

Digital Learning at Berhampore School

Research New Zealand released a study in 2015 called *A Report on a Survey of New Zealanders' Use of Smartphones and other Mobile Communication Devices 2015*. This study reported almost three-quarters of all adult New Zealanders now own or have access to a laptop or notebook...and two-thirds of all adults in New Zealand now own or have access to three or more devices.¹

Insights into Digital Harm: The Online Lives of New Zealand Girls and Boys, a joint report by Ministry of Women and Netsafe, shows New Zealand teenagers have just as many devices and are as active if not more active in their internet and technology usage than their adult counterparts. The teenagers in the report spoke of the positive aspects of their technology usage including interconnectedness, convenience and entertainment.

Alongside the positives of internet and technology usage, a growing number of challenges have developed leading to increased issues of well-being and safety being experienced at a younger and younger age. *Insights into Digital Harm: The Online Lives of New Zealand Girls and Boys* reported:

Girls and boys both said that they felt in control of their online lives and regard themselves as competent users of online technology...However, they feel they do not have an accurate understanding of what happens to their information and online content, and initially said they are not concerned by this gap in their knowledge...Participants felt there was little useful formal help or support in place. They also reported that there were a number of barriers to seeking help, including their own reluctance to seek help in case they exposed their own behaviours.²

In the face of these issues, Berhampore School is working to:

Create a learning environment involving the safe and responsible use of digital technology. This is largely achieved by fostering a positive culture of digital technology use where challenges are understood to exist.³

School are also capitalizing on the abundance of ways that the internet and digital devices can enhance a learning environment. Both allow students to reach out across the globe to find out more about their topics of interest, explore their creative endeavours as well as find an appreciative audience for them. For those students that struggle with learning or do not learn in a traditional manner, technology often offers an access point that can be personalized to meet their needs.

With the revisions to the Digital Technologies Curriculum/Hangarau Matihiko schools are being tasked with doing more than teaching the skills needed to use technology. In a future in which students will be tasked with solving problems that threaten our society and planet, they need the mindset, behaviours and desire to use technology to address these problems and make positive change.

Many schools are applying a top-down or programme oriented approaches to responding to the Digital Technologies Curriculum. Whether it is Hour of Code or Digital Citizenship lessons, these lessons have "a 'traditional' idea of knowledge as *content*, concepts and skills selected from the disciplines to form the 'subjects' or 'learning areas' of the curriculum," and as Bolstadt et.al (2012) write, "the focus

¹ *A Report on a Survey of New Zealanders' Use of Smartphones and other Mobile Communication Devices 2015*, Research New Zealand, 2015, pg. 3

² *Insights into Digital Harm: The Online Lives of New Zealand Girls and Boys*, Ministry of Women and Netsafe, 2017, pg. 6

³ *Digital Technology: Safe and responsible use in schools*, Ministry of Education, Netsafe pg. 4

needs to be on equipping people to *do things with knowledge*, to use knowledge in inventive ways, in new contexts and combinations.”

In *The Element: How Finding Your Passion Changes Everything*, Ken Robinson writes:

Our task is to educate their (our students) whole being so they can face the future. We may not see the future, but they will and our job is to help them make something of it.

Therefore, our approach to technology is one that:

- Uses technology in a constructive, educational manner that fits with the ethos of the school and the community.
- Ensures the safety of the students while using technology and the Internet.
- Emphasises positive behavioural choices leading to greater citizenship both online and offline
- Encourages students to explore technology in creative and innovative ways

Digital Safety

The challenges that schools are facing with technology and the Internet can be grouped into these 3 categories:

- **Cybersafety:** Involves conduct or behavioural concerns.
Examples include cyberbullying, smear campaigns, accessing inappropriate content, creating spoof websites or sexting.
- **Cybercrime:** Involves illegal activity
Example include sexual offending, accessing objectionable content or online fraud.
- **Cybersecurity:** Involves unauthorised access or attacks on a computer system
Examples include hacking into someone’s social media service account, launching a Distributed Denial of Service (DDoS) attack or loading malware onto a laptop.⁴

Berhampore School has established protective measures around digital devices and the use of the Internet. These include but are not limited to:

Firewall and Web Filtering

Berhampore School has the Ministry of Education provided Network for Learning (N4L) firewall and web filtering services. Both of these allow the school to create a protective Web environment that students can explore with limited risks. Both of these can be modified in response to and in light of digital threats.

Devices - Care, Maintenance and BYOD

Berhampore School is not a BYOD or 1:1 school as this style of device implementation does not fit with the school’s philosophy. Most of the devices being used at Berhampore School are owned or leased by the school. Management of the devices (repairs, updates, etc.) is done internally by the IT Coordinator and externally by Cyclone (an ICT company). This allows for a more controlled management and

⁴ *Digital Technology: Safe and responsible use in schools*, Ministry of Education and Netsafe, 2015 pg. 1

implementation of the devices across the school. In special circumstances and in consultation with family and school, students are permitted to bring their own devices to school.

Teaching – Usage and Behaviours

Using both digital devices and the Internet requires the explicit teaching of how the device should be used including the care and maintenance of each device as well as the (online and offline) behaviours that the teacher, school and community expect of the students. Both teachers and students need to understand their roles and responsibilities when using technology.

Responding to Digital Challenges

Many schools' policies around technology and Internet usage are often responsive rather than preventative. Both The Ministry of Education and Netsafe recommend developing a preventative approach when dealing with digital challenges. They believe that:

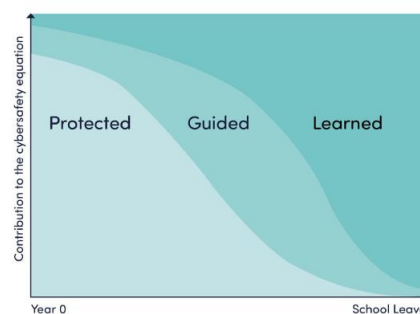
Prevention strategies are effective when they reflect young people's understanding and use of digital technology.⁵

An effective prevention strategy is comprised of activities that are:

- promotional: guiding young people's learning in the digital world, and
- protective: mitigating or buffering risk by protection, support of intervention.⁶

In developing stronger promotional strategies, Berhampore School has taken inspiration from the 'Learn, Guide, Protect' model created by Netsafe. The 3 components of this model are:

1. Learn: Students develop the competencies and values to keep themselves and others safe online. These are part of the broader concept of 'digital citizenship.'
2. Guide: The programmes practice and resources put in place to support student learning and develop a culture of positive digital technology at school and in the wider community.
3. Protect: Technical methods to restrict or monitor online access and school developed policies that underpin a safe and secure digital learning environment.⁷



Incident Reporting and Response

Berhampore School has a robust reporting system with responses at the individual, group or whole class and whole school levels. Teachers, in consultation with the Principal, IT Coordinator, the students involved and their family/whānau work to create a response to the that:

- Focus(es) more on the behaviour involved in an incident, and less on the digital technology
- Always act in a way that maintains the integrity of digital devices and the information stored in them.⁸

⁵ *Digital Technology: Safe and responsible use in schools*, Ministry of Education and Netsafe, 2015 pg. 11

⁶ *Digital Technology: Safe and responsible use in schools*, Ministry of Education and Netsafe, 2015 pg. 4

⁷ *Digital Technology: Safe and responsible use in schools*, Ministry of Education and Netsafe, 2015, pg. 1

⁸ *Digital Technology: Safe and responsible use in schools*, pg. 5

Digital Decision Makers

Digital Citizenship, Digital Literacy and Computational Thinking

At Berhampore School, our goal is to develop our students into what we call, Digital Decision Makers. Both online and offline, these students make good decisions and make positive choices. They care about their community (family, friends, neighbours, etc.) and want to make positive change in the world. We, as their teachers, are preparing them for a future in which they will need curiosity, imagination and innovation to deal with problems, both real and unimagined.

We want our students to be more than passive consumers of digital media and technology. We want them to use it to take action and make change, to focus on the positivity that can grow from using digital technology and diminish the attraction to negativity prevalent with digital technology usage.

Berhampore School has created a model of student and teacher behaviour and practice with technology - rather than a set of finite skills that may not exist at the end of a student's primary school tenure. This model prepares students (and teachers) for a different world and future and empowers teachers and students to use technology to stimulate inquiry and imagination leading to innovation. This model meets the character of our school and community as well as being future focused and sustainable.

Digital Decision Makers vs. Digital Citizenship

Digital citizenship has become a phrase that has been widely used but is rarely unpacked for students or related to their lives. It becomes a phrase that is parroted back to adults usually in situations when they have not been good digital citizens. Rather than using this phrase, we have chosen to use "decision makers" because we practice, explicitly teach, support and empower our students daily to make good decisions. Therefore our Berhampore student decision makers will be digital citizens.

Netsafe defines a digital citizen as someone who can fluently combine digital skills, knowledge and attitudes in order to participate in society as an active, connected, lifelong learner. Digital citizenship is a powerful enabler of inclusion in social, cultural and civil society.⁹

Digital citizenship combines:

The confident, fluent use and combination of:

- **Skill and strategies** to access technology to communicate, connect, collaborate and create;
- **Attitudes, underpinned by values** that support personal integrity and positive connection with others;
- **Understanding and knowledge of the digital environments and contexts** in which they are working, and how they integrate on/offline spaces;

And then *critically*:

⁹ From Literacy to Fluency to Citizenship: Digital Citizenship in Education, Netsafe, November 2016

The ability to **draw on this competency of 'digital fluency'** to participate in life-enhancing opportunities (social, economic, cultural, civil) and achieve their goals in ways that make an important difference.¹⁰

Inside and outside the classroom, this may look like students actively showing any or all of the behaviours and actions below. These can be seen and applied to both online and off line circumstances and align with many of the Positive Behaviour for Learning (PB4L) School Wide values that are currently being implemented at Berhampore School.

Taken from Google's <i>Be Internet Awesome</i> Digital Safety and Citizenship Curriculum (June 2018)	
<ul style="list-style-type: none"> • Setting a good example • Express feelings and opinions in a positive way • Don't encourage bad behaviour by giving it an audience • Report mean or bullying behaviour • Reflect on (online) behaviour 	<ul style="list-style-type: none"> • Being a friend • Respond to negativity in constructive, civil ways • Don't pass on harmful or hurtful messages • Make good decisions about behaviour, using technology and time spent on technology • Talk to an adult when you have trouble or questions

Digital Defender and Digital Technician

There is a technical component of the Digital Decision Makers called *Digital Defender* and *Digital Technician*. The Digital Defender focuses on the students understanding the safety procedures that are part of the school's digital safety policy. The Digital Technician focuses on the expectations for care and handling of technology that all teachers should be implementing as part of their classroom *kawa*.

Digital Defender

Digital footprint – passwords, safety, security

Students will:

- Develop secure passwords and keep them private
- Keep personal information private
- Understand safety protocols in place at school (filters, firewall, security setting)
- Report incidents of misuse, phishing, bullying, etc.
- Be able to sort fact from fiction

Digital Technician

Usage, handling, storage, care and cleanliness

Students will:

- Use the equipment as intended
- Handle equipment with care
- Store equipment in a locked cabinet
- Not have food or water around the equipment
- Report when equipment is not working

¹⁰ From Literacy to Fluency to Citizenship: Digital Citizenship in Education, Netsafe, November 2016)

Digital Decision Makers

Computational Thinking

Reformulating a seemingly difficult problem into one we know how to solve (Wing, 2006)

Digital Literacy

Focuses on using a digital system effectively (Bell, 2016)

Digital Dreamer

Curiosity, imagination, inquiry, questioning

Digital Detective

Searching and researching

Digital Designer

Making, creating, communicating, sharing

Understanding how digital tools can be used to create digital outcomes

Inquiry Thinking and Learning

Inquiry thinking and learning is an integral part of the Berhampore School Curriculum. Both teachers and students participate in the process as we work towards finding answers to our questions, growing our knowledge, sharing what we've learned and making positive change.

Digital Decision Makers is organized within an inquiry framework for learning.

Digital Dreamer

Students are at the centre of this and lead the inquiry with the topics, questions or curiosities that they are interested in.

Digital Detective

With guidance from teachers, students seek out information to help answer their questions or add to their knowledge.

Digital Designer

Having the students actively use or do something with this new knowledge is the key element of inquiry. Students should be encouraged to find ways to share their information and use it to make positive change.

TECHNOLOGY

Digital technologies are both the tools the students to use as they explore their inquiry and the medium through which they can express it.

Technology is not a replacement for high quality teaching.

Technology needs to be used in authentic and meaningful ways.

Computational Thinking

Computational thinking is one of the key components to the Digital Technologies-Hangarau Matahiko. In the curriculum, it is primarily used in reference to programming, coding and computer science. This is a common misunderstanding of the phrase and is contrary to its ethos. The phrase was coined by Jeannette Wing in an essay she wrote on how computational thinking is not just a computer programmer's skill but an analytical skill we should be teaching all children. **Computational thinking at its heart is problem solving.** It is teaching the skills, behaviours and mindsets that are necessary for people to find solutions to difficult problems. Wing writes computational thinking is:

- Conceptualizing not programming
- Fundamental, not rote skill
- A way that humans, not computers think
- Complements and combines mathematical and engineering thinking
- Ideas, not artifacts
- For everyone, everywhere.¹¹

Computational thinking for digital technologies

Computational thinking enables students to express problems and formulate solutions in ways that means a computer (an information processing agent) can be used to solve them.

In this area, students develop algorithmic thinking skills and an understanding of the computer science principles that underpin all digital technologies. They become aware of what is and isn't possible with computing, allowing them to make judgments and informed decisions as citizens of the digital world.

Students learn core programming concepts and how to take advantage of the capabilities of computers, so that they can become creators of digital technologies, not just users. They develop an understanding of how computer data is stored, how all the information within a computer system is presented using digits, and the impact that different data representations have on the nature and use of this information.

Digital Literacy

In an interview with Tim Bell, a professor of computer science at the University of Canterbury and the founder of Computer Science Unplugged project, defined digital literacy as *focusing on using a digital system effectively. This is also important, since digital devices have become such ubiquitous tools...*¹²

In the Digital Technologies-Hangarau Matahiko Curriculum, there is not specific mention of digital literacy, per se. It must be gleaned from the within the strands of the document fitting somewhere in Technological Practice and Technological Knowledge strands. This idea of being literate in digital technologies is secondary to the rote skills and knowledge that is being emphasized in the curriculum.

In **Technological Practice**, students examine the practice of others and undertake their own. They develop a range of outcomes, including concepts, plans, briefs, technological models, and fully realised products or systems. Students investigate issues and existing outcomes and use the understandings gained, together with design principles and approaches, to inform their own practice. They also learn to consider ethics, legal requirements, protocols, codes of practice, and the needs of and potential impacts on stakeholders and the environment.

Students develop **Technological Knowledge** particular to technological enterprises and environments and in relation to how and why things work. They learn how functional modelling is used to evaluate design ideas and how prototyping is used to evaluate the fitness for purpose of systems and products as they are developed. An understanding of material properties, uses and development is essential to understanding how and why products work the way they do. Similarly, an understanding of the constituent parts of systems and how these work together is essential to understanding how and why systems operate in the way they do.

¹¹ Computational Thinking , J. Wing, COMMUNICATIONS OF THE ACM March 2006/Vol. 49, No. 3

¹² Computational thinking is more about humans than computers, T. Bell, set 1, 2016