

Discussion

Overall, data from the 2016 national survey of primary and intermediate schools presents a complex picture regarding the role and impact of digital technologies for learning and teaching. In terms of infrastructure, most schools now have reliable internet access, but many still have some challenges in terms of students having sufficient access to digital devices for learning. Many principals consider the ongoing costs of maintaining and upgrading digital technologies to be a key issue.

In terms of the use of digital technologies for teaching and learning, the most common digital learning practices tend to involve various kinds of digital document production, skill practice, and/or research on the internet. Other practices that involve students using emerging digital technologies to create multimedia or code/program are less common, as are co-curricular opportunities to engage with makerspace activities or student gaming/coding clubs. These findings mirror the general patterns identified in previous national surveys of both primary/intermediate and secondary schools, with document production and internet research remaining the most common uses for digital technology in the classroom. Interestingly, many teachers seem keen on the idea of students using technology to communicate, collaborate, or share their learning beyond school walls, although this doesn't currently happen often in most classrooms.

Teachers and principals generally hold a positive view of the impact of digital technologies on student engagement, attitudes, and achievement, though additional data would be necessary to substantiate these views. Teachers also tend to think that digital technologies give students greater control over their learning and can support students with additional learning needs. Both principals and teachers indicate that pedagogies are changing as a result of digital technologies.

In terms of their own professional work, most teachers use digital technologies to find and retrieve teaching resources, some go online to ask questions or discuss their professional practice, and a smaller proportion seek out opportunities for online PLD or actively build their own online PLN. TKI is one of the most used and useful go-to resources for teachers, while fewer teachers are using a range of other online resources specifically designed to promote reflection, networking, sharing, and discussion amongst New Zealand educators. While some teachers think digital technologies have pushed the working day further into their own time, very few thought that the use of digital technologies for learning was too time-consuming for the benefits gained.

Questions to consider

Some of the survey results raise further questions which may be valuable points of discussion for school leaders, teachers, policy makers, boards of trustees, and parents/whānau in making ongoing decisions about the integration of digital technologies for learning in schools around New Zealand.

Infrastructure and equity

- What system-level policies and investments can help to ensure equity of access and support so that all students, at all schools, can benefit from learning with digital technologies?
- What ongoing system-level policies and investments might support greater efficiencies and/or reduce costs to schools with regards to investment and maintenance of digital technologies for learning?
- What helps school leaders make good decisions regarding investment in, and maintenance of, digital technologies, particularly as technologies and needs change over time?

Benefits and impacts of learning with digital technologies

- The prevalent view amongst teachers, school leaders, and parents/whānau was that using digital technologies for learning is generally beneficial for most students. Are adults and students able to articulate why and how digital technologies might strengthen or enable different, or better, kinds of learning opportunities? What new insights can arise when ideas about learning with digital technologies are critically examined in schools and communities?
- When talking about the future of learning, teaching, and curriculum, is there a risk of focusing too much on digital technologies, and not enough on wider questions about learning and teaching? For example, what supports teachers and students to be powerfully engaged and transformed as learners and practitioners, and how might digital technologies be used to create or support these conditions for learning in schools?

The use of digital technologies for learning

- Aside from document production and internet research, why aren't teachers and students more often engaging in learning activities involving the use of digital technologies to create, connect, and share learning, and/or things that can only be done with digital technologies?
- The survey results suggest many teachers would like their students to be using digital technologies to connect, communicate, and collaborate in their learning with people beyond school walls. If so, why wasn't this happening more often? What support is available for teachers who want to get these things happening in their schools and classrooms?
- Why were learning activities such as coding/programming, gaming clubs, or makerspaces still relatively uncommon in primary and intermediate schools?
- What other kinds of valuable digital learning opportunities might be happening in schools that we were not easily able to pick up through our survey questions?
- How are innovative and effective digital learning and teaching practices developed and shared within schools, and between schools?

The inclusion of digital technologies in the curriculum

- How can school leaders and teachers design learning opportunities with digital technology that reflect the needs of their community and align with their local curriculum?
- What are the advantages and disadvantages of thinking about digital technology as a tool? Are there other metaphors (other than the tool metaphor) for thinking about digital technologies which might assist schools to think creatively about the way teachers, leaders, and students use digital technologies for learning?
- How does, or could, digital technologies be used to enact the vision, principles, and key competencies in *The New Zealand Curriculum*, alongside learning objectives associated with the technology learning area and other learning areas?

Teachers' own use of digital technologies

- How are teachers learning, reflecting, and refining their practices around learning with digital technologies, both online and offline?
- Why aren't more teachers utilising various online resources designed to support reflection, networking, sharing, and discussion amongst New Zealand educators? Does it matter?
- Is face-to-face and in-school professional learning and collaboration meeting teachers' professional learning and development needs so well that they do not need to seek out additional online learning or professional learning networks?
- What other factors might limit the extent to which teachers go online for professional reflection, support, or advice? For example, is it related to time constraints, familiarity with platforms and resources that may be useful, or comfort levels with operating in the online environment?
- To what extent does teachers' own use of, interest in, and comfort with using digital technologies in their personal and professional lives enhance or diminish the kinds of learning opportunities they can provide or support for their students?

These questions, and additional questions arising from the data in this report, may be useful in supporting ongoing conversations about the future of learning with digital technologies in New Zealand schools. School leaders and teachers can also find further guidance, support, information, and discussion forums relevant to many of these questions through the Connected Learning Advisory / Te Ara Whītiki service.¹⁸

¹⁸ See <http://elearning.tki.org.nz/Ministry-initiatives/Connected-Learning-Advisory-service>