Raranga Matihiko Kaiako Framework

The purpose of this document is to provide guidance to Raranga Matihiko facilitators to identify where teachers arrive in the programme at. This information will help us tailor the support we offer to the teachers as well as identify the shifts teachers make over the three year programme.

References:

Brennan, K. & Resnick, M. (2012). *Using artefact-based interviews to study the development of computational thinking in interactive media designs.* Paper presented at annual American Educational Research Assoication meeting, Vancouver, BC, Canada.

CORE Education, (2018). *Self-review tool.* https://kiatakatu.ac.nz/ (accessed, 20 June, 2018).

Howell, W. S. (1982). The empathic communicator. University of Minnesota: Wadsworth Publishing Company (as cited in ChangingMinds.org (n.d.). Conscious and competence. http://changingminds.org/explanations/learning/consciousness_competence.htm (accessed 25 May, 2018).

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The tapestry of understanding
cannot be woven by one
strand alone

Frameworks:

This framework is underpinned by the conscious-competence model (Howell, 1982) which outlines the progress as individuals move from little or no understand to mastery of learning a skill or practice. The model starts with the individual having little or no understanding or awareness (unconscious incompetence) developing as the individual strengthens their understanding until they progress through to the skill or practice becoming natural (unconscious competence). Individuals may not necessarily move through all four.

We have also aligned the framework with two other models. The first of these is Brennan and Resnick (2012) computational thinking framework. While this framework describes the learning activities that support young people's learning of computational thinking, the key dimensions seem just as relevant for adult learners. These key dimensions are *computational thinking concepts* – the principles or concepts that underpin programming (e.g. sequencing , loops, operations), *computational thinking practices* – the construction of processes with intentional thinking about the how rather than the what (e.g debugging, iteration) and *computational thinking perspectives* – using computational thinking as a way of viewing the world (e.g. connecting with others, creating and expressing ideas through digital technologies).

Finally, we wanted to link this framework to current tools developed to support the *Digital Technologies* and *Hangarau matihiko* curricula content. We have made links to the Kia Takatū a-Matihiko self-review tool which is familiar to all our facilitators.
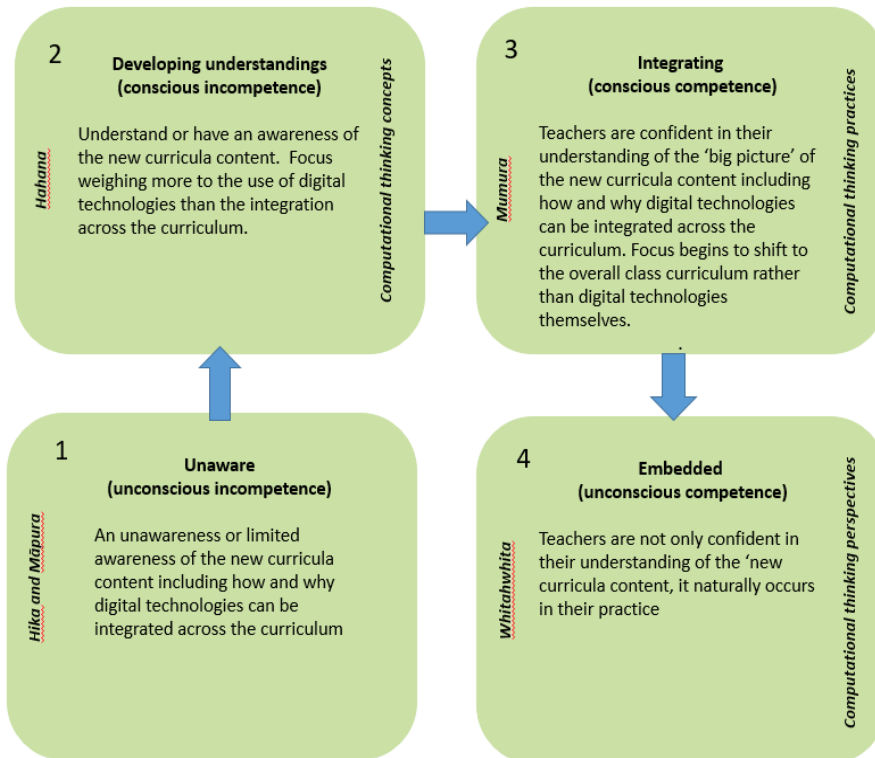
The framework

2 **Developing understandings (conscious incompetence)**

Hahana

Understand or have an awareness of the new curricula content. Focus weighing more to the use of digital technologies than the integration across the curriculum.

Computational thinking concepts

3 **Integrating (conscious competence)**

Mumura

Teachers are confident in their understanding of the 'big picture' of the new curricula content including how and why digital technologies can be integrated across the curriculum. Focus begins to shift to the overall class curriculum rather than digital technologies themselves.

Computational thinking practices

**1** **Unaware (unconscious incompetence)**

Hika and Māpura

An unawareness or limited awareness of the new curricula content including how and why digital technologies can be integrated across the curriculum

4 **Embedded (unconscious competence)**

Whitahwhita

Teachers are not only confident in their understanding of the 'new curricula content, it naturally occurs in their practice

Computational thinking perspectives

UNAWARE (UNCONSCIOUS INCOMPETENCE)

Aligns with Hika and Māpura from the Kia Takatū framework

An unawareness or limited awareness of the new curricula content including how and why digital technologies can be integrated across the curriculum.

Teachers in this quadrant might:

- Be unfamiliar with, or have little knowledge of, the *digital technologies* and *Hangarau matihiko* curricula content
- Not understand the relevance of this for learners
- Have concerns over how to teach digital technologies
- See digital technologies as another curriculum area or a stand-alone subject that is taught independent of other content

Teachers might reflect this in conversation:

- "I have not really heard about the new curriculum content" or "I thought the new curriculum content was for secondary teachers or technology teachers"
- "I am no good with technology" or "I'm too old to use or teach technology"
- "Will need lots of professional learning before I can teach this"
- "Children already have lots of screen-time, I am not sure they need more at school"
- "We don't have any technology so it is not relevant for us"
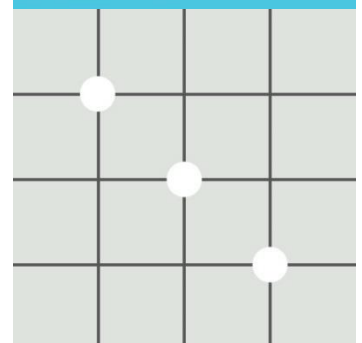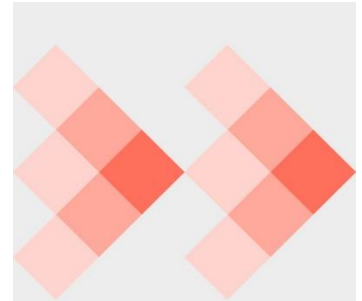
DEVELOPING UNDERSTANDINGS (CONSCIOUS INCOMPETENCE)

Aligns with Hahana from the Kia Takatū framework and Computational Concepts from Brennan and Resnick

Understand or have an awareness of the new curricula content. Focus weighing more to the use of digital technologies than the integration across the curriculum.

Teachers in this quadrant might:

- Be familiar with, or have knowledge of, the *digital technologies* and *Hangarau matihiko* curricula content
- Familiarity with the language of computational thinking.
- Have some understanding of digital technologies and how to integrate into existing class curriculum.
- Understand the relevance of this for learners.
- Have some planning and articulation of intentional integration.
- Take risks and try new ideas.
- Worry about what could go wrong when teacher with digital technologies.
- Be open to new opportunities to teaching the new content.

Teachers might reflect this in conversation:

- "I am teaching with digital technologies in the classroom" or "I am using this app/programme"
- "We are taking photos and videos and uploading student work to their blogs"
- "I am talking with my students about how digital technologies can support their learning"
- "My lesson plan for next week/next term incorporates using digital technologies to showcase their learning to whānau"
- Talk about aspects of the new curricula content.

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INTEGRATING (CONSCIOUS COMPETENCE)

Aligns with Mumura from the Kia Takatū framework and
Computational Practices from Brennan and Resnick

Teachers are confident in their understanding of the 'big picture' of the new curricula content including how and why digital technologies can be integrated across the curriculum. Focus begins to shift to the overall class curriculum rather than digital technologies themselves.

Teachers in this quadrant might:

- Comfortable with their understanding, and the intent, of the *digital technologies* and *Hangarau matihiko* curricula content
- Familiarity with the practices of computational thinking.
- Applying knowledge to curriculum planning and intentionally integrating.
- Less worried about integrating digital technologies and the curricular content and have more expectations of success
- Trialling, testing, iterating programmes
- Be open to new opportunities and implementing across the class curriculum.

Teachers might reflect this in conversation:

- "Students are able to select from and choose appropriate ways to demonstrate their learning"
- "The new curriculum content is empowering our students to display their knowledge in new ways"
- "Digital storytelling is an integral part of our literacy programme"
- "I am seeing evidence of the progress outcomes in practice"
- "I enjoy sharing new programmes with other teachers and sharing examples of how it supports their learning"
- "I am understanding how to teach digital technologies as a subject in itself"
- Talk about aspects of the new curricula content and linking it to practice.

EMBEDDED (UNCONSCIOUS COMPETENCE)

Aligns with Whitawhita from the Kia Takatū framework and Computational Perspectives from Brennan and Resnick

Teachers are not only confident in their understanding of the new curricula content, it naturally occurs in their practice

Teachers in this quadrant might:

- In-depth understanding and the intent, of the *digital technologies* and *hangarau matihiko* revised curricula content.
- Familiarity with the computational perspectives.
- Integration naturally occurs in planning, and is intuitive, often without deliberate thought.
- Reflective and iterative in their practice.
- Leads others, sharing knowledge and practice.
- Planning ahead for next steps to stay current.

Teachers might reflect this in conversation:

- "My class and I regularly work with other classes to support their learning".
- "Ideation and iteration are now just part of our class curriculum".
- "Next, my class is planning to .....".
- "My learning network is important to me as I explore and discuss new ideas".
- "I am monitoring the progress outcomes and evidencing student work against these".
- "I am intentionally planning how to teach digital technologies as a curriculum area".
- Talk about the opportunities that are presented to students through this new content.