POLICY PAPER

Pain without gain: Why school closures are bad policy

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Executive Summary

- School policy during Covid-19 involves difficult choices; balancing health, economic, and education issues.

- The decision by state and territory governments to strongly advise parents to keep their children at home can accurately be described as 'school closures', because for the small minority of children who still attend school, their learning is almost the same as at-home learning, rather than normal face-to-face classes. Also, most parents would have to make the difficult decision to ignore the public health announcements from their state or territory government in order to send their children to school.

- The decision by state and territory governments to close schools went against the health, economic, and educational evidence. It was clear there was little health benefit, while there were substantial economic and educational costs.

- The time span of being completely or partly closed varies significantly by state and territory, according to the timetables for re-opening government schools. Victoria, Tasmania, the ACT, New South Wales, and Queensland are in a group with the longest closures, ranging from 6 to 9 weeks. South Australia, Western Australia, and the Northern Territory are in a group with much shorter closures, ranging between only 1 and 2 weeks.

- The negative educational impact is larger for students from disadvantaged social backgrounds.

- The negative effect of at-home learning, in terms of weeks of learning lost for disadvantaged students, can be estimated for each state and territory based on the length of school closures.

  – In Victoria, Tasmania, the ACT, and New South Wales, disadvantaged students face between 2 and 3 weeks of lost learning in numeracy and between 1 and 2 weeks of lost learning in reading.

  – In Queensland, disadvantaged students face around 2 weeks of lost learning in numeracy and 1 week of lost learning in reading.

  – In South Australia, Western Australia, and the Northern Territory, disadvantaged students are likely to be only marginally affected.

  – These weeks of lost learning should be viewed in the context of Australian disadvantaged students already being approximately 37 weeks behind in numeracy and 35 weeks in reading, compared to the typical student.

- Digital education has benefit only as a supplement to normal face-to-face teaching. As a result, students learning entirely from home — as in the case of school closures — are unlikely to experience the benefits of education technology.

- The learning lost due to Australian school closures is not irretrievable, but it does require state and territory governments to assess students on return to school, identify those who have fallen behind, and provide intensive intervention to ensure they catch up with their peers. This is especially important, given the NAPLAN tests are not going ahead in 2020.

Introduction

Covid-19 presents governments around the world with difficult, unprecedented policy choices. This is especially the case for schools policy, which involves balancing medical, educational, and economic issues.

While policymakers are in the unenviable position of seemingly having to trade off between public health and children's education, nonetheless it remains essential that they be held to account for their policy decisions. Evidence-based public policy is more important during a pandemic — not less.

In a time when emotions are running high and public discourse is often simplistic, it is undoubtedly a challenge for policymakers to follow the evidence where it leads. But given the unquestionable importance of education — a key pillar of any free and prosperous society — Australians are entitled to hold high expectations for the quality of policy responses.

Australia's education results have been declining on international tests, and significant increases in per-student taxpayer funding for schools have failed to improve outcomes. Given this background, any unnecessary disruptions to schooling are particularly problematic.

To the extent that governments have enacted policy not based on evidence, this must be documented so important lessons can be learnt for the future.

School closures: where are we now and how did we get here?

Many governments around the world have responded to Covid-19 by closing schools. In Australia, this has been the case in all states and territories for at least some period of time. Parents have been asked to keep their children at home, while being told that children will not be turned away from school and children of essential workers can still attend.

This policy approach can accurately be described as school closures, because for most parents sending their children to school would clearly go against what the state or territory government has specifically asked them to do in the name of public health. And for the small minority of children who still attend school, their learning mostly reflects at-home learning rather than normal face-to-face classes.

The decision to ask parents to keep their children away from school if possible was made by state and territory governments late in Term 1, but the length of school closures varied significantly. Table 1 shows the timeline for each state and territory, and the total number of weeks where government schools are not completely open (that is, at least some year groups are still learning from home or are not at school five days per week).

Table 1: Timeline of government school closures and re-openings, by state and territory

State/Territory	Date schools closed	Date schools completely re-open	Weeks closed (excluding 2-week term break)
NSW [1]	24-Mar	25-May	7
VIC [2]	24-Mar	9-Jun	9
QLD [3]	30-Mar	25-May	6
SA [4]	6-Apr	27-Apr	1
WA [5]	30-Mar	29-Apr	2
TAS [6]	30-Mar	9-Jun	8
NT [7]	6-Apr	20-Apr	1 (term break only 1 week)
ACT [8]	24-Mar	2-Jun	8

School closures were not evidence-based policy

The consistent expert medical advice provided to the National Cabinet has been that it was safe for schools to remain open.[9] While there is still some uncertainty on this issue, this expert advice to Australian governments has remained unchanged since the first restrictions were introduced in March. Therefore, it is clear that the policy to ask parents to keep their children at home, and essentially to close schools, was not based on the best available health advice; rather, the decision appears to have been made for political reasons, and due to advocacy from education unions.

A study by the National Centre for Immunisation Research and Surveillance found low transmission of Covid-19 in NSW schools and that there were no cases of students infecting staff.[10] The lead investigator of the study said that "Schools are among the safest places that we have" and described the transmission rate in schools as "extraordinarily low."[11]

To the extent that any state and territory health advice differed, it was not to dispute this point. For example, in Queensland, the state chief health officer has said schools were closed not because they were unsafe but because of "messaging" — that is, closing schools would help people to understand the gravity of the situation.[12]

The economic and social impact of school closures was also seemingly relegated by state and territory governments. School closures have material implications for growth and jobs. This is especially problematic at a time of job insecurity, in which workers have attempted to maintain employment while simultaneously working from home and supervising children, and other parents have not had access to childcare. This is shown by recent Australian Treasury estimates that school closures would cost the economy more than 300,000 jobs and 3% of GDP growth for the first six months of 2020.[13]

School closures imposed by state and territory governments were not based on health or economic advice. But in addition, the educational impact of students learning from home also appears to have not been considered.

The effects of school closures on student learning

Expert educational advice about the effects of school closures was provided to the National Cabinet several weeks after the decision to close schools. Nevertheless, the findings of the expert advice were unsurprising. The fact that it is more difficult for students from disadvantaged backgrounds to learn from home — as they tend to have less access to reliable home internet or effective parental support — should have been obvious to policymakers.

An overview of the findings from the expert educational advice given to the National Cabinet is provided in Table 2.

A clear common theme is that school closures are problematic for disadvantaged students in particular. On the weight of all the expert educational advice provided to the National Cabinet, it is probable that students from lower socio-economic and Indigenous backgrounds may fall further behind as a result of learning from home.

Quantifying the impact of school closures on student learning

The impact of learning from home on students from disadvantaged backgrounds has been quantified by the Centre for International Research on Education Systems. This was extrapolated from a 2017 US study[14] on normal schools compared to online schools, and applying the findings to NAPLAN results in Australia. The approximate impact of a term of school closures for disadvantaged students range from 1.5 weeks to 3.3 weeks of lost learning, depending on subject and year level (see Table 3).

Table 2: Summary of expert educational advice to the National Cabinet

Organisation	Key Findings
Peter Underwood Centre for Educational Attainment, University of Tasmania[15]	• An estimated 46% of Australian students are vulnerable to some sort of adverse effect by being physically disconnected from school. • Vulnerable students urgently need to be reconnected to physical schools. • Students are losing learning during the period of at-home learning, especially students from disadvantaged backgrounds. • Rapid investment is needed to give schools the capability to deliver education both online and on-site. • Readjustment on return to school will be a challenge for many students.
The Australian Council for Educational Research[16]	• The capacity to provide home learning support and resources for students is lower among parents of educationally disadvantaged students than in the broader community. • High proportions of primary-school children are not able to work independently when using technology. • Most schools do not have the required infrastructure to support remote learning, and many teachers do not currently have the capacity to manage remote learning. • There is a digital divide in Australia, with poorer families and those in remote locations being relatively disadvantaged.
Centre for Program Evaluation, Melbourne Graduate School of Education, The University of Melbourne[17]	• Australian children living in poverty will experience exacerbated risk due to the Covid-19 school interruption. • For children at risk of missing approximately 10 weeks of in-school education, it is probable there will be a significant interruption of learning, and access to support for health and well-being. The equity gap will increase. • Successful recovery is based on understanding of the community context and tailored to vulnerable children and families.
Centre for International Research on Education Systems, Victoria University[18]	• Many Australian students will be disadvantaged in learning from home. • There is significant inequity in digital and home resources for students. • Students from disadvantaged backgrounds will fall behind in learning. For example, disadvantaged students in Year 5 could fall 3 weeks behind in reading and 5 weeks behind in numeracy if online delivery continues for two terms.
National Centre for Student Equity in Higher Education, Curtin University[19]	• If the 20% of young people living in financially disadvantaged or low socioeconomic status communities are required to study off campus, then around 800,000 students will be subjected to risks including long-term educational disengagement and digital exclusion.
Rapid Research Information Forum[20]	• Current remote learning arrangements have the potential to result in worse educational outcomes for almost half of Australian students if continued for an extended period. • Students at particular risk of poorer learning outcomes include those from low socioeconomic backgrounds, those with English as a second language, those with special learning needs, those in rural and remote areas, and Indigenous students. • Factors that moderate the effectiveness of remote learning include access to digital technology, and home learning environment and family support. • There is evidence that blended learning (combining face-to-face and remote learning) may be as effective as classroom learning for many students.

Table 3: Estimated loss of learning from school closures for disadvantaged students [21]

Estimated weeks of lost learning for disadvantaged students for 1 term of school closures (equivalent of 10 weeks)		
	Reading	Numeracy
Year 5	1.5	2.7
Year 9	2.3	3.3

While these estimates have obvious limitations (such as applying US findings about online schools to school closures in Australia) and should be used with caution, they are nevertheless indicative of the possible impacts of school closures in Australia, and highlight the plight of disadvantaged students.

Estimates for the impact of school closures for a 10-week term can be applied to each state and territory, based on the number of weeks from schools closing (when parents were told to keep their children at home if possible) to schools completely re-opening (when schools provide face-to-face teaching for all students from all year groups for 5 days a week), while taking out the usual term breaks.

Table 4 shows the approximate weeks of lost reading and numeracy learning for Years 5 and 9 disadvantaged students in each state and territory.

Table 4: Estimated loss of learning from government school closures for disadvantaged students, by state and territory

State/ Territory	Weeks schools closed [22]	Estimated weeks of lost learning for disadvantaged students			
		Year 5 Reading	Year 5 Numeracy	Year 9 Reading	Year 9 Numeracy
NSW	7	1.1	1.9	1.6	2.3
VIC	9	1.4	2.4	2.1	3.0
QLD	6	0.9	1.6	1.4	2.0
SA	1	0.2	0.3	0.2	0.3
WA	2	0.3	0.5	0.5	0.7
TAS	8	1.2	2.2	1.8	2.6
NT	1	0.2	0.3	0.2	0.3
ACT	8	1.2	2.2	1.8	2.6

This clearly shows students from disadvantaged backgrounds will be most affected by government school closures in Victoria, Tasmania, the ACT, New South Wales and Queensland. In contrast, disadvantaged students in South Australia, Western Australia and the Northern Territory will only be marginally affected, if at all.

It should be noted that these estimates of weeks of lost learning are indicative only, and:

- do not take into account the decisions made by non-government schools;

- may be affected by differences in disadvantaged student cohorts between states and territories; and

- do not consider how specific government policies may mitigate the negative effects of school closures.

But they do reasonably reflect the relative impacts of school closures on disadvantaged students between states and territories based on government policy decisions. It is also likely that similar impacts will be suffered by some students who are not necessarily disadvantaged.

Negative effects of school closures are in the context of the already significant disadvantage suffered by students due to socioeconomic background, which for 15-year-old students is equivalent to 36.6 weeks

in reading and 34.6 weeks in numeracy (taking the difference in weeks of schooling between the typical Australian student and the bottom socioeconomic quartile of students), as shown in Figure 1.

Possible benefits of learning from home

Previous research on at-home learning has not been done in the context of school closures due to a pandemic, and so has substantial limitations in informing government policy in response to Covid-19.

There have been some comparisons made to the school closures following the Christchurch 2011 earthquakes, where student results appear to have been unaffected or actually better.[24] However, research indicates that while overall average achievement did not decrease, there is still a possibility that a minority of students were negatively affected.[25] Furthermore, many students at damaged schools were still able to learn in less-damaged 'co-located' schools,[26] resulting in them not having to learn from home.

Extensive research on homeschooling has indicated that, on average, children who are homeschooled have better academic outcomes than those who are not. A 2017 systematic review of the research on the subject in the US found homeschooling tends to have positive effects for children in terms of their academic, social, and emotional development.[27] Consistent with this finding, a NSW government study in 2014 found homeschooled students outperformed the state average in NAPLAN results.[28]

However, while parents supervising their children's education at home is understandably often described as 'homeschooling', the academic literature on the topic is about a different concept. Homeschooling has typically referred to parents educating their children at

Figure 1: The effects of school closures compared to the existing disadvantaged student gap, in weeks of learning [23]
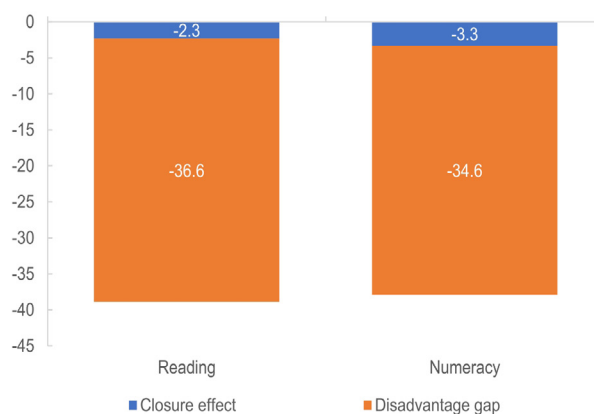
home using their own curriculum in a flexible way that allows them to cater to specific educational needs.

As such, the benefits of homeschooling are unlikely to be realised during school closures, where parents are supervising their children in doing tasks given to them by the school using the standard curriculum — and often while simultaneously also working from home. On the other hand, some potential downsides of homeschooling — such as less social interaction with other students — likely still apply to students studying at home during school closures.

Homework has also been shown to have a positive influence on student learning, across subjects and year groups, and after taking into account student social background.[29] However, this research has focussed on students learning at home in addition to normal school days — as a supplement to face-to-face teaching — so it is unlikely that learning from home due to school closure has similar benefits.

Digital education: when it works and when it doesn't

Technology, including digital learning, has been part of schooling well before Covid-19. In fact, it has been part of the Australian curriculum — as a 'general capability', meaning that it is covered explicitly or implicitly across subject areas — for over a decade.

However, since the coronavirus has upended schooling, there has been far more intensive use of technology than could have been predicted. But the home-based learning practices that have been common during school closures do not necessarily reflect the key guidance on how to best use digital education.

Nonetheless, these conditions have forced educators, parents, students, and policymakers to critically

consider the role of digital education. This makes it an opportune time to evaluate what researchers know about its uses and misuses, as well as the appropriateness of importing these findings to the current home-based learning environment.

Of course, definitions of technology and digital education vary considerably — and are constantly evolving. Generally speaking, digital education is about using technology (computers and other digital devices or platforms) to assist strategies supporting learning within schools. The approaches taken range from the relatively basic — online learning platforms, providing instructions on websites, sending emails to class and parents, providing instructional videos,

live video conferencing[30] — to the more sophisticated (like educational games, intelligent tutoring systems, as well as other machine learning and artificial intelligence applications).

Digital education can be good for students and teachers

Digital education has always held considerable promise. It has been praised as a means to "overcome access to quality education, facilitating communication between educators, students, and families, and alleviating frictions across a wide variety of educational contexts from early childhood through adulthood."[31]

However, while research is generally positive about the *potential* of digital education, there is not yet clear consensus on what technologies work, how, for whom, and in what context.

One of the early, encouraging findings from research was that students tend to be more engaged when they learn digitally. Subsequent research has generally found positive student outcomes — broadly finding that students who are taught with technology outperform their peers who are taught with traditional methods of instruction.[32] But the research has increasingly clarified that digital learning is most valuable for students in *applying* known concepts rather than *acquiring* new knowledge. This is because technology-assisted learning can help students practise or deepen *particular* sets of skills. Well-designed educational software is particularly effective in developing students' confidence and aptitude in mathematics.[33] For instance, software can be used to generate problems to help retention of specific techniques, or to generate quizzes to test relevant knowledge. There is also some evidence that less formal approaches — like video games designed with educational purposes — can be effective too, particularly in building vocabulary.[34]

There is also evidence that students with certain characteristics benefit from digital learning. Students who can 'self-regulate', are motivated, and have sound core knowledge of concepts can benefit from increased independent learning online.

Of course, simply having access to technology does not necessarily improve students' educational achievement. OECD research shows that increasing access to digital devices has not translated into improved student outcomes — and that high technology use is potentially detrimental to students.[35] The OECD also notes that in countries with high-achieving students, the use of technology in classrooms is relatively low.[36]

Box 1: Complications in the evidence and generalisability to home-based learning

The relationship between technology and student outcomes is quite complex — causing researchers to question whether technology is necessarily the 'active ingredient'[37] responsible for the observed educational benefits.

Students who are more engaged tend to achieve better outcomes, but it is not clear from research if it is technology *per se* that is responsible for better outcomes, or if they are generated by the improved engagement effect (which might be achievable with methods other than using technology).

Similarly, it is not clear if the educational benefits are the result of using technology itself (the idea that the medium is what matters) or if digital technology can increase the quality and quantity of time spent learning (which, again, is not exclusively a technology effect).

And finally, students rarely have an either/or experience learning with technology — instead, it is mostly 'blended' with face-to-face instruction — making conclusions difficult. That said, research has generally concluded there are educational benefits when students have *both* face-to-face and online learning *together;* but that solely learning online has no benefits compared to traditional instruction.[38]

As a result, the observed educational benefits from digital learning are not likely to translate into benefits for most students.

For instance, the observed benefits from students being more engaged learning online may result out of a novelty effect — meaning that sustaining the increased engagement is unlikely. Another reason is that it is much harder for students to remain on task and avoid distractions if technology is used for extended periods without supervision.

Most importantly, since the primary benefits of technology for students is in practising and applying known content, it is not clear that the present conditions (where they are mostly being introduced to new content) will bring corresponding benefits. The mixed evidence on 'flipped learning' gives cause for scepticism. And since students may be studying for fewer hours per day currently, this could negate any benefits associated with technology use.

Technology can improve teaching and assessment

There are obvious benefits for teachers; such as being able to access and distribute teaching material online, or to use videos for illustrative demonstrations. But there are other practices that have not been successful, such as the experience with interactive whiteboards — part of a broader approach to use technology as a solution in search of a problem.[39]

Generally, while teaching can be improved by technology, the evidence has been inconsistent. The research findings have high variability — some showing large positive impacts of technology,[40] while others record small positive and even negative effects.[41]

The emerging evidence indicates technology is an effective *supplement to*, rather than *substitute for*, face-to-face instruction. That is, when properly integrated with pedagogy and practice (particularly with clear explanations, scaffolding and feedback), [42] technology can be effective for teachers and students.[43] As a result, *how* lessons are delivered matters less than the quality of teaching — as the OECD puts it: "it's the pedagogy of technology application, rather than technology itself, that makes a difference."[44]

The other complication in the research is that the benefits identified in most research to date are not necessarily specific to technology's use. For instance, improved feedback to students from digital learning is not necessarily more effective because it is online as opposed to offline.[45]

Technology works best when it complements or enhances what a teacher is doing in traditional settings. But in the current context of school closures, it is not clear that these benefits will be generated. Indeed, research based on teachers' integration of technology is usually in school settings with teacher support available, meaning it may not be transferable to remote learning.[46]

There are two key areas where digital technology has significant untapped potential: improving the timeliness and detail in feedback from assessment; and adaptability of content (and assessment) to students' needs and abilities. With respect to both, however, it is important to note that technology mostly *enhances*, rather than *replaces*, what teachers already do in a more efficient way.

Appropriate software can provide real-time feedback to students and teachers, as well as providing much richer assessment data to teachers. For instance, when assessing a writing task, teachers ordinarily can only assess a student's completed submission. However, using appropriate technology, a teacher could understand how students engage in the *process* of a writing task — how they construct and correct sentences, how they structure paragraphs, how quickly ideas come to students, and what their barriers are.

There is increasing demand from educational practice for adaptability of teaching to individual students; tailoring content to individual students and to build their aptitude accordingly (all but an impossibility in traditional face-to-face settings).[47] Research has shown that technology can effectively do this — particularly through 'intelligent tutoring systems' — by delivering personalised instruction or feedback to learners.[48]

Australia's school system could have been better prepared

No school system could have predicted the demands posed by the pandemic, but Australia's school system should have been better prepared to handle the challenges. Given the significant public investments over the past decade or so, it might be expected that school systems would be more digitally-ready.

Box 2: Australian students are proficient users of technology, but school systems haven't leveraged technology well

Australian students are relatively heavy users of technology and, by international standards, are quite proficient users too — displaying effective online navigation, along with discipline and focus completing online tasks.[49] Australian students also outperform overseas ones when completing mathematical tasks using computers for solving problems, as well as in digital, compared to print, reading.

However, OECD data shows that Australian students suffer from relatively large 'first digital divides' (gaps in ability and access to a device and internet connection) and 'second digital divides' (gaps in quality of use, speed of connectivity, and computing capacity).[50] In particular, 15 per cent of disadvantaged students do not have access to a device for homework or a quiet place to study at home. And even larger than the gap in *access* to devices is the disparity in the *adequacy* of devices — around a third of disadvantaged students have devices without sufficient computing capacity, and half do not have sufficient internet bandwidth and speeds.

OECD data shows that while Australian schools regularly use technology for classwork and projects, Australian teachers are underprepared when it comes to utilising technology for broader teaching practices. [51] Only around half of Australian teachers explicitly prepare lessons integrating digital devices. And while a majority of countries use incentives for teachers to integrate digital devices into teaching, only around a third of Australian schools do.

Australian teachers are less likely to have had formal training and professional development in information and communication technology (ICT) use.[52] This is especially pronounced in disparities in teachers' use of ICT between advantaged and disadvantaged schools — only half of students in disadvantaged schools have a teacher with the necessary technical and pedagogical skills to integrate digital devices into teaching.[53]

A legacy of the $2 billion Rudd-Gillard government Digital Education Revolution is that Australian schools have the most digital devices per student in the world.[54] Yet, there has been difficulty in ensuring all students have the hardware and software to connect and access content.

There has also been substantial investment in a National Broadband Network, and yet there have been concerns about many students not being able to reliably connect. There has also been a National Innovation and Science Agenda, yet OECD data shows that Australian schools have gone backwards when it comes to educational innovation.[55]

Australia's education architecture includes an organisation called Education Services Australia, which is explicitly tasked with providing "technology-based services for education" which "can be adapted in response to …. changing needs of the education and training sector." Yet, there has not been a coordinated rollout of online teaching resources.

Australia's track record in large-scale online activity has been poor. Even before Covid-19, the trial of NAPLAN Online in 2019 exposed considerable resistance to online assessment from education unions and some state and territory governments, failures in administration, and lack of capability to remedy against connectivity problems in schools. And during the current school closures, online learning platforms have failed — in particular, the 'crashing' of the Queensland educational platform on the first day of home-based learning.[56]

Conclusions

The educational, medical, and economic evidence all point towards the same conclusion: schools should not have closed and should now completely re-open as soon as possible. The Victorian, Tasmanian, and ACT governments should consider fast-tracking their current timetables for going back to full-time face-to-face learning for all students.

There will likely be a significant — but not necessarily irretrievable — negative effect of the extended school closures for disadvantaged students in Victoria, Tasmania, the ACT, New South Wales, and Queensland. It is important that these government school systems track students' progress as they come back into school, to identify students who may have fallen behind in the key areas of literacy and numeracy, and intervene to ensure they catch up with their peers. Assessments of this kind are now crucial, given that NAPLAN has been cancelled for 2020.

The evidence on digital learning — to the extent that it generally shows a positive effect, although there are inconsistencies — indicates that a 'blended'

approach of both face-to-face teaching and education technology has benefits. Consequently, students impacted by school closures are unlikely to receive the positive impact associated with technology use, as they are receiving no in-school education.

School systems should stocktake what has worked and what has not worked during this period of online education. Given the possibility of a second wave of coronavirus infections or future natural disasters, this should be part of a proactive and evidence-based approach to educational technology.

Australia has borne a substantial educational, economic, and social cost due to state and territory governments asking parents not to send their children to school. But the decision to close schools was not evidence-based. Schools policy in response to Covid-19 is another unfortunate example of how politics all too often trumps evidence in public policy. State and territory governments must be held accountable for their decisions.

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Related works

What Do Parents Want From Schools (Policy Paper, November 2019)

Overcoming the Odds: A study of Australia's top-performing disadvantaged schools (Research Report, March 2019)