Weaving digital futures

Education Gazette didn't expect to find tamariki working with playdough on a visit to a Wellington school to see the Raranga Matihiko/ Weaving Digital Futures programme in action.

Tucson, Tamia, Fereti and Ania with Sam Hēnare from Te Papa work collaboratively to create the title for their animation.

Wellington Seventh-Day Adventist School in Porirua has been involved in Te Papa's Raranga Matihiko programme for the past three years. Teacher Moira Ashdown says the programme is important for her Year 6, 7 and 8 class as children get exposure to a range of digital technologies, along with expert help.

And the playdough? Tamariki were making animations for the current unit on phases of the moon. They use a variety of tools such as playdough, Lego and line drawings to help tell their stories.

Multiple benefits

The programme facilitators find out what the class will be working on in the coming term and then match the topic up with an exhibition at Te Papa and/or curators from the museum who have local connections, explains Alisha Spekking, Learning Innovation Specialist for Raranga Matihiko.

Students also spend time in the museum's learning facility, Hīnātore | Learning Lab, where they can explore their topic with a range of tools such as Clapmotion, Tinkercad and Scratch.

Freeware is software distributed at no cost to the end user. Raranga Matihiko upskills teachers in guiding students' use of freeware as a learning tool. Teachers and students can then build their knowledge further using freeware after they complete the programme.

"Because we are a small school, we don't have an endless budget," says Moira. "They have the equipment at the Learning Lab at Te Papa and it gives the children a look into a different world. They also have the time to find tools that I don't have the time or expertise to find.

"They ask me what my unit is and then they come up with some form of digital technology that can add to my unit, and they basically upskill me. I don't go as far as the kids – they go further than me!" she says.

Digi-tech in backyard enquiries

Raranga Matihiko adds value to her students' learning and having access to the Learning Lab is helping to build her and her students' capability in digital technologies, says Moira.

"When we started [in 2018], we were doing an inquiry on the Porirua Harbour. We were looking at why it's under threat, what children could do to help that. Part of the study was looking at the legends behind Porirua and Wellington Harbours and creating our own legend on Google Slides with images, animations and using a narrative format," she says.

"We were showing them how to use tools to tell a story like the myths of Porirua Harbour. They also created a contraption to improve the water quality – it's quite often problem or challenge-based learning. We said we wanted them to create something that was going to look after the harbour and make it safe: some came up with a big net to pick up plastic and rubbish," adds Alisha.

Teacher's dream

St Anne's School in Newtown was the first school to be involved in Raranga Matihiko. Room 8 teacher Matt Kolic says the experience has offered a unique way to combine high-tech learning with content that is meaningful for students. In 2018 and 2019 his Year 6 and 7 students worked on World War I and Climate Change with Raranga Matihiko.

"In the first year, we had two days at Te Papa. First, we went to the Gallipoli exhibition. The children were given cell phones and took photos. Some used these photos directly with green screen to put themselves in the trenches.

"We then worked in Te Papa's digital tech room Hīnātore | Learning Lab where we learnt about the different types of technology such as robots, virtual reality and blue screen. I walked in and saw all of the resources and thought 'wow this is a teacher's dream!' I hadn't seen some of this stuff before and I was learning as much as my class," Matt says. **Continued on page 5 >>**

"My whole aim is for them to be self-directed and self-managed so they can problem solve and risk-take on their own and I can then marvel at their awesomeness and say 'teach me'."

Moira Ashdown

Tamia and Ania discuss with Alisha from Te Papa how to best animate their work.

Fereti, Immanuel and Azriel placed their playdough images in a crate to create depth and control the light.

Student kōrero

Tamia: Year 7

What is your favourite thing at Te Papa's Learning Lab?

I like robots because you can control them and make them change their lights.

Describe a project you have done through Raranga Matihiko using digital technologies.

We have learnt about the tale of the taniwha in Porirua Harbour and I animated using Lego.

What did you like the most about doing this project?

I liked how we used animation. I liked it because it gave me a fun way to tell someone what I wanted to write.

How did digital technology help you tell a story?

It made things easier by showing pictures and not having to write it down by hand.

Ezekiel: Year 8

What is your favourite thing at Te Papa's Learning Lab?

The technology I liked the best was virtual reality because it felt like I was in another world and it was the first time I had used it.

Describe a project you have done through Raranga Matihiko using digital technologies.

I used Stop Motion to create a story about the taniwha. I drew on a whiteboard and I was able to make the taniwha fly around. I could be more creative than just writing.

What did you like the most about doing this project?

I liked using Stop Motion. I like drawing and the animation that I was able to tell a story in a different way.

How did digital technology help you tell a story?

I am able to teach others how to animate and I was able to explain in greater detail how the taniwha moved and what it did.

Hadessa: Year 8

What is your favourite thing at Te Papa's Learning Lab?

Robots because it was a different way to communicate and it was fun instructing them and seeing them light up and move.

Describe a project you have done through Raranga Matihiko using digital technologies.

Plastic pollution in our harbour. We used Lego and plastic toys to animate using Stop Motion.

What did you like the most about doing this project?

I liked the way we could use the technology and animate how the harbour was being polluted by the actions of people. The main thing I learnt was having patience to move something in small steps and then speeding each frame up to create movement.

How did digital technology help you tell a story?

For Phases of the Moon, we could use the playdough and animation to show how the moon changed its shape in an easier way.

Immanuel: Year 6

What is your favourite thing at Te Papa's Learning Lab?

My favourite thing was playing with the robots because I liked controlling them and making them race each other.

Describe a project you have done through Raranga Matihiko using digital technologies.

We animated the story of some New Zealand native birds and what happened when English and Māori hunted them and polluted the forest.

What did you like the most about doing this project?

I used playdough and clay to animate and this helped me to change the shape of how they looked. I liked taking the pictures and then putting them into an animation.

How did digital technology help you tell a story?

Phases of the Moon – it makes it easier for others to understand what you were writing about because it is like a movie and they can see by pictures how the moon changes.

Elkanah: Year 6

What is your favourite thing at Te Papa's Learning Lab?

My favourite thing at Te Papa was Paint 3D because you can make/draw/create/bring to life pretty much anything as well see the 3D drawings in real life using augmented reality.

Describe a project you have done through Raranga Matihiko using digital technologies.

I did a project on Scratch about Noah's Ark. My buddy 'painted' the background using Paint 3D. Then we loaded the 'painting' on the Scratch website. We picked some sprites and made them go into the Ark. I made it into a loop so that it would never end.

What did you like the most about doing this project?

The thing that I liked the most was customising the sprites to look different. One main thing I learnt was how to load a background from Paint 3D on to Scratch.

How did digital technology help you tell a story?

Phases of the Moon – animation with playdough. It helped us to illustrate because sometimes it is not easy to just use words so using animation helped to make it easier to tell someone because you could change the shape of the moon with the dough because it is flexible.

Kete of digital learning

Te Papa's Raranga Matihiko programme is a museum and digital technology education programme that provides low decile schools with an opportunity to take advantage of the latest technology and aims to support both teacher and student learning. The programme also offers mentoring from technology experts, visits to local museums, access to museum treasures and an opportunity to explore a wide range of topics.

The programme was created by Te Papa in partnership with Waitangi Museum, Auckland Museum, MTG in Te Matau-a-Māui (Hawkes Bay); Waikato Museum is now also on board. In 2019, over 70,000 student learning hours were delivered. Students had opportunities to get immersed in activities ranging from creating a voyaging vaka (Pacific canoe) in 3D modelling and sailing it across a virtual ocean to filming an animation of Māui fishing up the North Island, using playdough and claymation technology.

Raranga Matihiko project director Tara Fagan says the programme is funded by the Ministry of Education's Digital Equity Fund to offer access to high tech learning for children who might otherwise miss out.

"The Raranga Matihiko | Weaving Digital Futures programme is connecting students to their own stories, technology and to their local museum. We are seeing the programme reach beyond the kids, to have impact on teachers, whānau helpers, and families who may be coming to their museum for the first time, and realising what a treasure trove it offers.

"Te Papa holds the contract to deliver the programme to students and their teachers from Decile 1–3 schools in Wellington, Northland, Hawke's Bay and Waikato regions. The model is scalable and transferable and could be expanded to other regions," she says.

Tiki and Elkanah use a Chromebook to photograph their animation, while Ezekiel and Zeke look on.

Tilisa and Tadiwa show Moira their animation featuring the story of *The Very Hungry Caterpillar* to animate and tell the story of the phases of the moon.

Learning success for children

Matt says working with Raranga Matihiko allowed the children to think deeply about their inquiry.

"Just being in the classroom at Te Papa and seeing the engagement of the learners using the technology was empowering because it gave me an insight into the fact that not all children learn in the same way. A lot of times the children are the experts with the technology – they pick it up quickly and it also gives them some success in their learning."

Moira agrees that programmes like Raranga Matihiko mean that all children can have success in learning.

"Raranga Matihiko is one way for my kids to be able to tell a story without having to write. It also evens the playing field a little bit as children of different abilities can work together. The more able kids can take it as far as they want to – it's broadened their aspirations," she says.

Expanding horizons

A key aim for Moira is to expose her students to career opportunities and make them aware of the way digital technology is changing the job market.

"I've always got that at the back of my mind – they'll think about teacher, policeman, checkout operator. But what I've said to them is that artificial intelligence may take over the careers they are often thinking about.

"Already in supermarkets you can do your own check-out and so on. The reality is that with digital technology, a lot of the career paths they may have thought they could go into may not be there," says Moira.

Children are the experts

A core group of students in Moira's class have been involved with Raranga Matihiko from the beginning, which means she can structure groups around these students and their expertise.

"I don't have to do the teaching and then there's immediate buy-in from the other students. I do all my planning on Google Slides and I may embed into the slides YouTube clips of people who know a whole lot more than I do. I will have introduced them to the idea of animation using that, but then I can fall back on the kids who have been through the programme to actually do the teaching for me.

"My whole aim is for them to be self-directed and self-managed so they can problem solve and risk-take on their own and I can then marvel at their awesomeness and say 'teach me'."

21st century skills

Alisha says the students take pride and ownership in what they are doing and are learning valuable 21st century skills, such as being able to collaborate with others.

"It was really nice today to walk in and see them set up. They know what they're doing and can just drive their own personal learning journey. I think they become a lot more independent – their self-management skills are a lot better and they believe they can do all of this amazing stuff," says Alisha, who was a teacher at Randwick School, one of the early schools to be involved in the programme.

"I loved the programme so much, my philosophy in the classroom really aligned with the aims of the programme. I think the relationship building is special for me. Because you can go into a museum education programme that is a couple of hours and you're off again, but you don't necessarily bring the learning into the classroom.

"Students and teachers learn that learning can be fun," says Alisha.