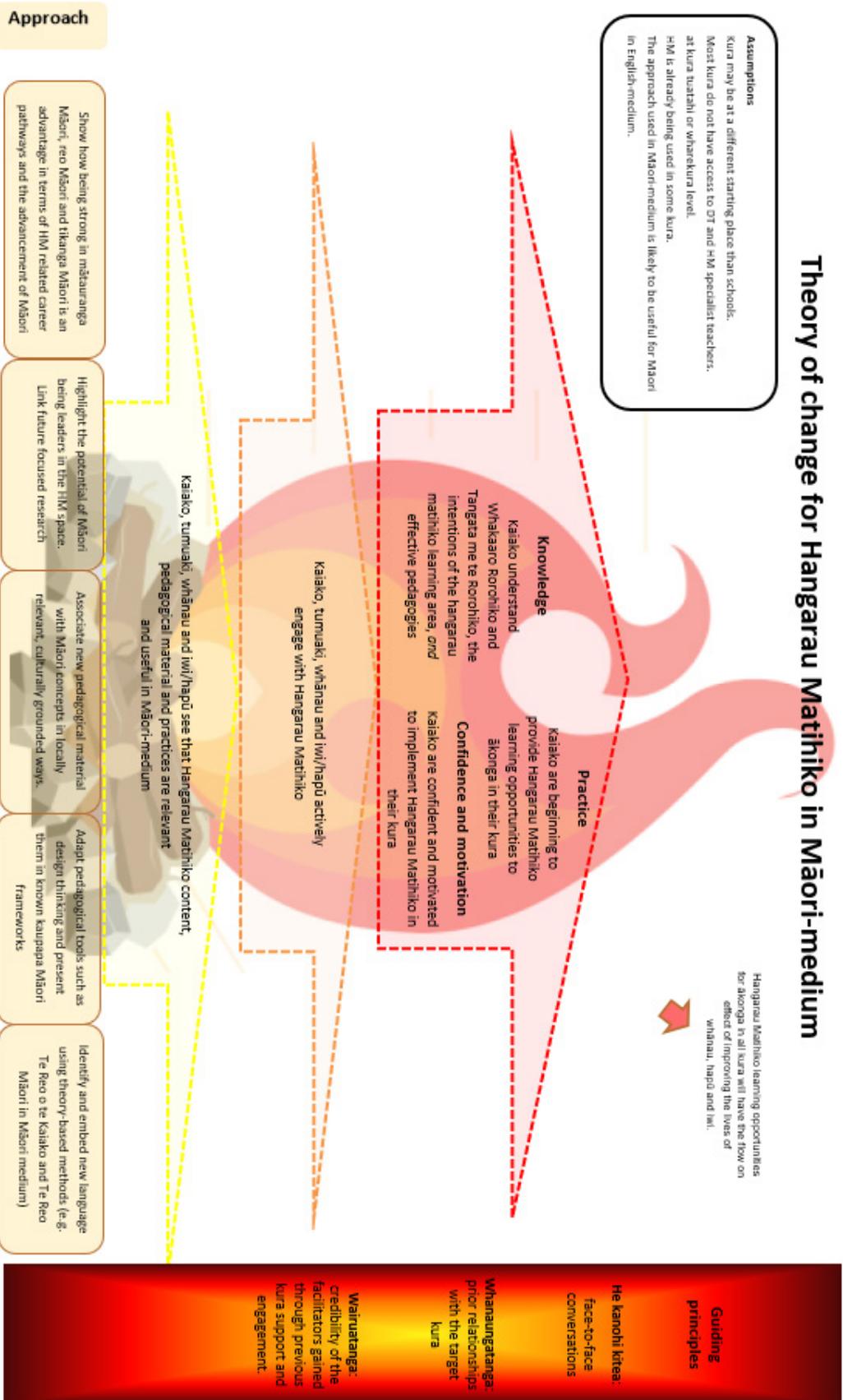
Kia Takatū ā-Matihiko programme Theory of Change for EM and MM



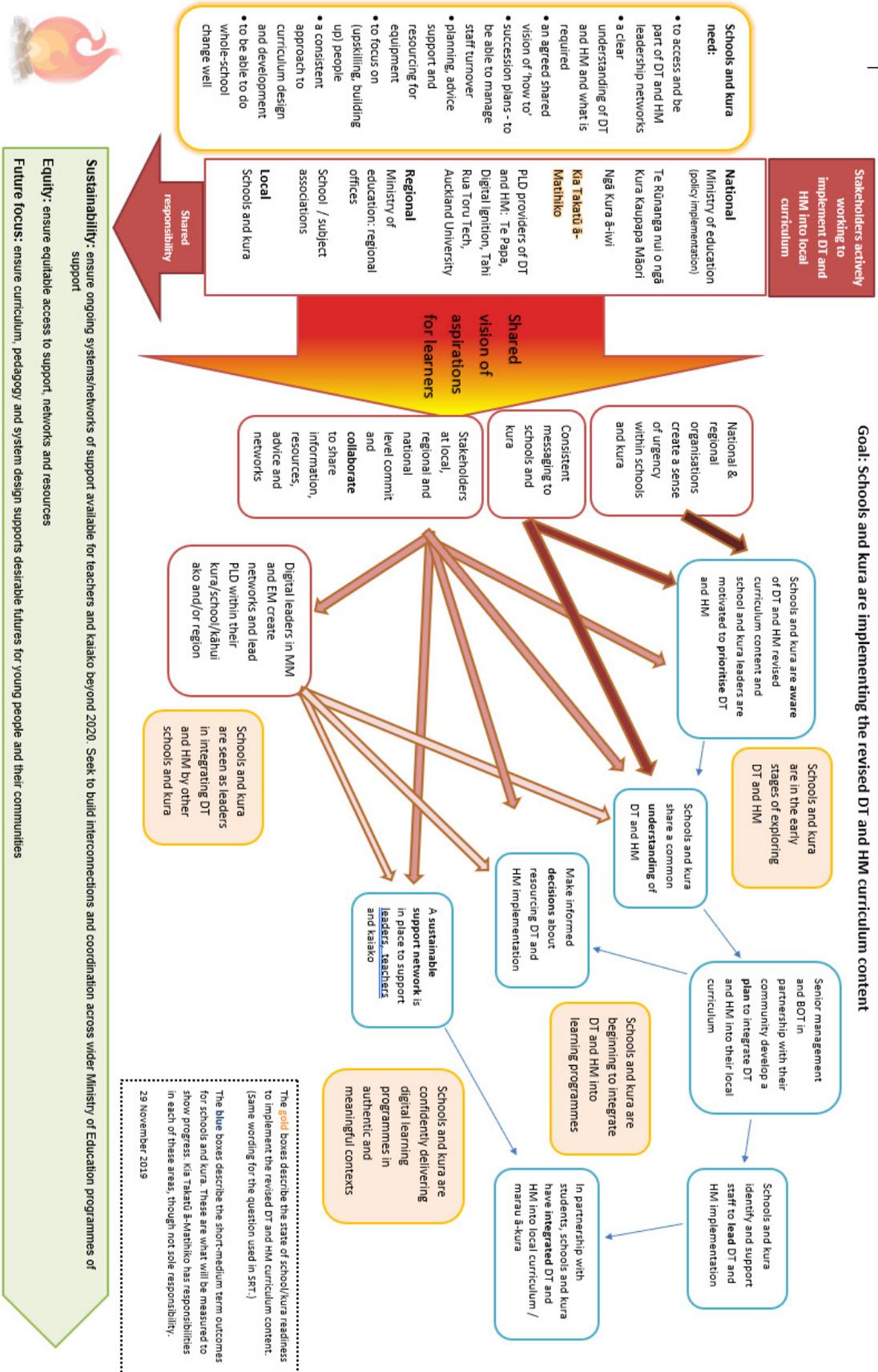
APPENDIX B Theories of change

Theory of change for Hangarau Matihiko in Māori-medium

Assumptions
 Kura may be at a different starting place than schools.
 Most kura do not have access to OT and HM specialist teachers, at kura tuatahi or wharekura level.
 HM is already being used in some kura.
 The approach used in Māori-medium is likely to be useful for Māori in English-medium.



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APPENDIX C

Pīkau usage

Pīkau specifically intended for Pouahi/Digital leaders are shown the bottom of each table.

TABLE C1 Attempts and completion of all English-medium pīkau (as of 2 November 2020)

Pīkau title	Attempted	Completed	% Complete
Pīkau 00: Intro: Why Digital Technologies?	3,958	2,194	55
Pīkau 02: Intro: What is computational thinking for Digital Technologies?	2,907	1,769	61
Pīkau 01: Intro: Getting the most out of pīkau	2,252	1,758	78
Pīkau 03: Intro: What is designing and developing digital outcomes?	2,102	1,394	66
Pīkau 04: Intro: CT—The international perspective	1,302	907	70
Pīkau 05: CTD PO1: First steps in programming	1,311	853	65
Pīkau 06: CTD PO2: Programming with sequence and output	897	632	70
Pīkau 07: CTD: What is programming?	623	444	71
Pīkau 11: DDDO PO1: Digital outcomes—Getting started with progress outcome 1	604	412	68
Pīkau 08: CTD: PO3: Making the computer do the work: programming with loops	480	347	72
Pīkau 09: CTD PO4: Getting programs right: the end-user, and fast algorithms	400	234	58
Pīkau 12: DDDO PO1: Challenge yourself with PO1	402	284	71
Pīkau 10: CTD PO5: Communicating well when programming	267	199	75
Pīkau 13: DDDO/PO 2 & 3: Creating digital outcomes using digital images and digital photography	239	129	54
Pīkau 20: Create your Digital Technology learning programme	222	121	55
Pīkau 15: CTD PO3-5: Representing data in binary	159	93	58
Pīkau 16: CTD PO4-5: Human computer interactions evaluation	104	84	81
Pīkau 14: DDDO PO 2 & 3: Physical computing	127	85	67
Pīkau 21: Incorporating authentic contexts	124	86	69
Pīkau 17: CTD PO4-6: Comparing algorithms	102	78	76
Pīkau 22: Incorporating a design process into your learning programme	113	72	64
Pīkau18: CTD PO4: Error detection and correction	83	65	78
Pīkau 23: Evaluating your learning programme	66	51	77
Te Pā Pouahi Pīkau			
Te Pā Pouahi Pīkau 1	521	167	32
Te Pā Pouahi Pīkau 2	159	72	45
Te Pā Pouahi Pīkau 3	80	41	51
Te Pā Pouahi Pīkau 4	52	33	63

TABLE C2 Attempts and completion of all Māori-medium pīkau (as of 2 November 2020)

Pīkau title	Attempted	Completed	% Complete
Pīkau 1: He Whakatakinga	343	120	35
Pīkau 2: Hangarau Matihiko i Te Marautanga o Aotearoa	146	83	57
Pīkau 4: Tangata me te Rorohiko 1a	95	66	69
Pīkau 5: Whakaaro Rorohiko 1	83	49	59
Pīkau 6: Tangata me te Rorohiko 1e	54	39	72
Pīkau 7: Whakaaro Rorohiko 2	53	34	64
Pīkau 8: Whakaaro Rorohiko 3a	52	30	58
Pīkau 10: Tangata me te Rorohiko 2e	41	26	63
Pīkau 9: Tangata me te Rorohiko 2a	37	25	68
Pīkau 11: Whakaaro Rorohiko 3e	29	15	52
Pīkau 15: Tangata me te Rorohiko 3e	21	13	62
Pīkau 12: Whakaaro Rorohiko 4	20	14	70
Pīkau 16: Whakaaro Rorohiko 6	22	13	59
Pīkau 13: Tangata me te Rorohiko 3a	17	13	76
Pīkau 17: Tangata me te Rorohiko 4	19	13	68
Pīkau 14: Whakaaro Rorohiko 5	18	14	78
Pīkau 18: Whakaaro Rorohiko 7	19	13	68
Pīkau 19: Tangata me te Rorohiko 5	15	11	73
Pīkau 20: Whakaaro Rorohiko 8	13	8	62
Te Pā Pouahi Pīkau			
Pīkau 3: Te Pā Pouahi	95	64	67
Te Pā Pouahi 1	36	22	61
Te Pā Pouahi 2	11	9	82
Te Pā Pouahi 3: Te Tukanga Hoahoa Whakaaro	15	8	53

APPENDIX D

Pīkau user ratings

TABLE D1 Pīkau user ratings — English-medium pīkau (at 2 November 2020)

Pīkau name	Rating responses	Usefulness mean	Usefulness median
Pīkau 00: Intro: Why Digital Technologies?	1,245	7.5	8.0
Pīkau au 02: Intro: What is computational thinking for Digital Technologies?	1,116	7.6	8.0
Pīkau 01: Intro: Getting the most out of pīkau	759	6.5	7.0
Pīkau 03: Intro: What is designing and developing digital outcomes?	650	7.5	8.0
Pīkau 04: Intro: CT—The international perspective	486	7.5	8.0
Pīkau 05: CTD T PO1: First steps in programming	429	8.1	9.0
Pīkau 06: CTD T PO2: Programming with sequence and output	284	8.0	9.0
Pīkau 07: CTD T: What is programming?	216	7.6	8.0
Pīkau 11: DDDO PO1: Digital outcomes—Getting started with progress outcome 1	154	7.3	8.0
Pīkau 08: CTD T: PO3: Making the computer do the work: programming with loops	143	7.3	8.0
Pīkau 09: CTD T PO4: Getting programs right: the end-user, and fast algorithms	108	7.0	8.0
Pīkau 12: DDDO PO1: Challenge yourself with PO1	103	8.0	8.0
Te Pa Pouahi Pīkau 1 (EM)	98	7.7	9.0
Pīkau 10: CTD T PO5: Communicating well when programming	93	7.2	8.0
Pīkau 16: CTD T PO4-5: Human computer interactions evaluation	52	7.6	8.5
Pīkau 20: Create your Digital Technology learning programme	38	8.3	9.0
Pīkau 15: CTD T PO3-5: Representing data in binary	34	8.3	9.5
Pīkau 21: Incorporating authentic contexts	33	7.8	8.0
Pīkau 22: Incorporating a design process into your learning programme	27	8.2	8.0
Pīkau 17: CTD T PO4-6: Comparing algorithms	21	6.8	8.0
Pīkau 23: Evaluating your learning programme	19	8.5	9.0
Pīkau 13: DDDO/PO 2 & 3: Creating digital outcomes using digital images and digital photography	18	8.4	9.5
Pīkau 14: DDDO PO 2 & 3: Physical computing	12	7.2	8.0
Pīkau18: CTD T PO4: Error detection and correction	11	8.1	9.0
Te Pā Pouahi Pīkau 4	5	9.0	9.0

TABLE D2 Pīkau user ratings — Māori-medium pīkau (at 2 November 2020)

Pīkau name	Rating responses	Usefulness mean	Usefulness median
Pīkau 1: He Whakatakinga	106	7.5	8.0
Pīkau 2: Hangarau Matihiko i Te Marautanga o Aotearoa	44	7.5	7.0
Pīkau 3: Te Pa Pouahi (MM)	39	7.4	8.0
Pīkau 4: Tangata me te Rorohiko 1a	39	8.5	10.0
Pīkau 5: Whakaaro Rorohiko 1	23	8.3	10.0
Pīkau 6: Tangata me te Rorohiko 1e	18	7.1	7.0
Pīkau 7: Whakaaro Rorohiko 2	16	8.2	9.0
Pīkau 9: Tangata me te Rorohiko 2a	12	7.7	8.5
Pīkau 10: Tangata me te Rorohiko 2e	11	6.1	7.0
Pīkau 8: Whakaaro Rorohiko 3a	11	8.6	10.0
Pīkau 12: Whakaaro Rorohiko 4	7	8.0	10.0
Pīkau 18: Whakaaro Rorohiko 7	7	7.6	9.0
Pīkau 19: Tangata me te Rorohiko 5	7	7.3	8.0
Pīkau 20: Whakaaro Rorohiko 8	7	8.1	9.0
Pīkau 13: Tangata me te Rorohiko 3a	6	7.5	7.0
Pīkau 14: Whakaaro Rorohiko 5	6	6.7	7.5
Pīkau 15: Tangata me te Rorohiko 3e	6	7.7	7.5
Pīkau 16: Whakaaro Rorohiko 6	6	7.2	7.5
Pīkau 17: Tangata me te Rorohiko 4	6	7.0	7.0
Te Pā Pouahi 3: Te Tukanga Hoahoa Whakaaro	6	7.8	8.0

APPENDIX E

Selected pīkau analysed for qualitative feedback in Phase Six

TABLE E1 Clusters of pīkau feedback analysed in this phase

Clusters	Pīkau
English-medium introductory pīkau	<p>Pīkau 00: Intro: Why Digital Technologies?</p> <p>Pīkau 03: Intro: What is designing and developing digital outcomes?</p> <p>Pīkau 05: CTD T PO1: First steps in programming</p> <p>Pīkau 07: CTD T: What is programming?</p> <p>Pīkau 11: DDDO PO1: Digital outcomes—Getting started with progress outcome 1</p>
Māori-medium introductory pīkau	<p>Pīkau 1: He Whakatakinga</p> <p>Pīkau 2: Hangarau Matihiko i Te Marautanga o Aotearoa</p> <p>Pīkau 4: Tangata me te Rorohiko 1a</p> <p>Pīkau 5: Whakaaro Rorohiko 1</p> <p>Pīkau 12: Whakaaro Rorohiko 4</p> <p>Pīkau 17: Tangata me te Rorohiko 4</p>
English-medium curriculum-planning pīkau	<p>Pīkau 20: Create your Digital Technology learning programme</p> <p>Pīkau 21: Incorporating authentic contexts</p> <p>Pīkau 22: Incorporating a design process into your learning programme</p> <p>Pīkau 23: Evaluating your learning programme</p>
Māori-medium design-thinking pīkau	<p>Te Pā Pouahi 3: Te Tukanga Hoahoa Whakaaro</p>
English-medium Te Pā Pouahi pīkau	<p>Te Pā Pouahi pīkau 1–4</p>
Māori-medium Te Pā Pouahi pīkau	<p>Pīkau 3: Te Pā Pouahi</p> <p>Te Pā Pouahi 1</p> <p>Te Pā Pouahi 2</p>

APPENDIX F

Pouahi survey respondents

The tables below provide profile information about those who responded to a Pouahi evaluation survey in 2020.

TABLE F1 Year levels taught in respondents' school/kura (n = 119)

Year levels taught in the school/kura	% responses
Years 0–6	70
Years 7–8	40
Years 9–10	22
Years 11–13	22

TABLE F2 Survey responses by region (n = 119)

Region	% responses
Te Tai Tokerau	3
Auckland/Tamaki Makaurau	29
Waikato	4
Bay of Plenty/Rotorua/Taupō	3
Hawkes Bay/Gisborne	6
Taranaki/Whanganui/Manawatū	7
Te Whanganui a-Tara/Wellington	13
Whakatū/Wairau/Te Tai Poutini Nelson/Marlborough/West Coast	8
Waitaha/Canterbury (includes Wharekauri/Rēkohu Chatham Islands)	17
Ōtago/Murihiku Otago/Southland	11

TABLE F3 Pouahi roles within their school or kura (n = 119)

Role(s)	% responses
Classroom teacher	62
Curriculum/syndicate leader—Technology or hangarau	43
Subject specialist—Technology or hangarau	31
Curriculum/syndicate leader—Other learning area(s)	20
Assistant or deputy principal	16
A role in supporting your Kāhui Ako	16
Staff representative on the board of trustees	11
Principal	9

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