Is technology good for students' learning?

Teachers agreed that digital technology:

92% helps students with additional or special learning needs

81% has led them to experiment with new approaches to teaching and learning

72% helps students go deeper into their learning

70% gives students more control over their own learning

69% helps students see connections between school learning and their own lives

59% has contributed to a more collaborative classroom environment

53% is enabling more positive involvement of parents and whānau in students' learning

49% makes it easier to see students' strengths, interests, and what they are capable of

Teachers also expressed some concerns, saying digital technology:

68% creates some difficulties because not all students can access digital technology at home

57% create new types of safety issues that are concerning

53% pushes the working day further into their own time

10% is too time-consuming for the benefits gained
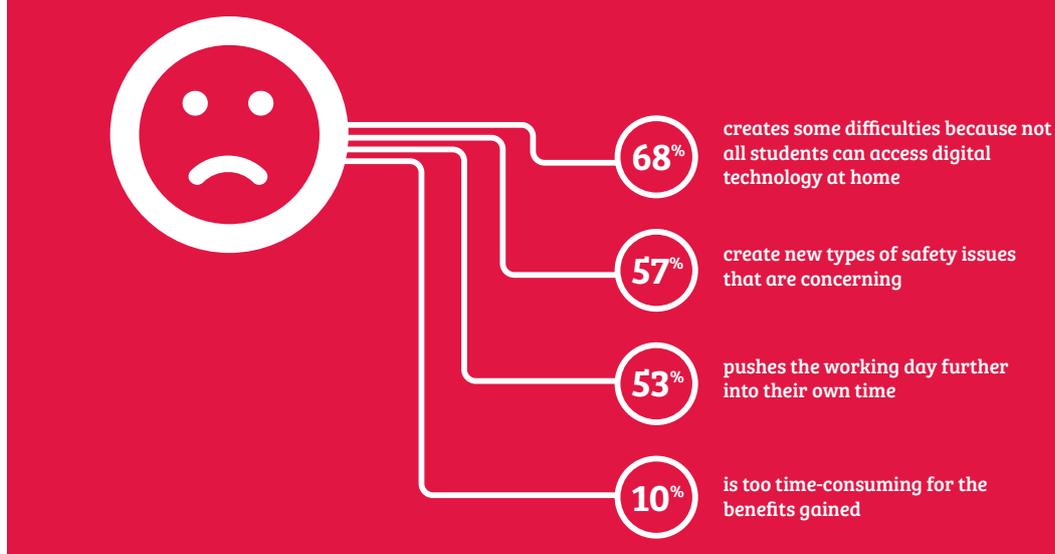
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Is digital technology good for students' learning?

Amongst the general public, discussions about the role of digital technology in young people's lives and learning often bring up two competing sets of ideas. On the one hand is the idea that digital technologies must invariably be beneficial for learning. Various reasons for this view include the idea that young people are more engaged by digital technologies, or that these technologies enable new ways of learning, or more effective ways to support certain kinds of learning. Digital technologies are often seen as "the way of the future", and therefore an inevitable feature of life and learning in the 21st century. Some people assume that young people's formative experiences in a digital world are enabling them to develop a native intelligence and fluency with digital technologies that previous generations do not have. Others see the importance of schools in providing opportunities for young people to build digital capabilities, and to redress inequities in young people's access to such experiences in their lives outside school.[9] Some people point to the ways in which assistive technologies can be used to overcome barriers to learning for students with additional learning needs.[10]

On the other hand, some people worry that digital technologies might be bad for young people and their learning, at least in some respects. This includes concerns that digital technologies might be a distraction, or that young people could miss out on other important developmental and learning opportunities if too much time or focus is directed towards digital technologies, at the expense of other kinds of learning and experiences. Related to this, some are sceptical about any causal link between the use of digital technologies and improved outcomes for students.[11]

The middle ground between these two sets of ideas is the argument that it's not the technologies itself that are necessarily good or bad for learning, but what we do with them—how they are integrated with pedagogy. As acknowledged in the previous chapter, the national survey gives us some insight into how digital technologies are used in learning, but is limited in the extent to which it can provide a picture of the pedagogies surrounding digital practices. However, we did ask teachers a few questions to gauge their views on whether digital technology was affecting students' learning in positive ways, and the extent to which digital technology has influenced pedagogical practice, classroom culture, student learning, and so on.

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9 For example, see http://2020.org.nz/blog/2016/06/24/new/
10 For example, see http://inclusive.tki.org.nz/guides/assistive-technology-at/
11 For example, see http://www.oecd.org/edu/students-computers-and-learning-9789264239555-en.htm

Teachers' views

Teachers generally consider digital technologies to have had a positive impact for students' learning (see Figure 4). Teachers were most likely to say digital technologies have been generally positive in terms of students' *engagement in* learning and *attitude to* learning (61% in each case). A further 30% thought digital technologies were positive for some students. Very few teachers (between 1% and 2%) indicated they thought they had a negative effect on students' engagement or attitude. Teachers were slightly less in agreement about the impact of digital technologies on students' attention span or ability to work collaboratively. While most still thought the impact was generally positive or positive for some, a few gave a neutral response, and between 7% and 9% judged digital technologies to have had a negative impact for at least some of their students. Again, we do not know exactly how digital technologies featured in each teacher's classroom practice, or why teachers see their impacts as positive or negative, but it is clear that most teachers' views of learning with digital technology are generally positive.

FIGURE 4   **Teachers' views about how digital technology for learning impacts students' learning (n = 771)**
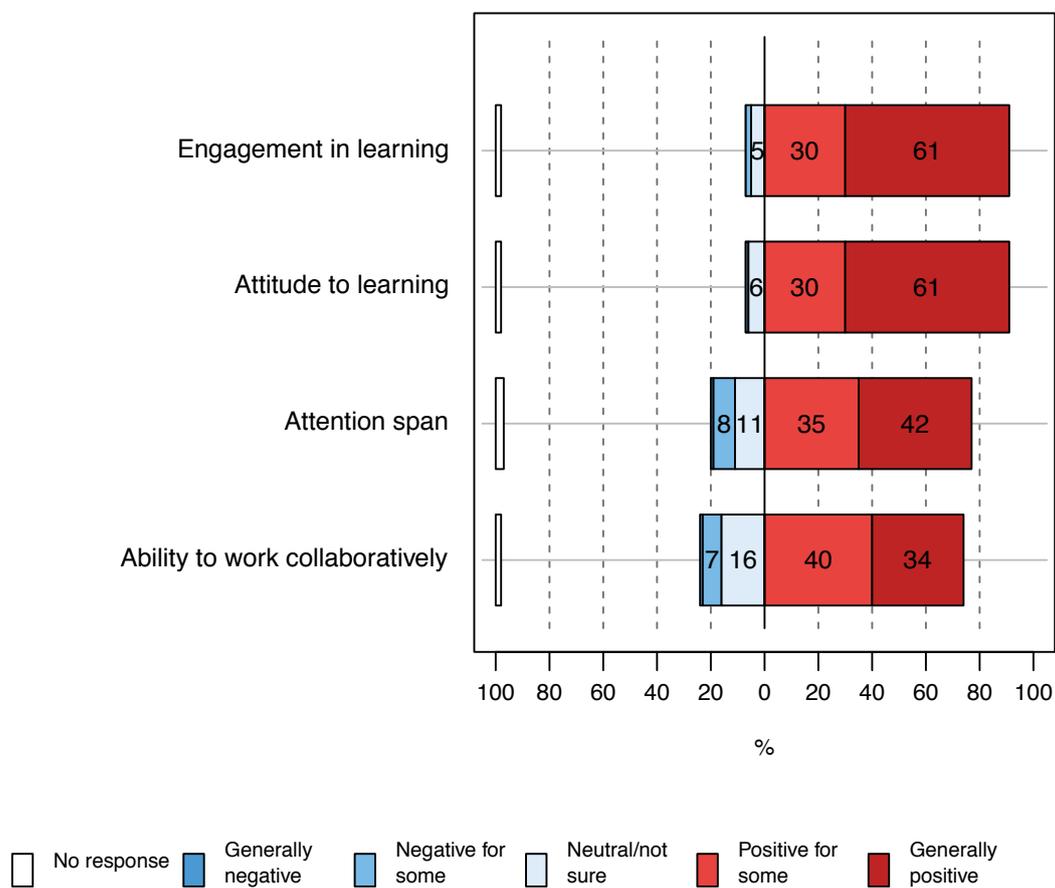
Figure 5 shows teachers' views regarding the impacts digital technologies have had on various aspects of learning, teaching, and professional practice. In terms of benefiting students, many teachers agreed or strongly agreed that digital technologies help students with additional or special learning needs (92%), that they help students go deeper into their learning (72%), that they give students more control over their learning (70%), and that they help students see connections between school learning and their own lives (69%). Teachers were more likely to agree than to strongly agree with each of these statements. Between

22% and 25% of teachers gave neutral responses to these items (excluding the item about the benefits for students with special learning needs, to which only 5% of teachers gave a neutral response).

Two further items about the role of digital technologies in supporting learners and learning drew more mixed responses from teachers. While 60% agreed or strongly agreed that digital technology has contributed to a more collaborative classroom environment, 29% gave a neutral response, and 11% disagreed. And while 49% agreed or strongly agreed that digital technologies make it easier to see students' strengths, interests, and what they are capable of, just over a third (34%) gave a neutral response, and 15% disagreed.

In terms of teachers' own practice, 81% agreed or strongly agreed that digital technologies have led them to experiment with new approaches to teaching and learning. Just over half (53%) agreed or strongly agreed that they are leading to more positive involvement of parents and whānau in students' learning, with just under a third (32%) giving a neutral response. Some decile-related differences were evident, with teachers from decile 5–10 schools more likely to agree or strongly agree and teachers from decile 1–4 schools least likely to agree or strongly agree. Just over half (51%) of teachers from decile 1–2 schools gave a neutral response to this question.

Some of the items in Figure 5 probe some of the possible negative impacts or consequences of learning with digital technologies. In terms of equity, 68% of teachers agreed or strongly agreed that it creates some difficulties because not all students can access digital technology at home. Decile-related differences were evident in this question, with teachers from lower decile 1–2 schools mostly likely to strongly agree that this was an issue (41%), compared with decile 7–8 (18%), and decile 9–10 (9%).

More than half (57%) agreed or strongly agreed that learning with digital technologies creates new types of safety issues that are concerning, or that it pushes the working day further into teachers' own time (53%). However, even with some of these concerns, it is notable that only 10% of teachers agreed or strongly agreed that learning with digital technologies is too time-consuming for the benefits gained.

FIGURE 5 **Teachers' views on the impacts of digital technology on teaching and learning practice (n = 771)**
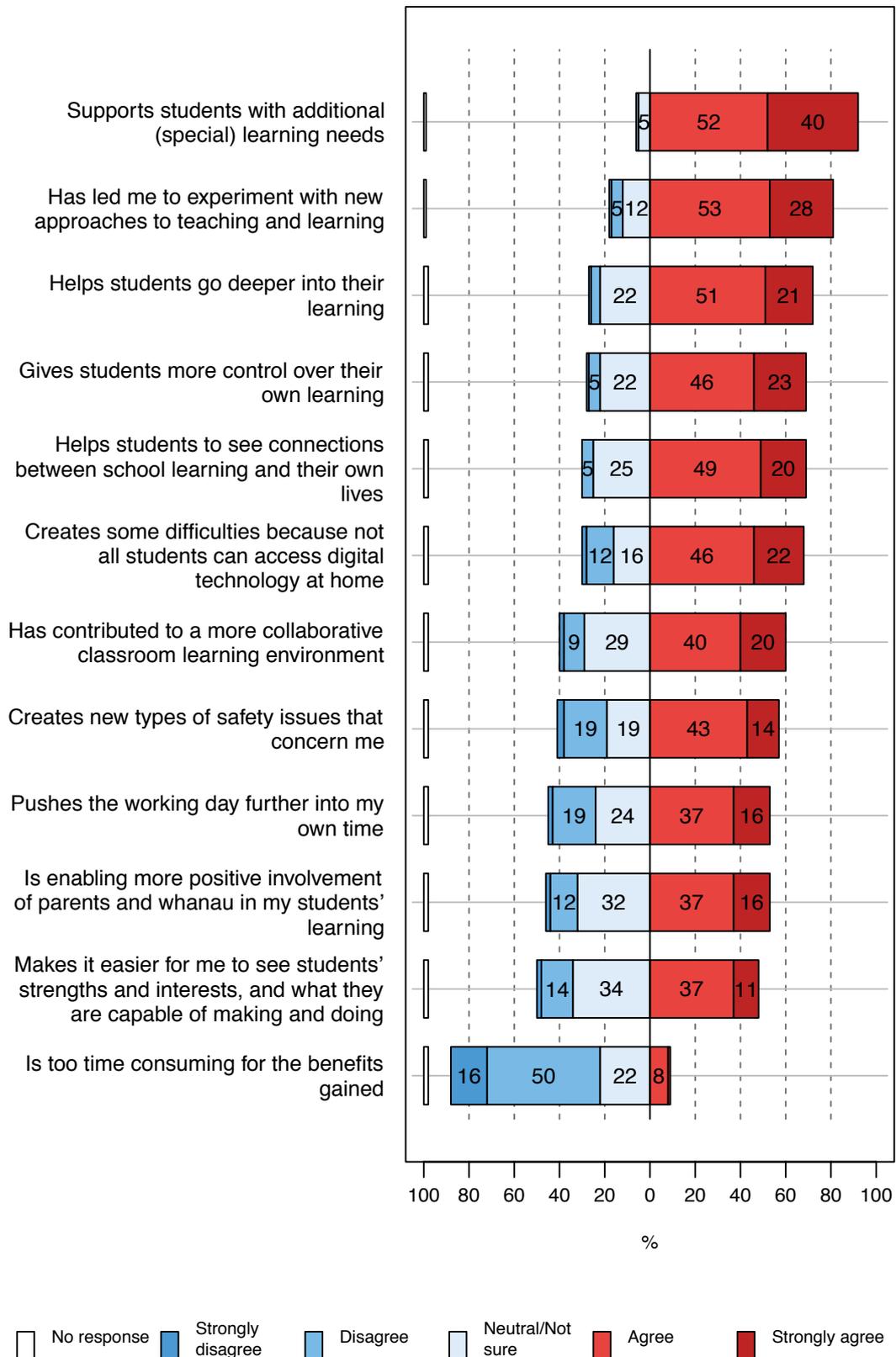
Changes in teachers' views

Table 4 compares questions that have also been asked in previous iterations of the national survey, and shows the percentages of teachers who agreed or strongly agreed with these items in each survey year. While there appears to have been some increase in the percentages of teachers agreeing that digital technologies help students go deeper into or have more control over their learning, and that they contribute to a more collaborative classroom learning environment, these increases may also be related to slight changes in the wording of these questions in different years.

TABLE 4   **Teachers' views about the impacts of learning with digital technologies, teachers who agreed or strongly agreed, 2007–2016**

Impact	2007 (*n* = 912) %	2010 (*n* = 970) %	2013 (*n* = 713) %	2016 (*n* = 771) %
Has led me to think about/experiment with new approaches to teaching and learning[12]	*	79	85	81
Helps students go deeper into their learning[13]	51	51	51	72
Helps students see connections between school learning and their own lives	*	*	65	69
Gives students more control over their learning	*	*	62	70
Has contributed to a more collaborative classroom learning environment[14]	*	52	54	60
Is too time consuming for the benefits gained	16	15	11	10
Pushes working day further into my own time	*	*	55	53

* Not asked.

Principals' views

Principals' responses to questions about digital technologies in their school are addressed in more detail in Chapter 5, but it is interesting to note here these findings from the 2016 survey (see also Figure 7, Chapter 5):

- 92% of principals agreed or strongly agreed that teachers in their school are changing their pedagogy to increase the effectiveness of learning with digital technology
- 90% agreed or strongly agreed that teachers in their school are increasingly using digital technologies to support access to the curriculum for students with special learning needs
- 73% agreed or strongly agreed that learning with digital technology has had an overall positive impact on students' achievement.

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12 In 2010 and 2013 the question item was phrased "is getting me thinking about new ways of teaching and learning". In 2016 it was "has led me to experiment with new approaches to teaching and learning".

13 In 2007, 2010, and 2013 the question item was phrased "helps students gain a deeper understanding of what they are learning". In 2016 this was shortened to "helps students go deeper into their learning".

14 In 2010 and 2013 this item was phrased "leads to a more collaborative classroom environment". In 2016 it was "has contributed to a more collaborative classroom learning environment".

Summary

Teachers and principals seem to hold generally positive views about the benefits and impacts of learning with digital technologies, increasingly so over time. Teacher and principal responses also indicate that, from their point of view, pedagogies are developing and adapting with new technologies, and that has been beneficial overall for students' learning.

How accurate are principals' and teachers' perceptions of the impacts and benefits of learning with digital technologies in their schools? We cannot answer this question with national survey data alone. Other useful information that could be used to triangulate with teachers' and principals' views might include more detailed information about teaching and learning practices and their impacts for students, and data from students themselves, including qualitative data about how they experience learning and teaching with digital technologies, and quantitative data on their learning achievements. These data are difficult to gather on a national scale and go beyond the scope of the national survey methodology. However, we can gain some further insights into the practical realities of learning with digital technologies in different schools by looking at teacher and principal responses to other questions in the survey, including their comments about the position of digital technologies in the curriculum (Chapter 4), what they say about infrastructure and support (Chapter 5), and how teachers use digital technologies for their own professional learning, networking, and support (Chapter 6).