MONASH University

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DIGITAL LESSONS?
Public Opinions on the Use of Digital Technologies in Australian Schools

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EDUCATION **FUTURES**

BACKGROUND

The past ten years have seen digital technologies become an integral part of Australian education. Digital devices are now commonplace in even the smallest schools. Lessons are live-streamed, digitised resources are shared through content management systems, and communications conducted through various online channels. In comparison to the beginning of the decade, today's schools are dependent upon substantial amounts of digital technology.

However, the use of digital technology in education remains a hotly contested topic. Software vendors and EdTech enthusiasts continue to make claims about the capacity of new technologies to transform classroom processes. At the same time, many other people contend that the impact of technology on teaching and learning remains largely unproven. The OECD's Director of Education, Andreas Schleicher, suggested in 2015 that information and communications technologies have a negligible impact on classrooms. While prompting considerable controversy, Schleicher was voicing a long-held frustration amongst many teachers and school leaders over the inconsistent showing of technology in education.

As we enter the 2020s, the topic of digital technology in schools is becoming a matter of increasing public and political concern. It is no longer the case that people are blithely optimistic about everything 'cyber' and 'virtual'. Instead, parents, policymakers and education professionals are beginning to push back against some aspects of digital technology. News stories highlight parental opposition to requirements to purchase $1000 laptops for their children. Politicians are making well-received calls to ban smartphones from schools. Teaching unions are challenging the influence that 'Big Tech' companies such as Google have over public schooling. While few people are demanding a complete return to pre-digital forms of schooling, there is emerging disquiet over some aspects of the ongoing digitisation of our schools.

This report presents one of the first accounts of public opinion in Australia regarding digital technology and schools. Based on a nationally-representative survey of 2052 adults, the report addresses the following questions:

- What public support is there for the current levels of digital technology use in Australian public schools?
- What public support is there for increased use of digital technology in Australian public schools?
- Is school perceived to play an important role in developing students' technology skills?
- Is the current generation of teachers considered tech savvy enough to make effective use of digital technology?
- Does the Australian public trust the leading involvement of 'Big Tech' companies in leading schools' technology use?
- What public support is there for banning mobile phones in school?
- Is the use of technology in schools seen as a good use of government funding?

The report also offers some initial insights into public reactions toward emerging technologies that are likely to enter Australian schools throughout the 2020s. These are explored through the following questions:

- What public approval is there for the increased prevalence of recent developments in educational technology such as online examinations, virtual high schools and automated essay grading?
- What are public opinions toward the possible implementation of as-yet largely unproven technologies in schools such as neuro-technologies, smart drugs, robot teaching assistants and facial recognition systems?

Attribution: Neil Selwyn (2019). Digital Lessons? Public opinions on the use of digital technologies in Australian schools. Melbourne, Monash University

As the report details, while most people are generally supportive of digital technology being used in schools, public opinion on these specific issues is by no means consistent. Instead, some notable differences are apparent between age cohorts, income groups, and other demographic characteristics. These findings have significant implications for the development of education policymaking and education practice over the next ten years or so.

All told, these findings suggest that the continued implementation of digital technology in schools requires renewed attention from policymakers, school leaders and the IT industry. Educational technology is fast becoming a contentious topic that requires ongoing consultation and consensus-building amongst the Australian public (in their roles as parents, voters and taxpayers) if public resources are going to continue to be directed toward it.

METHODOLOGY

This report presents an analysis of data generated by a nationally-representative survey of 2052 Australian adults. A 45-item questionnaire was developed to gauge public opinions on the current use of digital technology in schools, as well as the future of schools in an increasingly digital age.

The research was conducted by *Whereto* Research using participants from the Online Research Unit (ORU) online panel cohort. The survey was administered to members of the ORU panel, and responses collected between November 11th and November 30th 2018. This resulted in a sample of 2052 adult residents, eligible to vote in Australia.

The final sample (see Table 1) was broadly representative of Australian population figures in terms of gender, age, region and socio-economic status (see Appendix for further details).

Table 1: Survey sample (n=2052) by main demographic characteristics

	n	Percentage
Gender		
Male	1008	49.3
Female	1038	50.7
Age range (years)		
18-29	435	21.2
30-39	375	18.3
40-49	387	18.9
50-59	355	17.3
60+	500	24.4
Socio-economic status (postcode data)		
Low	534	26.0
Medium	847	41.3
High	671	32.7
Urbanity (postcode data)		
Metro	1158	75.9
Regional	494	24.1
Household composition		
Household with child(ren) who are currently attending school	469	22.9
Household with no children currently attending school	1583	77.1
Family background		
Have/have had children attending school	909	44.3
Have not had children attending school	1143	55.7
State		
New South Wales (NSW)	659	32.1
Victoria (VIC)	519	25.3
Queensland (QLD)	413	20.1
Western Australia (WA)	217	10.6
South Australia (SA)	143	7.0
Tasmania (TAS)	46	2.2
Australian Capital Territory (ACT)	41	2.0
Northern Territory (NT)	14	0.7
Speak a language other than English at home?		
Yes	348	17.2
No	1679	82.8
Annual household income before tax		
Up to $39,999	428	24.5
$40,000 to $79,999	542	31.1
$80,000 to $119,999	424	24.3
$120,000 to $199,999	285	16.3
$200,000 or more	65	3.7
Highest education level completed		
Year 12 or below	538	26.7
TAFE/Technical	228	11.3
Certificate or Diploma	449	22.3
University degree or higher	802	39.8
Voter preference at last Federal election		
Liberal/National Alliance	673	47.4
Labor	583	41.2
The Greens	163	11.5
Sector where children attend(ed) school		
Government school	600	67.1
Catholic school	186	20.8
Independent/ private school	108	12.1

RESULTS

1. PUBLIC OPINIONS ON THE CURRENT USE OF DIGITAL TECHNOLOGIES IN SCHOOLS

Respondents were first asked questions regarding their opinions on current uses of digital technologies in schools. Overall responses to the seven main items are presented in Table 2.

Table 2: Respondents' views on the current use of digital technology in public schools.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
On the whole, digital technologies make a positive contribution to Australian public schools	13.9	52.2	27.2	5.3	1.4
There needs to be more use of digital technology in classrooms	9.8	33.0	37.2	15.8	4.1
It is important for schools to teach students IT skills that are relevant for future jobs	34.0	52.3	11.0	2.0	0.7
Students will learn how to use technology safely *without* help from school	6.8	28.1	34.3	25.8	5.1
Most teachers today probably know enough about digital technology in order to use it effectively in their classes	7.1	45.0	28.4	16.5	3.0
'Big Tech' companies (e.g. Google, Microsoft, Apple) **cannot** be trusted to play a leading role in supporting schools' technology use	11.5	25.4	39.2	19.9	3.9
Supporting digital technology use in schools is a good use of government money	14.5	51.7	25.4	6.5	2.0

NB. Survey item asked: *"To what extent do you agree or disagree with the following statements about the use of digital technology in public schools?"*

1.1 Public support for current levels of digital technology use in public schools

We started by testing a largely unquestioned assumption that underpins debates over education and technology – that is, people are generally supportive of the idea of having digital technology in school. This was certainly affirmed by responses to our first item. Here we find two-thirds of the sample (66.1%) in agreement with the statement "On the whole, digital technologies make a positive contribution to Australian public schools". In contrast, only 6.7% of respondents are in disagreement. This level of support is relatively consistent across all different groups.

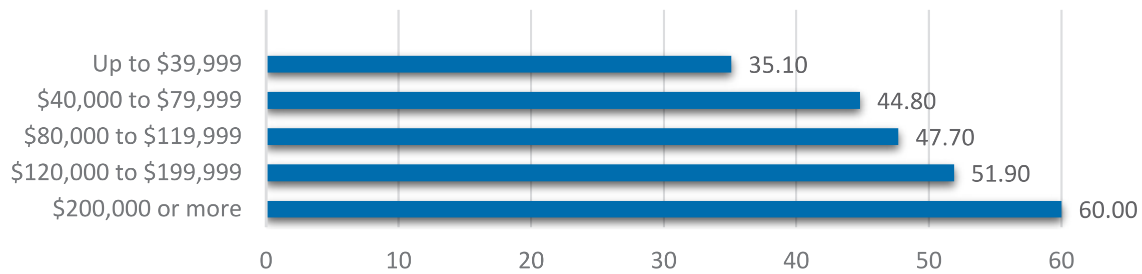
1.2 Public support for increased use of digital technology in public schools

While people might be comfortable with the current levels of digital technology in schools, the survey also explored public views about the need for increased use of technology in education.

Here the survey posed the straight-forward contention that *"There needs to be more use of digital technology in classrooms".* This statement proved more divisive, with 42.8% percent of respondents agreeing with the sentiment, 19.9% disagreeing, and the remaining 37.3% remaining non-committed.

Support for increased use of digital technology is more pronounced amongst those respondents reporting higher levels of household income – with 60.0% of respondents in the "$200,000 or more" income band agreeing, in comparison to 35.1% of respondents in the lowest income group of "up to $39,999" (see Figure 1).

Figure 1: Respondents' views on the need for the increased use of digital technology in schools.



NB. Survey item asked: *"There needs to be more use of digital technology in classrooms".* Data are percentage of respondents 'agreeing' or 'strongly agreeing' with the statement

Higher levels of agreement are also evident amongst respondents in households where a language other than English is spoken at home (56.0% agreeing as compared to 40.4% of respondents in English-only households). This is also one of the only aspects of the survey that resulted in a notable gender difference – with male respondents more likely to be in agreement (49.3%) than female respondents (36.7%).

1.3 The role of schools in helping students develop technology skills

Thirdly, we were interested in exploring public views about the role of schools in supporting the development of students' digital technology use. During the 1980s, 1990s and 2000s, schools were considered to be an important place for young people to gain experience of using computer and internet technology. However, the 2010s has seen growing criticisms that schools are now falling well behind the increasingly diverse nature of students' out-of-school personal uses of digital technology.

The survey first explored public perceptions that school remains a valuable means of providing current cohorts of students with work-relevant skills that will help them gain employment and increase their future job prospects.

This is one of the most strongly supported ideas throughout the whole of the survey, with 86.3% of respondents agreeing with the statement: *"It is important for schools to teach students IT skills that are relevant for future jobs"*. This support is consistently expressed across the sample, regardless of background and demographic characteristics.

The survey also explored public perceptions of schools as a place where students can learn to use digital technologies in a 'safe' manner. This question related to the ongoing drive to provide e-safety and cyber safety education in many Australian schools. There is less support for this aspect of school technology provision, with around one-third of respondents agreeing with the statement: *"Students will learn how to use technology safely <u>without</u> help from school"*, and a further one-third of respondents neither agreeing nor disagreeing.

Interestingly, disagreement with regard to the effectiveness of schools in developing 'safe' technology use is highest amongst younger respondents – that is, those with relatively recent experience of attending school. Here, we find 41.8% of respondents in the 18-29 year age group agreeing that *"Students will learn how to use technology safely <u>without</u> help from school"*, as compared to 25.8% of respondents aged 60 years and over.

1.4 Teachers' capacity to make effective use of digital technology

Discussions of education and technology often feature criticisms that teachers lack the skills, confidence and/or ability to make effective use of digital technologies. In contrast, 52.1 percent of our survey respondents agree with the statement: *"Most teachers today probably know enough about digital technology in order to use it effectively in their classes"*, with only 19.5 percent disagreeing. This level of support is consistent across most groups, including respondents in the 18-29 year old group <u>and</u> parents of children currently attending school.

1.5 Public trust in the involvement of 'Big Tech' companies in schools

'Big Tech' firms have increasingly assumed a leading role in school technology use over the past ten years. Companies such as Google and Microsoft now provide comprehensive services to schools – supplying devices, software systems and apps, as well as training teachers and supporting school strategy and policy making. While these companies bring considerable technical expertise and corporate experience to the use of digital technologies in schools, concerns are beginning to be expressed that these companies operate primarily to maximise profits rather than pursue the interests of public education.

Against this background, we asked respondents to indicate their level of agreement with the statement: *"'Big Tech' companies (e.g. Google, Microsoft, Apple) cannot be trusted to play a leading role in supporting schools' technology use"*. We found just over one-third of respondents (36.9 percent) to agree/strongly agree with this. This certainly constitutes a sizable proportion of the sample. Yet these findings also could be said to confirm a majority ambivalence and/or tacit support for the leading involvement of IT companies in public school technology use.

Importantly, this split in opinion remains fairly consistent across the sample, with no noticeable differences in terms of respondents' age group, income or political allegiance.

1.6 Government funding of technology in schools

The final item in this opening batch of survey questions related to the use of government funding to support digital technology use in schools. In particular, the survey asked respondents to indicate their agreement with the statement: *"Supporting digital technology use in schools is a good use of government money"*.

This proved a surprisingly non-contentious question, with just under two-thirds of respondents (65.2%) agreeing/strongly agreeing. Again, this level of support is largely consistent across the sample, regardless of respondents' political allegiance and level of household income.

2. 'BRINGING' OR 'BANNING' DEVICES?

The responses so far suggest fairly positive attitudes toward school technology use. However, one of the more controversial educational issues in recent years has been the extent to which students should be allowed to bring digital devices into school. On the one hand, the past ten years have seen many schools implement 'One-To-One' and 'Bring Your Own Device' policies with the intention that every student has a personal device to use in class. While in some instances these devices are provided by schools, families are increasingly being required to purchase their own laptops or tablet computers.

At the same time, debates continue as to whether students should be allowed to bring mobile phones into school. Although some experts consider smartphones to be useful educational devices, many schools have begun to restrict student use. Growing concern has been expressed by some teachers and parents over the perceived distractions of phones in the classroom. In September 2018, the New South Wales government launched a public review into a potential statewide ban of smartphones, with subsequent calls also made by the Federal Minister for Education.

2.1 Devices in school as a distraction for students

In general, our survey respondents are divided on the matter of whether the presence of digital devices in school is a notable distraction for students. In particular, our survey asked for responses to the statement: *"On the whole, digital devices are a distraction for students at school"*.

The overall sample was split on this matter – with 40.8% of respondents agreeing with the statement (i.e. responding either 'Agree' or 'Strongly Agree'), 35.9% in disagreement, and 33.3% neither agreeing nor disagreeing. This pattern of responses is relatively consistent across the main demographic characteristics of the sample.

2.2 Banning mobile phones in schools

The prospect of banning mobile phones also raised a mixed response. Our survey explored two variations: (i) the outright banning of students bringing phones into schools, and (ii) the option of students not being allowed to use their phones while in class. As can be seen in Table 3, these suggestions prompted distinctly different patterns of responses.

Attribution: Neil Selwyn (2019). Digital Lessons? Public opinions on the use of digital technologies in Australian schools. Melbourne, Monash University

Table 3: Respondents' dis/agreement with banning mobile phones in schools.

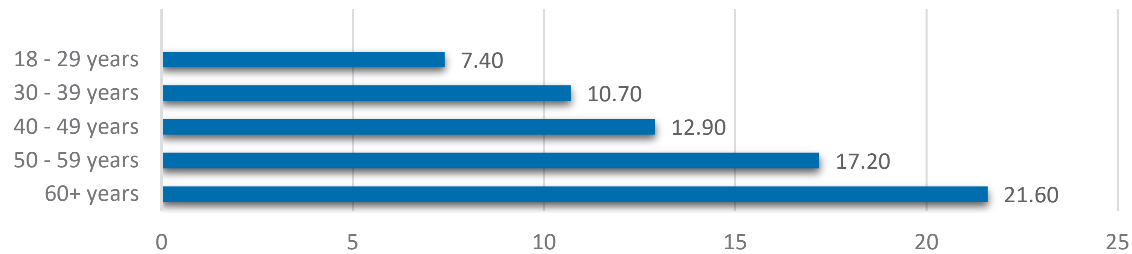
	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Students should be banned from bringing mobile phones into school **at all**	14.2	17.6	36.7	32.1	9.5
Students should be able to bring phones to school but should be banned from using mobile phones **while in class**	48.9	30.4	11.0	5.9	3.9

NB. Survey item asked: *"To what extent do you agree or disagree with the following statements?"* Data represents the percentage of respondents.

The sample was split on the prospect of a total ban – with just under one-third of respondents in agreement, and slightly more disagreeing and/or undecided. Older respondents are amongst those most likely to strongly agree with the idea of a total school-wide ban (see Figure 2). Conversely, respondents in the 18-29 year age category are notably more likely to disagree with the idea of a total ban (22.1%) as opposed to the oldest age group (only 3.6% of respondents aged 60 years and over).

Interestingly, supporters of the Liberal National (33.0%) and Labor (33.0%) political parties are equally as likely to support the idea of a schoolwide ban – both at a notably higher level than respondents who reported being supporters of the Greens (19.7%).

Figure 2: Respondents' views on a school-wide ban of mobile phones.



NB. Survey item asked: *'Students should be banned from bringing mobile phones into school at all'*. Data represents a percentage of respondents strongly agreeing with the statement.

In contrast, there is consistent majority support across the sample for banning the use of mobile phones while students are in class (79.3% in agreement). Tellingly, support for classroom bans is fairly consistent across all different backgrounds, demographic categories, political affiliations and regions (e.g. Table 4)

Perhaps most surprising is the high level of support for classroom phone bans amongst those respondents who elsewhere endorsed the need for increased use of digital technologies in schools. Indeed, 82.6% of respondents who strongly agree that there should be more use of digital technologies in Australian schools nevertheless also indicate that they agree/strongly agree that students should not be allowed to make use of phones in the classroom.

Table 4: Differences in public support for banning mobile phones in schools by State.

	Students should be banned from bringing mobile phones into school **at all**	Students should be able to bring phones to school but should be banned from using mobile phones **while in class**
New South Wales (NSW)	30.4	79.0
Victoria (VIC)	30.6	77.4
Queensland (QLD)	30.2	82.1
Western Australia (WA)	37.8	79.2
South Australia (SA)	32.2	79.1

NB. These are the five most populous States with sufficient numbers of respondents to warrant a comparison.

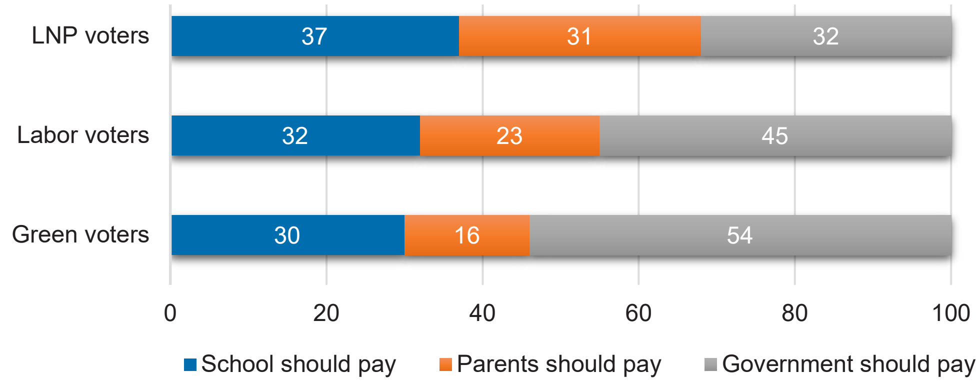
2.3 Financing students to 'Bring Your Own Device'

This section of the survey also explored public views about students being expected to bring their own laptop or tablet computer into school. Here, questions addressed two different forms that these requirements often take across Australian schools.

First, is the arrangement that a school specifies the type of laptop or tablet that should be used. In this case, just over one-fifth of respondents (21.2%) agree that parents should be expected to cover the cost of purchase in response to the question: *"If students are expected to bring a specific type of laptop or tablet to school, who do you think should cover the cost of purchase?"*. In contrast, greater numbers of respondents indicate that costs should be covered by the government (35.1%) or the school (29.5%).

While remaining fairly consistent between different groups of respondents, these opinions on who should be held financially responsible did differ along party political lines (see Figure 3).

Figure 3: Respondents' preferred sources of funding for school 'Bring Your Own Device' schemes that specify the type of device to be used.



NB. Survey item asked: *'"If students are expected to bring a specific type of laptop or tablet to school, who do you think should cover the cost of purchase?'* Data represents the percentage of voters from each political party indicating a source of funding.

Views on financing were less divided with regards to the second type of arrangement where a school allows a choice of device. In response to the question: *"If students are expected to bring a laptop or tablet to school and the parents could choose which kind, who do you think should cover the cost of purchase?"*, 57.3% of respondents indicate that parents should be expected to cover the cost of purchase. In contrast, only 16.7% indicate that the government should cover costs, and 11.9% of respondents indicate that the school should be financially responsible.

The idea that parents should cover the cost of non-specified devices is fairly consistent, even amongst lower income groups and socio-economic backgrounds. That said, respondents in the lowest income group (household income up to $39,999) are most likely to support the idea of government funding (21.0%) as opposed to those in the "more than $200,000" top bracket (9.2%). Conversely, respondents in the lowest income group (household income up to $39,999) are least likely to support the idea of schools funding the cost (8.4%) as opposed to those respondents in the "more than $200,000" bracket (16.9%).

3. PUBLIC OPINIONS ON THE USE OF EMERGING TECHNOLOGIES IN SCHOOLS

The survey presented nine different types of emerging technology that are all likely to come into prominence in schools during the 2020s. Five of these technologies are already relatively well established in some Australian schools as well as schools in other developed nations. These 'probable' technologies were described to respondents in the following ways:

- **Blended learning** – school students have the option to take *some* of their classes online rather than coming into school
- **Virtual schools** – fully online schools where students are taught *entirely* through the internet
- **Online exams** – students can take exams online with their own device (under controlled conditions)
- **Automated essay grading** – computer systems used to grade students' written work rather than a teacher
- **Personalised learning systems** – artificial intelligence systems that decide what each individual student should be learning next

The survey also presented another four technologies that are currently in early stages of development and yet to enter mainstream use. These 'possible' technologies were described to respondents in the following ways:

- **Facial recognition systems** – computerised video tracking in schools to monitor attendance and ensure student safety
- **Robot teaching assistants** – fully autonomous robots (guided by artificial intelligence software) that are used in classrooms to support students to learn
- **Neuro-technologies** – headsets that monitor students' brainwaves to get a sense of how they are learning
- **Cognition-enhancing drugs** – approved drugs and supplements that improve thinking, memory, creativity, or motivation

Table 5: Respondents' views on the future use of digital technology in public schools.

	Strongly approve	Approve	Not sure	Disapprove	Strongly disapprove
Blended learning	6.6	27.4	25.6	24.7	15.6
Virtual schools	4.4	16.3	24.4	27.6	27.2
Automated essay grading	4.0	18.7	27.8	28.8	20.6
Online exams	6.5	37.6	27.1	17.6	11.2
Facial recognition systems	9.2	36.7	29.9	14.6	9.6
Personalised learning systems	6.4	27.7	37.1	16.9	11.9
Robot teaching assistants	3.8	22.1	30.2	24.1	19.9
Neuro-technologies	4.0	21.6	33.2	23.4	17.7
Cognition-enhancing drugs	2.9	10.4	19.6	23.4	43.7

NB. Survey item asked: *"To what degree would you approve of these technologies being in Australian public schools in the next few years?"*

3.1 Public support for ‘probable’ future forms of school technology

The overall pattern of responses to these probable technologies is detailed in Table 5. More specifically, a few specific differences and trends are evident for some of these different technologies.

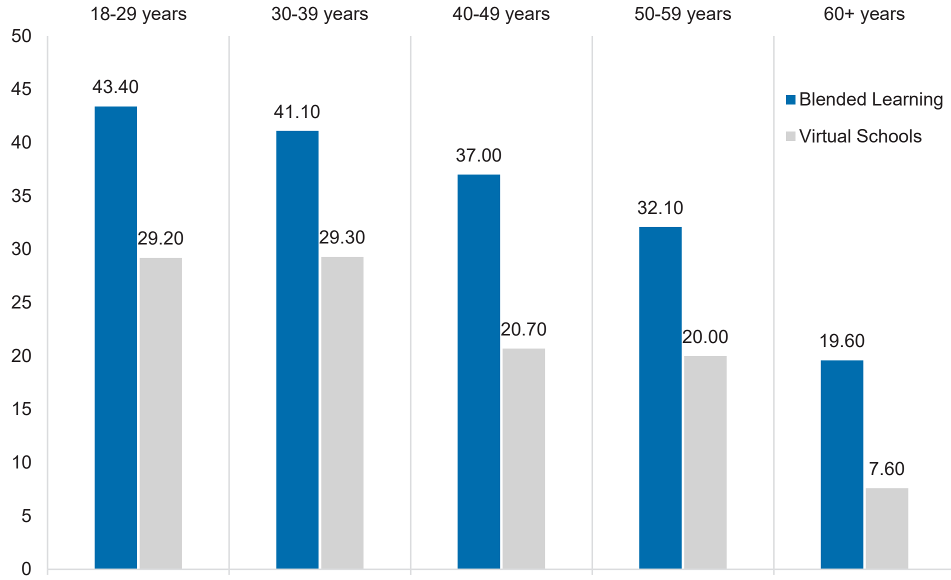
Firstly, there are relatively high levels of approval for the idea of online exams, with this item being approved by 44.1% of respondents. That said, it is notable that respondents are relatively disapproving of the other technologies that are already beginning to become established in school systems around the world. For example, there are already over 400 full-time virtual high schools in the US, catering for around 300,000 students. Similarly, automated essay grading is presently used annually for over 3 million SAT national tests in the US. These are trends that are highly likely to become established in Australia over the 2020s, yet gain some of the lowest levels of approval in our survey. Virtual schools are approved by only 20.7 percent of respondents. Automated essay grading gains a relatively low level of approval at 22.7 percent of respondents.

Elsewhere, personalised learning systems are already being implemented in many countries, with the Facebook-supported ‘Summit’ system directing classes in over 300 US schools. Our survey finds 34.1 percent of respondents indicating approval of this technology. Similarly, there are nearly 300 ‘blended’ high schools in the US, where over 116,000 US students take a combination of online and face-to-face classes. This technology is approved by 34.0 percent of our respondents.

Interestingly, support for blended learning and virtual schools is more pronounced amongst groups with higher levels of educational attainment. For instance, the idea of blended learning is approved/strongly approved by 41.6% of respondents with a university education as compared to 24.7% of those respondents who left school at Year 12 or below. Similarly, the idea of virtual schools is approved/strongly approved by 26.5% with a university education as compared to 14.3% of those respondents who left school at Year 12 or below.

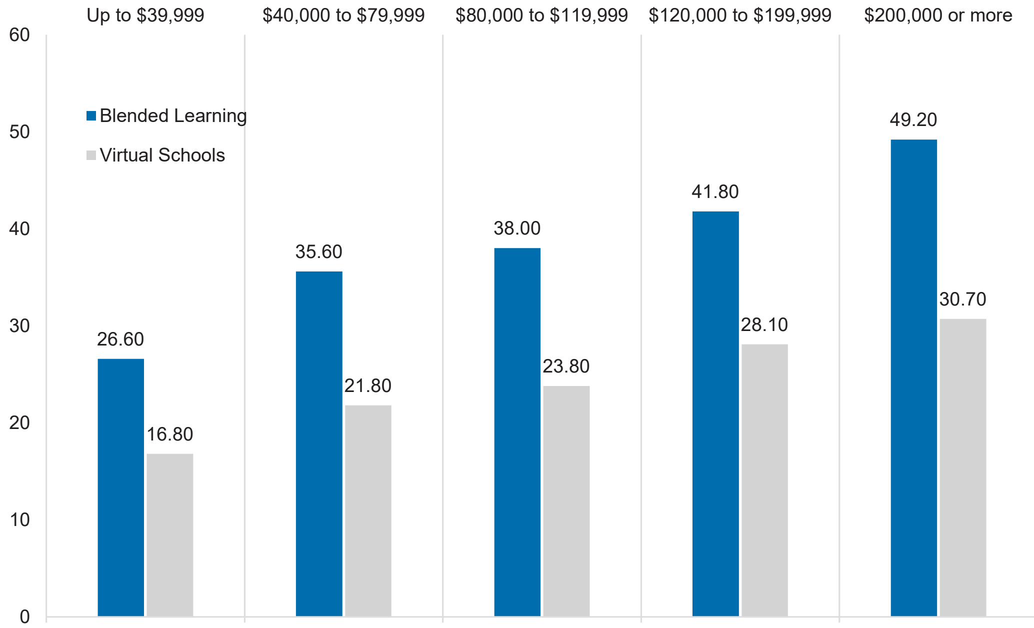
Support for blended learning and virtual schools is also stronger amongst younger age groups and those in the higher income groups (see Figures 4 and 5). The other notable instance of increased support for virtual schools is amongst respondents living in households where a language other than English is spoken (31.6% approving of the idea of virtual schools) in comparison to respondents in English-only households (18.6% approving of the idea of virtual schools).

Figure 4: Levels of approval for the future use of blended learning and virtual schools.



NB. Data represents the percentage of respondents from each age group either 'approving' or 'strongly approving' of the future use of these technologies.

Figure 5: Levels of approval for the future use of blended learning and virtual schools.



NB. Data represents the percentage of respondents from each level of household income either 'approving' or 'strongly approving' of the future use of these technologies.

3.2 Public approval of 'possible' future developments in school technologies

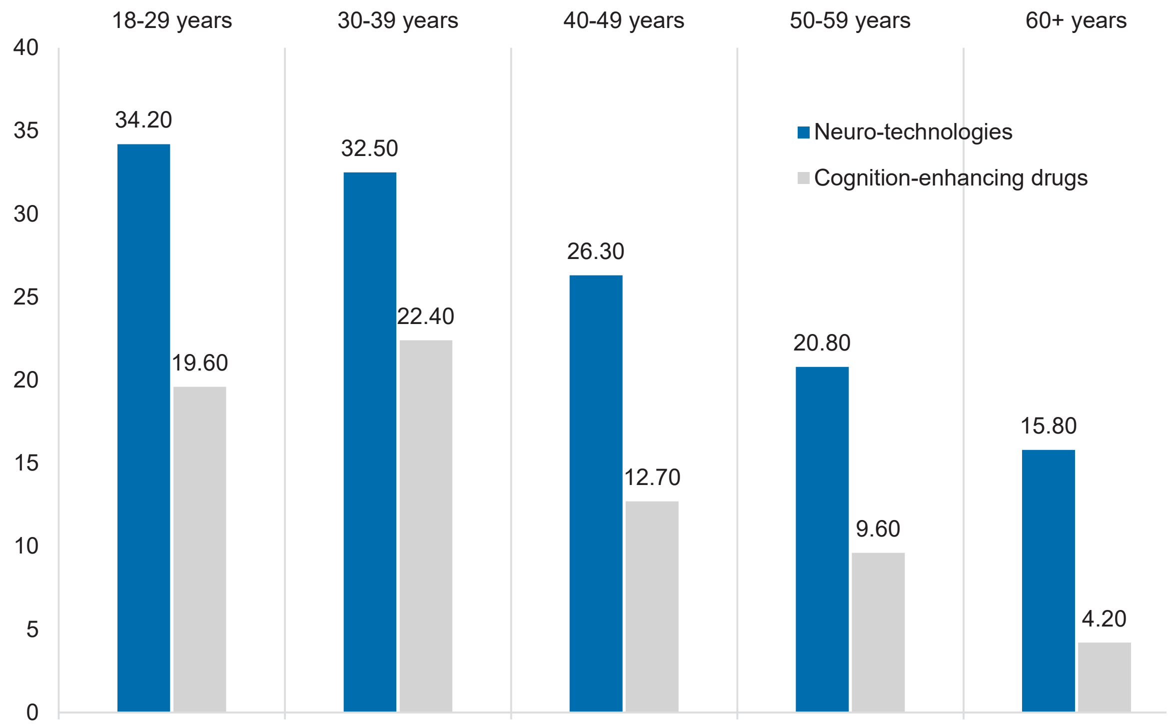
We also found mixed levels of approval for the four emerging 'possible' technologies.

The idea of using **facial recognition systems** to monitor attendance and ensure student safety gained support from a surprisingly large proportion of respondents (45.9 percent either approving or strongly approving). As such, facial recognition was the most popular technology from all of the listed options in this section of the survey. In addition, this was the only technology item in the whole survey to garner higher approval ratings from older respondents. 55.8% of respondents aged 60 years and over approved of the use of facial technology in schools as opposed to 40.0% of 18 to 29 year olds. Support for facial recognition in schools was also patterned along party political lines – with highest levels of approval amongst LNP voters (55.2%) as compared to Labor voters (48.8%) and Green Party voters (36.8%).

The other three listed 'possible' technologies attracted much lower levels of approval. For example, the prospect of **robot teaching assistants** and using **neuro-technologies** to monitor students' brainwaves was approved by around one-quarter of respondents. Approval for these educational technologies was more likely from younger (rather than older) respondents. Higher levels of approval were also notable from respondents in households where languages other than English were spoken. For example, 39.0% respondents in households where languages other than English were spoken approved the use of neuro-technologies as compared to 23.0% of respondents in English-only households.

Finally, the prospect of **cognition-enhancing drugs** being used with school students attracted the lowest levels of approval – with only 13.3 percent of respondents approving or strongly approving. Again, approval for this technological development was more prevalent amongst younger respondents (see Figure 6).

Figure 6: Levels of approval for the future use of neuro-technologies and cognition-enhancing drugs.



NB. Data are percentage of respondents from each age group either 'approving' or 'strongly approving' of the future use of these technologies.

RECOMMENDATIONS

Overall, these survey findings suggest a number of causes for optimism. Above all, there seems to be majority public support for digital technology use in schools. There also seems to be majority public support for the use of government funding to support school technology use. Looking toward the future, most people do not seem opposed to the increased digitisation of schools and school practices. On the whole, the Australian public appear favourable toward this aspect of contemporary schooling.

That said, these survey findings also point to a number of notable differences and possible tensions. Addressing these issues and ensuring that the use of digital technology within Australian schools continues in a favourable direction, therefore provides the focus for our concluding recommendations.

RECOMMENDATIONS FOR POLICYMAKERS

1. Increase government interest and involvement in EdTech.

Although the majority of the Australian public see it a legitimate area for government support, EdTech is not a current priority issue at any level of government. As such, this is an area of education where **state governments might easily take a lead** and play more prominent roles in supporting schools to make the best use of digital technology. Similarly, this is also an opportune moment to establish Federal government oversight of EdTech. For example, the Federal government might follow the example of the longstanding US Office for Educational Technology and **establish a Federal agency** that champions and supports the best use of digital technology in schools.

2. EdTech appears to be a relatively bi-partisan issue. Politicians, policymakers and governments should work together to develop policies with cross-party support.

Although debates around public education are often contentious, our survey found far fewer divides and schisms in public opinions around EdTech than might be expected. In particular, there were few differences in opinions between voters of the main political parties. This suggests that policy work in the area of EdTech is likely to be a relatively bi-partisan issue. Australian politicians, policymakers and governments should work together in developing policies with cross-party support.

3. The question of restricting the use of mobile phones in schools needs to be carefully and sensitively considered.

We do not find consistent public support for completely banning mobile phones from schools. Indeed, the prospect of a total ban of phones from schools appears to be **a divisive issue**. However, our survey did find majority support for limiting students' use of phones while in school. There is certainly a need for policymakers to approach this current area of debate carefully and to consult widely.

4. Introduce online examinations.

Our survey finds relatively high levels of public support for the implementation of online examinations in Australian schools over the next few years. This is an emerging technology that is highly likely to be standard practice around the world in ten years' time. Given the apparent lack of public opposition, this is **an opportune moment for Australia to take a lead** in initiating a switch over from paper-based to online examinations.

5. The use of facial recognition systems in schools is a complex issue that requires sustained public debate.

In contrast to prevailing concern and suspicion over the use of facial recognition systems in other public spaces, our survey finds a surprisingly high level of public approval for the use of this technology in schools. Given the complex nature of privacy, discrimination and data-rights issues for under-age children, there needs to be **careful ongoing public discussions** about the possible implementation of this technology in schools. Public desire for 'safety' and 'protection' of children should not be allowed to obscure other, less desirable consequences and connotations of this technology.

RECOMMENDATIONS FOR SCHOOLS

1. Promote school technology use to parents and the wider community.

Our survey finds a surprising consistency of responses between parents and non-parents. In contrast, respondents aged 18 to 29 years (with relatively recent personal experience of school) are more likely to hold different views and responses. These patterns might suggest that parents are not particularly informed of how their children are using digital technology at school. There is a clear opportunity for **schools to better engage parents** in the ways in which technologies are being integrated into teaching and learning processes.

2. Harness parental support for digital technologies amongst households where languages other than English are spoken.

Respondents from backgrounds of cultural and linguistic diversity (CALD) seem to be particularly supportive of emerging school technology uses – these include personalised learning, blended classes and online schooling. While our survey data do not indicate reasons for this, it could be speculated that students from these groups have specific needs that their communities feel are not being currently met. Alternatively, it might be that CALD families are more innovative and 'open minded' to future change. Either way, this is a source of technology enthusiasm that schools might harness – for example, **involving CALD families as 'champions' and 'early adopters'** of new school technologies.

3. Publicise school efforts around e-safety, digital literacy and other forms of appropriate technology use.

Our survey finds a surprising level of doubt about the ability of schools to help students develop 'safe' uses of digital technologies. This belies the extensive 'e-safety' and 'digital literacy' programs currently being implemented in many schools to support appropriate technology use. Schools should ensure that parents and the wider community are better informed and involved in this aspect of schooling, while at the same time reassessing the effectiveness of these programs.

4. Develop clear, consultative policies on the permissible use of mobile phones.

The idea of a school wide ban of phones is not likely to attract majority support. However, there does seem to be broad public appetite for the restriction of mobile phone use in classrooms. Regardless of public opinion, this is clearly an issue that is best addressed and worked out at the individual school level. If they have not done so already, school communities need to develop clear, consultative policies on the permissible use of mobile phones.

RECOMMENDATIONS FOR THE EDTECH COMMUNITY

1. Develop better forms of public engagement.

Our survey highlights a number of technology uses that are well supported with professional EdTech circles, and yet do not appear to be reflected in public opinion. For example, many education technologists would consider online classes and personalised learning systems to be beneficial (and largely non-controversial) innovations. Similarly, the educational potential of mobile phones has been documented widely by educational technologists over the past 20 years.

Our survey suggests that these expert understandings are not reflected in mainstream public opinion. This highlights the need for EdTech professionals to work harder to get their findings and recommendations across to the public. Conversely, there is also a need to reflect on why these professional EdTech assumptions are not necessarily resonating with the wider public.

2. Be mindful of a possible 'Big Tech' backlash.

Over one-third (37%) of our survey respondents state that 'Big Tech' companies such as Google, Microsoft and Apple cannot be trusted to play a leading part in school technology. While a one-off survey cannot indicate if this marks an increase in comparison to previous years, 37% remains a sizable proportion. IT firms need to be aware of this public unease, and work to ensure that their education activities are distinct in terms of approach and ethics from core profit-motivated business operations. For example, this might take the form of clear assurances regarding data protection and guaranteed non-use of school-related data by third parties. This might also involve the development of 'fairer' practices in terms of non-profit pricing and/or open (rather than proprietary) provision of online resources.

APPENDIX

Table A.1: Survey sample (n=2052) by full set of demographic characteristics

	n	Percentage
Age range (years)		
18-24	236	11.5
25-29	199	9.7
30-34	195	9.5
35-39	180	8.8
40-44	197	9.6
45-49	190	9.3
50-54	191	9.3
55-59	164	8.0
60-64	165	8.0
65+	335	16.3
Gender		
Male	1008	49.1
Female	1038	99.7
Other	3	0.1
Household composition		
Single, living alone	390	19.0
Single, living in a share house	213	10.4
Couple, no children	291	14.2
Couple, no children living at home	319	15.5
Family, with school aged children living at home	469	22.9
Family, with adult children (over 18) living at home	219	10.7
Family, with pre-school aged children living at home	105	5.1
Single, living with parents	34	1.7
Other	12	0.6
State		
New South Wales (NSW)	659	32.1
Victoria (VIC)	519	25.3
Australian Capital Territory (ACT)	413	20.1
Queensland (QLD)	217	10.6
Northern Territory (NT)	143	7.0
Western Australia (WA)	46	2.2
South Australia (SA)	41	2.0
Tasmania (TAS)	14	0.7
Speak a language other than English at home?		
Yes	348	17.1
No	1679	82.8
Highest education level completed		
Year 12 or below	538	26.7
TAFE/Technical	228	11.3
Certificate or Diploma	449	22.2
University degree or higher	802	39.8
Aboriginal or Torres Strait Islander		
Yes	38	1.9
No	1985	98.1

	n	Percentage
Current employment status		
Working full-time (30+ hours/week)	785	38.7
Working on a part time or casual basis (< 30 hours/week)	405	20.0
Home duties	192	9.5
Retired	389	19.2
Unemployed / not currently working	136	6.7
Studying AND working full-time	12	0.6
Studying AND working part-time/casual	53	2.6
Studying (not currently working)	58	2.9
Employment sector		
Agriculture, Forestry and Fishing	27	2.2
Mining	15	1.2
Manufacturing	64	5.1
Electricity, Gas, Water and Waste Services	10	0.8
Construction	60	4.8
Wholesale Trade	40	3.2
Retail Trade	164	13.1
Accommodation and Food Services	48	3.8
Transport, Postal and Warehousing	65	5.2
Information Media and Telecommunication	46	3.7
Financial and Insurance Services	61	4.9
Rental, Hiring and Real Estate Services	26	2.1
Professional, Scientific and Technical Services	139	11.1
Administrative and Support Services	77	6.1
Public Administration and Safety	61	4.9
Education and Training	128	10.2
Health Care and Social Assistance	135	10.8
Arts and Recreation Services	33	2.6
Other (please specify)	55	4.5
Annual household income before tax		
Up to $20,000	113	6.5
$20,000 to $39,999	315	18.1
$40,000 to $59,999	287	16.5
$60,000 to $79,999	255	14.6
$80,000 to $99,999	243	13.9
$100,000 to $119,999	181	10.4
$120,000 to $149,999	171	9.8
$150,000 to $199,999	114	6.5
$200,000 or more	65	3.7
Voter preference at last Federal election		
Liberal/National Alliance	673	47.4
Labor	583	41.2
The Greens	163	11.5
Other		
Education sector for children		
Government school	600	65.9
Catholic school	186	20.4
Independent/ private school	108	11.9
Mixture	15	1.6
Home-schooled	2	0.2

Table A.2: Representativeness of survey sample in terms of adult population of Australia.

	Population	Survey sample	Difference
Age range (years)			
18-24	12%	12%	0.5%
25-29	10%	10%	0.3%
30-34	10%	10%	0.5%
35-39	9%	9%	0.2%
40-44	8%	10%	1.6%
45-49	9%	9%	0.3%
50-54	8%	9%	1.3%
55-59	8%	8%	0.0%
60-64	7%	8%	1.0%
65+	20%	16%	3.7%
Gender			
Male	49%	49%	0.0%
Female	51%	51%	0.0%
State			
New South Wales (NSW)	32%	32%	0.1%
Victoria (VIC)	2%	2%	0.3%
Australian Capital Territory (ACT)	26%	25%	0.4%
Queensland (QLD)	20%	20%	0.1%
Northern Territory (NT)	7%	7%	0.0%
Western Australia (WA)	10%	11%	0.1%
South Australia (SA)	2%	2%	0.1%
Tasmania (TAS)	1%	1%	0.3%
Socio-economic status (derived from postcode)			
Low	32%	26%	5.5%
Medium	41%	41%	0.3%
High	28%	33%	5.2%

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