Digital inclusion for all public school students

Home internet access, family income, remoteness, mobility, family type, English proficiency, disability, housing, Aboriginal and Torres Strait Islander status, and the impact of the 2019-2020 bushfires

A report prepared for the Australian Education Union

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V 1.1

(see correction note p. iv)

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Correction note

V 1.1 corrects the previous version in which data on English proficiency were misclassified. Section 1.4 on home language and English proficiency and other references to the topic have been corrected.

Introduction

Government and family responses to COVID-19 resulted in a swift change in learning arrangements for public school students, including the rapid provision of schooling by remote modes. This was much more difficult for some students than for others. Justin Reich, director of the Teaching Systems Lab at MIT, writing in response to plans by many school authorities in the US to move to online learning because of COVID-19, noted that:

> A growing body of evidence suggests that online learning works least well for our most vulnerable learners. If you are going online, the number one question is not: "What tech to use to teach online?" It should be: "How will you support your most struggling students?" (Reich, 2020, 12 March)

The sudden shift to remote learning brought into sharp focus the critically important, but often overlooked, problem of the lack of digital inclusion for many students. Access to the internet, and appropriate hardware, software and content are necessary, but not sufficient. Telstra provided 20,000 students and teachers with internet access to educational content (Ebeid, 2020, 7 April), the NBN offered at least $50 million to assist with remote schooling for low income families (Cormann & Fletcher, 2020, 17 April), and other providers also gave support to low income families of school children. This was welcome. However, it is unlikely that these measures were sufficient to provide full internet access to the approximately 125,000 Australian students who did not have internet access at home (including via mobile devices or games consoles) in 2016 (see Section 1.1), and not enough to provide adequate internet access and affordability to the over one million public school students in the bottom third of family incomes (almost 1,400,000 students if those at Catholic and independent schools are included), and, more particularly, the almost 325,000 public school students in very low income families (just over 400,000 in total) (see Section 1.2). Even if such contributions did ensure adequate access and affordability, vulnerable students need full digital inclusion.

The Australian Digital Inclusion Index (ADII) covers three aspects: access, affordability and *digital ability* (Thomas et al., 2019). Digital ability includes enthusiasm, confidence and a sense of control when using the internet, as well as experience, skills and knowledge in internet use (see Box 1). For vulnerable students (and their families and carers), this does not happen automatically, even if the students have experience with information and communication technology at school. "Digital Inclusion requires intentional strategies and investments to reduce and eliminate historical, institutional and structural barriers to access and use technology", according to the US National Digital Inclusion Alliance (see Box 2).

Those with low *digital inclusion*, according to Thomas et al, include very low income households (Q5 – similar in amount to *very low* family incomes in this report), those who only access the internet via mobile devices, and Aboriginal and Torres Strait Islander Australians,

as well as adults with less than secondary education and those not in the labour force (Thomas, et al., 2019, p. 5)—which includes many public school students' parents or carers.

Box 1. The Australian Digital Inclusion Index

The Australian Digital Inclusion Index has three sub-indices, each made up of various components, which are in turn built up from underlying variables (survey questions).

The **Access** sub-index has three components:

- Internet Access: frequency, places, and number of access points
- Internet Technology: computers, mobile phones, mobile broadband, and fixed broadband
- Internet Data Allowance: mobile and fixed internet.

The **Affordability** sub-index has two components:

- Relative Expenditure: share of household income spent on internet access
- Value of Expenditure: total internet data allowance per dollar of expenditure.

The **Digital Ability** sub-index has three components:

- Attitudes: including notions of control, enthusiasm, learning, and confidence
- Basic Skills: including mobile phone, banking, shopping, community, and information skills
- Activities: including accessing content, communication, transactions, commerce, media, and information.

— *Measuring Australia's Digital Divide: The Australian Digital Inclusion Index 2019* (Thomas, et al., 2019), p. 10

Box 2. Digital inclusion

> Digital Inclusion refers to the activities necessary to ensure that all individuals and communities, including the most disadvantaged, have access to and use of information and communication technologies (ICTs). This includes 5 elements: 1) affordable, robust broadband internet service; 2) internet-enabled devices that meet the needs of the user; 3) access to digital literacy training; 4) quality technical support; and 5) applications and online content designed to enable and encourage self-sufficiency, participation and collaboration. Digital Inclusion must evolve as technology advances. Digital Inclusion requires intentional strategies and investments to reduce and eliminate historical, institutional and structural barriers to access and use technology.

— National Digital Inclusion Alliance (2020)

Even if students and their families have full digital inclusion, there are other reasons why remote learning was difficult or impossible for many students during the period of school closure related to COVID-19, and would be in similar circumstances in the future. These

reasons include household stress and domestic violence (in many cases arising from new circumstances of sudden unemployment and isolation at home, even if employed (Taub, 2020, 6 April)), overcrowded or insecure housing, and lack of proficiency in English.

The data set out in this report is intended to help inform policies to permanently address the digital inclusion gap that was highlighted by the need to urgently deploy remote learning solutions during April and May 2020. This will help ensure that vulnerable students receive the same quality education as their advantaged peers who have ready access to the equipment and home environment to support their learning. Addressing the digital inclusion gap would involve tailored school-based programs, and the provision of hardware, software and tailored support for school work and study at home—involving care-givers as well as the students themselves. The report documents student characteristics that tend to result in a lack of digital inclusion, and is intended to help identify the numbers and, to some extent, general locations of vulnerable students.

It is important to recognise that the data used in this report identifies the persistent long term gap in access to the necessary resources experienced by many students. The disruption to regular schooling caused by COVID-19 was not the cause of the issue, but served to illuminate the severity of the existing structural problem.

This report does not provide research and information to inform remote learning practice—for such material see, for example, the Australian Institute for Teaching and School Leadership's *Spotlight: What Works in Online/Distance Teaching and Learning?* (2020)

The analysis is based on data from the Australian Bureau of Statistics (ABS) 2016 Census of Population and Housing, accessed via the online TableBuilder portal (ABS, 2017). The ABS Census undercounts school students, especially low income and Aboriginal and Torres Strait Islander students, and the undercount is greater when a number of variables are combined (such as Aboriginal and Torres Strait Islander status, family income and internet access at home). The Census undercount is briefly outlined in the Technical Notes in this report, and discussed and calculated in the Technical Notes in the companion report (Preston, 2018 - see below). The ABS *Schools Australia* annual statistical report (2020) provides a more accurate count of Australian student numbers. For example, according to *Schools Australia* (2020), public school students were 65% of all students in 2016, not 63%, as Census data indicates. The Census undercounted public, Catholic and independent school students by 14%, 6% and 6% respectively. The public sector's share of enrolments had increased to 66% in 2019, and the number of students in public schools had increased over those three years by more than 4% from 2,483,802 to 2,594,830. In this report an estimate of the magnitude of the Census undercount is provided in notes to tables where relevant.

The data and analysis in this report is primarily concerned with, first, access to the internet from home, and, second, indicators of possible lack of support and facilities at home that are conducive to home study and school work—family income, family structure, English proficiency, disability, and housing. There is additional detail concerned with the circumstances of Aboriginal and Torres Strait Islander students. There is also a section on the

impact and implications of the 2019-2020 bushfires. All these factors were highlighted as areas of concern for disadvantaged students during the recent period of remote learning, but COVID-19 merely exacerbated pre-existing disadvantage which requires urgent and ongoing attention to ensure that all students have access to the tools needed to engage positively throughout their schooling.

The national data is mostly provided for public, Catholic and independent schools in each state and territory so that the circumstances of public schools can be considered in context.

This short report is a companion to the more detailed 2018 report, also based on 2016 Census data, *The social make-up of schools: Family income, Aboriginal and Torres Strait Islander status, family type, religion, languages spoken, disability, home internet access, housing tenure, and geographic mobility of students in public, Catholic and independent schools* (Preston, 2018)—refer to that report for additional data and analysis, and technical information on data sources, interpretation, classifications and quality. It can be accessed at http://www.aeufederal.org.au/application/files/7115/2090/2405/Preston2018.pdf .

1. The national picture

In 2016 there were more than two million students in Australian schools, and almost two thirds were in public schools (see comments on the Census undercount in the Introduction). The Census data showed that the public sector share was least in Victoria and Western Australia, and greatest in Tasmania Northern Territory. The public sector share was greater at the primary than the secondary level (Tables 1 and 2).

The public sector share was less in the major cities than in regional and remote areas. In the major cities (where 71% of all students were located) the public sector share was 62%, and the share increases to 70% in outer regional, 74% in remote, and 85% in very remote (Table 3).

Table 1. Number of primary, secondary and all public school students, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Primary	417 410	313 221	277 143	94 327	145 111	31 181	15 398	20 662	1 314 445
Secondary	269 287	201 113	176 165	52 661	88 190	17 966	8 288	13 613	827 267
Total	686 697	514 334	453 308	146 988	233 301	49 147	23 686	34 275	2 141 712
% of Aust.	32%	24%	21%	7%	11%	2%	1%	2%	100%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP
Note: The ABS Census undercounts school students by 11% (public schools by 14%, Catholic schools by 6%, and independent schools by 6%).

Table 2. Percentage of all primary and secondary students in each state, territory and Australia, in public, Catholic and independent primary, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Primary									
Public	69%	67%	69%	66%	69%	71%	75%	63%	68%
Catholic	20%	22%	18%	18%	18%	18%	13%	25%	20%
Independent	11%	11%	13%	16%	13%	10%	13%	12%	12%
Secondary									
Public	58%	55%	59%	57%	56%	61%	63%	56%	57%
Catholic	25%	24%	21%	21%	22%	22%	16%	26%	23%
Independent	17%	20%	20%	23%	22%	16%	21%	17%	19%
All schools									
Public	64%	62%	65%	62%	64%	67%	70%	60%	63%
Catholic	22%	23%	20%	19%	19%	20%	14%	25%	21%
Independent	14%	15%	16%	18%	17%	13%	16%	14%	15%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP

Table 3. Public, Catholic and independent school students in each type of area classified by remoteness, Australia, 2016

	Major cities	Inner regional	Outer regional	Remote	Very remote	Total
Public	1 483 556	403 882	201 585	29 652	22 471	2 141 146
Catholic	512 916	137 300	59 208	7 026	2 447	718 897
Independent	391 547	88 280	27 582	3 123	1 503	512 035
All schools	2 388 025	629 448	288 394	39 804	26 431	3 372 102
% of Total	71%	19%	9%	1%	1%	100%
Percentage of students in each remoteness area type who are in public, Catholic and independent schools						
Public	62%	64%	70%	74%	85%	63%
Catholic	21%	22%	21%	18%	9%	21%
Independent	16%	14%	10%	8%	6%	15%
All schools	100%	100%	100%	100%	100%	100%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Remoteness Areas RA
Note: The ABS Census undercounts school students by 11% (public schools by 14%, Catholic schools by 6%, and independent schools by 6%)

1.1. Access to internet at home: school type, family income, remoteness and mobility

Around 125,000 public school students (adjusted for the Census undercount) lived in dwellings that were reported to have no internet access in 2016 (Table 5). This includes internet access via smart phones (3G/4G), gaming consoles and smart TVs, as well as other means (see Technical Notes at the end of this document for the wording of the Census questionnaire item). The breadth of this definition and the inadequacy of many such devices for educational purposes need to be considered when interpreting this data. The report on the Australian Digital Inclusion Index (ADII) 2019 noted that:

> More than four million Australians access the internet solely through a mobile connection – this means they have a mobile phone or mobile broadband device with a data allowance, but no fixed connection. In 2019, mobile-only users have an ADII score of 43.7, some 18.2 points lower than the national average (61.9). Being mobile-only not only diminishes Access, but also impacts on the Affordability and Digital Ability aspects of digital inclusion. Mobile-only use is linked with socio-economic factors, with people in the lowest household income quintile (30.7%), those with low levels of education (28.0%), and the unemployed (25.3%) more likely to be mobile-only (Thomas, et al., 2019, p. 6)

There has been a continued rollout of the NBN since 2016, and fixed broadband (and equivalent) providers facilitated connectivity to thousands of students in the context of COVID-19. This assisted in overcoming gaps in access and affordability in the ADII, but students still lacked digital ability because they and their parents and carers had not had

extensive internet experience, developing skills and confidence. They are very disadvantaged relative to their peers who have had broadband internet at home for some time.

Poverty continues to be a limitation on access to the internet, from data plans for smart phones, to installed broadband connections. While the roll-out of the NBN continued after the collection of 2016 Census data, the trend has been for an increasing percentage of Australian children to be living in poverty (Davidson, Saunders, Bradbury, & Wong, 2020) with around 17% of Australian children living in poverty in 2017 (p. 9). Thus, even if the NBN or other internet provision was available in a locality, it would tend not to be affordable by those living in poverty, and not a priority for many living close to poverty or in unstable housing.

Section 2 provides tables and maps of the numbers and percentages of public school students without access to the internet at home in 2016 in statistical areas in the states and territories.

Public school students were more than twice as likely as either Catholic or independent school students to have no internet access at home in 2016 (Table 4).

Table 4. Percentage of students without internet access at home, public, Catholic and independent schools, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Public	5%	4%	6%	6%	5%	7%	22%	2%	5%
Catholic	2%	2%	2%	2%	2%	3%	14%	1%	2%
Independent	2%	2%	2%	2%	2%	2%	7%	1%	2%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Internet access NEDD

Table 5. Number of primary, secondary and all public school students without internet access at home, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Primary	20 758	11 715	17 103	5 470	7 603	2 295	3 417	527	68 887
Secondary	12 385	7 104	9 541	2 882	4 439	1 210	1 511	299	39 375
All public schools	33 142	18 819	26 641	8 358	12 040	3 507	4 925	831	108 263

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Internet access NEDD

Note: The ABS Census undercounts public school students by internet access data by 15%. Thus the actual number without internet access at home in 2016 would have been around 125,000.

Public school primary students were more likely than secondary students to have no internet access at home. Students in the ACT, Victoria and then NSW were the least likely to have no internet access at home, while those in the NT then Tasmania were most likely to have no internet access at home (Table 6). While primary students were less likely than secondary students to have access to the internet at home, the difference was not great.

Table 6. Percentage of primary, secondary and all public school students without internet access at home, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Primary	5.1%	3.8%	6.3%	5.9%	5.3%	7.5%	22.9%	2.6%	5.3%
Secondary	4.7%	3.6%	5.5%	5.6%	5.2%	6.9%	19.2%	2.2%	4.9%
All public schools	4.9%	3.7%	6.0%	5.8%	5.3%	7.3%	21.6%	2.5%	5.1%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Internet access NEDD

Public school students living in remote areas were much more likely to have no internet access at home – almost a third of the more than 20,000 living in very remote areas had no internet access at home (Table 7).

Table 7. Internet access at home, public school students in each type of area classified by remoteness, Australia, 2016

	Major cites	Inner regional	Outer regional	Remote	Very remote	Australia
Internet access	1 404 787	372 258	178 295	25 201	14 674	1 995 215
No internet access	55 669	24 812	17 378	3 509	6 891	108 259
Total	1 460 435	397 077	195 678	28 705	21 550	2 103 445
No internet access as % of all in area type	4%	6%	9%	12%	32%	5%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Internet access NEDD
Note: The ABS Census undercounts public school students by internet access data by 15%.

Family income and mobility affect access to the internet at home (Table 8). Public school students with LOW family incomes were more likely to have moved in the past year than students with HIGH family incomes (that is, family income in roughly the top third of family incomes of all Australian school students): 19% of LOW family income of lived elsewhere a year earlier, while only 11% of HIGH family income students lived elsewhere a year earlier.

Nine percent of students with LOW family incomes have no internet access at home, while only 1% of students with HIGH family incomes did not have access to the internet at home. While 4% of students who had the same residential address as a year ago had no internet at home, around double that percentage of students who lived elsewhere a year earlier had no internet at home. Students with LOW family incomes who lived elsewhere a year early were most likely to have no access to the internet at home (11% compared with just 1% of HIGH family income students who had not moved)

Table 8. Public school students in LOW, MEDIUM and HIGH income families, by usual address one year previously and internet access at home, Australia, 2016

	Same as in 2016	Elsewhere in Australia in 2015	Overseas in 2015	Total
Percentage of students in each family income range by usual address one year ago				
LOW	81%	17%	2%	100%
MEDIUM	86%	13%	1%	100%
HIGH	89%	10%	1%	100%
Percentage of students without internet access at home by family income range and usual address one year ago				
LOW	8%	11%	11%	9%
MEDIUM	2%	4%	4%	2%
HIGH	1%	2%	2%	1%
All family income ranges	4%	7%	8%	5%

Source: ABS 2016 Census (2017). Census classifications: Usual Address One Year Ago Indicator UAI1; Family Income FINP; Internet access NEDD

1.2. Family income

Public school students were much more likely than Catholic or independent school students to have LOW family incomes (that is, family incomes in roughly the bottom third of family incomes of all Australian school students) or very low family incomes (Tables 9 and 10). Using the more accurate ABS *Schools Australia* (2020) data for 2016, and the percentages in the following tables, in 2016 there were over a million public school students in LOW income families (almost 1,400,000 including Catholic and independent school students), and almost 325,000 public school students in very low income families (just over 400,000 in total).

Low family income is associated with many factors that make studying at home more difficult. These include a lack of internet access and a lack of appropriate software and hardware, generally less well-educated parents who can help with school work at home, overcrowded or insecure housing without a regular place to carry out school work undisturbed, and the psychological stresses on family members arising out of financial stress and a lack of resources.

Table 9. Percentage of students in LOW income families, public, Catholic and independent schools, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Public	42%	43%	46%	50%	38%	53%	44%	26%	43%
Catholic	25%	29%	23%	31%	22%	32%	33%	12%	26%
Independent	25%	25%	25%	27%	22%	29%	15%	10%	24%

LOW family incomes are incomes in the approximate bottom third of the family incomes of all Australian school students in 2016: a weekly income of less than $1,500
Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Family Income FINF

Table 10. Percentage of students in very low income families, public, Catholic and independent schools, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Public	12%	13%	13%	15%	12%	16%	18%	8%	13%
Catholic	6%	7%	5%	8%	6%	7%	13%	3%	6%
Independent	7%	7%	7%	7%	7%	7%	5%	2%	7%

Very low family incomes are weekly incomes of less than $650 in 2016. This is below the 2016 September quarter poverty line of a single working parent with one child ($661), or a couple not in the workforce with one child ($731) (Melbourne Institute of Applied Economic and Social Research, 2016)

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Family Income FINF

1.3. One parent families

Single parents have demands on their time and often lack resources necessary to provide effective support for students, whether undertaking school work from home as in the recent period of home learning, or assisting with homework and study generally. Almost a quarter of public school students live in one parent families, compared with 15% of Catholic school students and 13% of independent school students (Table 11).

Table 11. Percentage of students in one parent families, public, Catholic and independent schools, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Public	23%	22%	26%	25%	21%	27%	24%	20%	23%
Catholic	15%	14%	15%	17%	14%	19%	18%	14%	15%
Independent	13%	12%	15%	14%	13%	15%	13%	10%	13%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Family Composition FMCF

1.4. Home language and English proficiency

Students who speak a language other than English at home and do not speak English well or do not speak it at all can have difficulty with school work, whether they are physically at school or at home. Such students are also likely to have parents or carers who do not speak English well or at all. This would make undertaking school work at home especially difficult if parents or carers cannot easily understand written information or instructions from the school or regarding ICT hardware or software.

While the percentages of all students who did not speak English well or did not speak it at all was small (nationally around one percent in 2016), the number was still substantial (over 25,000 nationally), as was the percentage in the Northern Territory (more than 5% of primary public school students). Table 12 sets out the percentages who spoke a language other than English at home, and, of those, the percentages who did not speak English well or at all.

Table 12. Percentage of primary and secondary public school students who speak a language other than English at home, and of those, who speak English not well or not at all, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Percentage who speak a language other than English at home									
Primary	22%	22%	11%	15%	16%	4%	38%	22%	18%
Secondary	25%	26%	12%	16%	19%	5%	42%	22%	21%
Of those who spoke a language other than English at home, percentage who spoke English not well or not at all									
Primary	6%	6%	8%	9%	7%	15%	14%	5%	6%
Secondary	6%	6%	6%	10%	5%	14%	6%	6%	6%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Proficiency in Spoken English ENGLP

1.5. Disability

Students who need assistance with core activities were likely to have difficulty with schooling at home, and their need for assistance would put extra stress on parents and other members of their households. Public school students are twice as likely as Catholic or independent school students to need assistance with core activities (Table 13).

Table 13. Percentage of students who need assistance with core activities, public, Catholic and independent schools, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Public	4%	4%	4%	5%	3%	4%	3%	4%	4%
Catholic	2%	2%	2%	3%	2%	3%	2%	2%	2%
Independent	3%	2%	2%	3%	2%	3%	2%	2%	2%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Core Activity Need for Assistance ASSNP

1.6. Housing

Security and adequacy of housing are important for successful schooling. Thirty-seven percent of public school students lived in rented houses in 2016, twice the rate of Catholic and independent school students. The percentage of public school students in rented houses was especially high in Queensland (45%) and the NT (59%) (Table14).

Students living in rented housing were around twice as likely to not have access to the internet at home – compare Tables 5 and 15. Public school students living in rented housing are almost twice as likely to have been without internet access at home as Catholic or independent school students living in rented housing (Table 15).

Table 14. Percentage of students in rented housing, public, Catholic and independent schools, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Public	36%	31%	45%	35%	35%	35%	59%	34%	37%
Catholic	19%	15%	20%	17%	16%	17%	46%	17%	18%
Independent	21%	17%	22%	16%	19%	16%	30%	16%	19%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Tenure type TND

Table 15. Percentage of students in rented housing without internet access from home, public, Catholic, independent and all schools, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Public	10%	8%	10%	12%	11%	14%	31%	5%	10%
Catholic	5%	6%	5%	7%	7%	9%	27%	2%	6%
Independent	5%	4%	5%	6%	7%	7%	14%	2%	5%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Tenure type TEND; Dwelling internet connection NEDD

The Census classification of "unsuitable housing" is based on an insufficient number of bedrooms for the number and demographics of dwelling residents[1]. Such unsuitable housing makes it difficult for students to have the space and quiet to successfully study, complete homework or undertake school work at home. Twelve percent of public school students lived in unsuitable housing (with insufficient bedrooms) in 2016, with higher percentages in the NT and NSW. In comparison, 7% of Catholic and independent school students lived in unsuitable housing (Table 16).

Table 16. Percentage of students in unsuitable housing, public, Catholic and independent schools, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Public	15%	11%	11%	11%	8%	10%	36%	8%	12%
Catholic	9%	7%	4%	7%	4%	6%	27%	4%	7%
Independent	8%	7%	5%	6%	5%	7%	12%	4%	7%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Housing Suitability HOSD

[1] The Census variable of *Housing suitability* (HOSD) is a measure of housing utilisation based on a comparison of the number of bedrooms in a dwelling with a series of household demographics, such as the number of usual residents, their relationship to each other, age and sex. The criteria are based on the Canadian National Occupancy Standard. It can be used to identify if a dwelling is either under or over utilised (Australian Bureau of Statistics, 2016b).

Unsuitable housing is twice as likely as all housing to have no internet access for residents (compare Tables 5 and 17).

Table 17. Percentage of students in unsuitable housing without internet access from home, public, Catholic and independent schools, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Public	8%	7%	13%	12%	15%	12%	41%	6%	11%
Catholic	4%	5%	7%	6%	9%	7%	39%	3%	6%
Independent	5%	5%	7%	5%	10%	6%	33%	2%	6%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Housing Suitability HOSD; Dwelling internet connection NEDD

Whether or not housing is classified as unsuitable, a large number of residents makes undertaking school work and studying at home more difficult—with noise, distractions and interruptions. Eighteen percent of public school students lived in dwellings with six or more residents in 2016. While only 3% nationally lived in dwellings with 8 or more residents, 17% of NT students did, and more than a third lived in dwellings with six or more residents. Queensland also had a higher than average percentage of public school students in dwellings with large numbers of residents (Table 18).

Table 18. Percentage of public school students in dwellings with six or more, seven or more, or eight or more persons usually resident, states and territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
6 or more	19%	17%	20%	15%	17%	15%	36%	14%	18%
7 or more	7%	6%	8%	6%	6%	5%	24%	5%	7%
8 or more	3%	3%	4%	3%	3%	2%	17%	2%	3%

Source: ABS 2016 Census (2017). Census classifications: Aboriginal and Torres Strait Islander status INGP; Number of Persons usually Resident in Dwelling NPRD

1.7. Aboriginal and Torres Strait Islander students

Aboriginal and Torres Strait Islander students are much more likely than other students to experience the disadvantages that make undertaking school work and study at home difficult. Not all of these disadvantages are discussed in this section. Six percent of public school students were Aboriginal and Torres Strait Islander in 2016 (compared with 3% of Catholic school students and 2% of independent school students). The percentage was much higher in the NT (42%), Tasmania (10%) and Queensland (9%) (Table 19).

Table 19. Percentage of students who are Aboriginal or Torres Strait Islander, public, Catholic and independent schools, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Public	7%	2%	9%	5%	6%	10%	42%	3%	6%
Catholic	3%	1%	4%	2%	3%	7%	32%	2%	3%
Independent	2%	1%	4%	2%	2%	4%	19%	1%	2%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Aboriginal and Torres Strait Islander status INGP

Aboriginal and Torres Strait Islander students were much more likely to have no internet access at home—21% compared with 5% for all public school students, and greater differences for Catholic and independent school Aboriginal and Torres Strait Islander compared with all students (Tables 5 and 20). The percentage of Aboriginal and Torres Strait Islander public school students without internet access at home was higher in the NT (45%), South Australia (29%) and Western Australia (24%) (Table 20).

Table 20. Percentage of Aboriginal and Torres Strait Islander students without internet access at home, public, Catholic and independent schools, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Public	17%	13%	20%	24%	29%	13%	45%	10%	21%
Catholic	7%	6%	8%	6%	19%	6%	40%	3%	11%
Independent	10%	7%	14%	10%	28%	4%	35%	7%	15%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Aboriginal and Torres Strait Islander status INGP; Dwelling internet connection NEDD

An adequate family income facilitates many of the resources, facilities and circumstances necessary for successful school work at home. While around a third of all Australian school students had LOW family incomes in 2016, more than two thirds of all Aboriginal and Torres Strait Islander public school students had LOW family incomes. In the NT and Western Australia around three quarters of Aboriginal and Torres Strait Islander public school students had LOW family incomes (Table 21).

Table 21. Percentage of Aboriginal and Torres Strait Islander students in LOW income families, public, Catholic and independent schools, states, territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Public	66%	67%	68%	76%	66%	71%	75%	52%	68%
Catholic	42%	47%	42%	50%	47%	43%	73%	20%	45%
Independent	48%	43%	53%	54%	55%	53%	49%	23%	51%

LOW family incomes are in the approximate bottom third of the family incomes of all Australian school students in 2016: a weekly income of less than $1,500

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Aboriginal and Torres Strait Islander status INGP; Family Income FINF

Almost a quarter of Aboriginal and Torres Strait Islander public school students were in unsuitable housing (too few bedrooms for the number and demographics of the dwelling residents). In the NT 62% of Aboriginal and Torres Strait Islander public school students were in unsuitable housing (Table 22).

Table 22. Percentage of Aboriginal and Torres Strait Islander students in unsuitable housing, public, Catholic and independent schools, states and territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Public	17%	15%	23%	20%	23%	15%	62%	11%	23%
Catholic	16%	15%	21%	19%	23%	13%	60%	11%	21%
Independent	17%	15%	22%	20%	23%	14%	61%	11%	22%

Source: ABS 2016 Census (2017). Census classifications: Type of Educational Institution Attending TYPP; Aboriginal and Torres Strait Islander status INGP; Housing Suitability HOSD

Whether or not housing was unsuitable, Aboriginal and Torres Strait Islander public school students tended to live with many more people than other students in 2016. Ten percent lived in houses with eight or more people, and a third lived in houses with six or more. Aboriginal and Torres Strait Islander public school students tended to live in especially larger households in the NT, and then South Australia and Queensland (Table 23).

Table 23. Percentage of Aboriginal and Torres Strait Islander public school students, in dwellings with six or more, seven or more, or eight or more persons usually resident, states and territories and Australia, 2016

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
6 or more	27%	23%	35%	27%	36%	21%	62%	21%	33%
7 or more	11%	9%	18%	11%	18%	8%	47%	7%	16%
8 or more	5%	4%	11%	6%	11%	4%	38%	3%	10%

Source: ABS 2016 Census (2017). Census classifications: Aboriginal and Torres Strait Islander status INGP; Number of Persons usually Resident in Dwelling NPRD

1.8. The impact of the 2019-2020 bushfires

For many in governments, the media and the wider community, concern about COVID-19 overtook concern about the impact of the 2019-2020 bushfires. But the immediate and long term impact of the fires on school communities, students, their families and wider communities need to be taken into account in responses to COVID-19 and in forward planning to minimize the ongoing disruption to schooling for students affected by the fires.

The fires had a very substantial effect: over 17 million hectares were burnt and over 3,000 houses destroyed across NSW, Victoria, Queensland, ACT, Western Australia and South Australia (Richards, Brew, & Smith, 2020, 12 March). There were more than 200,000 school age children in the fire-affected areas of New South Wales and Victoria alone (estimated from Williamson, Markham, & Weir, 2020, 2 April). Bushfires and other disasters can have long-lasting effects on school students: physical dislocation, financial losses for many families, and on-going psychological effects on students and their families (Gibbs et al., 2019).

Aboriginal and Torres Strait Islander people, especially children, were particularly affected. Williamson, Markham, and Weir researched the impact of the fires in New South Wales and Victoria on Aboriginal and Torres Strait Islander people (2020, p. 5; 2020, 2 April). They found that more than a quarter of the Aboriginal and Torres Strait Islander people in those states lived in fire-affected areas (more than 84,000 people). Aboriginal and Torres Strait Islander people made up 5% of the population in the fire-affected areas (compared with 2% in those states as a whole), and Aboriginal and Torres Strait Islander children made up 10% of the more than 200,000 school-age children in the fire-affected areas in those two states—that is, a total of around 20,000 Aboriginal and Torres Strait school age children in the fire-affected areas of New South Wales and Victoria. Aboriginal and Torres Strait Islander students in these localities were already disadvantaged. For example in 2016, 17% of Aboriginal and Torres Strait Islander students in public schools in the fire-affected statistical areas[2] were in "unsuitable housing" (without sufficient bedrooms for the occupants)[3], and two thirds were in LOW income families (up to 77% in LaTrobe-Gippsland and 74% in Mid North Coast) (Australian Bureau of Statistics, 2016b).

Williamson, Markham, and Weir explained the particular impact of the fires on Aboriginal and Torres Strait Islander people:

> Aboriginal people hold significant legal rights and interests over lands and waters in the fire-affected areas.... The nature of these legal rights and interests means the bushfires have different consequences for Aboriginal rights-holders than for

[2] The ABS Statistical Area 4 (SA4) regions of Central Coast; Illawarra; Mid North Coast; Capital Region; Coffs Harbour – Grafton; Richmond – Tweed; Southern Highlands and Shoalhaven; Sydney - Outer West and Blue Mountains; Latrobe – Gippsland.

[3] "The Census variable of *Housing suitability* is a measure of housing utilisation based on a comparison of the number of bedrooms in a dwelling with a series of household demographics, such as the number of usual residents, their relationship to each other, age and sex. The criteria are based on the Canadian National Occupancy Standard. It can be used to identify if a dwelling is either under or over utilised." (Australian Bureau of Statistics, 2016b) The measure used here is needing at least one extra bedroom in the dwelling.

> non-Aboriginal and Torres Strait Islander landowners. Even where there's no formal recognition, all fire-affected lands have Aboriginal ownership held and passed down through songlines, languages and kinship networks.
>
> Many non-Aboriginal and Torres Strait Islander land-owners in the fire-affected areas face the difficult decision of whether to stay and rebuild, or sell and move on. Traditional owners, on the other hand, are in a far more complex and unending situation. Traditional owners carry inter-generational responsibilities, practices and more that have been formed with the places they know as their Country. They can leave and live on someone else's Country, but their Country and any formally recognised communal land and water rights remain in the fire-affected area. (Williamson, et al., 2020, 2 April)

As schools and education authorities seek to restore effective schooling for all students post the initial COVID-19 crisis period, the particular circumstances of fire-affected students, especially Aboriginal and Torres Strait Islander students, also need to be taken into full account on an ongoing basis.

2. State and territory summaries and internet access at home by statistical areas

In this section the data for each state and territory from the earlier sections are summarised, with important characteristics highlighted.

This is followed by data on the number and percentage of public school students who do not have internet access at home by statistical region, set out in tables and maps.

Either the Statistical Area Level 4 (SA4) or the Statistical Area Level 3 (SA3) is used (for the larger and smaller states and territories respectively). More rural and remote statistical areas have lower populations. The criteria for determining the boundaries of the areas are summarised by the ABS on the Australian Statistical Geography Standard (ASGS) webpage (2018). The data ranges in the maps are based on "natural boundaries"—see Appendix: Technical notes.

2.1. New South Wales — summary and internet access at home by statistical areas

Almost a third of all Australian public school students were in New South Wales in 2016, . According to the data on student characteristics reported in earlier sections, New South Wales public school students were much the same or slightly less disadvantaged than students throughout Australia. Of New South Wales public school students:

- 5 % were without internet access at home (Australia 5%; Table 4)
- 42% were in LOW income families (Australia 43%; Table 9)
- 12% were in very low income families (Australia 13%; Table 10)
- 23% in one parent families (Australia 23%; Table 11)
- Of the 22% of primary students and 25% of secondary students who spoke a language other than English at home, 6% (primary and secondary) spoke English not well or not at all (Table 12)
- 4% needed assistance with core activities (Australia 4%; Table 13)
- 36% lived in rented housing (Australia 37%; Table 14)
- 10% who were in rented housing were without internet access (Australia 10%; Table 15)
- 15% were in unsuitable housing (insufficient bedrooms for the residents) (Australia 12%; Table 16)
- 8% who were in unsuitable housing were without internet (Australia 11%; Table 17)
- 19%, 7%, 3% were in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 18%, 7%, 3%; Table 18)
- 7% were Aboriginal or Torres Strait Islander (Australia 6%; Table 19)

Of New South Wales Aboriginal and Torres Strait Islander students:

- 17% were without internet access at home (Australia 21%; Table 20)
- 66% were in LOW income families (Australia 68%; Table 21)
- 17% were in unsuitable housing (Australia 23% Table 22)
- 27%, 11%, 5% were in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 33%, 16%, 10%; Table 18)

The 2019-2020 bushfires severely affected many public schools students and their communities, and Aboriginal and Torres Strait Islander students were around 10% of the more than 200,000 school age children areas affected by the fires in New South Wales and Victoria. The impact of the fires is discussed in section 1.8, and the special needs of affected students, then magnified by the impact of a lack of resources to effectively engage in schooling during the COVID-19 school closures, need to be taken into account.

In New South Wales in 2016 5% of public school students were without access to the internet at home, and the percentages in Statistical Areas SA4s ranged from just 1% in Sydney northern suburbs and Sutherland, to 15% in the Far West and Orana and 11% in New England and the Far West SA4 (Table 24 and Figures 1 and 2).

Table 24. Public school students' internet access from home, New South Wales, SA4

	Internet accessed	Internet not accessed	Total	% internet not accessed
Capital Region	19 107	1 327	20 437	6%
Central Coast	31 942	1 368	33 308	4%
Central West	18 238	1 676	19 913	8%
Coffs Harbour - Grafton	12 006	926	12 929	7%
Far West and Orana	9 070	1 551	10 626	15%
Hunter Valley exc Newcastle	5 189	1 898	27 090	7%
Illawarra	27 868	1 261	29 129	4%
Mid North Coast	16 701	1 483	18 183	8%
Murray	9 697	701	10 394	7%
New England and North West	15 702	1 987	17 689	11%
Newcastle and Lake Macquarie	33 230	1 615	34 847	5%
Richmond - Tweed	18 758	1 301	20 060	6%
Riverina	13 410	1 247	14 657	9%
Southern Highlands and Shoalhaven	12 769	704	13 478	5%
Sydney - Baulkham Hills & Hawkesbury	24 361	320	24 685	1%
Sydney - Blacktown	34 654	1 959	36 613	5%
Sydney - City and Inner South	11 187	427	11 613	4%
Sydney - Eastern Suburbs	11 216	231	11 446	2%
Sydney - Inner South West	46 878	2 089	48 969	4%
Sydney - Inner West	18 219	460	18 675	2%
Sydney - North Sydney and Hornsby	33 649	458	34 101	1%
Sydney - Northern Beaches	24 651	237	24 887	1%
Sydney - Outer South West	27 809	1 794	29 605	6%
Sydney - Outer West & Blue Mountains	28 669	1 185	29 851	4%
Sydney - Parramatta	38 569	1 727	40 296	4%
Sydney - Ryde	15 429	232	15 665	1%
Sydney - South West	40 226	2 689	42 915	6%
Sydney - Sutherland	21 775	293	22 068	1%
Total	640 982	33 142	674 127	5%

Source: ABS 2016 Census (2017) Census classifications: Main Statistical Area Structure SA4; Internet access NEDD
Note: The ABS Census undercounts NSW public school students by internet access data by 14%.

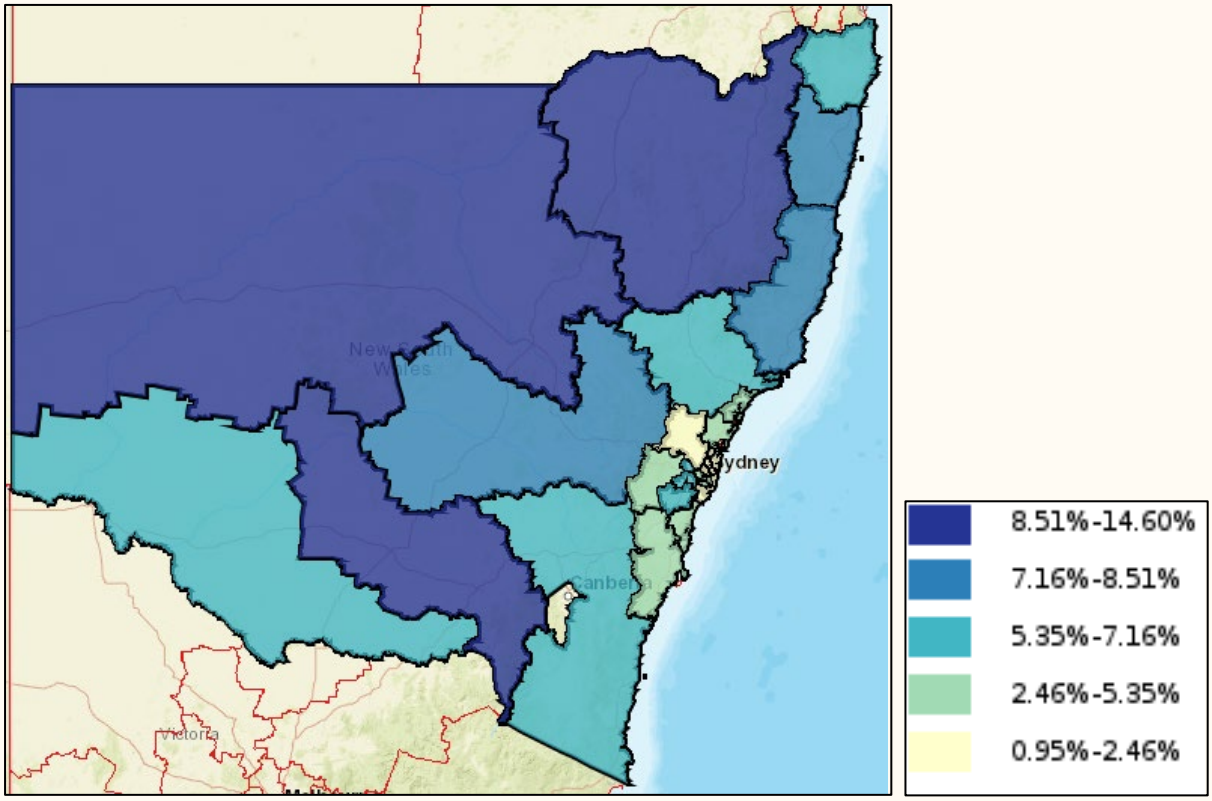

Figure 1 **Percentage of public school students not accessing the internet, New South Wales, SA4, 2016.** (Source: Table 24)

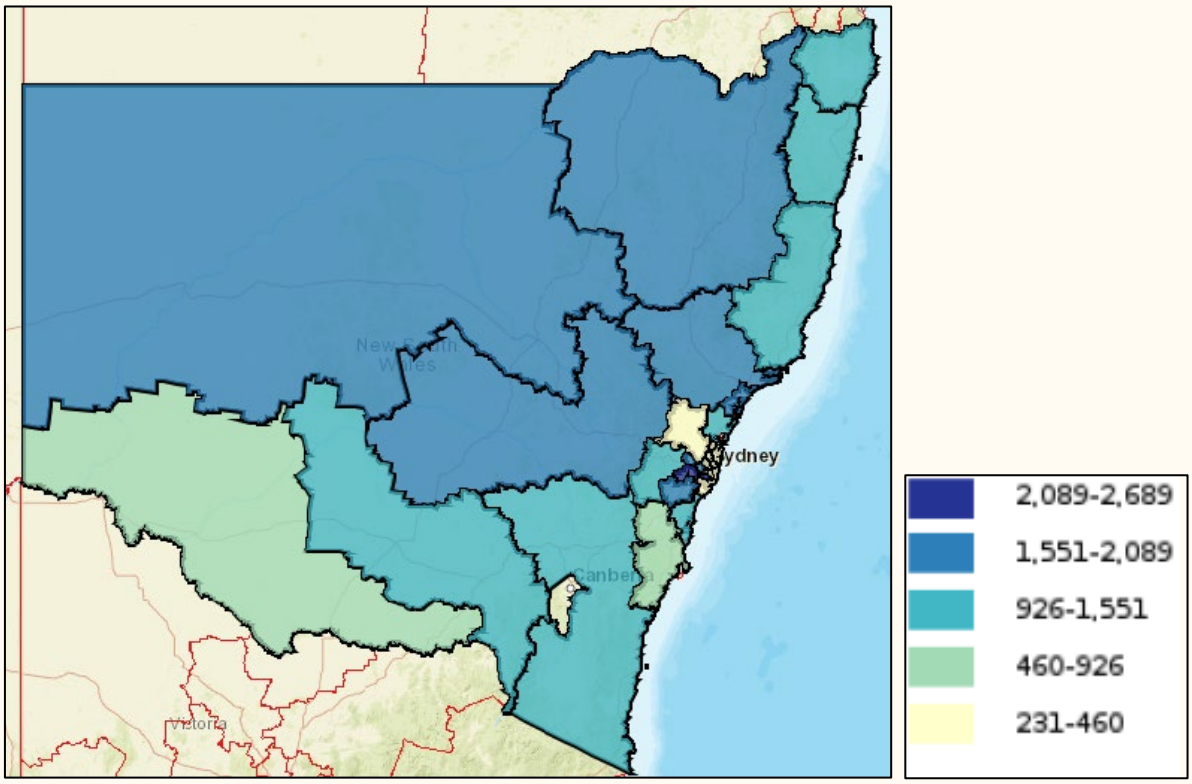

Figure 2 **Number of public school students not accessing the internet, New South Wales SA4, 2016** (Source Table 24)

2.2. Victoria — summary and internet access at home by statistical areas

Almost a quarter of all Australian public school students were in Victoria in 2016. According to the data on characteristics reported in earlier sections, Victorian public school students were much the same or slightly less disadvantaged than students throughout Australia. Of Victorian public school students:

- 4 % were without internet access at home (Australia 5%; Table 4)
- 43% were in LOW income families (Australia 43%; Table 9)
- 13% were in very low income families (Australia 13%; Table 10)
- 22% in one parent families (Australia 23%; Table 11)
- Of the 22% of primary students and 26% of secondary students who spoke a language other than English at home, 6% (primary and secondary) spoke English not well or not at all (Table 12)
- 4% needed assistance with core activities (Australia 4%; Table 13)
- 31% lived in rented housing (Australia 37%; Table 14)
- 8% who were in rented housing were without internet access (Australia 10%; Table 15)
- 11% were in unsuitable housing (insufficient bedrooms for the residents) (Australia 12%; Table 16)
- 7% who were in unsuitable housing were without internet (Australia 11%; Table 17)
- 17%, 6%, 3% were in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 18%, 7%, 3%; Table 18)
- 2% were Aboriginal or Torres Strait Islander (Australia 6%; Table 19)

Of Victorian Aboriginal and Torres Strait Islander students:

- 13% were without internet access at home (Australia 21%; Table 20)
- 67% were in LOW income families (Australia 68%; Table 21)
- 15% were in unsuitable housing (Australia 23% Table 22)
- 23%, 9%, 4% in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 33%, 16%, 10%; Table 18)

The 2019-2020 bushfires severely affected many public schools students and their communities, and Aboriginal and Torres Strait Islander students were around 10% of the more than 200,000 school age children areas affected by the fires in eastern Victoria and New South Wales. The impact of the fires is discussed in section 1.8, and the special needs of affected students, then magnified by the impact of a lack of resources to effectively engage in schooling during the COVID-19 school closures, need to be taken into account in the response to COVID-19. In Victoria in 2016 4% of public school students were without access to the internet at home, and the percentages ranged from just 1% in the Melbourne Inner South, to 7% in the North West SA4 (Table 25 and Figures 3 and 4).

Table 25. Public school students' internet access from home, Victoria, SA4, 2016

	Internet accessed	Internet not accessed	Total	% internet not accessed
Ballarat	12 226	689	12 913	5%
Bendigo	13 119	632	13 751	5%
Geelong	22 609	946	23 548	4%
Hume	13 734	905	14 646	6%
Latrobe - Gippsland	22 851	1 460	24 314	6%
Melbourne - Inner	25 420	667	26 096	3%
Melbourne - Inner East	29 091	450	29 542	2%
Melbourne - Inner South	29 225	362	29 587	1%
Melbourne - North East	44 073	1 365	45 440	3%
Melbourne - North West	29 845	1 431	31 273	5%
Melbourne - Outer East	48 347	938	49 284	2%
Melbourne - South East	71 036	2 643	73 676	4%
Melbourne - West	64 180	3 200	67 387	5%
Mornington Peninsula	27 209	865	28 068	3%
North West	13 890	1 032	14 925	7%
Shepparton	10 517	650	11 166	6%
Warrnambool and South West	9 834	582	10 418	6%
Total	487 208	18 819	506 024	4%

Source: ABS 2016 Census (2017) Census classifications: Main Statistical Area Structure SA4; Internet access NEDD
Note: The ABS Census undercounts Victorian public school students by internet access data by 14%.

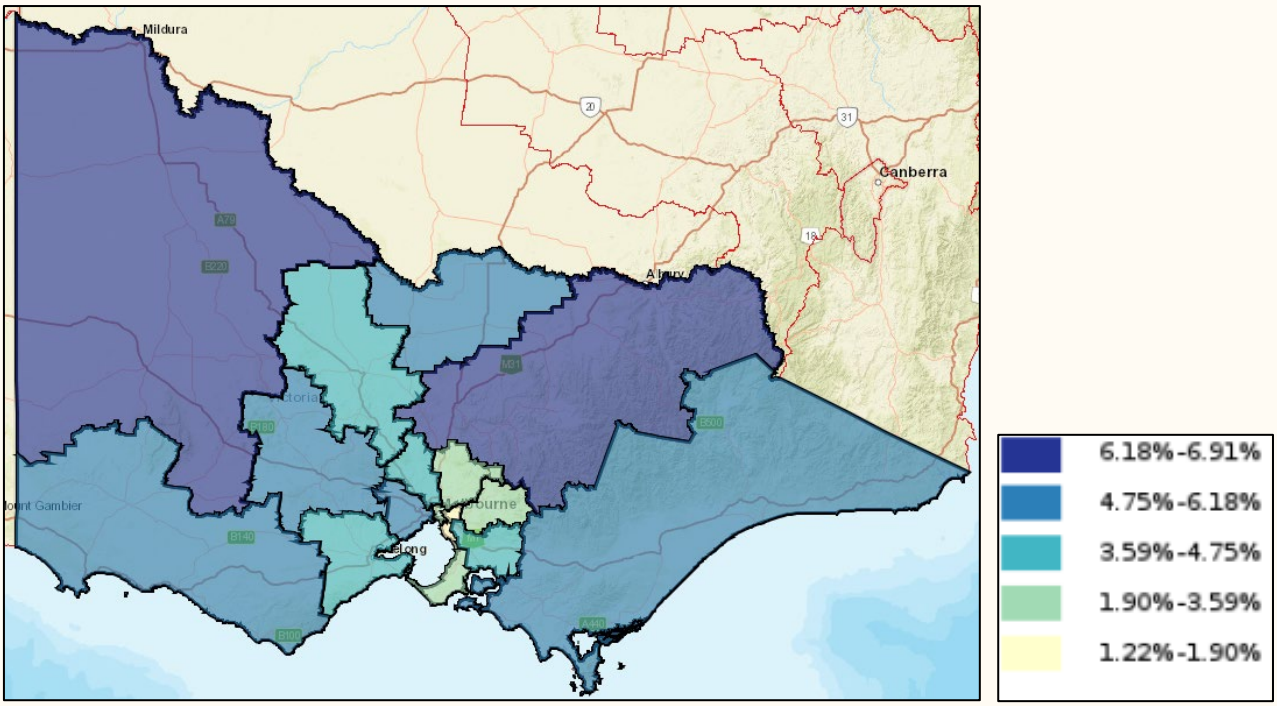

Figure 3 **Percentage of public school students not accessing the internet, Victoria, SA4, 2016** (Source: Table 25)

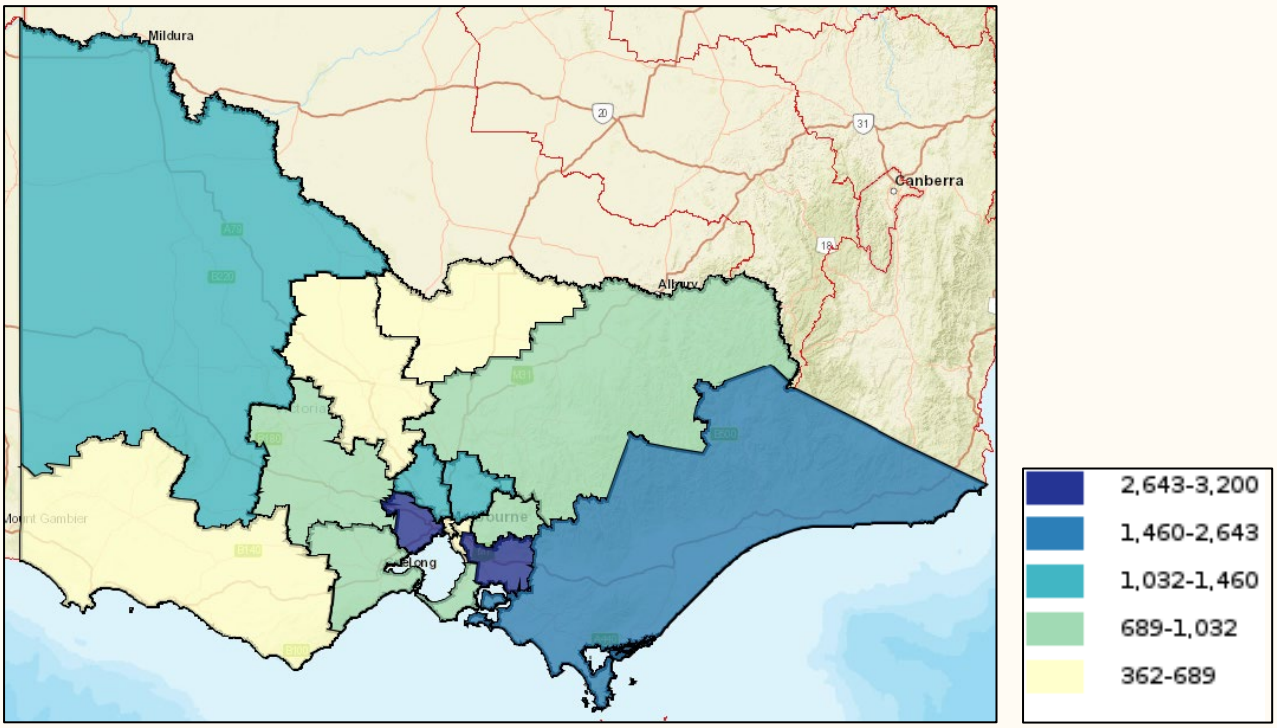

Figure 4 **Number of public school students not accessing the internet, Victoria, SA4, 2016** (Source: Table 25)

2.3. Queensland — summary and internet access at home by statistical areas

Twenty one percent of all Australian public school students were in Queensland in 2016. According to the data on characteristics reported in earlier sections, in Queensland public school students were generally more disadvantaged than students throughout Australia, in particular, a substantially higher percentage in rented housing. Of Queensland public school students:

- 6 % were without internet access at home (Australia 5%; Table 4)
- 46% were in LOW income families (Australia 43%; Table 9)
- 13% were in very low income families (Australia 13%; Table 10)
- 26% in one parent families (Australia 23%; Table 11)
- Of the 11% of primary students and 12% of secondary students who spoke a language other than English at home, 8% (primary) and 6% (secondary) spoke English not well or not at all (Table 12)
- 4% needed assistance with core activities (Australia 4%; Table 13)
- 45% lived in rented housing (Australia 37%; Table 14)
- 10% who were in rented housing were without internet access (Australia 10%; Table 15)
- 11% were in unsuitable housing (insufficient bedrooms for the residents) (Australia 12%; Table 16)
- 13% who were in unsuitable housing were without internet (Australia 11%; Table 17)
- 20%, 8%, 4% were in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 18%, 7%, 3%; Table 18)
- 9% were Aboriginal or Torres Strait Islander (Australia 6%; Table 19)

Of Queensland Aboriginal and Torres Strait Islander students:

- 20% were without internet access at home (Australia 21%; Table 20)
- 68% were in LOW income families (Australia 68%; Table 21)
- 23% were in unsuitable housing (Australia 23% Table 22)
- 35%, 18%, 11% in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 33%, 16%, 10%; Table 18)

In Queensland in 2016 6% of public school students were without access to the internet at home, and the percentages ranged from just 1% in Brisbane West, to 20% in the Queensland Outback (see Table 26 and Figures 5 and 6) .

Table 26. Public school students' internet access from home, Queensland, SA4, 2016

	Internet accessed	Internet not accessed	Total	% internet not accessed
Brisbane - East	19 406	664	20 073	3%
Brisbane-North	14 833	546	15 375	4%
Brisbane-South	27 030	787	27 813	3%
Brisbane-West	16 775	223	17 001	1%
BrisbaneInnerCity	12 509	216	12 730	2%
Cairns	20 511	2 675	23 178	12%
DarlingDowns-Maranoa	12 153	1 098	13 246	8%
CentralQueensland	20 730	1 706	22 433	8%
GoldCoast	48 189	1 840	50 031	4%
Ipswich	33 645	2 749	36 397	8%
Logan-Beaudesert	33 708	2 695	36 403	7%
Mackay-Isaac-Whitsunday	16 967	1 070	18 039	6%
MoretonBay-North	23 754	1 574	25 325	6%
MoretonBay-South	21 579	614	22 190	3%
Queensland-Outback	7 457	1 810	9263	20%
SunshineCoast	31 777	1 218	32 993	4%
Toowoomba	12 653	792	13 448	6%
Townsville	17 963	1 881	19 843	9%
WideBay	26 442	2 494	28 933	9%
Total	418 090	26641	444732	6%

Source: ABS 2016 Census (2017) Census classifications: Main Statistical Area Structure SA4; Internet access NEDD
Note: The ABS Census undercounts Victorian public school students by internet access data by 14%.

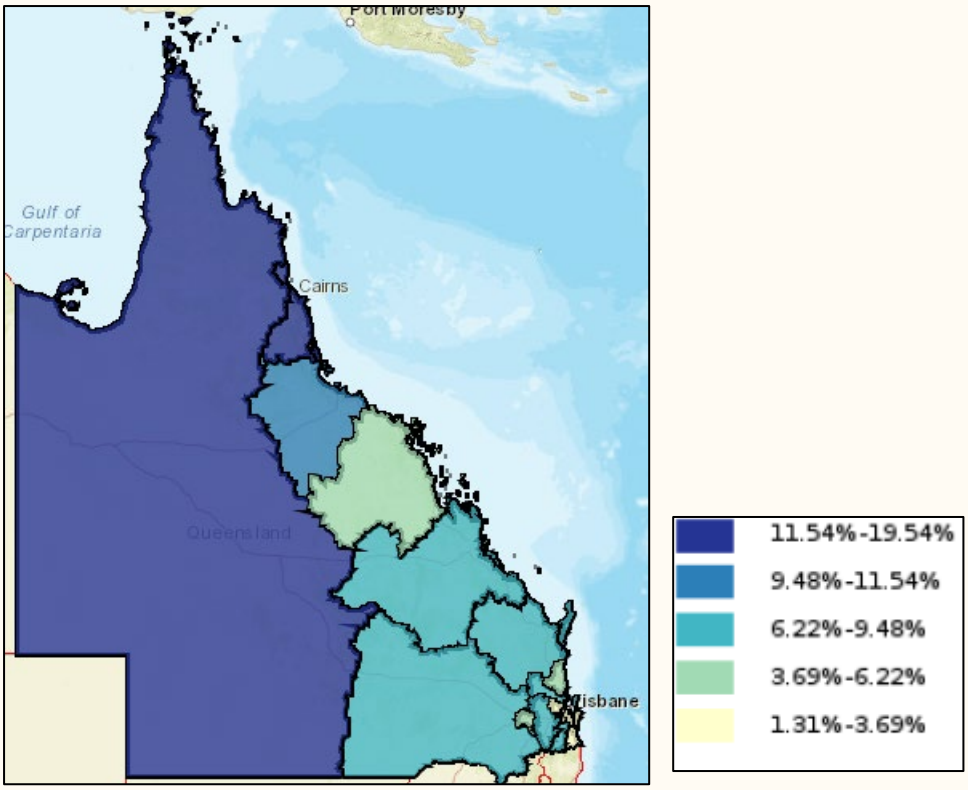

Figure 5 **Percentage of public school students not accessing the internet, Queensland, SA4, 2016** (Source: Table 26)

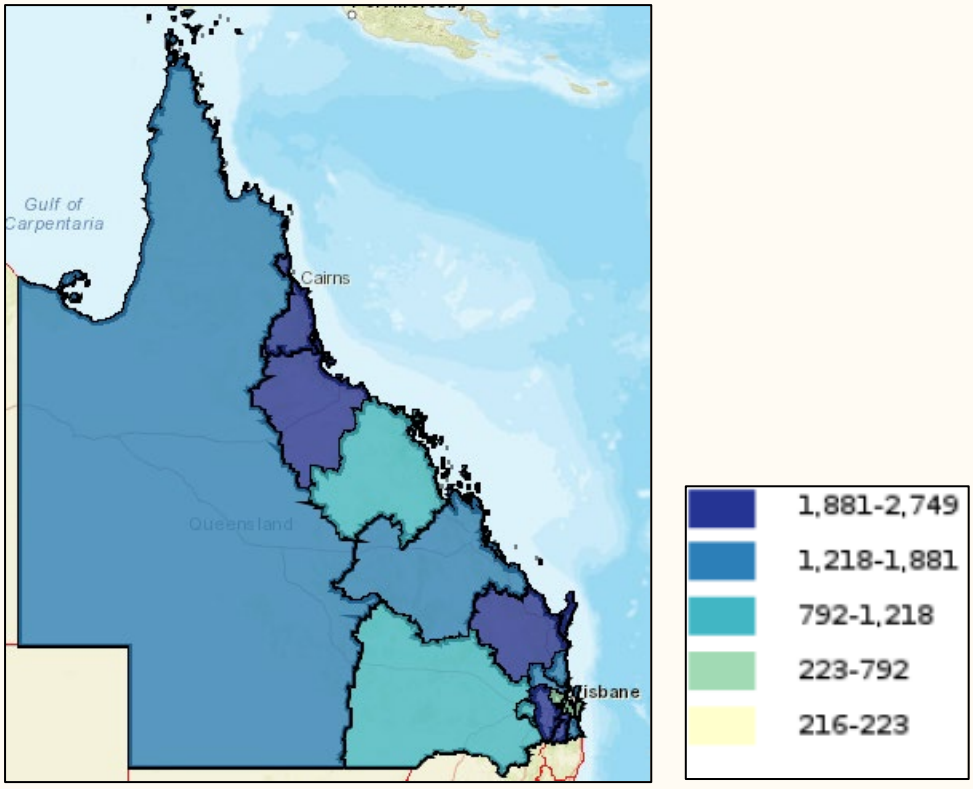

Figure 6 **Number of public school students not accessing the internet, Queensland, SA4, 2016** (Source: Table 26)

2.4. South Australia — summary and internet access at home by statistical areas

Seven percent of all Australian public school students were in South Australia in 2016. According to the data on characteristics reported in earlier sections, South Australian public school students were generally more disadvantaged than students throughout Australia. Of South Australian public school students:

- 6% were without internet access at home (Australia 5%; Table 4)
- 50% were in LOW income families (Australia 43%; Table 9)
- 15% were in very low income families (Australia 13%; Table 10)
- 25% in one parent families (Australia 23%; Table 11)
- Of the 15% of primary students and 16% of secondary students who spoke a language other than English at home, 9% (primary) and 10% (secondary) spoke English not well or not at all (Table 12)
- 5% needed assistance with core activities (Australia 4%; Table 13)
- 35% lived in rented housing (Australia 37%; Table 14)
- 12% who were in rented housing were without internet access (Australia 10%; Table 15)
- 11% were in unsuitable housing (insufficient bedrooms for the residents) (Australia 12%; Table 16)
- 12% who were in unsuitable housing were without internet (Australia 11%; Table 17)
- 15%, 6%, 3% were in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 18%, 7%, 3%; Table 18)
- 5% were Aboriginal or Torres Strait Islander (Australia 6%; Table 19)

Of South Australian Aboriginal and Torres Strait Islander students:

- 24% were without internet access at home (Australia 21%; Table 20)
- 76% were in LOW income families (Australia 68%; Table 21)
- 20% were in unsuitable housing (Australia 23% Table 22)
- 27%, 11%, 6% in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 33%, 16%, 10%; Table 18)

In South Australia in 2016 6% of public school students were without access to the internet at home, and the percentages ranged from 2% in Adelaide Central and Hills, to 23% in the Outback North and East (Table 27, Figures 7 or 8).

Table 27. Public school students' internet access from home, South Australia, SA4 and SA3, 2016

	Internet accessed	Internet not accessed	Total	% internet not accessed
Adelaide metropolitan - SA4				
Adelaide - Central and Hills	21 169	481	21 653	2%
Adelaide - North	34 917	2 645	37 563	7%
Adelaide - South	30 276	1 208	31 485	4%
Adelaide - West	14 411	889	15 301	6%
Rest of state - SA3				
Barossa	3 489	147	3 640	4%
Lower North	2 218	139	2 360	6%
Mid North	2 274	231	2 505	9%
Yorke Peninsula	2 241	172	2 410	7%
Eyre Peninsula and South West	5 545	574	6 118	9%
Outback - North and East	2 085	622	2 705	23%
Fleurieu - Kangaroo Island	4 016	193	4 211	5%
Limestone Coast	6 955	535	7 488	7%
Total	136 438	8 349	144 790	6%

Source: ABS 2016 Census (2017) Census classifications: Main Statistical Area Structure SA4 and SA3; Internet access NEDD
Note: The ABS Census undercounts Victorian public school students by internet access data by 14%.

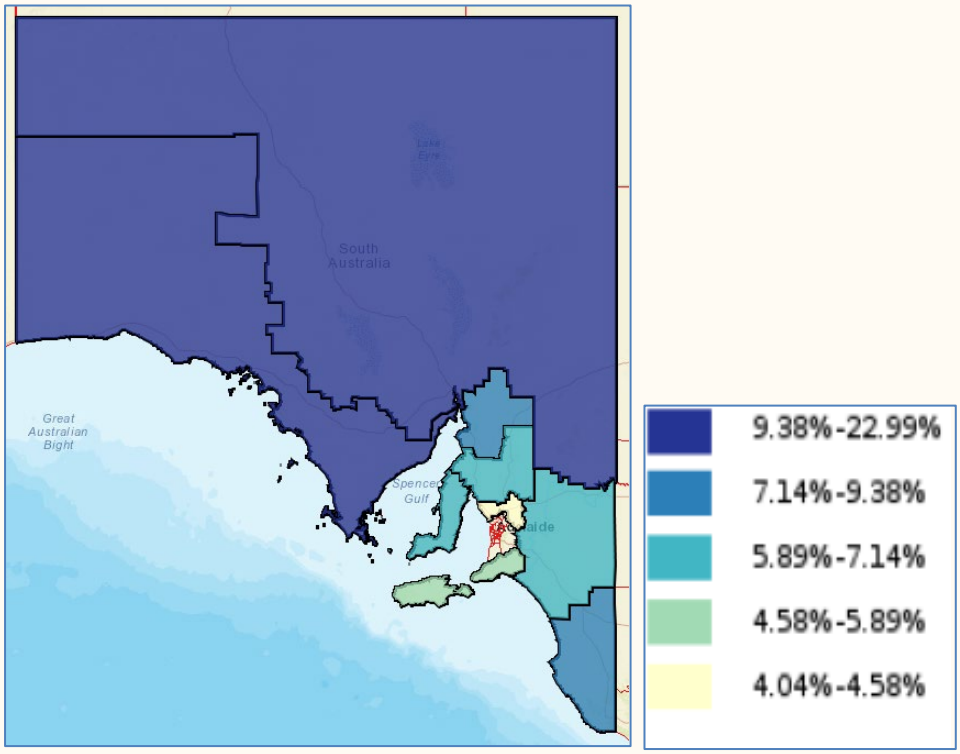

Figure 7 **Percentage of public school students not accessing the internet, South Australia (non-metro), SA3, 2016** (Source: Table 27)

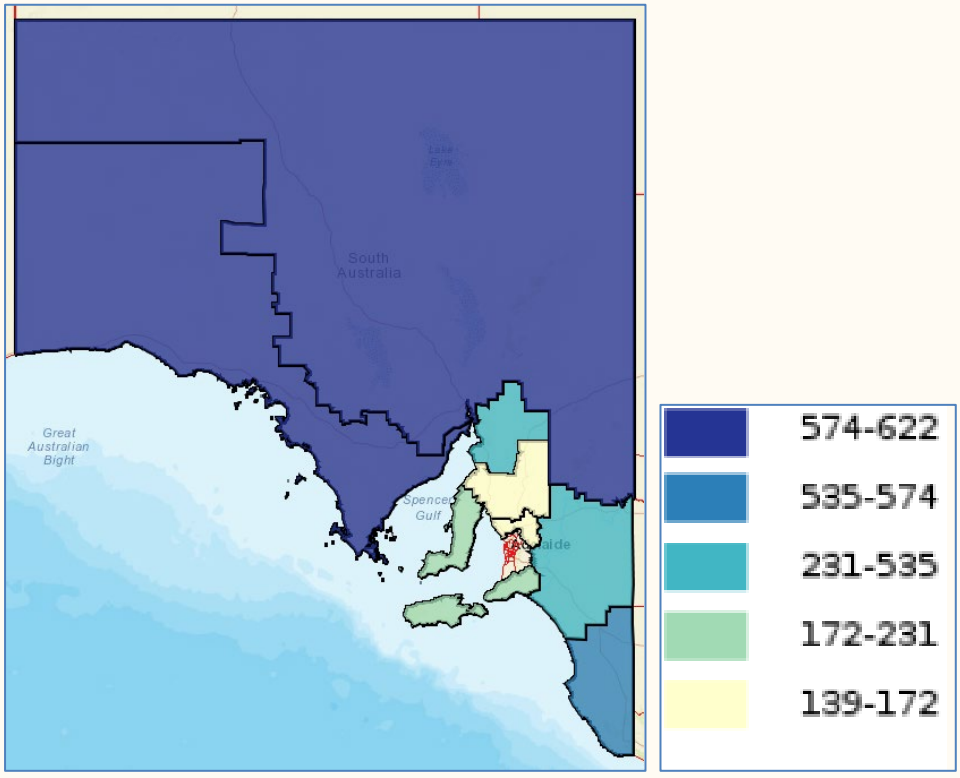

Figure 8 **Number of public school students not accessing the internet, South Australia (non-metro), SA3, 2016** (Source: Table 27)

2.5. Western Australia — summary and internet access at home by statistical areas

Eleven percent of all Australian public school students were in Western Australia in 2016. According to the data on characteristics reported in earlier sections, Western Australian public school students were generally slightly less disadvantaged than students throughout Australia, though Aboriginal and Torres Strait Islander students were more likely not to have internet access at home and to live in crowded houses. Of Western Australian public school students:

- 5 % were without internet access at home (Australia 5%; Table 4)
- 38% were in LOW income families (Australia 43%; Table 9)
- 12% were in very low income families (Australia 13%; Table 10)
- 21% in one parent families (Australia 23%; Table 11)
- Of the 16% of primary students and 19% of secondary students who spoke a language other than English at home, 7% (primary) and 5% (secondary) spoke English not well or not at all (Table 12)
- 3% needed assistance with core activities (Australia 4%; Table 13)
- 35% lived in rented housing (Australia 37%; Table 14)
- 11% who were in rented housing were without internet access (Australia 10%; Table 15)
- 8% were in unsuitable housing (insufficient bedrooms for the residents) (Australia 12%; Table 16)
- 15% who were in unsuitable housing were without internet (Australia 11%; Table 17)
- 17%, 6%, 3% were in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 18%, 7%, 3%; Table 18)
- 6% were Aboriginal or Torres Strait Islander (Australia 6%; Table 19)

Of Western Australian Aboriginal and Torres Strait Islander students:

- 29% were without internet access at home (Australia 21%; Table 20)
- 66% were in LOW income families (Australia 68%; Table 21)
- 23% were in unsuitable housing (Australia 23% Table 22)
- 36%, 18%, 11% were in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 33%, 16%, 10%; Table 18)

In Western Australia in 2016 5% of public school students were without access to the internet at home, and the percentages ranged from just 1% in Perth Inner, to 24% in the Kimberley and 22% in Gascoyne SA3 (Table 28 and Figures 9 and 10).

Table 28. Public school students' internet access from home, Western Australia, SA4 and SA3, 2016

	Internet accessed	Internet not accessed	Total	% internet not accessed
Perth metropolitan - SA4				
Perth - Inner	10 720	111	10 830	1%
Perth - North East	20 477	989	21 461	5%
Perth - North West	48 534	1 646	50 174	3%
Perth - South East	43 330	2 070	45 396	5%
Perth - South West	38 122	1 481	39 605	4%
Rest of state - SA3				
Augusta - Margaret River - Busselton	4 705	202	4 912	4%
Bunbury	10 465	709	11 177	6%
Manjimup	2 063	158	2 228	7%
Mandurah	7 856	499	8 351	6%
Albany	5 335	481	5 817	8%
Wheat Belt - North	4 965	424	5 389	8%
Wheat Belt - South	2 071	197	2 262	9%
Kimberley	2 952	948	3 898	24%
East Pilbara	2 226	357	2 587	14%
West Pilbara	3 256	320	3 573	9%
Esperance	1 794	115	1 904	6%
Gascoyne	658	183	836	22%
Goldfields	3 573	526	4 096	13%
Mid West	4 032	638	4 667	14%
Total	217 134	12 054	229 163	5%

Source: ABS 2016 Census (2017) Census classifications: Main Statistical Area Structure SA4 and SA3; Internet access NEDD
Note: The ABS Census undercounts Victorian public school students by internet access data by 14%.

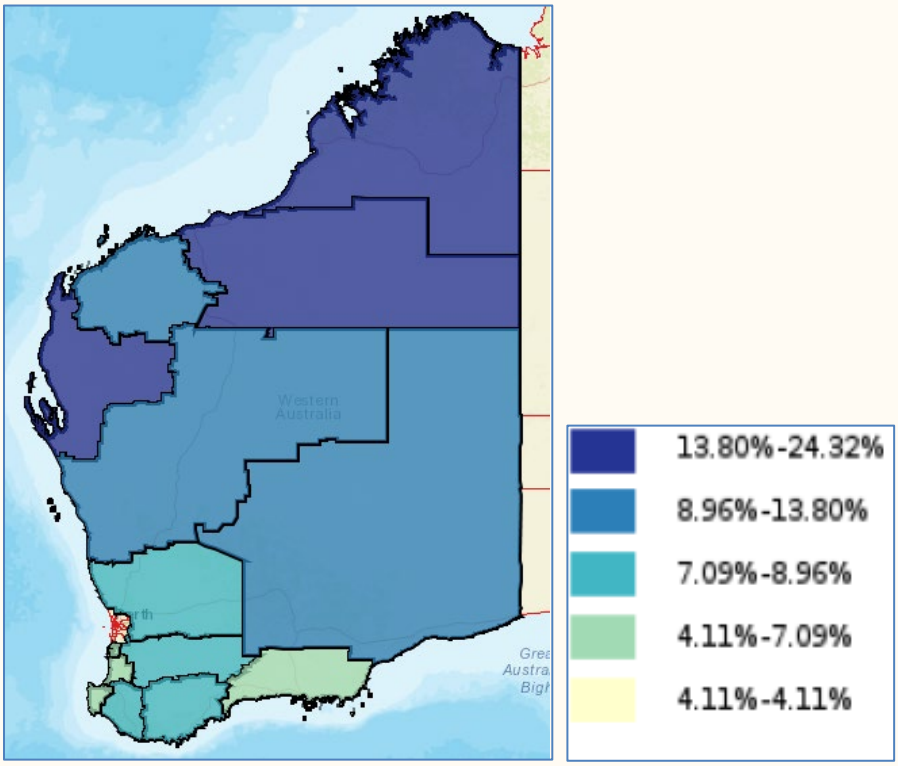

Figure 9 **Percentage of public school students not accessing the internet, Western Australia (non-metro), SA3, 2016** (Source Table 28)

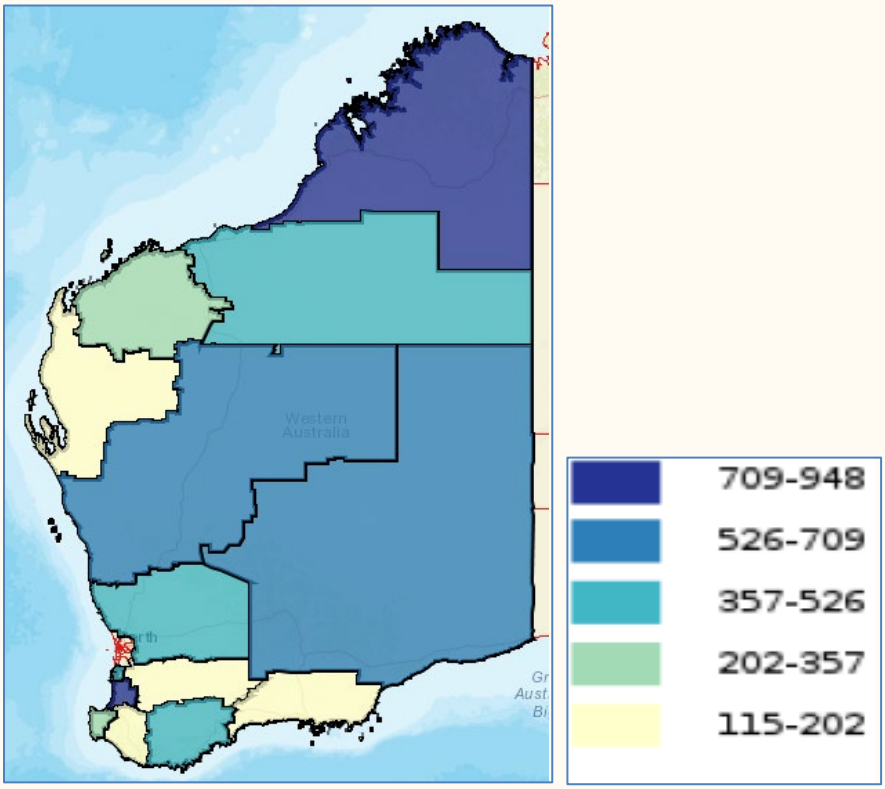

Figure 10 **Number of public school students not accessing the internet, Western Australia (non-metro), SA3, 2016** (Source: Table 28)

2.6. Tasmania —summary and internet access at home by statistical areas

Two percent of all Australian public school students were in Tasmania in 2016. According to the data on characteristics reported in earlier sections, Tasmanian public school students were generally more disadvantaged than students throughout Australia, especially in family income, though internet access and housing were better for Tasmanian Aboriginal and Torres Strait Islander students that other Aboriginal and Torres Strait Islander students. Of Tasmanian public school students:

- 7 % were without internet access at home (Australia 5%; Table 4)
- 53% were in LOW income families (Australia 43%; Table 9)
- 16% were in very low income families (Australia 13%; Table 10)
- 27% were in one parent families (Australia 23%; Table 11)
- Of the 4% of primary students and 5% of secondary students who spoke a language other than English at home, 15% (primary) and 14% (secondary) spoke English not well or not at all (Table 12)
- 4% needed assistance with core activities (Australia 4%; Table 13)
- 35% lived in rented housing (Australia 37%; Table 14)
- 14% who were in rented housing were without internet access (Australia 10%; Table 15)
- 10% were in unsuitable housing (insufficient bedrooms for the residents) (Australia 12%; Table 16)
- 12% who were in unsuitable housing were without internet (Australia 11%; Table 17)
- 15%, 5%, 2% were in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 18%, 7%, 3%; Table 18)
- 10% were Aboriginal or Torres Strait Islander (Australia 6%; Table 19)

Of Tasmanian Aboriginal and Torres Strait Islander students:

- 13% were without internet access at home (Australia 21%; Table 20)
- 71% were in LOW income families (Australia 68%; Table 21)
- 15% were in unsuitable housing (Australia 23% Table 22)
- 21%, 8%, 4% were in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 33%, 16%, 10%; Table 18)

In Tasmania in 2016 7% of public school students were without access to the internet at home, and the percentages ranged from 2% in Hobart Inner, to 14% in Brighton and 13% in the Central Highlands SA3.

Table 29. Public school students' internet access from home, Tasmania SA3, 2016

	Internet accessed	Internet not accessed	Total	% internet not accessed
Brighton	1 625	261	1 886	14%
Hobart - North East	4 582	280	4 867	6%
Hobart - North West	4 417	519	4 934	11%
Hobart - South and West	3 262	115	3 375	3%
Hobart Inner	3 444	73	3 513	2%
Sorell - Dodges Ferry	1 466	100	1 571	6%
Launceston	7 211	491	7 704	6%
Meander Valley - West Tamar	2 097	142	2 240	6%
North East	3 492	324	3 813	8%
Central Highlands (Tas.)	979	142	1 121	13%
Huon - Bruny Island	1 548	115	1 666	7%
South East Coast	486	64	546	12%
Burnie - Ulverstone	4 404	380	4 791	8%
Devonport	4 277	339	4 619	7%
Total	44 712	3 507	48 218	7%

Source: ABS 2016 Census (2017) Census classifications: Main Statistical Area Structure SA3; Internet access NEDD
Note: The ABS Census undercounts Victorian public school students by internet access data by 14%.

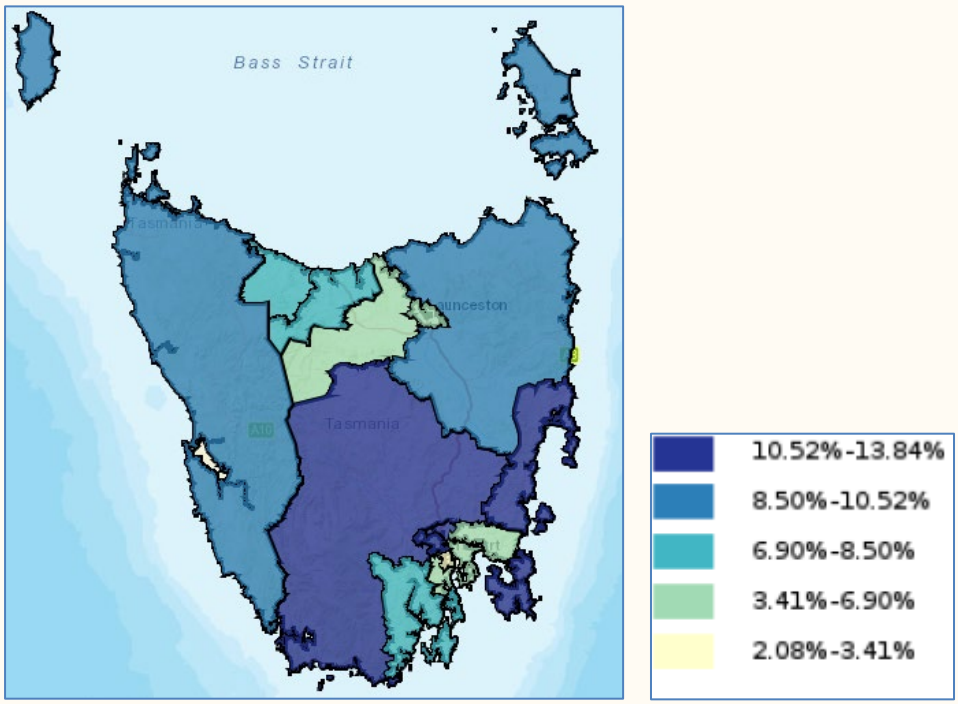

Figure 11 **Percentage of public school students not accessing the internet, Tasmania, SA3, 2016** (Source: Table 29)

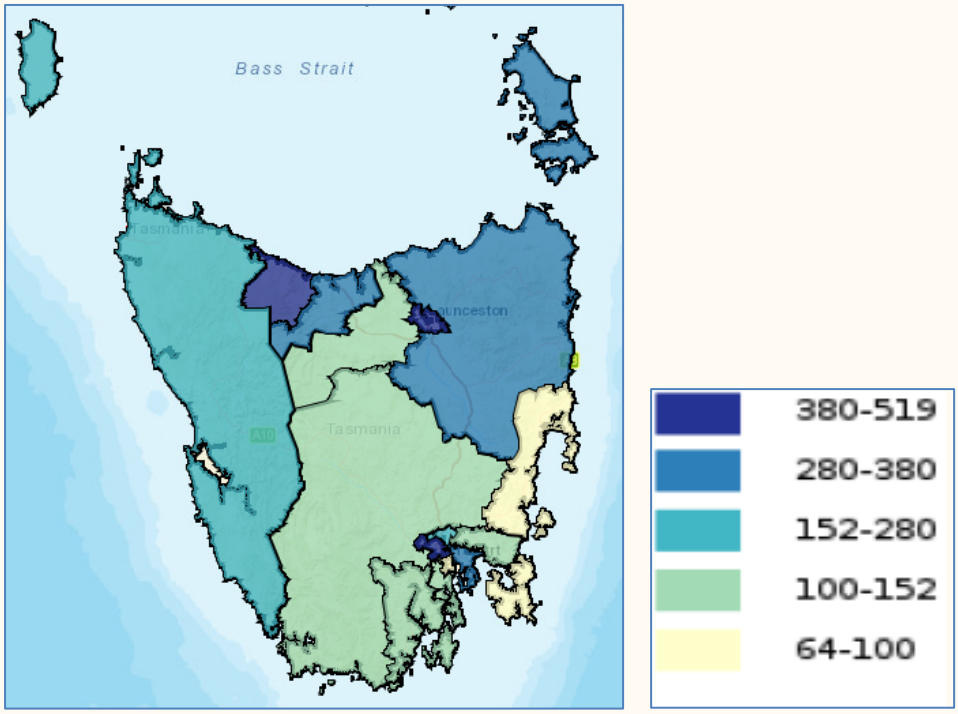

Figure 12 **Number of public school students not accessing the internet, Tasmania, SA3, 2016** (Source: Table 29)

2.7. Northern Territory — summary and internet access at home by statistical areas

One percent of all Australian public school students were in the Northern Territory in 2016. According to the data on characteristics reported in earlier sections, Northern Territory public school students were substantially more disadvantaged than students throughout Australia (though not students who were not Aboriginal or Torres Strait Islander). Forty two percent of Northern Territory students were Aboriginal or Torres Strait Islander students, and they were much more disadvantaged than Aboriginal and Torres Strait Islander students elsewhere in Australia in internet access at home, family income and house suitability and number of residents. Of all Northern Territory public school students:

- 22 % were without internet access at home (Australia 5%; Table 4)
- 44% were in LOW income families (Australia 43%; Table 9)
- 18% were in very low income families (Australia 13%; Table 10)
- 24% were in one parent families (Australia 23%; Table 11)
- Of the 38% of primary students and 42% of secondary students who spoke a language other than English at home, 14% (primary) and 6% (secondary) spoke English not well or not at all (Table 12)
- 3% needed assistance with core activities (Australia 4%; Table 13)
- 59% lived in rented housing (Australia 37%; Table 14)
- 31% who were in rented housing were without internet access (Australia 10%; Table 15)
- 36% were in unsuitable housing (insufficient bedrooms for the residents) (Australia 12%; Table 16)
- 41% who were in unsuitable housing were without internet (Australia 11%; Table 17)
- 36%, 24%, 17% were in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 18%, 7%, 3%; Table 18)
- 42% were Aboriginal or Torres Strait Islander (Australia 6%; Table 19)

Of Northern Territory Aboriginal and Torres Strait Islander students:

- 45% were without internet access at home (Australia 21%; Table 20)
- 75% were in LOW income families (Australia 68%; Table 21)
- 62% were in unsuitable housing (Australia 23% Table 22)
- 62%, 47%, 38% in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 33%, 16%, 10%; Table 18)

In the Northern Territory in 2016 22% of public school students were without access to the internet at home, and the percentages ranged from 4% in Darwin City, to 51% in the Barkly and 43% in Alice Springs SA3 (Table 30 and Figures 13 and 14).

Table 30. Public school students' internet access from home, Northern Territory, SA3, 2016

	Internet accessed	Internet not accessed	Total	% internet not accessed
Darwin City	1 662	77	1 742	4%
Darwin Suburbs	4 888	362	5 247	7%
Litchfield	1 857	148	2 007	7%
Palmerston	3 294	313	3 608	9%
Alice Springs	1 764	1 316	3 079	43%
Barkly	395	407	801	51%
Daly - Tiwi - West Arnhem	1 015	633	1 644	39%
East Arnhem	1 521	713	2 231	32%
Katherine	1 484	961	2 445	39%
Total	17 878	4 925	22 802	22%

Source: ABS 2016 Census (2017) Census classifications: Main Statistical Area Structure SA3; Internet access NEDD
Note: The ABS Census undercounts Victorian public school students by internet access data by 14%.

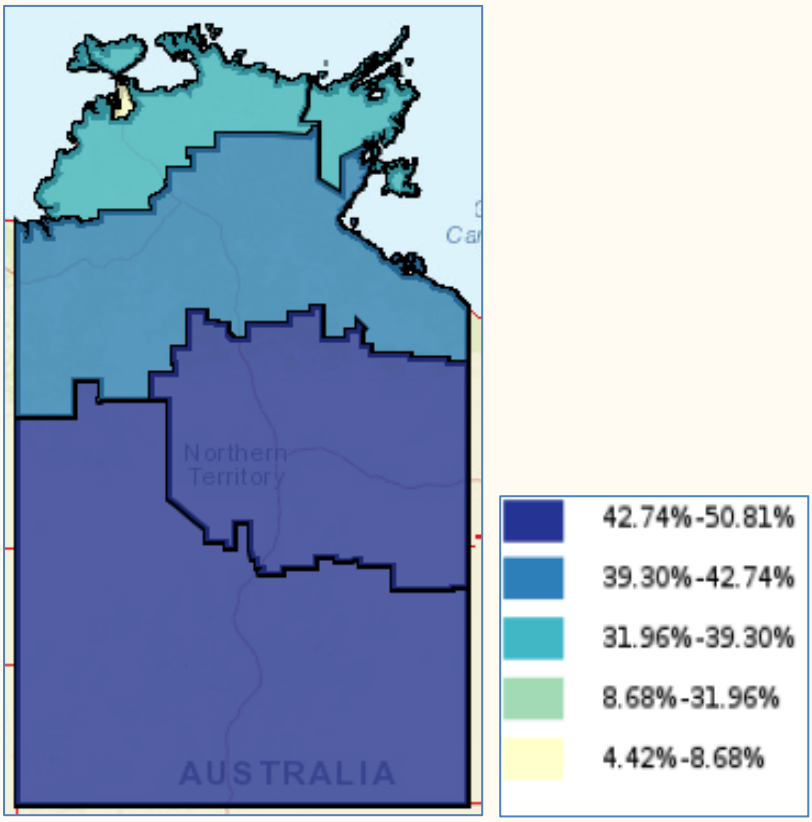

Figure 13 **Percentage of public school students not accessing the internet, Northern Territory, SA3, 2016** (Source: Table 30)

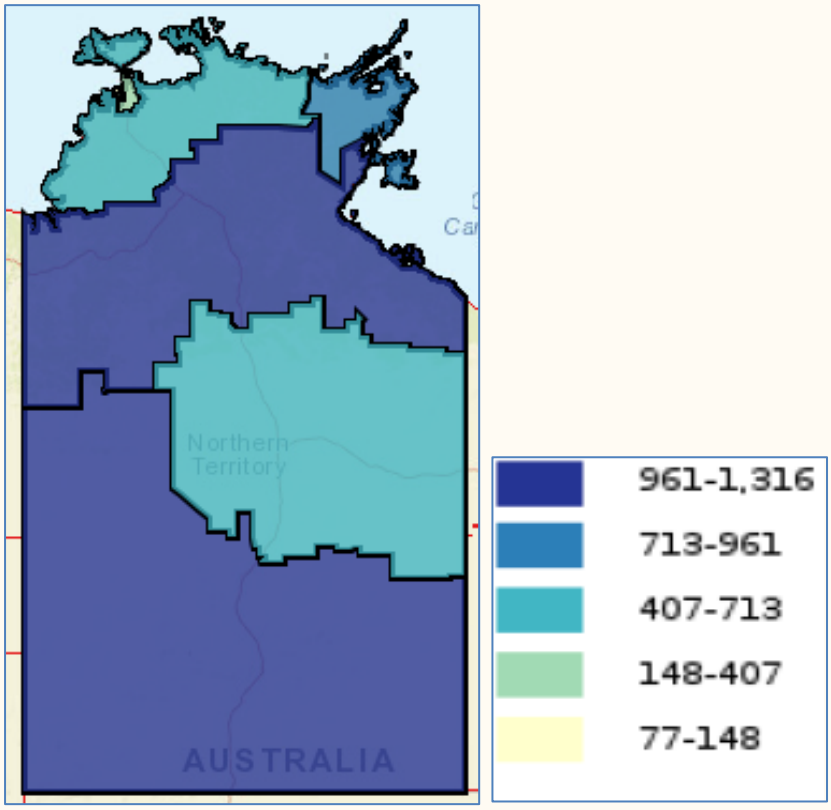

Figure 14 **Number of public school students not accessing the internet, Norther Territory, SA3, 2016** (Source: Table 30)

2.8. Australian Capital Territory — summary and internet access at home by statistical areas

Two percent of all Australian public school students were in the Australian Capital Territory in 2016. According to the data on characteristics reported in earlier sections, Australian Capital Territory public school students were substantially more advantaged than students throughout Australia, though Aboriginal and Torres Strait Islander students. Of Australian Capital Territory public school students:

- 2 % were without internet access at home (Australia 5%; Table 4)
- 26% were in LOW income families (Australia 43%; Table 9)
- 8% were in very low income families (Australia 13%; Table 10)
- 20% were in one parent families (Australia 23%; Table 11)
- Of the 22% of primary students and secondary students who spoke a language other than English at home, 5% (primary) and 6% (secondary) spoke English not well or not at all (Table 12)
- 4% needed assistance with core activities (Australia 4%; Table 13)
- 34% lived in rented housing (Australia 37%; Table 14)
- 5% who were in rented housing were without internet access (Australia 10%; Table 15)
- 8% were in unsuitable housing (insufficient bedrooms for the residents) (Australia 12%; Table 16)
- 6% who were in unsuitable housing were without internet (Australia 11%; Table 17)
- 14%, 5%, 2% were in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 18%, 7%, 3%; Table 18)
- 3% were Aboriginal or Torres Strait Islander (Australia 6%; Table 19)

Of Northern Territory Aboriginal and Torres Strait Islander students:

- 10% were without internet access at home (Australia 21%; Table 20)
- 52% were in LOW income families (Australia 68%; Table 21)
- 11% were in unsuitable housing (Australia 23% Table 22)
- 21%, 7%, 3% in dwellings with 6 or more, 7 or more or 8 or more usual residents respectively (Australia 33%, 16%, 10%; Table 18)

In the Australian Capital Territory the percentage of public school students without access to the internet at home was 3% or below in all statistical areas, ranging up to 3% in Tuggeranong, Belconnen, and the Inner North SA3 (sse Table 31 and Figures 15 and 16).

Table 31. Public school students' internet access from home, Australian Capital Territory, SA3, 2016

	Internet accessed	Internet not accessed	Total	% internet not accessed
Belconnen	8 646	259	8 901	3%
Canberra East	47	-	42	0%
Gungahlin	6 820	104	6 920	2%
North Canberra	3 216	87	3 304	3%
South Canberra	1 735	44	1 774	2%
Tuggeranong	7 278	218	7 501	3%
Weston Creek	1 994	47	2 043	2%
Woden Valley	2 816	60	2 873	2%
Molonglo	359	5	366	1%
Urriarra - Namadgi	55	-	55	0%
Total	32 956	831	33 783	2%

Source: ABS 2016 Census (2017) Census classifications: Main Statistical Area Structure SA3; Internet access NEDD
Note: The ABS Census undercounts Victorian public school students by internet access data by 14%.

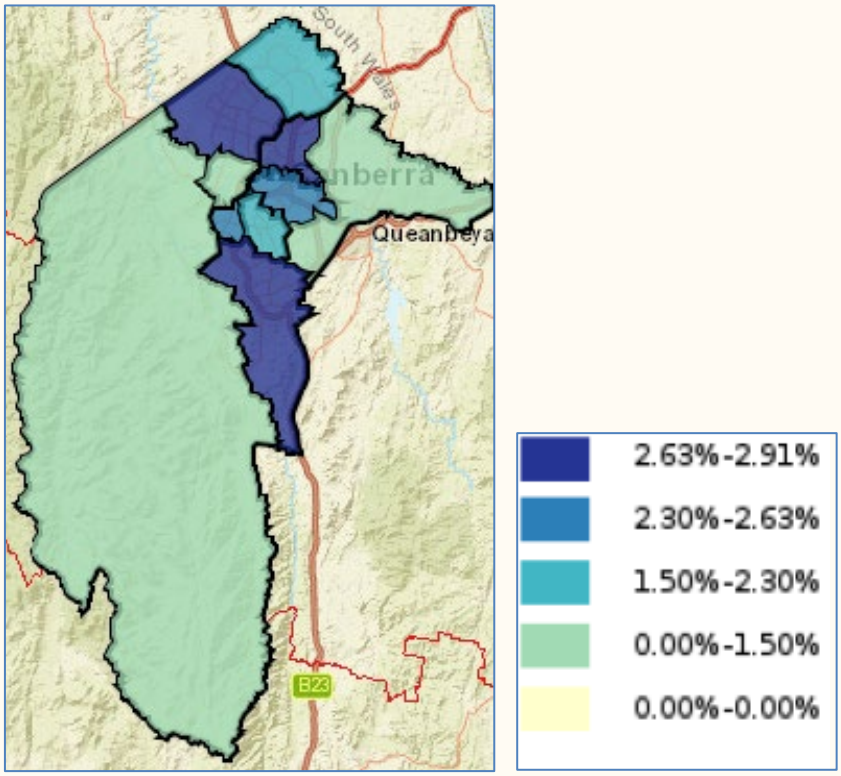

Figure 15 **Percentage of public school students not accessing the internet, Australian Capital Territory, SA3, 2016** Source: Table 30)

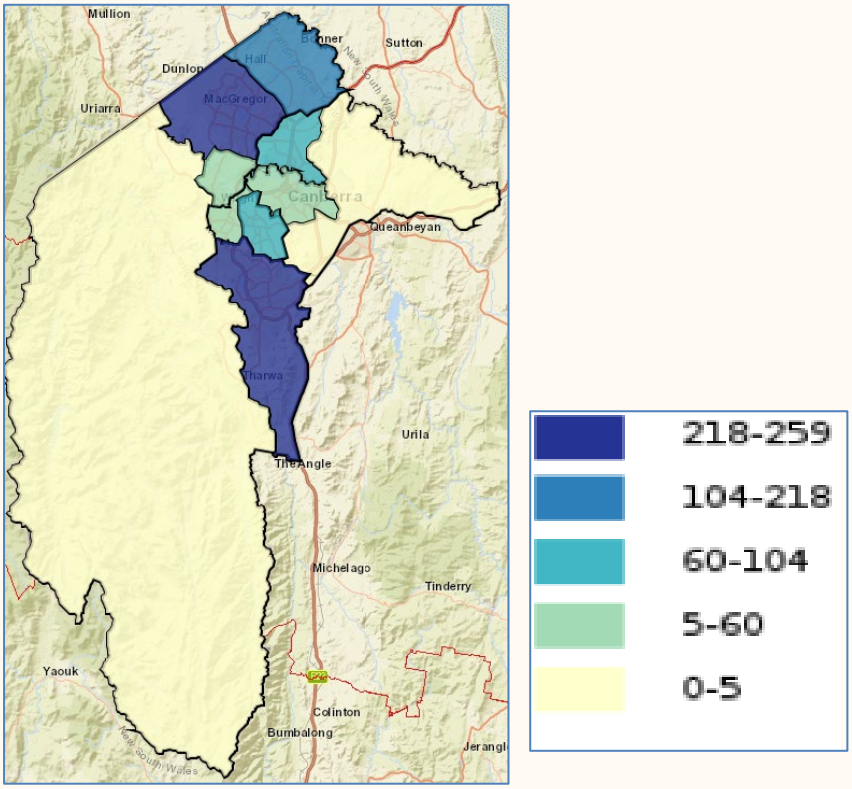

Figure 16 **Number of public school students not accessing the internet, Australian Capital Territory, SA3, 2016 (Source: Table 30)**

Technical notes

ABS Census undercount

The ABS Census undercounts school students, and the undercount is greater when other variables (such as Aboriginal and Torres Strait Islander status, family income or internet access at home) are involved. The undercount is discussed and calculated in the Technical Notes in the companion report (Preston, 2018 - see below). ABS *Schools Australia* (2020) provides a more accurate count of Australian student numbers. In this report an estimate of the magnitude of the undercount is provided in notes to tables where relevant. For example, the Census data on school students' internet access at home undercounts by 13%—the Census count for all students with or without internet access at home in 2016 is 3,302,504, while the total school enrolments for 2016 reported in Schools Australia (Table 42b) is 3,798,226.

Internet access from home

Internet access from home data is derived from Question 59 in the 2016 Census Household Form (Australian Bureau of Statistics, 2016a). The definition of internet access is broad—the question is as follows:

> Does any member of this household access the internet from this dwelling?
>
> - Include internet access using desktop/laptop computers, mobile or smart phones, tablets, music or video players, gaming consoles, smart TVs etc.
> - Include internet access through any type of connection including ADSL, fibre, cable, wireless, satellite and mobile broadband (3G/4G).

Accessing the internet solely via a mobile phone with a data allowance is included in the Census category of internet access from home. Yet this is very different from accessing the internet via a fixed broadband connection to a computer.

Data ranges in state maps

The data ranges in the maps are classified according to 'Natural Breaks'. These are explained by ABS as follows:

> TableBuilder calculates the ranges automatically based on natural breaks in the data. The natural breaks are calculated using the Dalenious Hodges Algorithm…
>
> This option is a good choice when the data is not evenly distributed. This algorithm groups data into classes that are themselves as separate as possible, but where the data values within each class are fairly close together. That is, it maximises the differences between the classes and minimises the differences within the classes. This classification can be used to discover spatial patterns within the data, but it can lead to some classes being populated by low numbers of observations. (2016c, Map View)

Other technical notes

For all other technical notes see the companion report, *The social make-up of schools: Family income, Aboriginal and Torres Strait Islander status, family type, religion, languages spoken, disability, home internet access, housing tenure, and geographic mobility of students in public, Catholic and independent schools* (Preston, 2018), which can be accessed at http://www.aeufederal.org.au/application/files/7115/2090/2405/Preston2018.pdf .

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