

Teachers are the key to the next generation's technological literacy

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Technology, including digital technology, is changing how we work, learn and create. At the same time, this key learning area, affected substantially by the current New Zealand Curriculum refresh, receives reduced resourcing, PLD opportunities, and policy focus.

Technology as a focus of education has deep historical roots. Its introduction as a specific learning area in 1995 recognised the need for students to learn to design and make innovative responses to problems and opportunities and to live well in an increasingly technological world. But much has changed over the last 30 years, and given the increased importance of technology in our lives, where does this change leave technology education?

Our recent study into trends and issues in technology education investigated where we are at with technology education and how it may develop into the future.

What we did:

A group of researchers working in technology education in Aotearoa New Zealand Initial Teacher Education (ITE) replicated a three round Delphi study previously undertaken in the USA, Finland, Belgium and the Netherlands. Our study asked 107 technology education experts to identify what they considered the most important current trends and issues facing technology education, what these might be in three years, and in ten years. Responses were ranked by frequency and returned to participants to rank into their preferred order and then to comment on the final ranking.

What we found:

A wide range of responses was evident in round one, with a high level of agreement in the final round. Responses reflected the current context and highlighted challenges faced by technology as a learning area. However, opportunities for innovation were also evident.

The following responses were the most identified priorities:

- Ongoing marginalisation of curriculum learning areas, including technology, due to the current government mandated focus on literacy and numeracy

- The impact of AI and uncertainty about what this will look like
- The impact of other new and, as yet, unknown technologies
- Continued confusion over the concept of technology, particularly between digital technologies and the concept of technology
- Sustaining a capable and innovative technology teaching workforce given the aging teaching population and constraints on technology teacher education
- Limited funding and resources in a field that is inherently subject to change and in need of ongoing investment

While studies overseas have highlighted similar results (*see publications listed below*) our study identified the advent of AI and other developing technologies as more of a focus for technology experts than was evident elsewhere. Our findings suggest clear identification of cultural connections and sustainability as important areas of focus in New Zealand also. Sustaining a vibrant and capable teaching workforce that is well-funded, supported and resourced emerged as the dominant concern across our study, resonating with international research. Conceptual confusion and an associated lack of identity and status of Technology in schools also emerged as persistent issues, pervasive in other countries also.

Why it matters:

The implementation of technology education was initially well-funded, resourced, and supported. Thirty years on, technology has become an accepted part of the curriculum and has experienced an associated reduction in resourcing, PLD opportunities, and policy focus. The results of this study suggest that this reduction may have been premature. In particular, growing a well-informed and capable age-diverse teaching population, ongoing confusion about what technology really is, and the continued squeeze on time and resourcing for technology in schools indicate a need for more substantial and targeted investment. While not a new problem, failure to address it will have long-term consequences.

Technology in its essence is one of our most powerful tools to make the world a better place. We need a population that understands what it is and how to use it.

Unfortunately, the refreshed curriculum on its own is unlikely to help as its strong focus on knowledge as content doesn't recognise two fundamental aspects of the nature of technology. The first is that technology is at its heart a creative activity and the second is that solving technological problems requires knowledge from a wide range of other domains. You can't define technology by its knowledge base. We need technology education to enable our next generation to make informed and considerate decisions about the development and use of technologies that best look after our people and planet.

Technology education in Aotearoa New Zealand is bright with possibilities and particularly well-placed to thrive if it receives the ongoing resourcing needed to grow and maintain teachers' expertise. The advent of AI (and other technologies) means that technology teachers will inevitably need to weave AI into technology education itself and find ways to use it to develop creative solutions to contemporary technological problems. In Aotearoa New Zealand we are well placed to do this with our already meaningful consideration of culture and sustainability.

Call to action

So, what does this mean for teachers? Our research clearly points to teachers as the people with the greatest influence over the technological understanding and capability of the next generation. Giving children an accurate understanding of technology through lots of opportunities to engage in and with technology is the key. To do this, teachers will need to grab any opportunities available to upskill themselves around technology and beyond this, encourage people into teaching technology. Technology is fundamentally a collaborative activity, so we need to work together to build the technology education community and harness its powerful potential.

He aha te mea nui o te ao? He tangata, he tangata, he tangata! What is the most important thing in the world? It is people, it is people, it is people.

You can read more about this Delphi study [here](#) (pp. 500-510)

Ardies, J., & de Vries, M. (2023). A Delphi study on the future of technology education. *Australasian Journal of Technology Education*, 9, 2-10.
<https://doi.org/10.15663/ajte.v9.i0.95>

Moye, J. J., Reed, P. A., Wu-Rorrer, R., & Lecorchick, D. (2020). Current and future trends and issues facing technology and engineering education in the United States. *Journal of Technology Education*, 32(1), 35-49.
<https://doi.org/10.21061/jte.v32i1.a.3>

Niiranen, S., Ikonen, P., Rissanen, T., & Rasinen, A. (2022). Current and future trends and issues facing technology education in Finland—Taking part in an international Delphi study. *Australasian Journal of Technology Education*, 8, 1-12.
<https://doi.org/10.15663/ajte.v8i.88>

Wicklein, R. C. (1993). Identifying critical issues and problems in Technology education using a modified-Delphi technique. *Journal of Technology Education*, 5(1), 1-19.
<https://doi.org/10.21061/jte.v5i1.a.5>



Richard Edwards

[Staff profile](#)

About the author of this blog:

Richard teaches both the Bachelor of Teaching Primary and the Graduate Diploma of Teaching Primary programmes at Te Rito Maioha, alongside supervising research for Master's students. Having been a secondary teacher of biology, science and mathematics, he was then involved in the development and implementation of the new technology curriculum working, and as a school advisor, before teaching and advising in the Cook Islands. Richard has since been involved in Initial Teacher Education in a range of institutions in New Zealand, as well as PLD facilitation, for over 20 years. Richard's research projects include exploring children's learning in an interactive science centre, reviewing Education for Sustainability practice in New Zealand schools, student perceptions of e-Learning, assessing collaborative learning in group technology projects, and exploring teacher education students' views of technology. More recently, he has growing interest in researching the nature of mātauranga Māori in a bicultural curriculum and in what STEM education looks like in practice in New Zealand schools.