Recommendations for the use of digital technologies: schools, kura and early childhood education

Endorsed by:

Brainwave
early years last forever
whakamana i te tamaiti

Office of Early Childhood Education
Te Tari Mātauranga Kōhungahunga

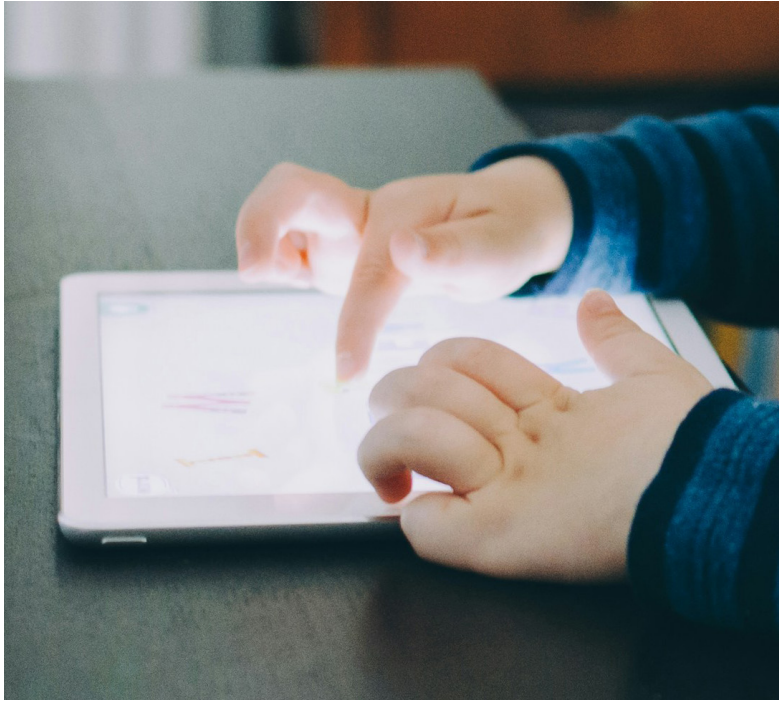
Sensible Screen Use

Australia & New Zealand Child Myopia Working Group

The Paediatric Society of New Zealand
Te Kāhui Mātai Arotamariki o Aotearoa

New Zealand Pasifika Principals Association

Introduction



The Aotearoa New Zealand (NZ) education system aims to deliver excellent and equitable outcomes, and includes a digital curriculum designed to support 'young people to participate, create and thrive in this fast-moving digital world' (1,2). Digital literacy is recognised as an essential skill for a prosperous future (3). As a result, student learning is increasingly based on digital technologies (screen-based digital tools including portable digital devices and computers). Our children (tamariki) and adolescents (rangatahi) have amongst the highest rates of educational and recreational screen use in the world (4-8). Many schools use digital devices as the main platform for learning, some at primary level.

Education considerations: Digital technologies have opened opportunities for learning, but studies to evaluate their impact show mixed results, and high quality, impartial evidence is lacking (9). Large-scale research studies suggest that the use of digital devices in the classroom does not have a neutral effect on learning outcomes. While using some educational technology in some contexts can improve learning outcomes, a high level of use has been associated with adverse outcomes (4,6,9-14). The conditions of use are important, particularly who is using the device, for what digital activity, and for how long (9,10,12-14). While the impacts of screen use are complex, moderation and task selection seem key, including for gaining digital skills (6,8-10,12-14). However, students with special learning needs may have more to gain (11).

Health/Wellbeing considerations: Mounting evidence also suggests that frequent and extended screen use by children and adolescents is associated with numerous health risks (9,15-25). These are summarised in the figure below and reviewed in full in our accompanying article (26). In addition to duration, the content engaged with is also highly relevant to health/wellbeing outcomes.

Children living in prioritised communities have significantly higher screen use than other population groups, thus increasing the associated health risks and potential for further inequity (4,15,27,28). Digital technologies therefore both enable and limit our children's chances to thrive in the future.

Overview of areas of risk to child/adolescent health and development (see https://nzjp.otago.ac.nz/nzjp/article/view/364)

Vision and hearing	Physical health	Sleep	Neurology	Social/ emotional
Myopia (short-sightedness)	Back and neck pain	Suppressed melatonin	Inattention	Mental health
Dry eye disease	Headache	Altered circadian rhythm	Executive function	Cyberbullying
Hearing loss (headphone use)	Repetitive strain injury	Increased alertness	Language delay	Pornography
	Obesity	Delayed/ interrupted	Developmental delay	Sexual harm
	Reduced exercise tolerance		Cognition	Behaviour
				Family conflict

While they are an important part of New Zealanders' lives, emerging research analysing the impacts that digital devices have on learning and wellbeing have led to recommendations for cautious, purposeful and well-researched use in the classroom (10). Full discussions are necessary on the impact of digitisation on student health and development, and the age-appropriateness for introducing technology into schools (29). Although the balance of evidence points to a need for guidelines, further research is required before these are introduced. In the meantime, these informed recommendations are based on a precautionary principle.

The purpose of recommendations for the use of digital technologies: schools, kura and early childhood education, is to ensure that NZ students maximise the learning benefits that screen-based digital tools can offer, while minimising risks to health and wellbeing as they grow. These evidence-based recommendations are based on existing international models (30-35), input from local and international subject matter experts, consultation and feedback from education and health stakeholders, and support from the following:

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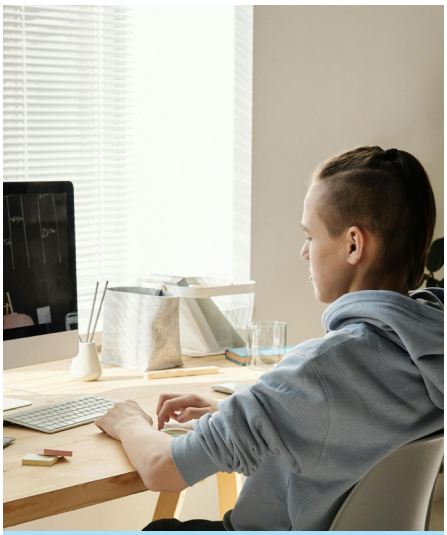
Recommendations for the use of digital technologies: schools, kura and early childhood education



0 to 6 years

Restrict

- No screen use for under 2-year-olds
- No screen use in ECE settings without approval from teacher or kaiako

Limit

- Minimal screen use for over 2-year-olds
- If choosing to use screens, maximum session length 10 to 15 minutes
- Limit headphone/earbud use

Encourage

- Purposeful and intentional use, co-viewing advised
- Outdoor exercise and free-play
- Reward prosocial and positive learning behaviours with social interactions or physical activities, rather than screen-based activities
- Correct ergonomics and lighting

6 to 12 years

Restrict

- No smartphone/smartwatch access during class unless exempt
- No screen use in class without approval from teacher or kaiako

Limit

- Up to a third of the school day learning on screens (limited use for younger students with gradual increase reflecting age/development), unless required for students with special learning needs
- Session length 20 minutes
- Limit headphone/earbud use

Encourage

- Purposeful and intentional use of devices in schools only
- Outdoor exercise/activities
- Protect play in break periods (screen free, outdoors if possible)
- Reward prosocial and positive learning behaviour with social interactions or physical activities, rather than screen-based activities
- Adjustable seating and chairs
- Correct ergonomics and lighting
- Paper homework option preferred
- Education on healthy screen behaviours
- Continue to educate students about digital citizenship and cyber security

13 to 18 years

Restrict

- No smartphone/smartwatch access during class unless exempt

Limit

- Eye breaks every 20 minutes of screen use, or change task
- Limit headphone/earbud use

Encourage

- Purposeful and intentional use of devices in schools only
- Balance of screen and non-screen learning tasks
- Outdoor exercise/activities
- Reward prosocial and positive learning behaviours with social interactions or physical activities, rather than screen-based activities
- Adjustable seating and chairs
- Correct ergonomics and lighting
- Paper homework option if task allows
- Education on healthy screen behaviours
- Continue to educate students about digital citizenship and cyber security

Digital recommendations: frequently asked questions

What is the correct ergonomic position to use digital devices?

- Sit upright at a desk, lap desk, or table with at least 45 cm screen viewing distance
- An easy way to measure this is to place your closed fist next to your eye, and your screen should be no closer than your elbow
- Share and model the correct posture and encourage your students to self-monitor while using screens

How do we reduce eye strain?

- Maintain even lighting throughout the room that ensures minimal contrast between device screen light and classroom lighting
- Use natural light in classrooms where possible, and avoid dim light, to reduce risks
- Take brief breaks every 20 minutes

What are the early warning signs of vision and/or hearing issues for children?

- Squinting, sore, red eyes, frequent blinking, headaches, eye rubbing, or watery eyes
- Tinnitus or ringing in ears, not responding to instructions, difficulty hearing or understanding with background noise, speech difficulties

How can students use headphones/earbuds safely?

- Minimise headphone/earbud use to purposeful and time-limited tasks
- Use the lowest functional listening volume (that means the lowest volume they can still hear clearly with), generally as low as possible below 50% volume
- To do this, they can start the volume at zero and slowly turn the sound up
- Use well-fitting, noise-cancelling and volume-limited headphones if possible

What are the most effective ways to use devices for learning?

- Consider whether non-digital solutions can meet learners' needs
- Incorporate planned, intentional and strategic use of digital resources that enhance teaching and learning
- Consider the level of evidence for technology products prior to adoption in the classroom
- Teacher-led device use seems effective for learning
- Moderate use of devices seems to support independent learning (unless more frequent use is required for students with special learning needs)
- Encourage students to create and produce content, rather than consume
- Provide learning assignments that include collaborative on and off screen opportunities
- Digital tools can support caregivers to engage with their child's learning
- Teachers learning, access to resources and connections can be supported by digital technologies

What are practical ways to limit smartphone/smartwatch access in the classroom?

- Educate students and caregivers about the effects of smartphones/smartwatches on learning, and the rationale for restricting access during class
- Explain how smart devices are designed to be habit-forming to help reduce blame/shame
- Set expectations at the beginning of each year or term
- School Mode may be an option to limit smartwatch access
- Some students will need exemptions for medical, health monitoring, learning or other reasons
- Develop a clear process for exemptions
- Teachers/kaiako may request that students use smartphones for specific learning tasks
- Discuss boundaries that work for your school/kura and students, to develop consistent procedures
- Model appropriate device use to students
- Support student leaders to discuss these topics with other students

How do we keep students safe from online harm?

- Develop and promote digital citizenship
- Monitor younger students while they are using digital devices
- Use digital cyber safety filters and digital safety management plans

Why consider paper homework?

- If the task allows, non-screen homework can reduce risks to health and wellbeing, increase safety for families unable to supervise children, and may offer equity for prioritised students without device/internet access

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