

Ministry of Education's
response to the

Curriculum Advisory Group Report

**DIGITAL TECHNOLOGIES &
HANGARAU MATIHIKO**

OCTOBER 2017

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The Ministry of Education Responses to the Digital Technologies & Hangarau Matihiko Curriculum Advisory Group Recommendations

The Ministry of Education's (the Ministry's) draft Digital Technologies & Hangarau Matihiko curriculum content was released for sector consultation from 28 June to 3 September 2017. This included 53 consultation information workshops in 19 locations across New Zealand, and 2,377 people attended.

An online survey was available throughout the consultation period for individuals to submit feedback on the draft content. 504 surveys were completed online, as well as 151 partial responses, a total of 655 survey responses. We also received 35 emails giving feedback. Martin Jenkins, an independent provider of consultancy services, summarised the feedback into a final curriculum consultation evaluation report.

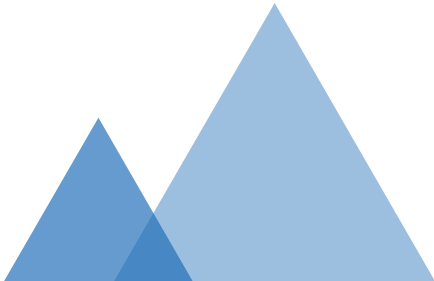
The Ministry commissioned an independent Digital Technologies & Hangarau Matihiko Curriculum Advisory Group, chaired by Graeme Aitken (University of Auckland, Dean, Faculty of Education), to:

- » Review the curriculum consultation evaluation report
- » Provide recommendations for strengthening the draft content in light of the evaluation report.

The Digital Technologies & Hangarau Matihiko Curriculum Advisory Group produced a report providing the Ministry with 42 recommendations covering the following themes:

- » Integration
- » Learning Area Structure
- » Future Focus
- » Hangarau Matihiko content
- » Consultation
- » Curriculum implementation and support
- » Other themes

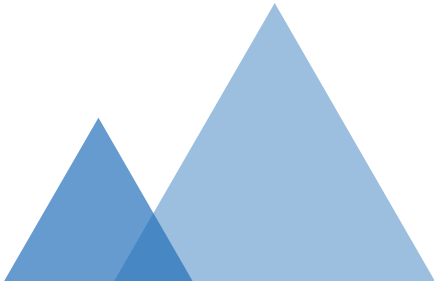
This group considered the evaluation report for both the proposed Digital Technologies and Hangarau Matihiko content. The table on the following pages lists the Curriculum Advisory Group recommendations by theme and notes how the Ministry has progressed or plans to progress these.



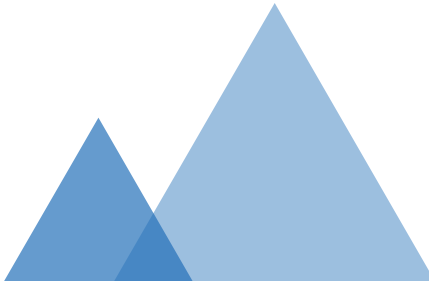
Theme	CAG Recommendation	Ministry response to recommendation
<p>Integration</p>	<p>Rec 8: The Curriculum Advisory Group reinforces the need to have greater visibility of Te Ao Māori and Te Tiriti in the Learning Area Statement and Progress Outcomes but warns against the shallow, decontextualised inclusion of Māori concepts. It is recommended that the English medium designers make reference to the English text of the Māori medium design as a source of material for integration.</p>	<p>We will strengthen the Learning Area Statement's alignment to the New Zealand Curriculum principles and values of Treaty of Waitangi, Inclusion and Cultural Diversity.</p> <p>We will also strengthen ethics and digital citizenship in Designing and Developing Digital Outcomes.</p>
	<p>Rec 13: That the positioning of "understanding" and application/ action/design/creating are reversed in the Progress Outcomes to make clear that understanding in action is what is important, rather than just understanding for its own sake</p>	<p>We will review and revise the text in the Progress Outcomes.</p>
	<p>Rec 14: The statement of the curriculum needs to reflect the integrated form of its intended implementation</p>	<p>We will explore the identified opportunities and action where feasible, including:</p> <ul style="list-style-type: none"> » diagram in the Learning Area Statement illustrating integration » adding a statement to Progress Outcomes such as 'in authentic contexts, through real world examples' » adding a statement to Progress Outcomes such as 'and that storing data comes with responsibilities related to storage and privacy'
	<p>Rec 15: Integration be illustrated into exemplars, including Te Ao Māori, Te Tiriti o Waitangi, Key Competencies and linkages to other learning areas</p>	<p>We have strengthened integration to other learning areas and the Key Competencies in the exemplars; this was in light of the earlier feedback provided to us by the Change and Enablement working group.</p> <p>Teacher resources and Professional Learning Development will also support a focus on integrating Digital Technologies into Technology and across the New Zealand Curriculum learning areas.</p>
	<p>Rec 16: That the compulsory nature of the Digital Technologies & Hangarau Matihiko curriculum be clearly stated by including the following statement: "In each of Years 1-8, and across Years 9 and 10, students will gain learning and experience in Computational Thinking and Designing and Developing Digital Outcomes (Designing and Developing Digital Outcomes)."</p>	<p>None of the strands in the required learning areas of the New Zealand Curriculum are optional.</p> <p>Work towards each Progress Outcome in Digital Technologies should occur each year (as opposed to only in the year that the Progress Outcome is shown to align to in our diagram) in order to ensure learners achieve all of the significant learning steps.</p> <p>In each of Years 1-10, students will gain learning and experience in Computational Thinking and Designing and Developing Digital Outcomes.</p>
	<p>Rec 17: Expand the research voice to inform ongoing development of Designing and Developing Digital Outcomes</p>	<p>The Designing and Developing Digital Outcomes technological area was developed with input from a wide range of curriculum and subject matter experts. Further details on the research and expertise that has informed the development of the new Digital Technologies & Hangarau Matihiko curriculum content will be made available on our website.</p>



Theme	CAG Recommendation	Ministry response to recommendation
Learning Area Structure	Rec 18: Replace Achievement Objectives for the three non-digital areas with Progress Outcomes	We agree this would provide a more coherent approach to the Technology Learning Area and minimise potential confusion in implementation. Learning progressions cannot be developed for the non-digital areas within our existing publishing timelines, but they could be developed as part of future curriculum review work.
	Rec 19: If the above recommendation is not considered, revise language for Progress Outcomes and/or revise diagram to detail role of Progress Outcomes and Achievement Objectives in the Learning Area Statement	We will revise the diagram in the Learning Area Statement to help clarify the role of Achievement Objectives and Progress Outcomes. Further resources will be developed to support schools to implement the revised Technology Learning Area.
	Rec 20: That the last sentence in the Learning area structure be changed to say: 'The three strands of technological practice, technological knowledge and the nature of technology are influential on, and embedded within, each of these technological areas.'	We will amend the last sentence in the Learning Area Statement to say: 'The three strands of technological practice, technological knowledge and the nature of technology are influential on, and embedded within, each of these technological areas.'
	Rec 21 & Rec 22: That an Outcome Statement for the end of compulsory Digital Technologies education (end of Year 10) be included in the Learning Area Statement, and remove the end of Year 13 Outcome Statement.	We're moving Outcome Statements for Years 10 and 13, and re-working them so that they blend into the Learning Area Statement. They will profile the broad Digital Technologies knowledge and capabilities of all students leaving compulsory schooling (end of Year 10), with an additional profile for the end of Year 13 for those who undertake further Digital Technologies study.
	Rec 23: Develop Outcome Statements for Years 6 and 8	Rather than develop additional statements for Years 6 and 8, we will link the Technology Learning Area to the Transition Capabilities that sit in the Communities of Learning Local Curriculum Design Tool which support coherent learning pathways. More information on the tool can be accessed at: https://education.govt.nz/communities-of-learning/teaching-and-learning/teaching-tools/#First
	Rec 24: That it be made clear that the NCEA Level 1-3 Achievement Standards are referenced to, and align with, Progress Outcomes 6, 7 and 8 (Computational Thinking) and 4 and 5 (Designing and Developing Digital Outcomes)	The Progress Outcomes are based on the significant learning steps that students take as they develop their expertise in Digital Technologies & Hangarau Matihiko. They are not directly aligned to either year levels or curriculum levels. However, the Achievement Standards have been referenced to the top Progress Outcomes in both Computational Thinking and Designing and Developing Digital Outcomes on the basis that these particular Progress Outcomes set out the learning that is expected for those students engaging in more intensive and specialised digital technologies programmes. An additional Progress Outcome has been inserted between the two highest outcomes in the draft Designing and Developing Digital Outcomes progression to strengthen this alignment.



Theme	CAG Recommendation	Ministry response to recommendation
Future Focus	Rec 25: Remove language that is likely to become outdated in the near future	We will review the Learning Area Statement and Progress Outcomes to ensure the language is not too specific or likely to become dated. The exemplars will need to refer to specific concepts and tools so that they provide useful support for schools and teachers. Regular exemplar development will help manage the material dating (refer Rec 26).
	Rec 26: Update the exemplars on a two year cycle	Exemplars will be reviewed regularly to ensure they are up to date and fit for purpose.
	Rec 27: Collect and purchase exemplars from schools. These exemplars can be used as part of the two year review cycle	We note this feedback and will consider schools as potential sources of exemplar development in our planning in Digital Technologies & Hangarau Matihiko. For Curriculum Level 6 and NCEA Level 1, we are already working with, and funding, a number of schools to develop exemplar teaching and learning programmes for widespread publication.
	Rec 28: Exemplars are developed in digital form and model the best use of Digital Technologies	This will be a consideration with ongoing exemplar development.
	Rec 29: That at senior levels the exemplars are clearly distinguished from, but related to, the assessment exemplars	Exemplars are being developed for Progress Outcomes at the senior levels. These are curriculum-based, and are related to achievement standards.



Theme	CAG Recommendation	Ministry response to recommendation
<p>Hangarau Matihiko Content</p>	<p>Rec 6 & 7 Short, focussed, online student surveys need to be conducted in English-medium and also in Māori -medium, specific to Māori to inform the development of the curriculum and of follow-up resourcing.</p> <p>More ongoing, relevant engagement needs to be undertaken with Māori medium kanohi ki te kanohi, and with hands-on experience that engages whānau as well.</p>	<p>The activities noted will be considered as the ongoing engagement continues. Relevant Māori medium kura and whānau engagement is a priority.</p>
	<p>Rec 10, 11 & 12 Me Māori te wairua o te Hangarau Matihiko.</p> <p>Me kōturi ngā horopaki Māori ki runga i ngā aho. That any changes to the Hangarau Matihiko are reflected in the iho statement.</p>	<p>We are working on strengthening the sense of wairua Māori throughout the Hangarau Matihiko content. We are doing this by:</p> <ul style="list-style-type: none"> » Including a story about Maui that reflects the relevance of Hangarau Matihiko and its origin in te ao Māori » Integrating te reo Māori throughout the Progress Outcome previously known as Computational Thinking » Integrating the essential elements of digital citizenship throughout the Progress Outcome previously known as Designing and Developing Digital Outcomes » Renaming the remaining two progressions in Hangarau Matihiko as Te Whakaaro Rorohiko and Tangata me Te Rorohiko. » Developing exemplars that are based on Māori contexts and utilise Māori ways of thinking
	<p>Rec 27 That the Ministry of Education accesses real-life developing practice by regularly collecting, and/or purchasing, exemplars from schools and using these as the basis for the two-yearly updating process. And that the Ministry invests in enabling kura to participate in this process in equitable ways, and across a range of kura settings.</p>	<p>Māori medium kura are regularly invited to submit exemplars for review annually. Two to three exemplars per level are moderated and published annually.</p> <p>Note: NZQA NCEA Moderators regularly identify and request exemplars from Māori medium kura that clearly illustrate links to Te Marautanga o Aotearoa and standards created.</p>
	<p>Rec 33c That the professional development plan delivers Hangarau Matihiko Professional Learning Development <i>kia Māori te aronga</i>.</p>	<p>The new content for Hangarau Matihiko and how it is aligned to Te Marautanga o Aotearoa needs to be clear and precise. It is also vital that its connection to exemplars are clearly identified.</p> <p>Specific professional development and support materials for Māori medium are under development and we will ensure that engagement with kura is relevant and has a Māori focus.</p>
	<p>Rec 27 & 28 That the Ministry of Education accesses real-life developing practice by regularly collecting, and/or purchasing, exemplars from schools and using these as the basis for the two-yearly updating process. And that the Ministry invests in enabling kura to participate in this process in equitable ways, and across a range of kura settings.</p> <p>That exemplars are developed in digital form, not as pdfs but rather modelling the best in the use of digital technologies (e.g. pop-ups).</p>	<p>We have demonstrated in the exemplars the connections between Hangarau Matihiko and other areas of the Te Marautanga o Aotearoa.</p> <p>The Hangarau Matihiko exemplars include photographs and video content. These exemplars are to be published online and will be easily accessible and usable.</p> <p>Māori medium kura are regularly invited to submit exemplars for review annually. Two or three exemplars per level are moderated and published annually.</p>

Theme	CAG Recommendation	Ministry response to recommendation
Consultation	Rec 1 Consultation needs to continue alongside piloting and implementation	Ongoing engagement will continue alongside implementation - this will be relevant to the needs of schools and kura across both English medium and Māori medium settings.
	Rec 2 Consultation needs to be multi-faceted, accessible, two-way (listening as well as telling) and, where surveys are used, model the best of digital survey design	We will implement an iterative approach to curriculum support. This approach will ensure that access to support is flexible and meets teachers' needs. It will also allow the Ministry to listen to feedback about implementation and respond.
	Rec 3 Consultation needs to acknowledge the significant pressures on people's time and the enticement that may be necessary to achieve more fully representative voice	This will be taken into account as part of the iterative implementation process.
	Rec 4 Local Ministry of Education staff need to be leading and actively involved in ongoing consultation	We will work with our regional offices in the ongoing engagement and implementation of the new content.
	Rec 6 Short, focussed, online student surveys need to be conducted in English-medium and also in Maori-medium, specific to Maori, to inform the development of the curriculum and of follow up resourcing	We agree, as part of the iterative engagement and implementation process. We are assessing the work underway across the Ministry that could assist with this action. We are also assessing use of the new Ministerial Student Council group to help design and roll-out.
	Rec 7 More ongoing, relevant engagement needs to be undertaken with Maori medium kano ki te kano, and with hands-on experience that engages whanau as well.	We will consider this as part of the iterative engagement process.
	Rec 31 That communications about the curriculum need to make strong use of digital technologies: for example: a) app promos about the curriculum addressing possible misunderstandings b) engaging through social media c) commissioned (short 30-second) vignettes showing the curriculum in action and aimed at addressing/ heading off some of the known criticisms (e.g. too much screen time, only about devices), and reinforcing some of the connections to students' futures (e.g. relevance to future employment through vignettes that show students engaging with innovators).	The Ministry will run an engagement campaign to introduce the new Digital Technologies & Hangarau Matihiko curriculum content and this feedback will be taken into consideration as part of this planning. This campaign will use social media as a mechanism to share inspirational stories and provide clarity on difficult to understand concepts. We will also refer to the paper by the Ministry - Lifelong Learning (2015) - which is referred to in the Curriculum Advisory Group report.



Theme	CAG Recommendation	Ministry response to recommendation
<p>Curriculum Implementation and Support</p>	<p>Rec 32 That a dedicated Professional Learning Development plan to bring current and new teachers (i.e. teachers in training) up to speed is developed in consultation with the Education Council of New Zealand.</p>	<p>We will work closely with the Education Council to ensure that teachers know about the opportunities that are available to them through Professional Learning Development and the wider package of supports and resources.</p>
	<p>Rec 33 That this plan:</p> <ul style="list-style-type: none"> a) Is funded to ensure all schools, kura and teacher training institutions have equitable access to resourcing to ensure readiness. b) includes both specialist training that develops understanding of the Digital Technologies & Hangarau Matihiko curriculum and its implementation requirements, AND Professional Learning Development that develops digital fluency and models the underpinning nature of Digital Technologies & Hangarau Matihiko in all learning areas. c) Delivers Hangarau Matihiko Professional Learning Development kia Māori te aronga. d) Includes funding, and resourcing for a dedicated school-community partnership day to socialise the intentions the new curriculum with teachers, students and whanau; to signal commitment to a new and important area of contemporary and future New Zealand Curriculum; and to enable schools/ kura to map out an implementation strategy. e) Identifies early adopters and supports them to share their expertise. 	<p>All teachers and kaiako will be able to access support and resources to implement the new curriculum content. We will take these ideas into consideration, and include them in our plans where feasible, as we plan the support and resources in detail with the providers selected through the current Creating a Digitally Fluent Nation package procurement activity.</p>
	<p>Rec 34 That the plan incorporates the development of high quality, online professional learning platforms and communities for teachers:</p> <ul style="list-style-type: none"> a) aimed at developing conceptual knowledge and raising awareness of implementation possibilities b) at each of Years 1-10, Years 11-13 and for Maori medium to acknowledge the specific and differing needs of each of those communities c) with recognised progression and badging similar to commercial products offered Google, Apple and Microsoft d) that involve subject associations and early adopters be involved in the development. 	<p>The opportunities for professional development and support will reflect the channels and content that have been recommended. We note the suggestion of a badging concept.</p>
	<p>Rec 35 That a school/kura career pathway in Digital Technologies & Hangarau Matihiko leadership is defined and funded through additional MU allocations and time to schools.</p>	<p>Noted.</p>
	<p>Rec 36 That an additional dedicated across-school teacher be funded with the express purpose of sharing digital expertise and innovation.</p>	<p>Noted.</p>
	<p>Rec 37 That existing sources of funding be targeted to support upskilling and capability development (for example, Study Awards, TeachNZ scholarships).</p>	<p>TeachNZ scholarships have been expanded to focus on STEM workforce needs, including Technology. We will continue to assess how current TeachNZ scholarships could be further expanded with a Digital Technologies & Hangarau Matihiko focus.</p>
	<p>Rec 38 That discussions be held with the sector about the way in which the Education Review Office might report in each of their school/kura reviews on the readiness for, and implementation of, Digital Technologies & Hangarau Matihiko.</p>	<p>We will undertake this work collaboratively with the Education Review Office and sector representatives.</p>

Other Themes

Theme	CAG Recommendation	Ministry response to recommendation
Programme management	Rec 5 That Martin Jenkins be asked to review their data to determine whether it is possible to report in a more nuanced way on ethnicity	This is complete – the Martin Jenkins report includes updated commentary in this area.
Future Focus	Rec 39 That an independent, longitudinal evaluation be commissioned and a sector consultative group appointment to inform the evaluation and recommend responses to its emerging findings.	This will be considered as part of the Digital Technologies & Hangarau Matihiko approach to evaluation.
NCEA	Rec 40 That the timeline for the full implementation of the NCEA Level 1-3 standards be revised as follows – Year 1-11 full implementation by 2020, Year 12/Level 2 by 2021, Year 13/Level 3 by 2022.	We must register the new NCEA Level 1 achievement standards at the end of 2017, to ensure that young people who participated in trials of these standards can receive credit. We are currently in the process of developing new NCEA Level 2 and 3 achievement standards simultaneously, and planned to register these at the end of 2018. To ease the implementation of the new standards, we will offer one transition year where both old and new standards can be used for NCEA Level 1 and 2, and two transition years for NCEA Level 3. This means that a transition to the new standards will not be required until 2019, 2020 and 2021 respectively.
ITE	Rec 41 That the Ministry of Education work with Education Council of New Zealand to address barriers to entry for people suitably qualified to teach Digital Technologies & Hangarau Matihiko curriculum.	We note that work is already underway regarding Limited Authority to Teach and changes to requirements for Initial Teacher Education.
Name of curriculum area	Rec 42 & 43 Given the substantial changes to the Learning Area, the Curriculum Advisory Group strongly recommends the name of the Technology Learning Area be updated to reflect the significant role the digital plays, as both 2 of 5 technological areas as well as underpinning the other 3, and the other elements of the New Zealand Curriculum.	We acknowledge the Curriculum Advisory Group's view that changing the name of the learning area can help raise the status of the learning area, and send a clear signal regarding the significance of the change. However, we note the possible name suggested by the Curriculum Advisory Group (Digital and Material Technologies). However, we note the possible name suggested by the Curriculum Advisory Group ('Digital and Material Technologies') may not be viewed as inclusive to all, in particular those working in 'Digital Visual Communications' and 'Processed Technologies'.

Additional Comments:

There are many different views on children using digital electronic devices. For example the special character school of Federation of Rudolph Steiner Waldarf, New Zealand outlined their important philosophy on being device-free and screen-free in the primary years. Because of the focus on understanding the principles of how digital technology works, in the early years this learning can be done away from screens and devices. The Federation and the Ministry have agreed to work together on a process for Steiner schools to design their own curriculum. Each school, kura and wharekura will be able to design their own local curriculum around the Digital Technologies and Hangarau Matihiko content to suit their own views and philosophies.



Curriculum Advisory Group

Digital Technologies & Hangarau Matihiko

TERMS OF REFERENCE

Purpose

To strengthen Digital Technologies & Hangarau Matihiko curriculum content in light of feedback from the Digital Technologies & Hangarau Matihiko curriculum consultation.

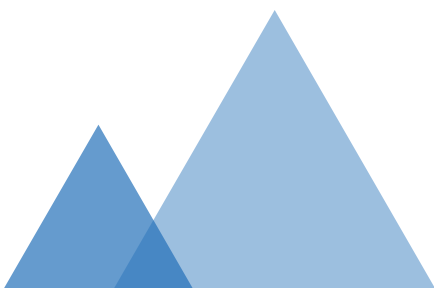
Background

The Ministry has procured the services of Education Technology, CORE Education and Victoria University to develop and design the new Digital Technologies & Hangarau Matihiko curriculum content in partnership with the Ministry and other key stakeholders from the education sector and business/industry. To inform and support this work during the design, gazetting and publishing process, the Ministry has established a Curriculum Advisory Group to provide recommendations on the content and design of the Digital Technologies & Hangarau Matihiko curriculum content as it is developed.

Draft Digital Technologies & Hangarau Matihiko curriculum content went out for public consultation from 28 June to 3 September 2017. We intend to use feedback from this consultation to strengthen the content prior to socialisation of the revised content, gazetting and publishing the strengthened national curriculum that will include new Digital Technologies & Hangarau Matihiko content.

Tasks for the Advisory Group

- 1 Review the independent curriculum consultation summary report.
- 2 Review the Ministry's response paper.
- 3 Consider any further changes to the curriculum content which arise from the Ministry's design processes, for example changes recommended due to psychometric assessment of the draft set of progress outcomes.
- 4 Provide independent advice to the Ministry regarding recommended changes to Digital Technologies & Hangarau Matihiko content in response to the issues raised in the consultation process.



Role and scope

In-Scope

- » Providing advice to the Ministry of Education regarding the Digital Technologies & Hangarau Matihiko content in light of the independent curriculum consultation summary report, including the Ministry's view of this report. This could include:
 - › The approach to describing and communicating the new curriculum content
 - › Gaps or duplication in the new curriculum content
 - › The language of the new curriculum content
 - › Advice regarding the appropriate supports that could be provided to support teachers, students, whānau, industry and the community to make use of the new curriculum content.
- » Advice on recommended changes must be within the Ministry's mandate of strengthening the positioning of learning in Digital Technologies & Hangarau Matihiko in the Technology | Hangarau Learning Areas.

Out of scope

- » Advice on recommended changes outside of the Ministry's mandate (eg: changes to the curriculum outside of Technology Learning Area of The New Zealand Curriculum, and outside of the Hangarau Wāhanga Ako of Te Marautanga o Aotearoa)
- » Advice drawing from feedback and reports submitted outside of the curriculum consultation process.

Meetings and process:

Meetings will be chaired by independent chair Graeme Aitken. The group is expected to meet as required between 27-28 September in Auckland and 3 October in Wellington. At its first meeting the Group will determine its requirements for quorum and meeting arrangements.

Responsibility of members.

Members will:

- a) act in the best interests of all stakeholders, including children and parents, families and whānau
- b) endeavour to provide objective, evidence-based advice
- c) dedicate sufficient time to make a meaningful contribution to the progress of the group. There will be some pre-meeting readings. There may also be video conferences to follow up meetings as needed.
- d) not disclose information provided to them in confidence by officials
- e) not make media statements about the work of the Group without the prior express permission of the Deputy Secretary Early Learning Student Achievement.



Conflict of interest

Group members should perform their tasks honestly, impartially and in good faith. Members should also avoid situations that might compromise their integrity or otherwise lead to conflicts of interest. If a member becomes aware of a conflict of interest, they will advise the Ministry of Education.

As the Advisory Group is engaged to provide independent advice regarding the feedback received during consultation members cannot provide feedback through the consultation process. Members who are part of organisations which are providing feedback will need to take appropriate action to distance themselves from that feedback.

Travel costs to attend Reference Group Meetings

With prior agreement, and in accordance with current Ministry of Education policies and processes, the Ministry of Education will reimburse actual and reasonable travel and accommodation costs incurred in attending Group meetings.

Teacher release funding

Teachers and kaiako who require teacher release to attend meetings at National Office may apply for a Teacher Release Day funding.

Remuneration

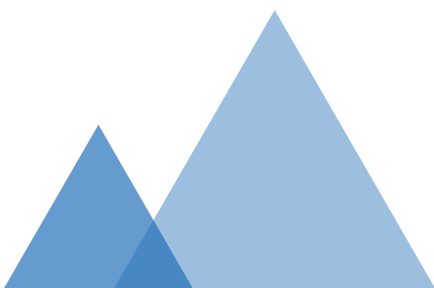
Per day rates will be negotiated with each Digital Technologies Curriculum Advisory Group member in accordance with current Ministry of Education policies and processes.

Term

It is intended that the Curriculum Advisory Group will meet from 27-28 September and 3 October. Up to three days of reading may be required in the week preceding the first Curriculum Advisory Group meeting.

Official Information Act 1982

The Official Information Act 1982 will apply without exception to the activities of the Group. The Ministry will be responsible for ensuring that members are aware of the provisions of the Act, and the extent to which written material is discoverable under



Membership

The Group will be selected by the Ministry and will consist of:

ROLE	ROLE REQUIREMENTS
Chair	<ul style="list-style-type: none"> » Sector recognised leader in curriculum thinking, research and design » Significant expertise in effective pedagogy » Can facilitate discussions and decision-making across the New Zealand Curriculum and Te Marautanga o Aotearoa
Teachers (primary and 1 secondary from each medium)	<ul style="list-style-type: none"> » Experience teaching Technology / Hangarau and Digital Technologies / Hangarau Matihiko » Experience in the development of local curriculum in technology / hangarau and digital technologies / hangarau matihiko » Can quickly grasp the bigger picture without getting caught up in detail » Understanding of the current draft content and proposed changes to the Technology Learning Area / Hangarau Ako.
School Leader (1 from each medium)	<ul style="list-style-type: none"> » Expertise in curriculum thinking and design » Knowledge of the Technology / Hangarau and Digital Technology / Hangarau Matihiko curriculum » Track record for effecting change in line with effective pedagogical practice » Understanding of the current draft content and proposed changes to the Technology Learning Area / Hangarau Ako.
Industry Partner	<ul style="list-style-type: none"> » Industry recognised expertise in Digital Technologies. » Demonstrated interest in Digital Technologies education to date. » Experience working in or with NZ schools and career pathways. » Understanding of the political mandate and the current draft content to date

The Ministry's contracted curriculum designers will be available to support and advise the Expert Panel. These terms of reference were agreed to 21 September 2017.



Curriculum Advisory Group

FINAL REPORT

Introduction and Executive Summary

The Curriculum Advisory Group welcomes the opportunity that has been provided to comment on the development of the Digital Technologies and Hangarau Matihiko curriculum.

We see the curriculum offering important **opportunities** but also posing significant **risks** that will need to be mitigated to realise the opportunities.

Opportunities

The Digital Technologies & Hangarau Matihiko curriculum provides the opportunity:

- » For the Education sector to make a leading, and public contribution to New Zealand's world-leading innovation and enterprise success; and to New Zealand business and industry. This could be reinforced by publicly communicating in innovative ways the new curriculum developments to demonstrate the leadership the education sector is taking in this space (**See Recommendations 31 and 33d**). The change could also be signalled by considering a new name for the learning area in the New Zealand Curriculum (**See Recommendations 42 and 43**).
- » To prepare students for a digital world bringing to life the Ministry of Education's *Lifelong Learning Draft* (2015) and meeting the basic expectations of parents and employers for future-focussed, work-relevant learning.
- » To position Māori creativity, ingenuity and innovation at the heart of the development by ensuring equitable resourcing for Māori -medium implementation that enables active engagement with whānau (**See Recommendations 7, 10-12, 27, 33c**), and by ensuring greater visibility of Te Ao Māori and Te Tiriti in the Learning Area statement (**See Recommendation 8**).
- » To showcase from the outset, in a way that has never been fully achieved with literacy and numeracy, the integration of the digital across the curriculum. While it has been predetermined that Digital Technologies & Hangarau Matihiko forms part of the Technology Learning Area its digital nature is such that, like literacy and numeracy, it is embedded in all learning. Digital Technologies & Hangarau Matihiko offers the opportunity to illustrate this embeddedness through exemplars and professional development. (**See Recommendations 27-29**)
- » To model the contemporary, iterative, co-constructed nature of curriculum and curriculum development. We have a tradition of locking in curriculum over relatively long cycles. All curriculum, and especially Digital Technologies & Hangarau Matihiko, need to be responsive to changes in school/kura and the external environment. Such a development model would enable ongoing sector, student and community consultation (**See Recommendations 1-7**), and its ongoing development would be informed by this consultation, additional commissioned research (**See Recommendation 17**), and a commissioned longitudinal evaluation (**See Recommendation 39**). Its means of distribution would be digital.
- » To model future-focussed provision of Professional Learning Development, aligned to the content and intentions of the Digital Technologies & Hangarau Matihiko curriculum, by building digital platform for Māori -medium, for Years 1-10 and for Years 11-13 that not only develops teacher conceptual knowledge but that also enables teachers to envisage, through digital exemplars and vignettes of student work, the possibilities of the new curriculum (**See Recommendation 27**). Well-designed and thoughtfully structured and sequenced, this platform could also "badge" teacher completion of modules along the lines of commercial platforms Google, Apple, Microsoft, and be an asset for the Ministry with on-selling possibilities to other jurisdictions and, outside Education, to industry (**See Recommendations 32, 33, 34, 35, 38**).
- » To capitalise on Communities of Learning | Kahui Ako as one of the bases for sharing expertise and innovation (**See Recommendation 36**).

Risks

- » Successful implementation requires the management of many moving parts (the design, community information and engagement, equitable provision for Māori – medium, teacher professional learning, assessment development, infrastructure provision) – getting any one of these wrong risks losing teacher support and commitment.
- » Rushing implementation. The Curriculum Advisory Group supports the overall timeline but recognises that baseline capability in the sector is not strong. It is imperative, therefore, that implementation is well resourced, and that the balance between the pressure for change and the building of capacity is actively and responsively managed. This is especially so given the current workforce crisis in teaching and the increasing, and understandable, reluctance of teachers to simply add to workload to meet external expectations and requirements.
- » Not appreciating that knowledge and skill development in this area is exponential and that one-off forms of support will therefore be inadequate. The investment in teacher learning needs to be incremental and continuous.
- » Losing the compulsory nature of Digital Technologies & Hangarau Matihiko at Years 9 and 10 ([See Recommendation 16](#)).
- » The Digital Technologies & Hangarau Matihiko curriculum offers the opportunity to align curriculum and NCEA achievement standards development but the currently proposed timeline for the NCEA development precedes the finalisation of the curriculum. We have also learned from past experience of NCEA implementation that levels should be introduced sequentially, one-year at a time ([See Recommendation 40](#)).

Response to Feedback and Recommendations Consultation

The Curriculum Advisory Group

Acknowledges the MoE's investment in consultation via a comprehensive Consultation Document and more than 40 workshops.

Considers that the feedback was not sufficiently nuanced to be fully representative of the wide range of groups impacted by the curriculum.

Identified a number of limitations in the consultation feedback – viz:

- a) the survey was lengthy and may have been a barrier to its completion. It was noted that there were 1045 responses but only 505 completed and 151 partial surveys were included in the analysis which suggests that some respondents intended to contribute but did not in the end have the time to do so.
- b) limited and narrow parent voice
- c) only 7 kura (4 from Napier)
- d) no specific consultation in relation to Māori in the mainstream
- e) workshops did not provide much opportunity for feedback, they were hard to get to given the relieving situation in schools, and where kura were part of these workshops the Māori -medium specific voice was not always captured
- f) it was difficult to distinguish feedback that represented large groups and feedback that represented individuals
- g) while we acknowledge that small numbers may have made it difficult disaggregation by ethnicity would have alerted the Curriculum Advisory Group to ways in which responses may have been different for different groups, and may also have informed implementation.
- h) there was a lack of exemplars in the Developing Digital Outcomes area which may have restricted full understanding
- i) no student voice

Note that contemporary curriculum development is an iterative process that enables refinement in response to ongoing use, consultation and evaluation.

Curriculum Advisory Group Recommendations in relation to Consultation

- 1 Consultation needs to continue alongside piloting and implementation.
- 2 Consultation needs to be multi-faceted, accessible, two-way (listening as well as telling) and, where surveys are used, model the best of digital survey design.
- 3 Consultation needs to acknowledge the significant pressures on people's time and the enticement that may be necessary to achieve more fully representative voice.
- 4 Local Ministry of Education staff need to be leading and actively involved in ongoing consultation.
- 5 That Martin Jenkins be asked to review their data to determine whether it is possible to report in a more nuanced way on ethnicity.
- 6 Sort, focussed, online student surveys need to be conducted in English-medium and also in Māori-medium, specific to Māori to inform the development of the curriculum and of follow up resourcing.
- 7 More ongoing, relevant engagement needs to be undertaken with Māori medium kanohi ki te kanohi, and with hands-on experience that engages whānau as well.

Integration

The Curriculum Advisory Group

- » Noted the need to consider:
 - a) greater integration between Digital Technologies and Hangarau Matihiko
 - b) the relationship between Digital Technologies and the rest of the New Zealand Curriculum
- » Considers that greater clarification is needed about the compulsory nature of the curriculum at Years 9 and 10. The statement on page 13 of the Consultation Document ("Over the pathway from years 1-10, students will gain learning and experience in all five technological areas...") is not clear about compulsion at each level.
- » Considers that the imbalance between knowledge and capabilities noted in the feedback needs to be addressed – specifically the concern that the capabilities (creativity, collaboration, resilience, problem solving, critical thinking and self-management) were underrepresented; that the curriculum gave too little prominence to issues of citizenship, ethics, privacy, security and safety; and that some of the Progress Outcomes had a stronger "understanding" (i.e. knowledge) focus than an active, process focus.
- » Acknowledges the benefit to the curriculum of it being informed by a strong research voice, especially as that related to the Computational Thinking area.

Curriculum Advisory Group recommendations in relation to Integration

- 8 The Curriculum Advisory Group reinforces the need to have greater visibility of Te Ao Māori and Te Tiriti in the Learning Area Statement and Progress Outcomes but warns against the shallow, decontextualised inclusion of Māori concepts. It is recommended that the EM designers make reference to the English text of the MM design as a source of material for integration.
- 9 Although out of the specific scope of the document the Curriculum Advisory Group recommends that
- 10 Me Māori te wairua o te Hangarau Matihiko.
- 11 Me kōtui ngā horopaki māori ki runga i ngā aho.
- 12 That any changes to the Hangarau Matihiko are reflected in the iho statement.
- 13 That the positioning of "understanding" and application/action/design/creating are reversed in the Progress Outcomes to make clear that understanding in action is what is important, rather than just understanding for its own sake (for example, change PO5 Designing and Developing Digital Outcomes from "Understanding the hardware components, protocols, and network architecture used in networks and apply this to assemble, configure and manage a network" to "Assemble, configure and manage a network drawing on understanding of the hardware components, protocols, and network architecture used in networks").

- 14 That the statement of the curriculum needs to reflect the integrated form of its intended implementation. This could be achieved through:
 - a) adding a diagram in the Learning Area statement that illustrates integration
 - b) adding a statement such as the following to the start of the Progress Outcomes: "In authentic contexts, and through real world examples.."
 - c) adding statements such as the following to the Progress Outcomes, where relevant – PO3 Computational Thinking“.. and that storing data comes with responsibilities related to storage and privacy”
- 15 That integration be illustrated through rich exemplars that show how te Ao Māori , Te Tiriti, key competencies, other learning areas, and other Technology areas can be incorporated into teaching and learning experiences.
- 16 That the compulsory nature of the Digital Technologies & Hangarau Matihiko curriculum be clearly stated by including the following statement: "In each of Years 1-10 students will gain learning and experience in Computational Thinking for Digital Technologies and Designing and Developing Digital Outcomes in order to attain the Year 10 Learning Outcome stated in the Learning Area Statement".
- 17 That the research voice be expanded to inform the ongoing development of the Designing and Developing Digital Outcomes technological area including the development of exemplars.

Achievement Outcomes/Progress Outcomes/Outcome Statements

The Curriculum Advisory Group

- » Supported the idea of learning progressions being included in the curriculum but endorsed the consultation feedback about the confusion between these progressions and achievement objectives.
- » Were unclear about role of AOs in the Digital Technologies curriculum. The AOs offer context and detail that is missing in the Progress Outcomes (for example, about interdisciplinarity and collaboration) but requiring teachers to navigate between AOs and the Progress Outcomes was seen as complex and potentially overwhelming. An unintended consequence may be that teachers see Progress Outcomes as an unnecessary inconvenience and reject them which may have an impact on the Ministry's future plans for curriculum.
- » Were unclear about the relationship between the Progress Outcomes and NCEA Achievement Standards at Level 1-3.
- » Saw value in the Outcome statements but thought that they added an unnecessary confusion to the curriculum.

Curriculum Advisory Group recommendations in relation to Achievement Outcomes/Progress Outcomes/Outcome Statements

- 18 That to avoid confused implementation and reporting, and unintended future consequences, we strongly recommend that the other three technological areas replace AOs with Progress Outcomes.
- 19 Should the prior recommendation not be accepted:
 - a) that the language of Progress Outcomes/Achievement Objectives be clarified to reduce confusion for teachers – one possibility might be to use the term Signposts, and/or
 - b) that the diagram on page 7 of the curriculum be redrawn to make it much clearer that Computational Thinking and Designing and Developing Digital Outcomes reference to the Progress Outcomes and not the AOs, and that this diagram is included in the Learning Area statement under the Learning area structure heading.
- 20 That the last sentence in the Learning area structure be changed to say: "The three strands of technological practice, technological knowledge and the nature of technology are influential on, and embedded within, each of these technological areas."
- 21 That an Outcome statement for the end of compulsory Digital Technologies education (i.e. the end of Year 10) be included in the Learning Area statement and not as a separate outcome statement.
- 22 That Outcome statement for Year 13 be removed from the document

- 23 That Outcome statements be developed for Year 6 and 8 to guide learning programmes at the key transition points in schooling, and that these, along with the Year 13 statement, be available separate from the curriculum.
- 24 That it be made clear that the NCEA Level 1-3 Achievement Standards are referenced to, and align with, Progress Outcomes 6, 7 and 8 (Computational Thinking) and 4 and 5 (Designing and Developing Digital Outcomes).

Future Focus

The Curriculum Advisory Group

- » Understands the speed of change that affects the Digital Technologies & Hangarau Matihiko area and the need, already stated, for ongoing, iterative development of the curriculum, but most particularly of the exemplars as a means of illustrating evolving applications.
- » Noted the comments in the feedback about some of the language in the curriculum being likely to date quite quickly.
- » Endorsed the comments about the important role that exemplars need to play in illustrating the curriculum in action (for parents and whānau, and for teachers), and in ensuring that the curriculum remains current.
- » Was generally supportive of the way that the exemplars were framed.
- » Noted that while the consultation expressed support for the curriculum there were still areas of misunderstanding and concern that need to be addressed through ongoing communication.
- » Considers that the communication needs reflect the curriculum itself – modern, practical, relevant. The cover photo, and other photos in the Consultation Document, did not capture the contemporary nature of learning.

Curriculum Advisory Group recommendations in relation to Future Focus

- 25 That all language in the curriculum that is likely to date be removed (e.g. LAN, PC, Internet of Things).
- 26 That exemplars be updated at least on a two-year cycle in order to help keep the curriculum current.
- 27 That the Ministry of Education accesses real-life developing practice by regularly collecting, and/or purchasing, exemplars from schools and using these as the basis for the two-yearly updating process. And that the Ministry invests in enabling kura to participate in this process in equitable ways, and across a range of kura settings.
- 28 That exemplars are developed in digital form, not as pdfs but rather modelling the best in the use of digital technologies (e.g. pop-ups).
- 29 That at senior levels the exemplars are clearly distinguished from, but related to, the assessment exemplars.
- 30 That local Ministry officials and external agencies – for example, Professional Learning Development providers, Education Review Office – model the integration of digital technologies in their practice.
- 31 That communications about the curriculum need to make strong use of digital technologies: for example:
 - a) app promos about the curriculum addressing possible misunderstandings
 - b) engaging through social media
 - c) commissioned (short 30-second) vignettes showing the curriculum in action and aimed at addressing/heading off some of the known criticisms (e.g. too much screen time, only about devices), and reinforcing some of the connections to students' futures (e.g. relevance to future employment through vignettes that show students engaging with innovators).

Implementation and Evaluation

The Curriculum Advisory Group

- » Notes that the NZCER Digital Technologies for Learning report (p6), although not focussed on Digital Technologies & Hangarau Matihiko curriculum content, did report that only 56% of primary and intermediate teachers considered they had the knowledge and skills they need to provide learning with digital technology, and the same percentage considered that their schools had strong leadership for the use of digital technologies. This suggests that a priority for the early stages of Professional Learning Development is to ensure more widespread digital fluency among teachers and leaders.
- » Reinforced the critical importance of Professional Learning Development in ensuring that the curriculum is understood, accepted and well taught, and the importance of those contracted to deliver Professional Learning Development modelling appropriate digital behaviour.
- » Noted that to future proof the implementation of the Digital Technologies & Hangarau Matihiko curriculum it is essential to include teachers in training in any professional learning and development, and to also develop a workforce plan that includes consideration of how to reduce barriers to entry for those who are suitably qualified, but not traditionally qualified (for example, through degree-level study, or particular degree-level courses), to teach Digital Technologies & Hangarau Matihiko curriculum.
- » Affirmed the importance of holding to the proposed implementation timeline given the urgency of development and implementation but noted that:
 - a) the timeline could only be achieved if supported by the sort of resourcing outlined in the recommendations below
 - b) implementation needed be informed by early adopter experiences and ongoing, sector-informed evaluation – both of which may influence the content and process of implementation
 - c) the NCEA Level 1-3 timelines are too tight to enable significant learning from early adopter implementation

Curriculum Advisory Group recommendations in relation to Implementation and Evaluation

- 32** That a dedicated Professional Learning Development plan to bring current and new teachers (i.e. teachers in training) up to speed is developed in consultation with the Education Council of New Zealand.
- 33** That this plan:
 - a) Is funded to ensure all schools, kura and teacher training institutions have equitable access to resourcing to ensure readiness.
 - b) Includes both specialist training that develops understanding of the Digital Technologies & Hangarau Matihiko curriculum and its implementation requirements, AND Professional Learning Development that develops digital fluency and models the underpinning nature of Digital Technologies & Hangarau Matihiko in all learning areas.
 - c) Delivers Hangarau Matihiko Professional Learning Development kia Māori te aronga.
 - d) Includes funding, and resourcing for a dedicated school-community partnership day to socialise the intentions the new curriculum with teachers, students and whānau; to signal commitment to a new and important area of contemporary and future New Zealand Curriculum; and to enable schools/kura to map out an implementation strategy.
 - e) Identifies early adopters and supports them to share their expertise.
- 34** That the plan incorporates the development of high quality, online professional learning platforms and communities for teachers:
 - a) aimed at developing conceptual knowledge and raising awareness of implementation possibilities
 - b) at each of Years 1-10, Years 11-13 and for Māori-medium to acknowledge the specific and differing needs of each of those communities
 - c) with recognised progression and badging similar to commercial products offered Google, Apple and Microsoft
 - d) that involve subject associations and early adopters be involved in the development.

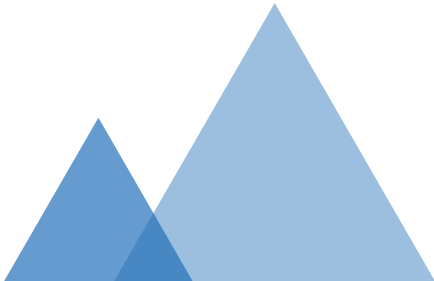
- 35 That a school/kura career pathway in Digital Technologies & Hangarau Matihiko leadership is defined and funded through additional MU allocations and time to schools.
- 36 That an additional dedicated across-school teacher be funded within each Community of Learning | Kahui Ako with the express purpose of sharing digital expertise and innovation.
- 37 That existing sources of funding be targeted to support upskilling and capability development (for example, Study Awards, TeachNZ scholarships).
- 38 That discussions be held with the sector about the way in which the Education Review Office might report in each of their school/kura reviews on the readiness for, and implementation of, Digital Technologies & Hangarau Matihiko.
- 39 That an independent, longitudinal evaluation be commissioned and a sector consultative group appointment to inform the evaluation and recommend responses to its emerging findings.
- 40 That the timeline for the full implementation of the NCEA Level 1-3 standards be revised as follows – Year 1-11 full implementation by 2020, Year 12/Level 2 by 2021, Year 13/Level 3 by 2022.
- 41 That the Ministry of Education work with Education Council of New Zealand to address barriers to entry for people suitably qualified to teach Digital Technologies & Hangarau Matihiko curriculum.

A comment on the name of the Learning Area

- 42 Given the substantial changes to the Learning Area, the Curriculum Advisory Group strongly recommends the name of the Technology Learning Area in the New Zealand Curriculum be updated to reflect the significant role the digital plays, as both 2 of 5 technological areas as well as underpinning the other 3, and the other elements of the curriculum. The Curriculum Advisory Group did not consider that such a change was necessary in Māori -medium where Hangarau was regarded as capturing the full essence of the learning area.

The name change in the New Zealand Curriculum is intended to:

- a) More accurately represent the updated Learning Area
 - b) Send a clear signal that this is a major transformational change to this area, not just minor reorganisation of a learning area
 - c) address concerns about the low status of “Technology” in secondary schools in particular – a status that puts pressure on time being made available for the delivery of the Digital Technologies technological areas.
 - d) reflect a similar form of naming in other curriculum areas – for example, Mathematics and Statistics, Health and Physical Education.
 - e) Ensure Digital Technologies is seen as part of a curriculum area in its own right with its own content, understandings and capabilities, and not just a pedagogical vehicle/tool for delivering the whole curriculum.
- 43 The Curriculum Advisory Group recommends that the new name incorporates the word “Digital” and suggests Digital and Materials Technology as one possibility.



Curriculum Advisory Group

ROLE	FIRST NAME	SURNAME
Chair	Graeme	Aitken
Primary Teacher (EM)	Dorothy	Burt
Secondary Teacher (EM)	John	Creighton
Secondary Teacher (MM)	Lani	Keelan-Goldsmith
Primary Teacher (MM)	Kirsty	Bennet-Ogden
Industry Rep (pathways focus)	Drummond	Morice
Industry Rep (CRIG)	Paul	Matthews
School Leader (EM)	Lesley	Murrihy
School Leader (MM)	Fleur	Wainohu
ERO Education Review Office	Barbie (Barbara)	Mavor
NZQA	Scott	Telfer



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