Educational opportunity in Australia 2015

Who succeeds and who misses out

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Stephen Lamb, Jen Jackson, Anne Walstab, Shuyan Huo

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CIRES
Centre for International Research on Education Systems

VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

Authors

Professor Stephen Lamb	Research Chair in Education and Director, CIRES
Jen Jackson	Research Fellow, CIRES
Anne Walstab	Research Fellow, CIRES
Dr Shuyan Huo	Senior Research Fellow, CIRES

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Executive summary

An enduring view of Australia is of a fair and egalitarian place in which opportunities exist for all to get ahead and succeed in building secure futures. Education is viewed as one of the main vehicles through which this happens. But to what extent is this true of modern Australia? To what extent are the benefits of success available to all? This study draws together information on the opportunities being provided to young Australians as they negotiate the various stages of education and training and attempt to establish themselves in the workforce during their transition to adulthood.

Four milestones are used, constructed as an index of opportunity. For the early years the milestone is the proportion of children who are developmentally ready at the point of entry to school, as measured across five domains: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills, and communication skills. For the middle years it is the proportion of Year 7 students who meet or exceed international proficiency standards in academic skills. For the senior school years it is the proportion of young people who have completed school and attained a Year 12 certificate or equivalent. For early adulthood it is the percentage of 24-year-olds who are fully engaged in education, training or work.

At each milestone most young people are succeeding but some are missing out – insufficiently prepared to take on the challenges of the following stages of their lives. For those missing out at any one milestone, some make up ground and move back on track, while others succeeding at some points fall behind at others, for various reasons.

The results show the proportions succeeding and missing out at each stage (our best estimates, based on available data). They show about six in 10 or more of all children starting school get through early and middle childhood with the kinds of academic and social skills needed for later success. The same proportions complete school and are fully engaged in education or work by their mid-20s. For this large group of young Australians, school works well and they succeed across all stages. They make the most of the opportunities our education and training system provides.

Some children begin school not developmentally ready and remain behind across all stages. Our estimate is that this affects up to 10 per cent of the population. Between entry to school and Year 7 one in 10 remain behind. Roughly this number are behind at the beginning of secondary school and do not complete Year 12 or equivalent, and the same proportion remains marginalised at age 24, not able to secure full-time work or be in study or training. This proportion misses out across all stages and is not gaining the preparation needed to take up later opportunities in life.

There are points at which young people are succeeding, but fall behind by the next stage. This affects about one in six Year 7 students, who are doing well in school above benchmark standards, but fail to complete Year 12 or equivalent by age 19. A similar proportion of school completers are not fully engaged in education or work at age 24, and struggle to secure a foothold in the labour market.

There are also points at which young Australians are behind or missing out, but recover over following stages succeeding at the following milestone. This is affirming information because it suggests that schools, training providers and other providers can bridge gaps and can help young people overcome set-backs. It is possible for schools to promote opportunity. Approximately 12 per cent of children were not ready for school, but achieved the academic learning benchmark at Year 7. Almost 16 per cent of students missed out in the middle years, but remained to complete Year 12 or equivalent by age 19. Just over 15 per cent of students did not complete school at age 19, but were in full-time work or full-time study by age 24, and many had done so through taking advantage of education and training opportunities offered to assist early school leavers.

The following diagram shows the proportions of young Australians meeting or missing the educational milestones.

The index of educational opportunity in Australia

Helping young people who are falling behind to catch up and take advantage of opportunities over later stages is no easy task, because they are disproportionately likely to be from disadvantaged backgrounds. Success at each stage varies by Indigenous status, language background, region and gender, and markedly by the socio-economic status (SES) of students.

But what we learn from the patterns is that young people who are missing out can recover and gain ground. Being behind at any point need not be a life sentence, even for the disadvantaged, though even here the chances of recovery and of gaining ground are still in favour of students from more advantaged backgrounds. The most advantaged learners are not only less likely to fall below expected standards in the first place but more likely to catch up again if they do.

Learning about what predicts success and failure requires information about experiences during each of the main stages of education and training. To do this, we use a number of indicators that reflect the experiences of young Australians leading up to each milestone. They include information on student engagement, academic achievement, attendance, participation, and progress. This important information on the quality of educational experiences helps build an understanding of the factors associated with success and failure.

Key findings

Milestone 1 – Readiness for school

Who misses out

- Over three-quarters (78 per cent) of Australian learners meet the designated milestone at the point of entry to school, and arrive at school ready to succeed in their learning.
- Boys are 1.82 times more likely to miss this milestone than girls (28.2 per cent vs 15.7 per cent). Social and emotional measures of school readiness account for a large proportion of this difference.
- Indigenous learners are 2.07 times more likely to miss the milestone than non-Indigenous learners (43.2 per cent vs 20.9 per cent), but can have other attributes that support school readiness and later learning.
- Learners in the lowest socio-economic quintile are 2.08 times more likely to miss out than learners in the highest socio-economic quintile (31.7 per cent vs 15.2 per cent). These differences are greatest in the aspects of school readiness that matter most for academic achievement.
- Of the factors that increase the risk of not meeting the milestone for readiness for school, SES has the strongest effect.

Experiences across the early years

- Learners who meet the milestone at school entry engage with the education system earlier than those who do not.
- Communities with lower proportions of learners who are school-ready have lower-quality early childhood education and care services. The difference in the quality of services between communities is greatest on measures of educational program and practice.
- Communities with low proportions of school-ready learners are more likely to be served by schools with low standards of performance.

Milestone 2 – Succeeding in the middle years

Who misses out

- Using a benchmark based on international standards, 28.4 per cent of Australian learners have not developed the core skills required to access educational opportunity in the middle years (Year 7 NAPLAN Reading).
- Boys are more likely than girls to be below the benchmark for reading at Year 7 (31.2 per cent vs 25.5 per cent), but more likely than girls to meet the Year 7 benchmark for numeracy (31.8 per cent vs 29.2 per cent).
- Differences based on Indigenous status are larger by Year 7. Indigenous learners are 2.32 times more likely to miss this milestone than non-Indigenous learners (61.6 per cent vs 26.6 per cent). (Note that this system-level data does not recognise the achievements of particular schools and communities in supporting Indigenous learning.)
- National data on socio-economic differences are not available for this measure, but parental education provides a proxy measure. Learners whose parents did not complete Year 12 are 3.72 times more likely to be missing out than learners with at least one parent with a university degree (49.5 per cent vs 13.3 per cent).

Experiences across the middle years

- Engagement, wellbeing and non-cognitive skills are important elements of development across the early and middle years, particularly in qualities such as persistence, conscientiousness, and a sense of self-efficacy as a learner. Learners who do not meet the Year 7 milestone have declining levels of self-efficacy through primary school.
- Learners begin to become separated across schools at this stage. A disproportionate share of learners at the lowest level of socio-educational advantage attends government schools (79.6 per cent).
- Most of the variation in learner progress up to the middle years is accounted for by student-level factors, but school-level factors still exert some influence, especially social intake as measured by mean school SES.
- States and territories show different patterns of achievement between the early and middle years. The differences between states and territories in the proportion of learners meeting milestones become smaller as learners progress from the early to middle years of school.

Milestone 3 – Completing school by age 19

Who misses out

- About 26 per cent of young people do not attain a Year 12 or Certificate III equivalent by age 19.
- State and territory differences in attainment largely reflect population differences, geography and remoteness, but also policy differences related to schooling and programs.
- Location is strongly linked to Year 12 attainment. Remote and very remote communities have high numbers of young people not completing – 56.6 per cent and 43.6 per cent respectively.
- Year 12 attainment among 19-year-olds varies substantially by socio-economic background. The SES gap is a much as 28 percentage points between highest and lowest. About 40 per cent of young people from the lowest SES backgrounds do not complete Year 12 or its equivalent by age 19.
- Indigenous students have low rates of completion. The gap between Indigenous and non-Indigenous students is over 40 percentage points.
- Girls are more likely than boys to complete school – 78.5 per cent compared to 69.5 per cent – a pattern stretching back to the early 1970s.
- The nature and quality of school completion for young people varies, and this is important because it affects access to later opportunities. Only 56 per cent of young people gain an Australian Tertiary Admission Rank (ATAR) that allows competitive access to university. This is linked to student background, with SES having a strong effect.

Experiences across the senior school years

- Completion is linked to achievement in school. Only one in two of the lowest mathematics achievers (lowest decile) at age 15 completed Year 12 by age 19. For the highest achievers, 94.3 per cent had completed Year 12 by age 19.
- Australian 15-year-olds are doing better on average in reading, mathematics and science than students in other Organisation for Economic Co-operation and Development (OECD) countries, but this masks large variations by region, state and territory, gender, student SES, language background and Indigenous status.
- Levels of student engagement in school – cognitive, emotional and behavioural – as well as student dispositions towards school and learning (sense of belonging, sense of purpose, self-efficacy, determination or grit) vary by student background and are correlated with achievement.
- Linked to the likelihood of doing well at the end of the senior school years are social and cultural factors, as well as differences in the concentrations of disadvantage across schools and communities.
- Schools that serve largely middle-class populations do better on a range of scholastic and student outcomes. Those serving low-SES communities do not do well. Segregation – the separation of populations along social, ethnic and racial lines – is a key driver.

Milestone 4 – Engaged in education, training or work at age 24

Who misses out

- While most young people (73.5 per cent) at age 24 are fully engaged in education or work, many Australians at this age are neither enrolled in study nor participating full-time in the labour market; they are not investing in their human capital or earning income. This represents a significant loss of economic opportunity for the nation as well as vulnerability for the young people themselves.
- Young people who are not fully engaged in education or work are disproportionately female and from low-SES backgrounds, located more often in regional and remote locations, and Indigenous.
- Not completing Year 12 and not achieving well in school are predictors of later outcomes, though others are 'under-attached': despite completing Year 12 and engaging in some training and gaining some work experience, they have not progressed through further education courses or secured a stable attachment to the labour market.

Experiences during the transition years

- University plays a very important role in the lives of young people making the transition from school. Almost half of the population enrols in university between leaving school and their mid-20s.
- More than one in every two young women enrols in university ,whereas only two in five young men do.
- Socio-economic background is a strong predictor of enrolment in university: two-thirds of young people from high SES backgrounds (highest quintile) enter university by their mid-20s, while only one-quarter of those from disadvantaged backgrounds (lowest quintile) do. Students living in major urban areas of Australia are more likely to attend university than those living elsewhere.
- Vocational Education and Training (VET) also enrols large numbers. By age 24, roughly 50 per cent of all young Australians enrol in a VET course and about 36 per cent complete their study.
- Over one-quarter of all young people gain an apprenticeship or traineeship by age 24.
- Indentured training is particularly important to early school leavers. Just on 46.3 per cent of early leavers commenced an apprenticeship at some stage by their mid-20s, and 30.1 per cent complete.
- VET and apprenticeship training is an important pathway for early leavers, helping raise Year 12 or equivalent attainment by a further 11 points over the percentage at age 19.

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List of acronyms and abbreviations

ACT	Australian Capital Territory
ACARA	Australian Curriculum, Assessment and Reporting Authority
AEDC	Australian Early Development Census
ARS	Academic Rating Scale: Language and Literacy Skills
ATAR	Australian Tertiary Admission Rank
CCB	Child Care Benefit
CIRES	Centre for International Research on Education Systems
ECEC	early childhood education and care
ICSEA	Index of Community Socio-Educational Advantage
IRSAD	Index of Relative Socio-economic Advantage and Disadvantage
IESCS	Index of Economic, Social and Cultural Status
LBOTE	Language background other than English
LSAC	Longitudinal Study of Australian Children
LSAY	Longitudinal Surveys of Australian Youth
NAPLAN	National Assessment Program – Literacy and Numeracy
NMS	National Minimum Standard (for NAPLAN)
NQS	National Quality Standard
NSW	New South Wales
NT	Northern Territory
OECD	Organisation for Economic Co-operation and Development
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
QLD	Queensland
RoGS	Report on Government Services
SA	South Australia
SEIFA	Socio-Economic Indexes for Areas
SES	socio-economic status
SLA	Statistical Local Area
STEM	science, technology, engineering, and mathematics
TAS	Tasmania
TIMSS	Trends in International Mathematics and Science Study
VET	vocational education and training
VETiS	vocational education and training in school
VIC	Victoria
WA	Western Australia

Introduction

"Land of opportunity" is a phrase that is sometimes applied to Australia in describing the possibilities provided to people to build rewarding careers and prosperous lives. Education is one of the main instruments through which these possibilities are delivered. Universal access to early childhood, primary and secondary education, a robust system of apprenticeships and vocational education and an extensive public university sector should work to provide opportunities for all young Australians to do well, irrespective of who they are, where they live or what school they attend. But to what extent is this true of modern Australia? To what extent are the benefits of success available to all? How well is our education and training system working to serve our whole community?

The primary purpose of this report, *Educational Opportunity in Australia 2015*, is to address these questions. It provides a snapshot of statistical information covering the various stages of Australian education from early childhood through to early adulthood. The focus is on evaluating, from an individual and social perspective, how well the education and training system is working to meet the needs of young Australians. Education, from early childhood through to higher education and vocational education and training, is crucial to the development of individuals and communities. Education empowers people to participate as active citizens in community life and in the workforce. An educated workforce, capable of using knowledge to generate innovation, is vital to a strong and prosperous economy. Education also brings wider benefits to communities in health and wellbeing, and political and social integration and engagement.

It is not a simple thing to measure how well Australian education is delivering on these goals. No single source of national comparative data provides the breadth of information needed to assess how effectively and efficiently the education and training system is functioning in all areas. To make an assessment means drawing on a wide variety of data from different sources. This report includes a selection of Australian data, both survey and administrative, from government and academic sources. To qualify for inclusion in the report, material must be nationwide in scope and of current interest and value. It also includes international comparisons of educational achievement and participation, since international assessments of achievement and skills are important benchmarks for the progress of Australian students. Studying how well other countries educate their citizens, and deliver opportunities to learners within their education and training systems, helps us assess our own education system.

At the same time, the aim of the report is not to provide an exhaustive list of indicators for all aspects of Australian education. Other sources contain summaries of the dimensions and operation of our education and training system, including, for early childhood services and schools, the Productivity Commission's education chapter in its annual Report on Government Services (see, for example, Productivity Commission, 2015), for the vocational education and training (VET) sector, the publications on vocational education enrolments, participation and completion (see for example, NCVER, 2015), and for the higher education sector, the various publications using higher education statistics (see, for example Australian Government Department of Education, 2015).

Rather than replicate these resources, in order to measure how well our system is providing opportunities to meet the needs of all, the report focuses on milestones at the end of each of the main stages of learning and development:

- Early childhood years measured at the point of school entry;
- Middle years measured at entry to secondary school;
- Senior school years measured at the end of secondary school; and
- Early adulthood measured at age 24.

The milestones are based on what we would expect young Australians at the end of each of the stages to have achieved.

For the early years, the milestone is the proportion of children who, at the point of entry to school, are developmentally ready as measured across five domains: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills, and communication and general knowledge.

For the middle years, it is the proportion of Year 7 students who meet or exceed international proficiency standards in academic skills.

For the senior years, it is the proportion of young people who have completed school and attained a Year 12 certificate or equivalent.

For early adulthood, it is the percentage of 24-year-olds who are fully engaged in education, training or work.

These milestones allow us to measure how many young Australians at each stage have achieved outcomes needed for later success, and are equipped to take advantage of the opportunities provided in the following stages of their lives and contribute to social, economic and cultural life.

As well as gaining an understanding of who is succeeding and why, it is equally important to look at who is not succeeding at each milestone. A test of the effectiveness and condition of an education and training system is how many people get left behind, who they are and what it is that has hindered their progress. How well children and young people achieve in education influences how they relate to themselves, to others and to the wider society. Young people missing out and not acquiring essential skills decreases the quality of their experiences and integration in society, leading to outcomes such as a lack of interest in lifelong learning, low aspirations, poor transition to work, and lack of attachment to social, economic and political institutions. Education should work well for all children because it is through education that young people gain access to society and in turn contribute to helping others. If education does not work well for young people, their access to society is impaired and their capacity to contribute is diminished.

Therefore, important for this report the concept of *who is missing out*; that is, who has not achieved the types of outcomes expected at each stage and consequently is at risk of being unable to take advantage of opportunities in later stages of their lives. Sometimes this is due to personal circumstances that affect development at certain points of an educational career, but recurring systematic patterns of failure can point to features of the education and training system that fail to work for certain groups of Australians and exclude them from opportunities assumed for all. Other work has revealed the social, personal and community costs of failure; these are often measured in terms of unemployment, lower income, higher dependence on government income support, poorer health outcomes, and higher incidences of crime (see, e.g., Belfield et al. 2012; Mitra, 2011). The costs of failure can be high for both individuals and communities.

Of course, numbers missing out or not succeeding at any milestone need not highlight a problem, if the right mechanisms are in place to promote recovery and bring people back on track in later stages of learning. The strength of a system can also be measured by how well it provides for diversity in circumstances and adjusts around needs in order to help those who are struggling. So, also important in an assessment of performance at each of the main stages of learning and development is a measure of change over the educational life course to capture recovery and success for those previously at risk. This can also help identify important practices and features of education providers and systems associated with overcoming diversity and promoting equality of opportunity.

Learning about what predicts success and failure requires information about experiences during each of the main stages of education and training. This document therefore also reports indicators that reflect on the experiences of young Australians leading up to each milestone, including information on student engagement, academic achievement, attendance, participation and progress. This important data on the quality of educational experiences will help build an understanding of the factors associated with success and failure.

The report is structured around the four key stages of learning and development. The final section provides a summary across all milestones to get a sense of the numbers and proportions of Australian learners who start out behind and remain so across all stages of education, as well as those who improve or go backwards, in order to measure how well our system is working to deliver opportunities for all.

The results provided in the report show that, in some important respects, the Australian education system is functioning well. Although cross-national comparisons are not always reliable, recent results from the international assessments conducted by the Programme for International Student Assessment (PISA) show that Australian students are ranked above the average in terms of mean achievement in key learning areas. In the areas of mathematics, science and reading, on average, Australian students are outperforming students from many other Organisation for Economic Co-operation and Development (OECD) countries. It suggests that in these key learning areas the education system is working well to promote achievement and provide students with the necessary skills to meet the demands associated with functioning effectively in modern workplaces and communities.

However, the good results in achievement are tempered by very uneven levels of academic learning across different groups of young Australians and widening gaps in achievement as learners progress from stage to stage. They are also undermined by comparatively high rates of non-completion of school, and poor outcomes for disadvantaged students. On these important measures the system is not functioning so well, raising a question about the quality of the education system and its capacity to meet the needs of all young Australians.

In the rest of this report, we provide estimates of the chances of young Australians succeeding or missing out during their education based on their backgrounds, SES and other characteristics. At no point is there any suggestion or implication that these chances are in some way intrinsic to who they are. It is important to state that we do not view young Indigenous Australians, or young Australians living in households with low income, or those living in certain regions, or those of a particular language background or ethnicity or race as intrinsically disadvantaged or missing out because of those traits. Indigenous status is not a source of disadvantage, nor is it a 'risk factor', and nor are the communities in which Indigenous young people live. The same is true for young people living in rural or remote parts of Australia or for those living in families that have less wealth. Every young Australian is worthy of the greatest respect and should have equal opportunity to succeed. Being 'disadvantaged' is not a quality of people, it is a feature or an outcome of what happens to some young people by virtue of their experiences in some of our institutions. Some young Australians become disadvantaged through what they experience in their education and training journeys and the way they are treated, so it is our great challenge to change the mechanisms through which such disadvantage arises.

1. The early years

There is increasing recognition in Australia of the importance of early learning and development in laying foundations for learning at subsequent life stages (Productivity Commission, 2014). A substantial body of international research suggests that learners' readiness for school at the point of transition predicts their outcomes at subsequent stages of learning (for example, McCain & Mustard, 1999). Conversely, learners who do not achieve positive outcomes in the early years are less well-equipped to take advantage of educational opportunities as they progress further through the education system.

In this section we look at the proportion of Australian learners who emerge from the early years on track in their learning and development, ready to take advantage of the opportunities that school has to offer. We begin by examining the characteristics of learners who are on track at the point of entry to school, and then explore differences in their patterns of engagement with the education system in the early years of life. We also consider the critical issue of the quality of provision in the early years, and whether learners missing out on this milestone are served by quality early childhood services and transition into quality schools, which might improve their chances of success.

Milestone 1 – Readiness for school

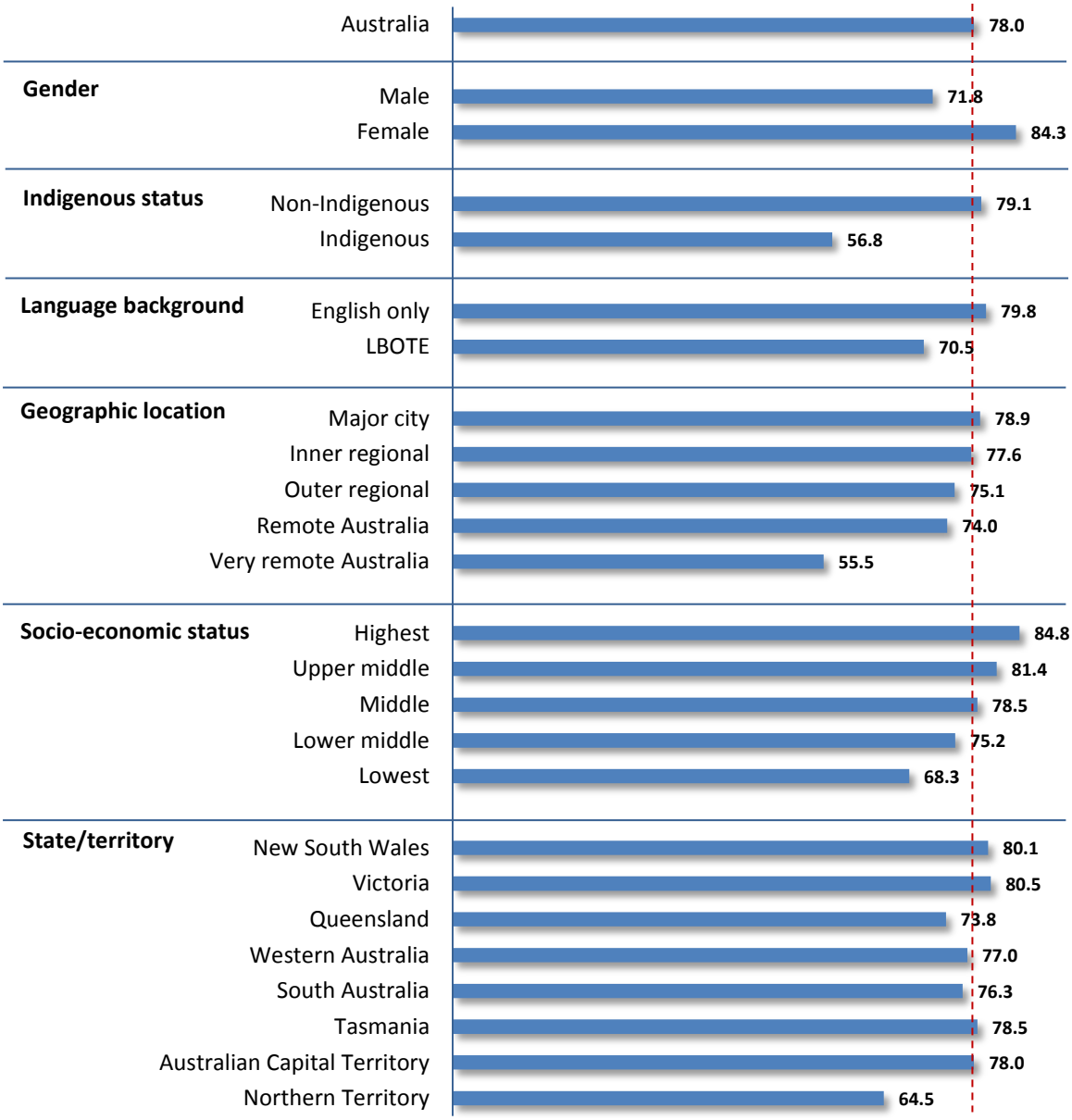
Figure 1.1 presents the proportion of children who, at the point of entry to school, are developmentally ready, as measured across five domains: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills, and communication and general knowledge. These five domains constitute important outcomes in their own right, as well as indicators of preparedness for future life and learning. They represent five key dimensions of a holistic approach to readiness for school (CCCH, 2008), and are therefore important predictors of the next stage of learners' progress through the education system. The earliest providers in the education system, early childhood education and care (ECEC) services, work to support children's outcomes across all five domains in accordance with the holistic approach to learning and development set out in the *Early Years Learning Framework* (DEEWR, 2009).

Outcomes across these five domains are measured for Australian children through the Australian Early Development Census (AEDC), a teacher-administered assessment of children's learning and development at the point of entry to school. Children assessed under the AEDC are categorised as either on track, at risk or vulnerable on each domain[1]. The milestone for the early years is measured using the proportion of Australian children who are vulnerable or at risk on one or more domain, and who consequently missed out on the opportunity to become school-ready by the time they enter school.

Figure 1.1 shows that nearly 80 per cent of children meet the milestone and are developmentally ready for school. This includes 71.8 per cent of boys and 84.3 per cent of girls, and almost four in five non-Indigenous learners (79.1 per cent), compared to 56.8 per cent of Indigenous learners. Differences are also evident according to socio-economic status, with just over two-thirds of learners in the lowest SES quintile meeting the milestone, compared to 84.8 per cent of learners in the highest quintile. Differences across geographic locations are less pronounced, with the exception of learners in very remote locations, where other risk factors are present in higher concentrations. Just over half of these learners enter school ready to learn, compared to approximately three-quarters in all other locations.

[1] Children "at risk" are between the 10th and 25th percentile of AEDC 2009 results, and "vulnerable" children are in the 10th percentile. Benchmarks from 2009 have been retained across subsequent AEDC collections.

Figure 1.1 Percentage of learners meeting the milestone at entry to school



Source: AEDC 2013.

Who is missing out?

Over a fifth of all Australian children at the time they enter school are not yet ready to take full advantage of the opportunities to learn. Learners who are vulnerable in any of the five domains have missed out on the holistic educational opportunities offered by ECEC providers in the years before school, and entered the next stage of learning without the full complement of outcomes necessary to prepare them for success. Vulnerability at point of entry to school certainly does not constitute a prescription for educational failure, but vulnerable learners are more likely to have difficulty benefiting from educational opportunities offered at school than learners who begin school on track.

Table 1.1 shows that differences in educational opportunity for different groups of learners are already apparent by the time learners arrive at school. The most significant factors in increasing the risk of learners missing this milestone are indigeneity, being male, and coming from a low SES background. Living in a very remote area also greatly increases learners' chances of missing out at entry to school, due to the concentration of other risk factors.

Table 1.1 Young Australians not meeting the milestone at entry to school

	Percentage missing out	Estimated number missing out
Australia	22.0	68,026
Boys	28.2	43,922
Girls	15.7	24,104
State/Territory		
NSW	19.9	20,105
VIC	19.5	14,088
QLD	26.2	17,263
WA	23.0	8,005
SA	23.7	4,673
TAS	21.5	1,486
ACT	22.0	1,149
NT	35.5	1,258
Location		
Major cities	21.1	44,944
Inner regional	22.4	12,941
Outer regional	24.9	7,407
Remote	26.0	1,310
Very remote	44.5	1,424
SES quintile (Low to High)		
Lowest	31.7	18,290
Lower middle	24.8	14,399
Middle	21.5	13,015
Upper middle	18.6	11,740
Highest	15.2	10,582
Language background		
English only	20.2	50,553
LBOTE	29.5	17,473
Indigenous status		
Non-Indigenous	20.9	61,167
Indigenous	43.2	6,859

Source: Proportion not meeting milestone and population distribution across groups: AEDC 2013. Population estimates based on ABS 4221.0 Schools, Australia, 2014, Table 43a, to give estimates of numbers missing out among all Australian learners.

As the key indicator at this stage considers all five domains of learning and development, it conceals differences across domains that have important consequences for differences in educational opportunity. Figure 1.2 separates the results for the five domains of school readiness, showing children either vulnerable or at risk according to AEDC benchmarks. The results indicate that gender differences are most apparent in the domains of *Social competence* and *Emotional maturity*, reflecting a tendency for girls to rate higher than boys on measures of social and emotional development (Romer et al., 2011). Results at later stages of the education system show that these gender differences in school readiness do not translate to long-term differences in learning (AEDC, 2014).

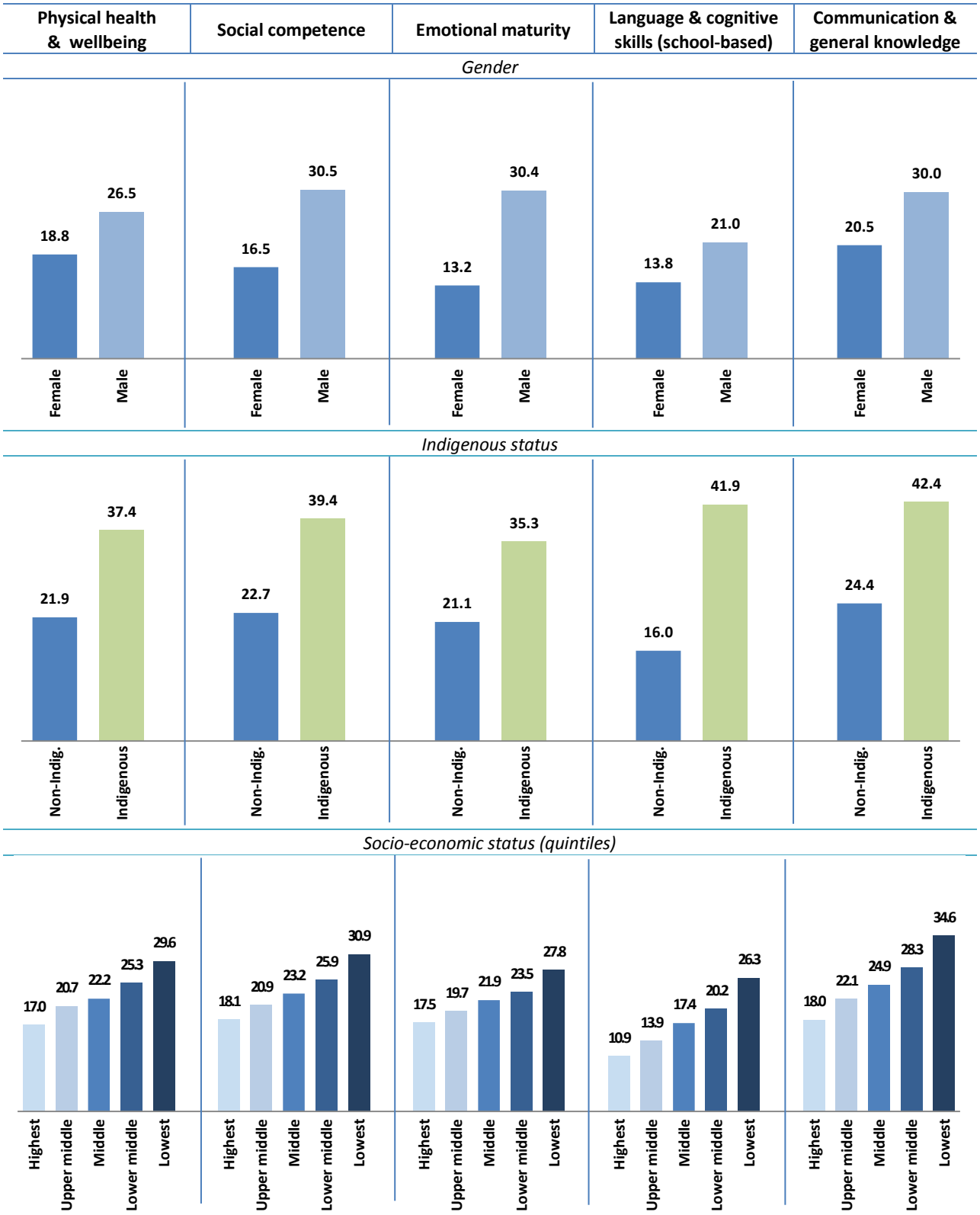
In contrast, differences according to Indigenous status and SES are widest in the *Language and cognitive skills (school-based)* and *Communication skills and general knowledge* domains (Figure 1.2). This is important because these domains are strongly correlated with subsequent academic achievement at school (Brinkman et al., 2013). This suggests that differences according to SES and Indigenous status have a greater effect than gender differences in determining access to educational opportunity.

Language background other than English (LBOTE) has a significant but smaller effect on the chances of not meeting the milestone at the point of entry to school. These results must be treated with caution, as the LBOTE group presented in Figure 1.2 includes children from non-English language backgrounds who are proficient in English. When English proficiency is taken into account, LBOTE learners who are proficient in English have a lower proportion of learners missing the milestone than the English-only group (20 per cent for LBOTE English-proficient, compared to 20.2 per cent for English only). In contrast, almost all LBOTE learners who are not proficient in English do not meet this milestone (93.7 per cent). A large proportion of this figure can be accounted for by the high proportion of non-English-proficient learners who are developmentally vulnerable on the communication and general knowledge domain (91.9 per cent), although rates of vulnerability for this group are higher than English-proficient LBOTE learners across all five school-readiness domains (AEDC, 2013).

Taken together, these risk factors have intensifying effects. Data from the Longitudinal Study of Australian Children (LSAC) B Cohort (see Appendix 1) reveals that almost half the boys in the lowest SES quintile fell below the designated milestone at school entry (45.4 per cent), whereas only approximately one in 10 girls from the highest SES quintile were below expected standards at the point of entry to school (10.3 per cent). While numbers of Indigenous and LBOTE learners in LSAC are small, the effects of Indigeneity and LBOTE also appear to intensify as SES decreases. Logistic regression shows that being in the lowest SES group is the single most influential risk factor of those considered in this model.

In considering outcomes for these learners, it is important to acknowledge that school readiness does not capture learning and development across all environments. LSAC data suggest that children assessed by their teachers as below expected developmental levels in the school context may be assessed differently by their parents in the home environment. For example, learners who are not proficient in English can be proficient in their home language (AEDC, 2013), and Indigenous learners can demonstrate strong relationships with family and a well-developed sense of cultural identity; outcomes highly valued by Indigenous communities but not measured by the AEDC (Armstrong et al., 2012). Nevertheless, as most of learners' formal education will take place in the school environment at the next stage of learning, the ability to function well in a school environment is important for access to subsequent educational opportunity.

Figure 1.2 Percentage of children vulnerable or at risk on each AEDC domain, by gender, Indigenous status and socio-economic status

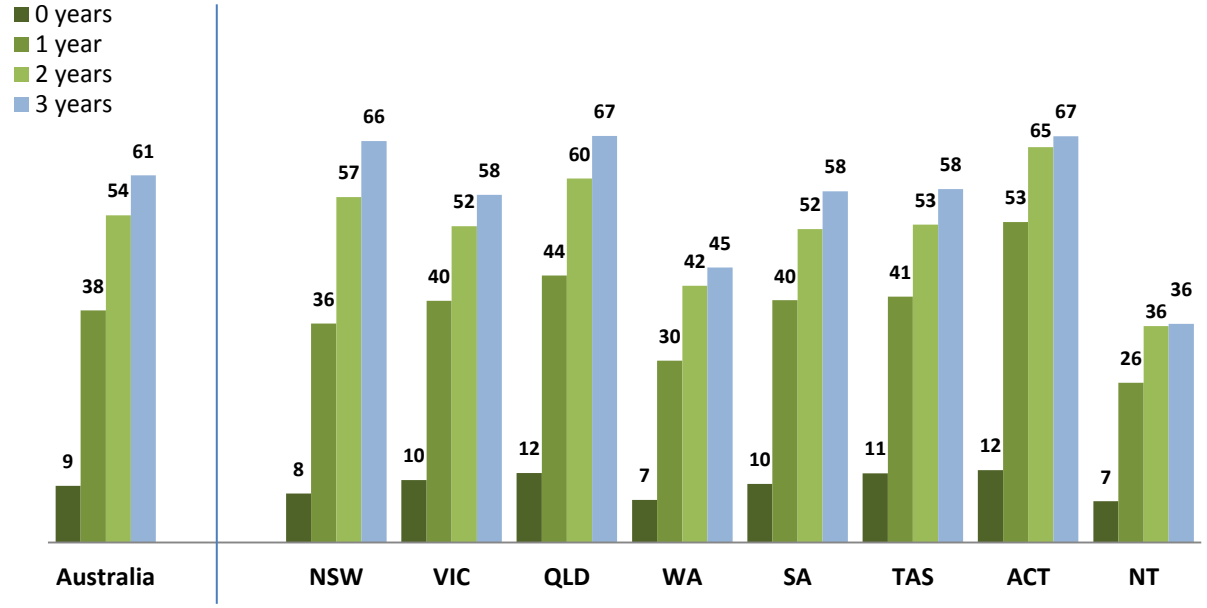


Source: AEDC 2013.

Engagement in early childhood education and care and school readiness

Participation in quality early childhood education and care (ECEC) can have a positive impact on children's learning and development, and readiness for school (OECD, 2006). The proportion of Australian children aged 0–5 using ECEC services approved for Child Care Benefit (CCB) funding (constituting the majority of ECEC services for children aged 0–4) has increased steadily in all Australian states and territories over the past decade (SCRGSP 2015, 2010). Figure 1.3 shows that usage of ECEC increases as children grow older, with the most marked increase in usage occurring between zero and one year of age.

Figure 1.3 Children attending CCB-approved ECEC services as proportion of resident population, by state/territory



	Number of children								
0 years	29,034	8,191	7,691	7,276	2,433	1,964	698	669	267
1 year	118,099	35,304	30,564	28,080	10,332	8,025	2,512	2,825	1,050
2 years	164,339	55,663	38,631	38,036	14,369	10,364	3,308	3,407	1,351
3 years	182,582	64,097	41,856	42,235	15,273	11,511	3,644	3,460	1,337

Source: SCRGSP 2015, 2014 CCB attendance data. See SCRGSP 2015 for data notes and limitations.

Learners who meet or do not meet the milestone at entry to school may have had different levels of engagement in ECEC in the early years of life. Analysis of longitudinal LSAC data suggests that a higher proportion of children who met the milestone at entry to school (see Appendix 1) had engaged in non-parental care at ages 0/1 and ages 2/3, and these children were more likely to have spent more than 20 hours per week in such care (see Table 1.2). There was little variation in the types of ECEC program attended by children who met or did not meet the milestone, although children who missed out were slightly more likely to have been cared for by a friend or relative when not in parental care, rather than in formal ECEC services.

The higher usage of ECEC by school-ready learners is likely to reflect the association between other risk factors – including lower parental education and employment levels – and reduced use of infant care (Harrison et al., 2009). Given the number of underlying variables, these findings should not be taken to imply any direct causality between use of non-parental care and child outcomes. Nevertheless, they do identify an important systemic concern: that children who are not school-ready at age 4/5 are more likely to have engaged with the ECEC services that comprise the early stages of the education system at a later age. This reduces opportunities for early intervention by the system, for children who may be at risk.

Table 1.2 Participation in ECEC services at ages 0/1 and 2/3, by on track and missing out status at age 4/5

		Age 0/1		Age 2/3	
		On track at age 4/5 (%)	Missing out at age 4/5 (%)	On track at age 4/5 (%)	Missing out at age 4/5 (%)
Proportion of children using regular non-parental care		**39.9**	**33.5**	**74.5**	**66.9**
Of children who used regular non-parental care…					
Hours per week	Less than 5 hours	15.0	18.1	5.7	7.3
	5–9 hours	21.9	21.4	21.2	20.8
	10–19 hours	25.7	28.0	29.7	32.0
	20 hours or more	37.5	32.4	43.3	39.9
Type of program	Long day care	30.9	30.2	60.1	59.8
	Family day care	11.1	8.2	10.8	11.1
	Occasional/mobile care	3.3	3.3	6.2	5.0
	Relative/friend	50.4	54.9	20.4	23.3
	Nanny	4.3	3.3	2.4	0.9

Source: LSAC B Cohort. See Appendix 1 for method used to identify missing out learners in the LSAC data.

At four years of age, ECEC attendance data is complicated by the fact that children are likely to attend pre-school or kindergarten programs. As these are funded at state level, participation is not captured in national data collections. The Report on Government Services (RoGS) provides estimates of the proportion of children attending a pre-school program in the year before school (SCRGSP, 2015). Although the accuracy of the data is affected by double-counting and definitional variations across jurisdictions, the estimates show clear differences in participation rates for Indigenous children and children in the lowest socio-economic quintile, compared to the rate of participation for the entire Australian 4–5-year-old population (Table 1.3).

Table 1.3 Estimated proportion of children aged 4–5 attending a pre-school program in the year before school, by Aboriginal and Torres Strait Islander status and low SES status

	Percentage of children attending pre-school program in year before school (%)	Estimated number of children attending pre-school program in year before school
All Australian 4–5-year-olds	88.7	266,062
Aboriginal and Torres Strait Islander 4–5-year-olds	69.9	11,719
4–5-year-olds from lowest socio-economic quintile	79.6	47,150

Source: SCRGSP 2015. See SCRGSP 2015 for data notes and limitations. The 2015 RoGS report provides several estimates for proportion of Indigenous children attending pre-school. The figure shown is from Table 3A.26.

Research has repeatedly shown educational benefits from participation in a pre-school program in the year before school (Productivity Commission, 2014). Significantly for this report, pre-school participation for Australian children has been found to have a significant impact on subsequent academic achievement, as measured by national standardised tests (Warren & Haisken-Denew, 2013). The lower rates of pre-school participation for educationally disadvantaged groups are therefore likely to limit their ability to capitalise on the educational opportunities offered by the system at later stages of learning.

Differences in quality of early childhood education and care

The benefits of participation in ECEC depend upon the quality of the service environment. In 2012, Australia introduced a new quality assessment system for ECEC services, based on a new National Quality Standard (NQS). The NQS is organised into seven quality areas, which represent the core elements of quality in ECEC: educational program and practice; health and safety; physical environment; staffing; relationships with children; partnerships with families and communities; and service leadership. Services generally receive a rating of *Exceeding NQS*, *Meeting NQS* or *Working Towards NQS* for each quality area, and for the service overall.[2]

At June 2015, 9,070 of Australia's 14,888 approved ECEC services – just over 60 per cent – had undergone assessment against the NQS (ACECQA, 2015). These do not necessarily represent a cross-section of Australian ECEC services, as some jurisdictions prioritised certain types of services in the initial implementation of NQS assessments (Curtis, 2015). Notwithstanding this limitation, the National Register of ECEC service ratings against the NQS represents the best available measure of the quality of ECEC services in Australia (ACECQA, 2015).

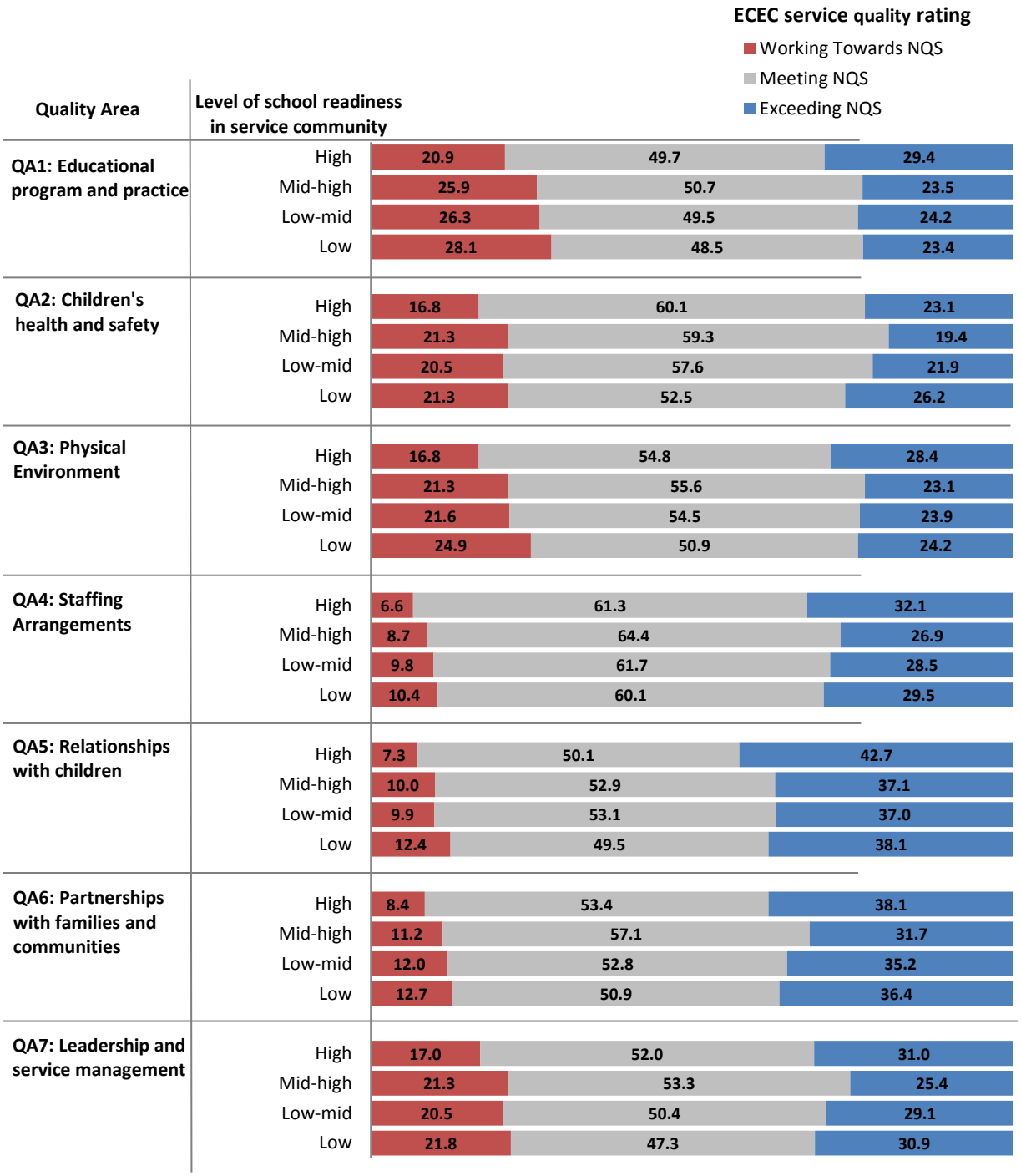
We analysed data from the National Register to investigate any differences in quality between ECEC services attended by learners who met the milestone at school entry and those who missed out. Results are shown in Figure 1.4. As there are currently no national data to directly link children with the services they attend, we created a proxy by examining the proportion of children who are not school-ready within the service's local community (defined by postcode and Statistical Local Area – SLA). The assumption that children will attend an ECEC service in the community in which they live is not always accurate – for example, many children attend an ECEC service near their parents' workplace rather than their home – but again, this represents the best possible method using currently available national data.

The results show a relationship between the proportion of learners who are not school-ready within a community and the quality of the ECEC service by which the community is served. Communities with lower levels of school readiness have a higher proportion of services at the *Working Towards NQS* quality level, meaning ones that do not meet national standards, than communities where levels of school readiness are highest. The greatest difference in the proportion of services below the national standard is in Quality Area 1, Educational program and practice. In communities with the lowest levels of school readiness, 28.1 per cent of ECEC services fall below the national standard on this measure, compared to 20.9 per cent in communities where the level of school readiness is highest.

The relationship between school readiness and ECEC service quality in Australian communities is less consistent at the *Exceeding NQS* quality level, as services with lower or mid-range levels of school readiness have comparable proportions of services rated above the standard on most quality areas. While the proportion of services rated *Exceeding NQS* is similar across communities with low, low-mid, and mid-high levels of school readiness, there is a marked difference in communities with the highest proportions of school-ready learners. These communities have the highest concentration of high-quality ECEC services on all quality measures except one.

[2] Ratings of *Significant Improvement Required* or *Excellent* can be assigned in exceptional cases, but these are excluded from the analysis due to the low proportion of services receiving them.

Figure 1.4 **Percentage of ECEC services at each quality level, by proportion of learners who are not school-ready in the service community (quartiles)**



Source: National Register of ECEC services data, 16 June 2015. "Level of school readiness in service community" is defined by the SLA for the service postcode, matched with AEDC 2012 data for the SLA.

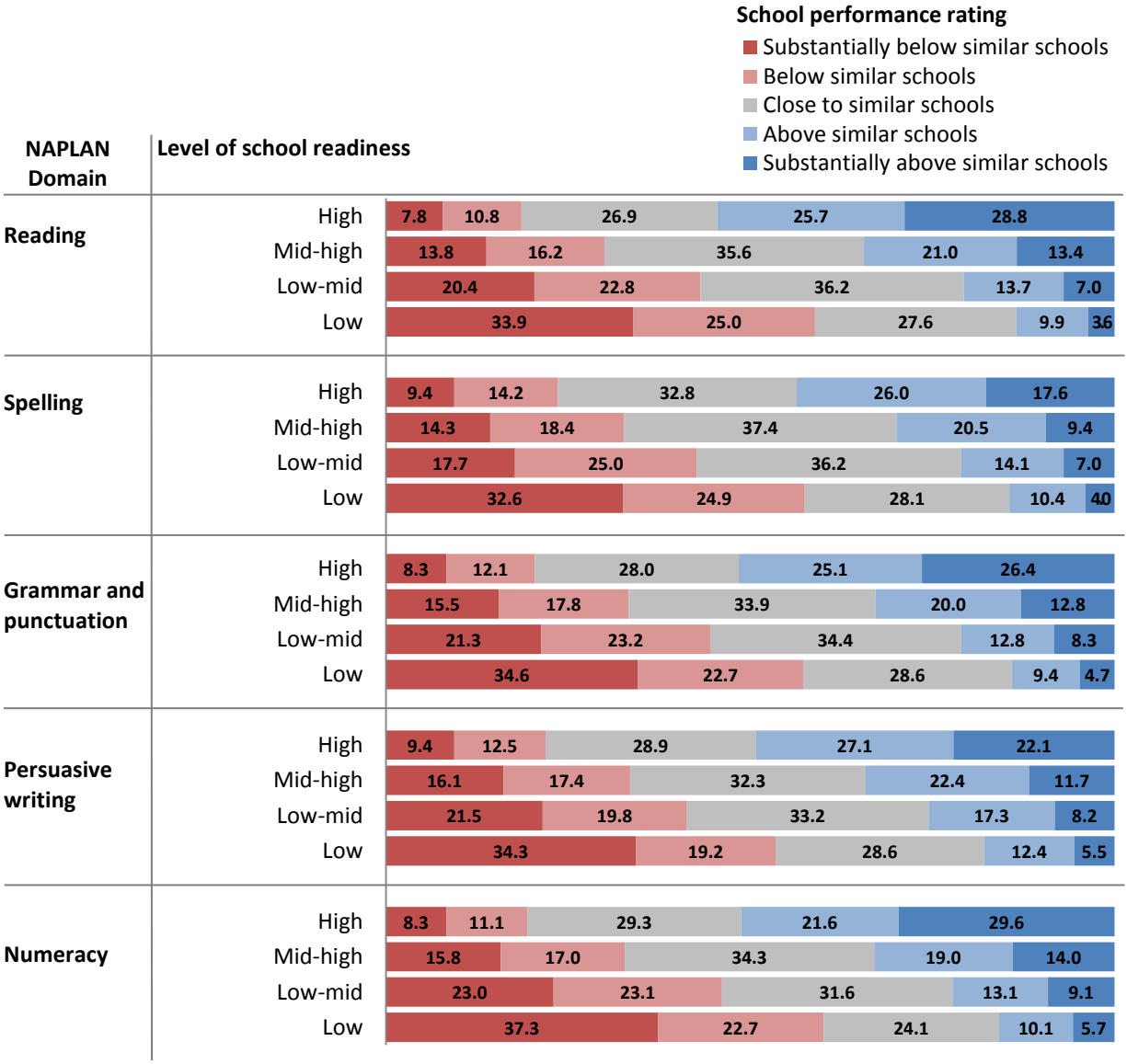
These differences can be seen as further confirmation of the relationship between service quality and child outcomes. ECEC services performing above the national standard are likely to be instrumental in achieving the high levels of school readiness evident in their communities, while lower-performing services are likely to be less effective in preparing learners for a positive start to school. At the same time, these results are evidence of a concentration of higher-quality services in more advantaged communities. When the same analysis is repeated according to community SES[3], rather than the level of school readiness in the

[3] Using the Australian Bureau of Statistics' Socio-Economic Indexes for Areas (SEIFA) Index of Community Socio-Educational Advantage (IRSD).

community, the differences in ECEC service quality become even more pronounced. This suggests that the highest-quality ECEC services may be serving learners from more socio-economically advantaged backgrounds, while low-SES learners are served by lower-quality services, which do not deliver the support they need to achieve designated milestones in their learning.

Communities with higher proportions of learners missing out are also more likely to be served by lower-performing schools. Figure 1.5 shows categories of school performance, using the school postcode to match schools with the proportion of school-ready learners in their local community. Again, there are limitations in this method, as learners do not necessarily attend primary schools within their local community.[4] The relationship between school readiness and school quality at community level is nonetheless compelling. Around one-third of schools serving communities with the highest proportions of learners not ready for school are performing substantially below other schools serving communities that are similar on other measures of socio-educational advantage (ICSEA).

Figure 1.5 Percentage of schools at each performance level, by level of school readiness in the school community



Source: ACARA 2013 and AEDC 2012 data. "Level of school readiness in school community" is defined by the SLA for the school postcode, matched with AEDC 2012 data for the SLA.

[4] Previous analysis of student-level data for a major state suggests that around 80 per cent of primary school students attend a school within the same SLA as their home (CIRES, unpublished).

By examining performance relative to schools with a similar intake, the school performance categories isolate the effects of school readiness from the effects of other socio-educational advantages within a school community. These results suggest that the proportion of learners missing out in a community has a relationship to school performance, independent of other dimensions of socio-educational advantage. This finding is supported by previous research showing a correlation between learners' outcomes measured by the AEDC and their subsequent academic performance at school up to Year 7 (Brinkman et al., 2013). Higher concentrations of learners who have missed out on the opportunity to become school-ready in early childhood appears to relate to poorer performance for schools at subsequent stages of learning, suggesting the beginning of a pattern of social segregation that persists throughout Australian schooling.

2. The middle years

The middle years mark a crucial juncture in learning. They signal the major transition from primary school to middle or secondary school, and from a general curriculum to the beginnings of a competitive academic curriculum which sifts learners into diverse senior secondary and post-school pathways. The early to middle years of schooling are also a time when important foundations for learner progress through the education system are laid and consolidated. Many learners acquire fundamental skills that form the foundations of subsequent learning and academic achievement, and discover their interests and talents across a wide-ranging curriculum. Learners also develop a self-concept as learners and orientation to school, which are shaped by, and help to shape, their chances of success.

We selected Year 7 as the milestone year for the middle years. Depending on the jurisdiction, Year 7 marks either the final year of primary schooling or first year of secondary school.[5] For most learners, it also represents the midpoint in their journey through the system of schooling. This point therefore represents an important milestone for taking stock of how access to educational opportunity is distributed across Australian learners, and who is missing out on what the system has to offer.

In this section we examine the academic outcomes of early to middle years learners, according to Australian and international measures. We then consider other aspects of learner development from the early to the middle years – including school engagement and academic self-concept – that are not captured in current data on academic achievement. Lastly, we briefly investigate school-level effects on early to middle years outcomes, to demonstrate the intensifying impact of school-level effects occurring in this period.

Milestone 2 – Year 7 skills

By the middle years, learners are expected to have acquired the foundation skills that will prepare them for future progress through the education system. We selected the skill of reading as the key dimension to be measured at this milestone. Reading skills are not only predictive of subsequent success throughout the education system (Lesnick et al., 2010; National Reading Panel, 2000), but have lasting impact on post-school education and employment (Lyon, 1998).

Estimating the proportion of learners whose reading skills are below expected standards at this level is complicated by the number of available measures. These include Australian national standardised tests, international tests, and various measures of learner progress used in each state and territory. On each of these measures, benchmarks for learner achievement have been set at different levels, based on different understandings of what learners should know and be able to do.

The Australian national benchmark for reading skills is the National Minimum Standard (NMS) for the National Assessment Program – Literacy and Numeracy (NAPLAN). Most Australian school students complete NAPLAN tests at Years 3, 5, 7 and 9, in reading, spelling, grammar and punctuation, writing and numeracy. According to this measure, almost all Year 7 learners (95.1 per cent) were at or above the NMS in reading in 2014, with similarly high results in other NAPLAN domains, from 88.5 per cent in writing to 95.1 per cent in numeracy.

In comparison, international benchmarks for student achievement suggest that a higher proportion of Australian learners are falling below expected standards in the middle stages of their learning. At Year 4, the Progress in International Reading Literacy Study (PIRLS) 2011 reported 24 per cent of Australian learners falling below the Intermediate standard of proficiency in reading, and the Trends in International Mathematics and Science Study (TIMSS) reported 29.5 per cent at or below this level in mathematics. In the Programme for International Student Assessment (PISA) 2012, 36 per cent of Australian 15-year-olds were

[5] In 2014, 35.1 per cent of Australia's 255,962 (full-time equivalent) Year 7 students attended primary schools (SA, WA and Queensland), and 64.9 per cent attended secondary schools (all other jurisdictions) (ABS 2015).

at or below the international baseline in reading, and 42 per cent in mathematics, whereas Year 9 NAPLAN results in the same year reported 24.8 per cent of students at or below the NMS in reading, and only 23.2 per cent in numeracy (Appendix 2). This suggests that Australian benchmarks for learner achievement are low compared to international standards.

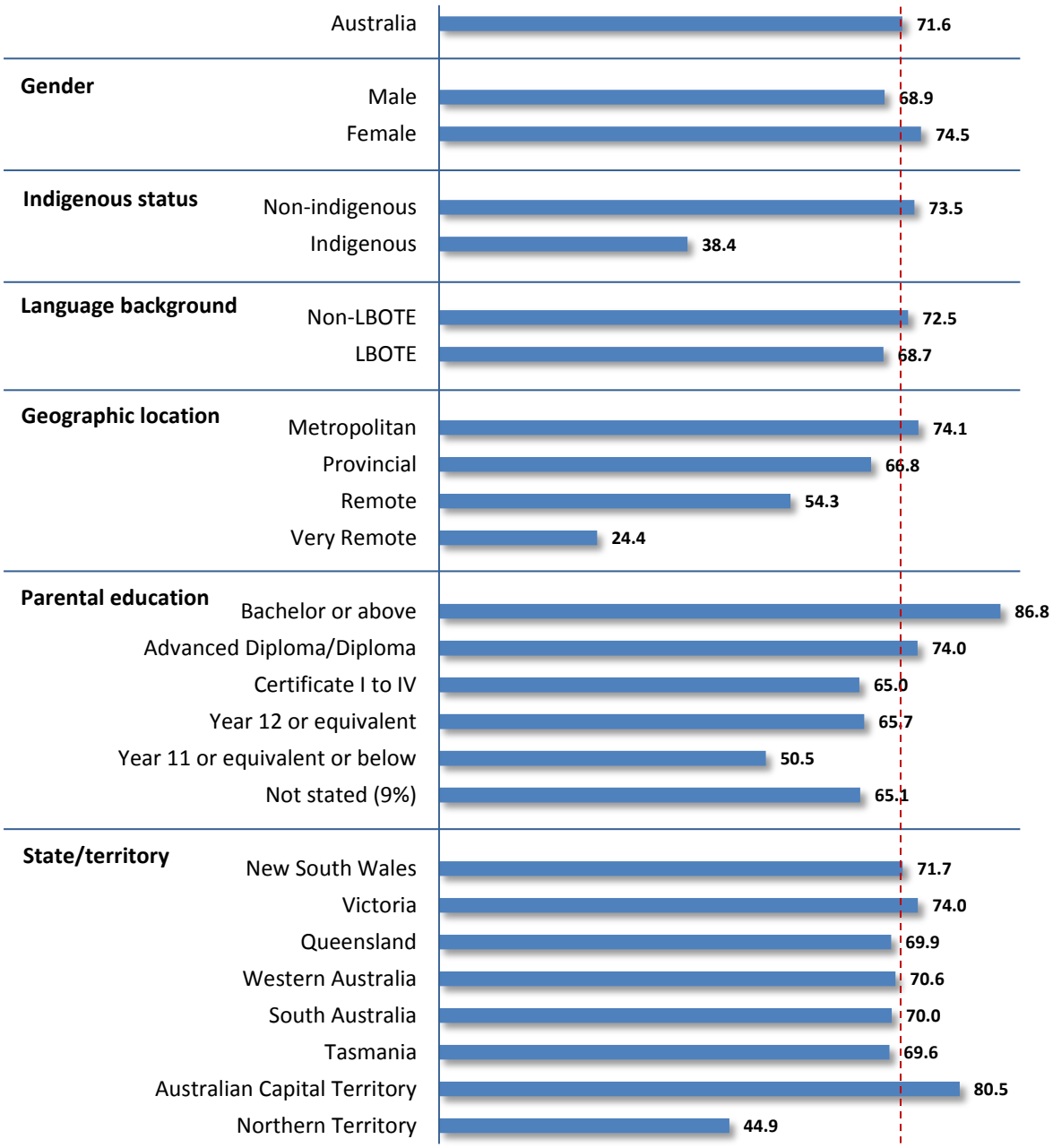
The benchmark for the Year 7 milestone used in this report has been set at the midpoint of the third NAPLAN band; that is, half a band above the NMS[6]. This standard is consistent with the baseline level of skills identified in PISA and PIRLS, which is what learners would be expected to know and be able to do at this stage of schooling (see OECD, 2014). Setting a higher benchmark enables production of a more nuanced summary of learner progress at Year 7. While the NAPLAN NMS separates only those at the bottom end of the achievement spectrum from their peers, a higher benchmark identifies a larger proportion of learners whose learning is above the minimal level, but still cause for concern. This larger group also allows for more meaningful comparisons across different sub-groups.

As shown in Figure 2.1, the proportion of Australian learners meeting the designated Year 7 milestone is lower than for the early years, at 71.6 per cent. The highest-achieving group constitutes learners with at least one parent with a university degree, of whom 86.8 per cent meet this milestone, compared to just over half of learners whose parents' highest level of education is below Year 12 (50.5 per cent). Groups with the lowest proportions meeting the milestone are learners in very remote locations (24.4 per cent), Indigenous learners (38.4 per cent), and learners in the Northern Territory (44.9 per cent), with a high level of overlap existing between these groups.

The gaps between groups of learners according to geographic location, Indigenous status and state/territory are wider at this stage than in the early years. While SES is not available in national data for this milestone, the differences according to parental education level suggest that gaps between socio-economic groups are also wider. In contrast, gaps between the proportion of boys and girls meeting the milestone, and learners from English- or non-English-speaking backgrounds, have narrowed. These trends are explored further in discussion of the learners missing out at this stage.

[6] In student-level data, the cut-off is the mid-point score in the third band. In aggregate data, the proportion below the benchmark is the proportion at the lowest two bands for that year level, plus half of the third band.

Figure 2.1 Percentage of learners meeting the milestone at Year 7



Source: NAPLAN data 2014.

Who is missing out?

Over a quarter of all Australian children are missing out on educational opportunities by the time they reach Year 7, and have not attained the designated benchmark for their learning at this level. It is important to keep in mind that – unlike the first milestone in the early years – the measure adopted for this milestone takes into account learner academic progress only, so these learners could be succeeding in other aspects of their development. Nevertheless, they are struggling on a measure that is a critical precursor for educational success.

Table 2.1 gives a more detailed picture of differences in educational opportunity at this stage, by identifying the proportions of learners missing out on this milestone by key demographic groups in each state and territory. The table also provides estimates of the numbers of learners missing out in each group.[7] Differences according to gender range from 2.2 percentage points (ACT) through to 7 (Tasmania), with the gender gap in most jurisdictions falling near the middle of this range. In almost all jurisdictions, over half the Indigenous population had not attained this milestone, with the exception of the Australian Capital Territory (ACT) and Tasmania, where proportions of Indigenous learners are especially low.

There is greater variability across jurisdictions in the differences between learners according to language background. This difference is smallest in Tasmania, which has a very low proportion of LBOTE learners at Year 7, at only 6.9 per cent (ABS, 2014). The widest difference appears in the Northern Territory, where the most-commonly spoken non-English languages are Kriol and Djambarrpuyngu (ABS, 2011), suggesting a relationship between LBOTE status and other risk factors of indigeneity and remote location. NSW and Victoria have the highest proportions of LBOTE learners in their Year 7 cohorts, at 26.3 per cent and 25.7 per cent respectively (ABS, 2014), but the gap between LBOTE and non-LBOTE learners is much wider in Victoria (5.2 percentage points vs 1.4 percentage points in NSW). These differences suggest a need for further analysis of the diversity within the LBOTE learner group.

The differences in learner progress according to parental education generally increase across states and territories as the ratio of lowest-qualified to highest-qualified adults in the population increases.[8] States and territories with a higher proportion of degree-qualified adults, relative to adults who have not completed Year 12, tend to show smaller achievement gaps between their children at Year 7. This suggests that the effects of parental education on learner achievement may be compounded in systems with higher concentrations of low parental education, but mitigated in systems where a higher proportion of learners come from more highly-educated families.

[7] The estimates use population figures, to represent an estimate if all students had participated in NAPLAN. This may result in undercounting of learners missing out, as non-participants may not match participant distribution.

[8] Based on ABS 2011 Census data for 30–49-year-olds. Tasmania is an exception to this general pattern.

Table 2.1 Young Australians not meeting the milestone at Year 7

	NSW	VIC	QLD	WA	SA	TAS	ACT	NT	All
	Percentage of learners not meeting milestone								
State/territory	28.4	26	30.2	29.5	30.1	30.4	19.6	55.2	28.4
Gender									
Boys	30.9	28.9	33.0	32.1	33.2	34.0	20.7	57.7	31.2
Girls	25.5	22.9	26.9	26.6	26.7	27.0	18.5	52.7	25.5
Parental education*									
Year 11 or below	52.4	43.7	50.6	51.7	48.0	49.1	32.7	74.7	49.5
Year 12 or equivalent	34.8	31.4	36.7	35.0	33.7	38.6	32.4	48.1	34.3
Certificate I to IV	36.0	34.3	35.7	33.4	34.4	34.6	31.9	48.0	35.1
Adv. Dip./Diploma	25.8	26.0	26.7	25.3	27.0	23.6	24.2	37.3	26.1
Bachelor or above	12.8	13.3	14.3	13.3	14.3	11.2	11.1	21.0	13.3
Location									
Metropolitan	26.2	24.5	27.6	26.1	28.0	28.5	19.6	-	25.9
Provincial	34.4	30.8	33.8	33.3	34.1	32.1	-	40.0	33.3
Remote	59.5	29.5	49.9	43.5	36.6	-	-	49.3	45.7
Very remote	65.3	-	67.0	69.6	62.9	-	-	90.3	75.6
Language background									
Non-LBOTE	28.0	24.7	29.4	27.1	29.3	30.9	18.8	41.8	27.5
LBOTE	29.4	29.9	35.6	31.2	33.6	29.8	22.9	80.7	31.4
Indigenous status									
Non-Indigenous	26.6	25.4	27.8	26.2	28.5	29.0	18.9	33.1	26.6
Indigenous	55.8	52.5	60.0	70.1	61.9	48.5	42.7	85.1	61.6
	Estimated number of learners not meeting milestone								
State/territory	24,310	17,009	12,316	8,804	5,667	1,857	933	1,797	72,693
Gender									
Boys	13,535	9,630	7,218	4,918	3,186	1,049	501	966	41,002
Girls	10,776	7,380	5,099	3,886	2,481	808	432	831	31,691
Parental education*									
Bachelor or above	2,058	1,782	910	633	409	81	148	80	6,100
Adv. Dip./Diploma	2,755	4,930	2,871	1,418	2,198	919	220	332	15,642
Certificate I to IV	7,855	5,381	4,122	2,636	1,744	590	283	355	22,967
Year 12 or equivalent	1,925	1,487	1,144	705	451	110	115	73	6,009
Year 11 or below	6,060	3,875	3,175	2,258	1,488	608	106	389	17,960
Location									
Metropolitan	17,307	12274	7,933	5,753	3,871	802	933	0	48,873
Provincial	6,767	4715	3,773	2,021	1,516	1,055	0	732	20,579
Remote	196	21	305	548	188	0	0	325	1,583
Very remote	40	0	305	482	93	0	0	740	1,660
Language background									
Non-LBOTE	17,684	11,989	10,302	6,872	4,645	1,733	696	909	54,829
LBOTE	6,626	5,020	2,014	1,932	1,022	124	237	888	17,864
Indigenous status									
Non-Indigenous	21,776	16,466	10,533	7,335	5,195	1,614	881	574	64,375
Indigenous	2,535	543	1783	1,469	472	243	52	1223	8,319

*Excludes learners for whom parental education data were unavailable (9%)

Source: Proportions not meeting milestone derived from NAPLAN 2014 summary data. Population figures derived from ABS 4221.0 Schools, Australia, 2014, Table 43a, including distributions by state (Y7 students), gender (Y7 students), Indigenous (Y7 students) and geographic location (based on distribution of all students for whom data was available). Distribution by parental education has been estimated from student-level NAPLAN data from a single state, adjusted for other states/territory using ABS Census 2011 data. Distribution by LBOTE derived from SCRGSP 2015 (all students).

International comparisons of achievement

The differences between groups of Australian learners are also apparent on international tests. PIRLS and TIMSS enable Australian measures of learning to be compared against international test results. Table 2.2 presents data from Australian Year 4 students in PIRLS and TIMSS by demographic group, including a comparison with the total data for all OECD countries that participated in the tests[9]. Australia's average score is below the average across all OECD countries on all three measures, and Australia has higher proportions of learners below the international standard. The proportion of top performers is slightly lower in Australia than in all OECD countries for all tests.

In reading, gender differences are similar for Australia and for all the participating OECD countries. Girls outperform boys in reading, although the gap between girls' and boys' mean scores in Australia is wider than it is across all participating OECD countries. In science, boys have a higher mean score than girls in all OECD countries, but there is little difference between the genders in science in Australia. In mathematics, boys outperform girls in Australia and across all the OECD countries, with the gender differences being a similar size.

Of Australia's states and territories, only the ACT had a mean score above the mean for all participating OECD countries in all three tests. Victoria also achieved a mean score above the OECD mean for mathematics, and an equivalent mean score to all OECD countries for science. The ACT had proportions of top performers above the proportion for all OECD countries in all three tests, while the proportions of top performers in Victoria, NSW and Tasmania were also comparable to those in the international sample. All Australian jurisdictions except the ACT had higher proportions of learners below the international Intermediate benchmark than were present across all the OECD countries, except for Victoria, which had an equivalent proportion of learners below the benchmark in science.

Importantly, every Australian demographic group includes learners who are top performers by international standards. Further analysis of student-level data revealed that all the Indigenous learners in the "top performers" category came from metropolitan or provincial locations, and all had at least one parent with post-secondary education. The same was true for all but one of the top performers who only sometimes, or never, spoke English at home. This suggests that similar factors are associated with high achievement for learners across language and cultural groups.

[9] OECD results should be treated with caution, as not all OECD nations participated in PIRLS and TIMSS 2011.

Table 2.2 Australian Year 4 student performance on international standardised tests

	Mathematics			Reading			Science		
	Mean score	Below standard (%)*	Top performers (%)**	Mean score	Below standard (%)*	Top performers (%)**	Mean score	Below standard (%)*	Top performers (%)**
Australia	516	30	10	527	24	10	516	29	7
OECD average***	529	24	12	544	17	12	529	23	10
Gender									
Australia									
Boys	520	28	11	519	28	8	516	29	8
Girls	513	31	9	536	21	12	516	27	7
*OECD average****									
Boys	532	24	13	539	19	10	532	23	11
Girls	526	25	10	549	14	13	526	24	8
State/Territory									
New South Wales	525	26	12	535	22	12	522	26	9
Victoria	531	25	13	539	20	12	529	23	10
Queensland	499	36	5	511	31	6	501	34	4
Western Australia	499	38	7	516	28	8	502	33	6
South Australia	502	34	6	518	26	6	506	32	5
Tasmania	517	32	10	525	27	11	518	28	9
ACT	545	19	14	558	13	17	547	16	13
Northern Territory	489	41	5	509	33	7	491	40	4
Location									
Metropolitan	521	28	11	532	22	11	520	27	8
Provincial	505	34	8	518	29	8	507	33	6
Remote	457	50	3	462	52	1	459	48	3
Parental education									
Secondary or lower	496	37	4	508	28	5	498	33	2
Post-secondary	517	27	7	529	22	8	516	27	4
University or higher	564	11	22	571	9	21	562	10	16
Language background									
Speaks English at home									
Always	520	28	10	531	22	11	522	26	8
Sometimes	509	33	9	515	29	7	500	36	5
Never	460	56	5	472	46	3	463	47	4
Indigenous status									
Non-Indigenous	522	28	10	532	22	11	522	26	8
Indigenous	458	55	2	475	48	3	458	53	2

* At or above Intermediate international benchmark

** At or above Advanced international benchmark

*** Based on weighted student results for all participating OECD countries: 24 in PIRLS 2011, and 26 in TIMSS 2011. This includes 21 OECD countries that participated in both data collections.

Source: Thomson et al., 2012, except figures for OECD countries, parental education levels, and learners "never" or "sometimes" speaking English at home, which are estimated directly from PIRLS and TIMSS 2011 data.

The widening gap from the early to middle years

The international results show that the gaps between groups of learners present at Year 7 are also evident at Year 4. Data from Australian achievement measures can be used to chart the development of these gaps over the early to the middle years. Figure 2.2 takes the Year 7 2014 cohort shown in Figure 1.1, and tracks their progress back through earlier milestones during primary school[10]. Although the composition of the cohort changes slightly from year to year, this gives some indication of the progress of the Year 7 2014 cohort through their primary schooling. The proportion of learners in each NAPLAN band is also shown in the graph, to illustrate whether the differences in outcomes between different types of students are consistent at each level of academic achievement.

The results shown in Figure 2.2 differ markedly between reading and numeracy. In reading, the differences between boys and girls, and between Indigenous and non-Indigenous learners, remain relatively stable at each point of measurement. The gap between LBOTE and non-LBOTE learners disappears at Year 3, then re-emerges at Year 5. Given the diversity within the LBOTE group, further research is necessary to explore this pattern.

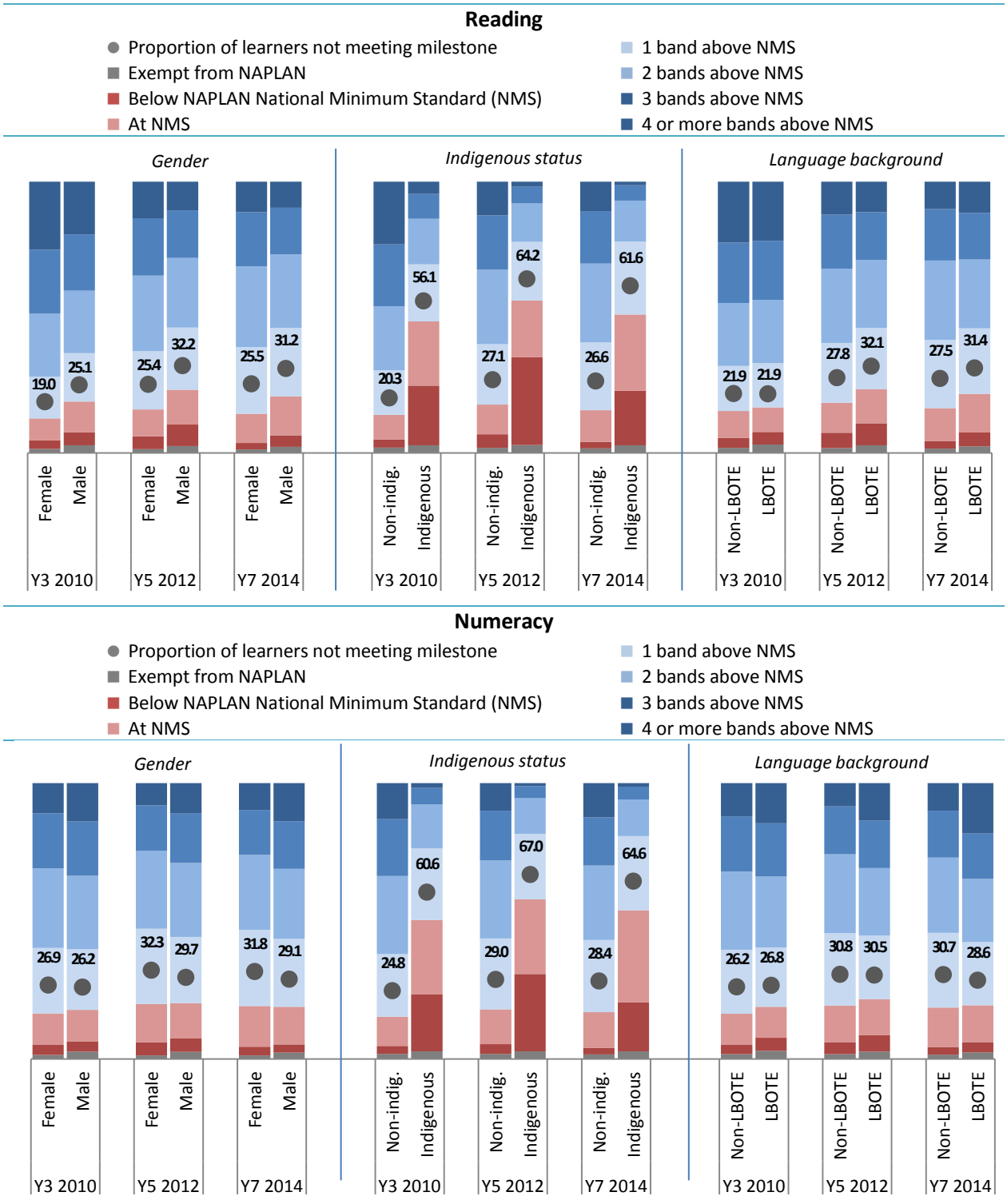
In numeracy, differences by gender and language background reverse as learners progress. By Year 5, more boys than girls meet the milestone in numeracy, and this gap widens by Year 7. A similar pattern is evident for the LBOTE category, although it is important to note that this finding does not recognise the persistent disadvantage experienced by the most vulnerable learners within the LBOTE group (Creagh, 2013).

Differences based on Indigenous status are the most significant and persistent, reflecting the significant ongoing challenges that Australian Indigenous learners face in the education system. However, these system-level results mask the achievements of Indigenous learners and communities in sustaining improvement in educational achievement. When the same analysis is repeated for the 2014, 2013 and 2012 Year 7 cohorts, Indigenous learners are shown to have improved as a group at the same rate as non-Indigenous learners, and the proportions of Indigenous learners not meeting the milestones has decreased with each cohort. Furthermore, many Indigenous learners are achieving at the same level or higher than their non-Indigenous peers, and some schools and communities are achieving particularly strong results in Indigenous learning (Purdie et al., 2011). Identifying and mobilising areas of “Indigenous advantage” (Bamblett, 2015) provides a strong base for increasing Indigenous learner access to educational opportunities.

Parental education has again been reported here as a proxy for socio-economic status. Patterns of achievement by parental education in the primary years suggest a widening gap between learners with different levels of advantage in their home and family background (Figure 2.3). For learners with a degree-qualified parent, the proportion not meeting the milestone increased by only 4.3 percentage points in reading between Year 3 2010 and Year 7 2014, and only 1.7 percentage points in numeracy over the same period. In contrast, learners whose parents had not attained education above Year 11 showed an increase of 10.5 percentage points in the proportion below the benchmark in reading, and an increase of 8.6 percentage points in numeracy. This suggests that the Australian education system does not adequately mitigate the adverse effects of lower parental education levels on educational opportunity, and in fact, appears to exacerbate them.

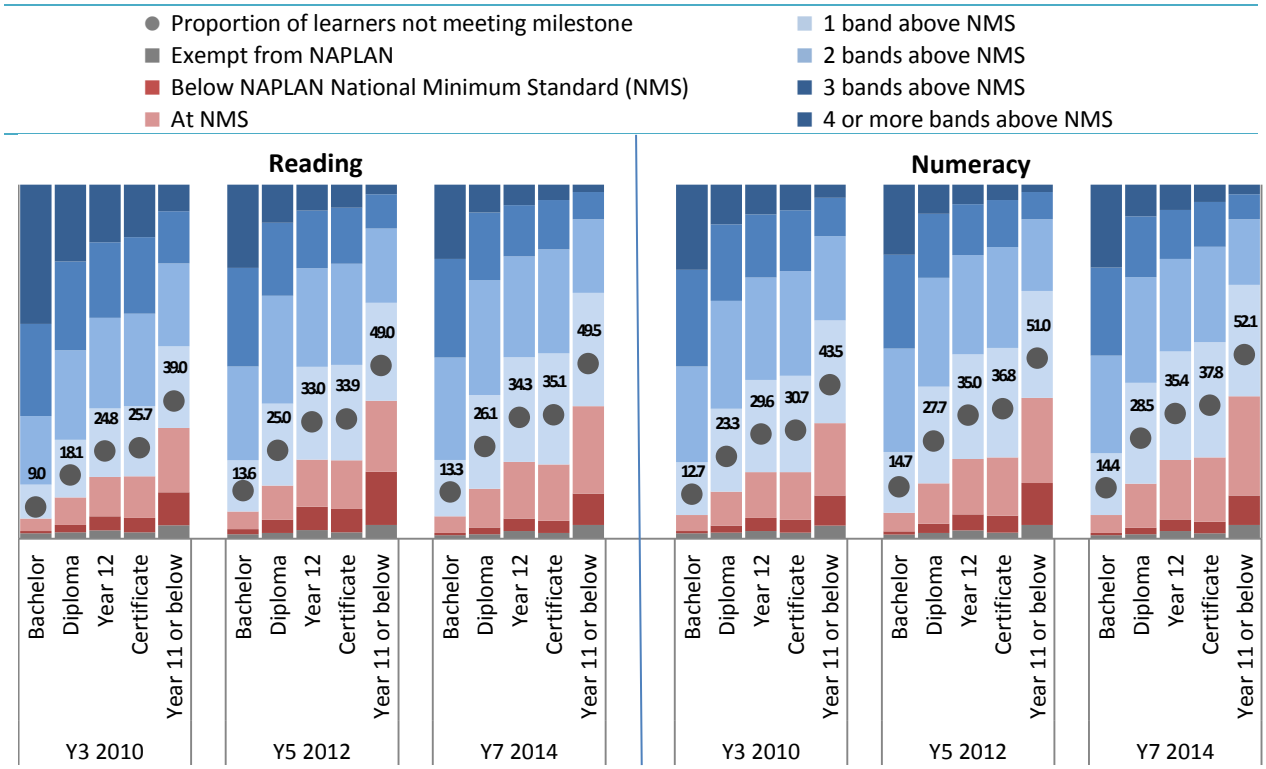
[10] The same method for setting a benchmark was used at all year levels (midpoint of the third NAPLAN band).

Figure 2.2 Proportion of learners in each NAPLAN band at Year 3 2010, Year 5 2012 and Year 7 2014, showing proportion of learners not meeting each milestone



Source: NAPLAN data 2010, 2012 and 2014

Figure 2.3 Proportion of learners in each NAPLAN band at Year 3 2010, Year 5 2012 and Year 7 2014 by parental education, showing proportion of learners not meeting each milestone



Source: NAPLAN data 2010, 2012 and 2014 (excluding learners with "Not stated" for parental education).

Those who improve and those who remain behind

These results show that the proportion of learners missing out on educational opportunities increases steadily between the early years and middle years, and increases more rapidly for some groups than for others. However, this cohort-level analysis does not show the progress of individual students within these system-wide patterns. The group of learners who do not reach each milestone is not necessarily constituted of the same learners, with some learners recovering from a missed milestone to get back on track, and others slipping below the benchmark, despite a promising start. Matched student-level cohort data enables a better understanding of which learners catch up and fall behind over this period.

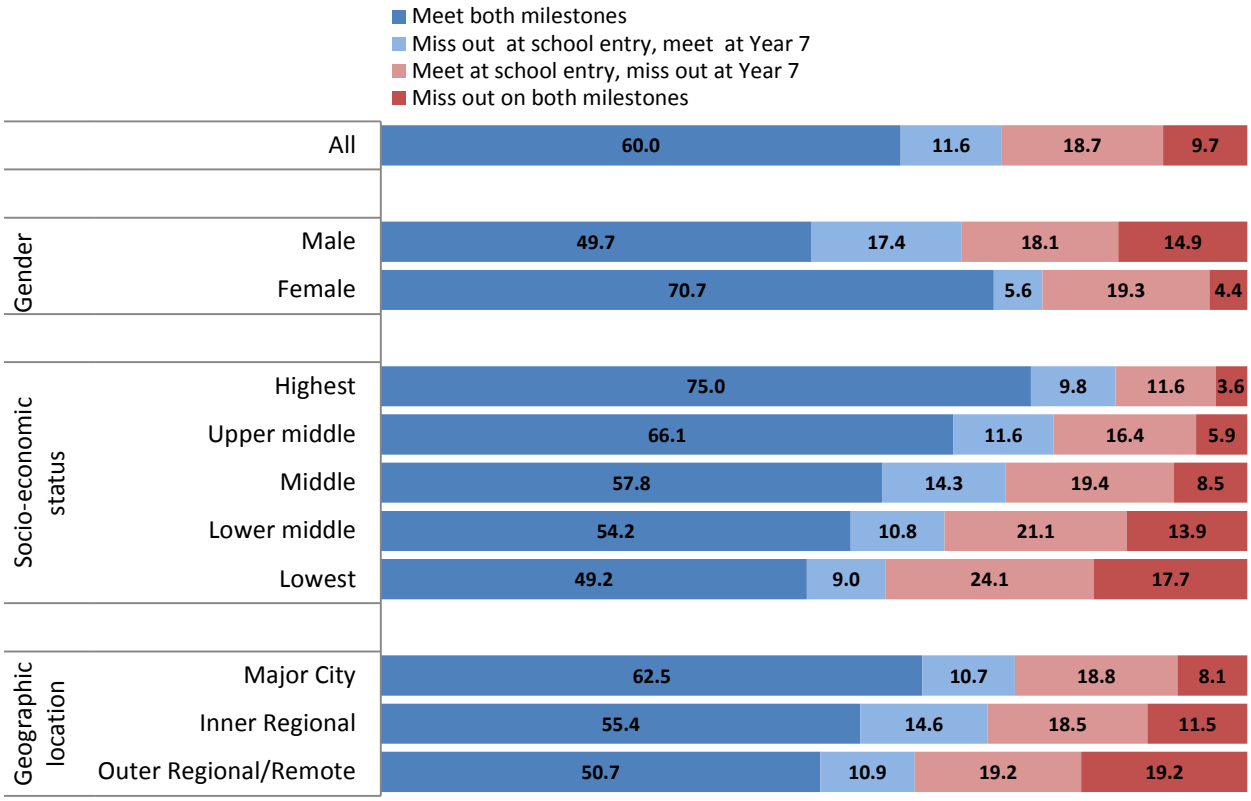
Matched data from the LSAC suggests that almost one in 10 learners misses out on both milestones, at school entry and Year 7 (9.7 per cent) (Figure 2.4)[11]. Approximately one in eight learners who missed the milestone at school entry were back on track by Year 7 (11.6 per cent), but a higher proportion of learners fell below the benchmark over this period, failing to capitalise on a positive start to school (18.7 per cent). Six in 10 learners remained on track for both milestones, at school entry and Year 7.

Boys were far more likely than girls to fall below expected standards on both milestones (14.9 per cent vs 4.4 per cent), but also showed a much greater tendency than girls to get back on track (17.4 per cent vs 5.6 per cent). A more consistent pattern emerged according to SES. Learners in the lowest SES quintile were not only the most likely to miss both milestones at school entry and Year 7, but the most likely to fall below the expected standard by Year 7, despite having been on track at entry to school. The group most likely to get back on track during this period were learners in the middle SES quintile, while the vast majority of learners in the highest SES quintile remained on track from school entry through to Year 7 (75 per cent). Regression

[11] See Appendix 3 for discussion of how milestones were determined in the LSAC data.

analysis indicates that the differences shown in geographic locations in this analysis can be almost entirely explained by differences in SES.

Figure 2.4 Learner progress from school entry to Year 7, by gender, SES[12] and location



Source: LSAC K Cohort data.

These results show that learners who are not school-ready at the point of entry to school have opportunities for recovery. The light red areas of Figure 2.4 show that there is also risk of decline, and that many learners who begin their schooling positively fall below expected levels by the middle years. These two groups of learners, whose fortunes change between school entry and Year 7, provide a telling insight into who benefits most from the education system at this stage. Table 2.3 portrays these two groups by gender, Indigenous status, SES, geographic location and language background.

[12] Based on SEIFA IRSD.

Table 2.3 Learners who catch up and fall behind, from school entry to Year 7

	Missing out at school entry (%)		On track at school entry (%)	
	Caught up by Year 7	Still below benchmark at Year 7	Still on track at Year 7	Fell below benchmark by Year 7
Australia	54.4	45.6	76.3	23.7
Gender				
Males	53.9	46.1	73.3	26.7
Females	56.3	43.7	78.6	21.4
Indigenous status				
Non-Indigenous	54.9	45.1	77.0	23.0
Indigenous*	39.8	60.2	43.8	56.2
Location				
Major city	57.0	43.0	76.9	23.1
Inner regional	56.0	44.0	75.0	25.0
Out. reg./Remote*	36.3	63.7	72.5	27.5
SES quintile				
Lowest*	33.8	66.2	67.1	32.9
Lower middle	43.8	56.2	72.0	28.0
Middle	62.8	37.2	74.8	25.2
Upper middle	66.2	33.8	80.1	19.9
Highest*	73.1	26.9	86.6	13.4
Language background				
English only	54.9	45.1	76.2	23.8
LBOTE*	45.6	54.4	78.4	21.6

* Figures should be treated with caution due to low numbers in the LSAC sample.
Source: LSAC K Cohort data. Cumulative population weights have been applied. SES quintile based on SEIFA IRSD.

Table 2.3 illustrates the differences in educational opportunity as learners progress from the early to middle years. Gender differences are minimal in this analysis, as similar proportions of boys and girls who met the milestone at school entry remained on track at Year 7 (73.3 per cent boys, 78.6 per cent girls), and similar proportions who were not school-ready managed to catch up (53.9 per cent boys, 56.3 per cent girls). Differences according to language background are also small among the learners who were school-ready, but more significant for learners who were not. Over half the LBOTE learners who were not school-ready were still behind at Year 7 (54.4 per cent), compared to 45.1 per cent of English speakers.

Indigenous learners were the group for whom a positive start to school provided the least guarantee of success at the next milestone. Of Indigenous learners assessed as school-ready, over half had fallen below expected standards of learning by Year 7 (56.2 per cent). There was nevertheless movement in both directions within the Indigenous cohort, with almost two in five of the learners who missed the first milestone having caught up by the second (39.8 per cent). While this proportion is lower than for non-Indigenous learners, it is evidence that many Indigenous learners succeed in overcoming challenges and achieving in their learning.

For learners who were not school-ready, SES was the most powerful factor in determining their chances of getting back on track. Almost three-quarters of the learners who started school below the benchmark were on track by Year 7 in the highest SES quintile (73.1 per cent), compared to around one-third of such learners in the lowest SES quintile (33.8 per cent). The chances of recovering from a poor start to school, and of

staying on track for learners who were school-ready, both increased steadily along with SES. Similarly, SES was found to have a mitigating effect on the impact of other risk factors, with learners from other at-risk groups (males, LBOTE, Indigenous) more likely to recover or stay on track if they came from more socio-economically advantaged backgrounds.

Measures of learning at Year 3 and Year 5 in the LSAC data provide further detail regarding learner progress between school entry and the middle years. Taking all four milestones –school entry, Year 3, Year 5 and Year 7 – approximately one in twenty learners missed all four (4.8 per cent). While this indicates that around half the learners who missed both key milestones at school entry and Year 7 experienced some success in the intervening years, it still equates to an estimated 12,450[13] learners for whom the early to middle years constituted an experience of constant low achievement. According to the LSAC data, just under half of these learners (48.4 per cent) received specialised support services at age 6/7, dropping to 38 per cent at age 8/9. This suggests that most of these learners are in mainstream classrooms, struggling within a universal education system charged with providing opportunity to all.

The compounding effects of multiple risk factors

The relationship between student-level risk factors has been examined in recent research, using a large sample of two matched cohorts of students between 2011 and 2013, from Year 3–5 and Year 7–9 (CIRES, 2015). The research found that previous results had the strongest predictive power for results at the next NAPLAN assessment in both reading and numeracy (Table 2.4). However, being from a low-SES family or having an Indigenous or LBOTE background were also significant risk factors, independently of students' previous results. Students' gender had a marginal effect in comparison with those of other risk factors.

[13] Estimated based on ABS 4221.0 Schools, Australia, 2014, Table 43a, Year 7 FTE students.

Table 2.4 Odds ratios of staying on track between 2011 and 2013, showing student-level and school-level risk factors

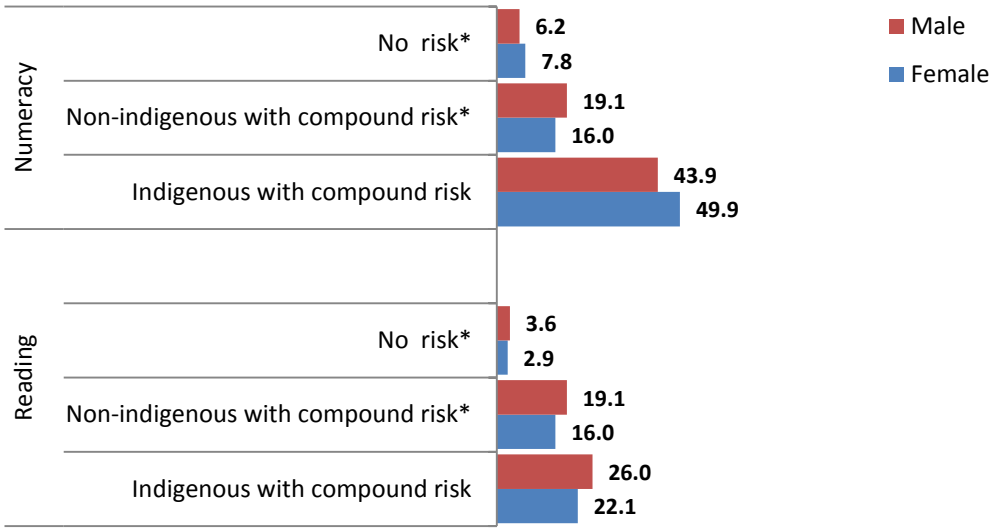
		Year 5 on track		Year 9 on track	
Explanatory variables		*Reading*	*Numeracy*	*Reading*	*Numeracy*
Student	Prior performance	12.3 (+*)	13.3 (+*)	20.9 (+ *)	33.9 (+*)
	Family SES	1.02 (+*)	1.03 (+*)	1.02 (+ *)	1.02 (+*)
	Indigenous status	0.71 (-*)	0.58 (-*)	0.67 (- *)	0.52 (-*)
	LBOTE status	0.84 (-*)	1.06	1.09 (+*)	1.40 (+*)
	Gender (Male)	0.80 (-*)	1.29 (+*)	0.82 (- *)	1.34 (+*)
School	School SES	1.04 (+*)	1.05 (+*)	1.05 (+*)	1.06 (+*)
	Indigenous proportion	0.98 (- *)	0.94 (-*)	0.99 (- *)	0.96 (- *)
	School size	0.94 (- *)	0.98	0.98	0.97
	School sector				
	Cath. vs Independent	1.45	1.76 (+*)	1.06	1.09
	Gov. vs Independent	1.39	2.26 (+*)	1.01	1.10
	Selective school				
	Non-selective vs fully selective			0.07 (-*)	0.06 (-*)
	Non-selective vs fully selective			0.10 (-*)	0.07 (-*)

* Selected variable is statistically significant at the 5% significant level in predicting student outcomes.
"+" indicates the selected variable has a positive effect on student outcomes; "-" indicates a negative effect.
Source: CIRES 2015.

The risk of falling behind in academic progress increased further for learners at certain types of schools. Table 2.4 shows that the risk of missing two consecutive milestones is higher for learners at schools with the following attributes: low SES (as measured by the school SEIFA index); high concentration of Indigenous students; small schools; and high concentration of LBOTE students. After taking into account both student and school level factors, school sector and location by themselves do not appear to make any difference to outcomes at the level of individual learners (CIRES, 2015). For example, a high-SES, English-speaking, non-Indigenous learner may be equally likely to succeed, whichever school sector they attend.

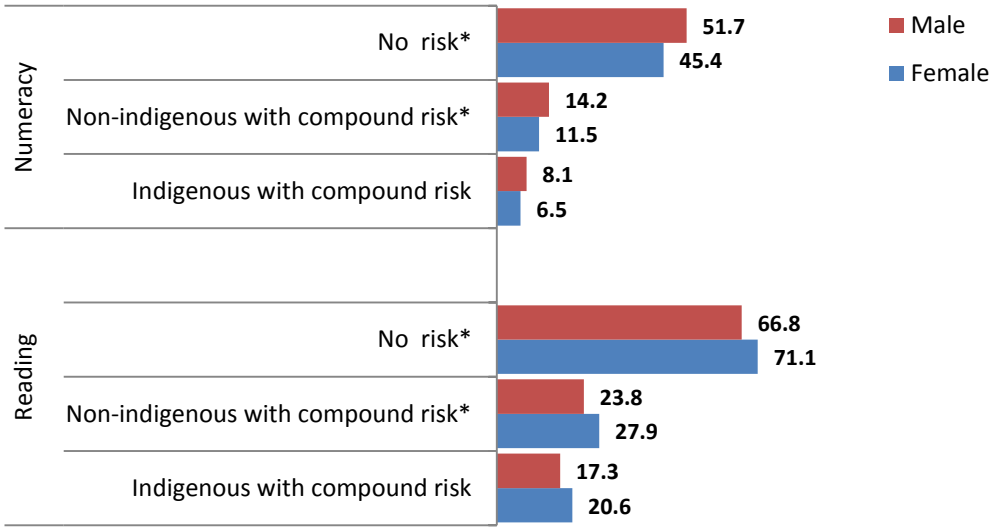
Some students experience multiple or compounding risk factors at both the student and school level. For example, learners from a low-SES family attending a low-SES school can experience the compounding effects of multiple risk factors on their learning outcomes. Figures 2.5 and 2.6, which show results from the matched Year 3 to 5 cohort, suggest that these learners are not only most likely to fall below the benchmark during their primary schooling but least likely to catch up at the next stage (CIRES, 2015).

Figure 2.5 Percentage of students falling behind between Year 3 and Year 5 by compounding risk factors



Source: CIRES 2015.

Figure 2.6 Percentage of students catching up between Year 3 and Year 5 by compounding risk factors



* No risk students are those who are non-Indigenous and non-LBOTE students from a family and a school in the highest SES groups; "With compound risk" are defined as students who are from a family and a school in the lowest SES group.

Source: CIRES 2015.

Student engagement and wellbeing

Many important outcomes from primary schooling are not captured in academic test scores. These include increasing independence and self-management, connectedness to school and the community, and physical and emotional wellbeing. Some Australian jurisdictions have recognised the importance of such outcomes, by including student- and teacher-reported measures of engagement, non-cognitive learning and development in their indicators of school and system performance.

Although such measures are not standardised nationally, some non-academic elements of learner experiences of primary and middle school can be explored using national data. One way of measuring student engagement is through attendance data, available nationally at the school level. Analysis using a general linear regression model shows that attendance rate is the strongest predictor of school-level performance in NAPLAN, compared to other school-level attributes (Table 2.5). All school-level attributes included in the model explain around 70 per cent of variation in overall NAPLAN performance between Australian schools in 2013, with school attendance rates alone accounting for around 40 per cent of this variation.

Table 2.5 Effects of attendance rate on school performance in standardised academic tests, relative to other school-level factors

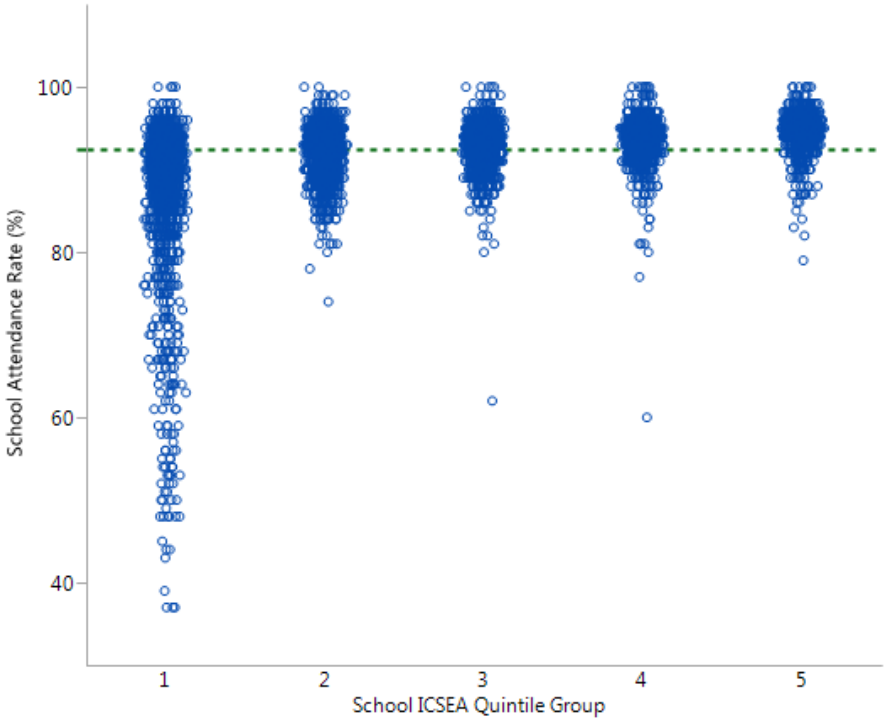
Explanatory Variable	Standardised effect		
	Model excluding Attendance	*Model including Attendance*	*Model including Attendance only*
Intercept	-0.70	0.30	-0.02
School SES (SEIFA Index)	0.41	0.37	
Attendance Rate		0.39	0.63
Indigenous concentration	-0.27	-0.20	
LBOTE Concentration	-0.07	-0.06	
School size	0.16	0.11	
School Type			
Combined vs Secondary	0.23	-0.13	
Primary vs Secondary	-0.05	-0.06	
School Sector			
Catholic vs Independent	0.13	-0.36	
Government vs Independent	0.56	-0.40	
School Location			
Very Remote vs Metropolitan	0.38	-0.23	
Remote vs Metropolitan	0.52	-0.11	
Provincial vs Metropolitan	-1.07	0.14	
R-squared	0.63	0.70	0.40

Data have been are standardised for comparison of effects; School-level NAPLAN performance is measured as the mean of standardised school mean scores in reading and numeracy for each school, for all NAPLAN cohorts. The estimated effects reported in the table are all statistically significant at 1% significance level.
Source: ACARA 2013 school-level NAPLAN results data.

Although the relationship is not linear, school attendance rates and level of socio-educational advantage are clearly linked (Figure 2.7). Most of the schools with a low attendance rate are in the most disadvantaged school group, as measured by ICSEA[14]. However, not all disadvantaged schools have a low attendance rate. Many schools serving highly disadvantaged communities are achieving attendance rates comparable to the most highly-advantaged schools.

[14] ICSEA reflects the level of socio-educational advantage at both student and school levels, including student family background (parental occupation, and parental school education and non-school education); school geographical location; and the proportion of indigenous students.

Figure 2.7 Distribution of school attendance by school ICSEA quintiles 2013



Source: 2013 school-level NAPLAN results and school profile data.

Attendance at school does not automatically translate to gains in learning (Ladwig & Luke 2014). Engagement in school constitutes more than simply being present in a school program, and also requires students to be in a frame of mind conducive to learning (Hoffman et al., 2005). A range of dispositions or outlooks has been associated with school engagement and academic success (Farrington et al., 2012). We chose four such dispositions for exploration at this stage of learning: belonging at school, self-efficacy as a learner, conscientiousness and persistence.

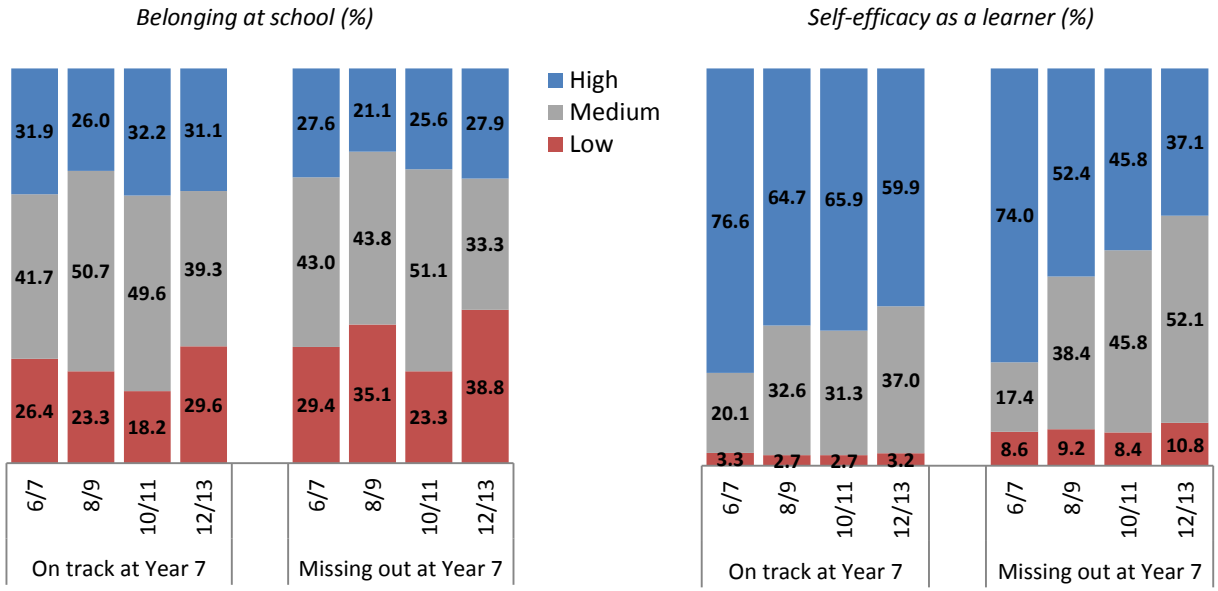
Fostering these dispositions is an important precursor of supporting academic achievement, as well as a valuable outcome of schooling in its own right. Learners who possess these dispositions are not only more likely to succeed at school, but will be better equipped for life, learning and employment beyond their schooling. Self-reported measures of school engagement have been found to be strongly predictive of long-term education and employment outcomes through to adulthood, independently of various factors in learner backgrounds (Abbott-Chapman et al., 2014).

We examined these four dispositions using longitudinal data from LSAC, tracking the same learners from school entry to Year 7.[15] Comparing the learners who met or fell below the milestone at Year 7, clear differences emerge. Learners who met the Year 7 milestone were more likely to have reported high levels of belonging at school at every age, while the inverse was true for learners who did not meet the milestone (Figure 2.8). More striking differences emerge in sense of self-efficacy as a learner. Around three-quarters of learners in both groups reported high levels of self-efficacy at age 6/7, and self-efficacy levels declined for both groups as they got older. However, this decline was much steeper for learners whose learning was

[15] At each LSAC wave, survey items associated with each disposition were identified. If more than one item was identified, these were combined into composite scales. As much as possible, the same or similar items were used in all waves. Two scales were measured using learner-reported measures (Belonging at school and Self-efficacy as a learner), and two using teacher-reported measures (Conscientiousness and Persistence).

below the expected standard at Year 7. This suggests that learners may internalise the institutional view of their abilities as they progress through school, potentially creating a self-fulfilling expectation of failure.

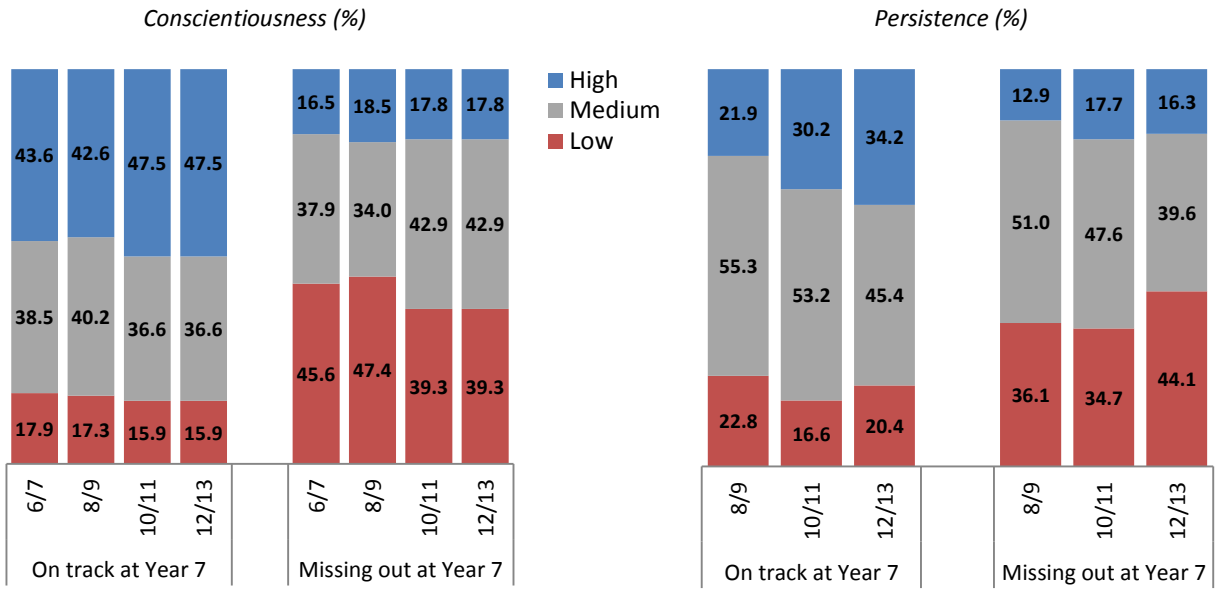
Figure 2.8 Learner self-reported dispositions over time, by outcome at Year 7 milestone



Source: LSAC K Cohort data.

Similar differences were evident in learner dispositions reported by their teachers. Learners who did not meet the milestone at Year 7 had significantly lower levels of teacher-reported conscientiousness at each age (Figure 2.9). Measures of persistence (available in LSAC in a consistent scale from age 8/9 onwards) in learners who would be on track at the Year 7 milestone showed a marked increase in the proportion with high levels of persistence as the cohort got older. This again suggests the possibility of a self-reinforcing effect, as persistence is rewarded with success, encouraging even greater determination.

Figure 2.9 Learner dispositions over time, by outcome at Year 7 milestone



Source: LSAC K Cohort data.

This brief discussion of the dispositions associated with educational success provides a glimpse of the

complex attitudinal and behavioural factors that differentiate the school experience for learners who are on track and those who miss out. Considerable further research would be required to establish a full suite of such measures, and to establish their relationship with academic achievement and other measures of success. The direction of causality also remains uncertain, as the extent to which these dispositions engender or are engendered by academic success is unclear. Further uncertainty remains around the malleability of these dispositions, which are heavily influenced by personality and environmental factors.

The complexity of measuring non-academic dimensions of the school experience should not prevent systems from attempting this task. Supporting these dispositions, and the many other skills and behaviours associated with them, is amongst the most important work that schools can do, in setting their learners on a path towards future success. Efforts to measure "non-cognitive" or "21st century skills" recognise that what schools achieve for learners cannot be adequately captured in standardised academic tests. The measurement of non-academic skills and dispositions may also help make visible the achievements of students who do not perform well in academic testing, and the contribution that schools make to their learning (Jordan, 2010).

Importance of schools

It is not only the characteristics of learners themselves that affect their learning. As was shown in Table 2.5, school-level factors affect the overall achievement levels within a school, such as school sector, size and location, as well as proportions of low-SES families, Indigenous and LBOTE students. These factors can affect learner access to educational opportunities at the school level, over and above the effects of risk factors associated with the characteristics of the learners themselves. A learner with multiple student-level risk factors who attends a "good" school can have better access to educational opportunities than a learner with fewer risk factors in a poor-performing school environment.

A key dimension of school segregation in Australia is school sector. The share of students enrolled in the government, Catholic and independent school sectors shifts gradually as learners progress from the early to middle years. The greatest shift occurs between Years 6 and 7, when most Australian students transition from primary to secondary school, and many students move from the government to non-government sector (Table 2.6). As this shift impacts most strongly on the later years of schooling, it is explored further in the next section.

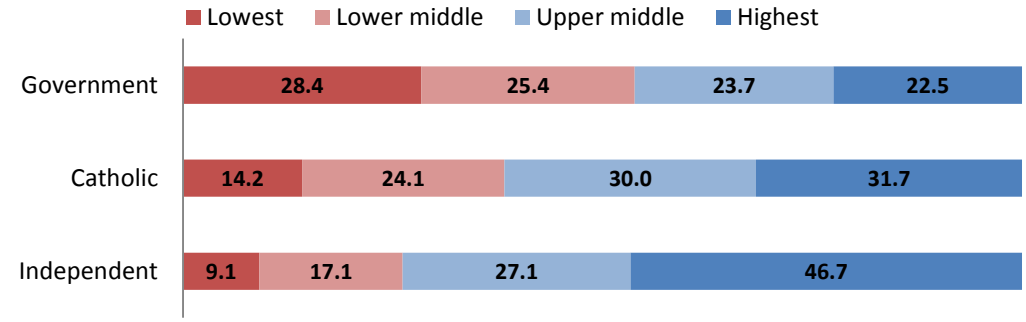
Table 2.6 Primary to Year 9 enrolments, by school sector and year level

	Share of total students (%)			Share of total students (number)		
Sector	*Government*	*Catholic*	*Independent*	*Government*	*Catholic*	*Independent*
Year 1	70.1	19.2	10.6	217,577	59,656	33,004
Year 2	70.1	19.1	10.8	213,059	58,211	32,769
Year 3	69.4	19.4	11.2	203,516	56,917	32,945
Year 4	68.8	19.4	11.8	193,936	54,624	33,378
Year 5	67.6	19.6	12.8	188,988	54,877	35,792
Year 6	67.0	19.7	13.3	184,014	54,049	36,601
Year 7	58.3	23.4	18.3	149,282	59,862	46,819
Year 8	57.8	23.7	18.5	160,155	65,609	51,274
Year 9	58.8	23.0	18.2	165,114	64,471	51,054

Source: ABS 4221.0 Schools, Australia , 2014, Table 43a.

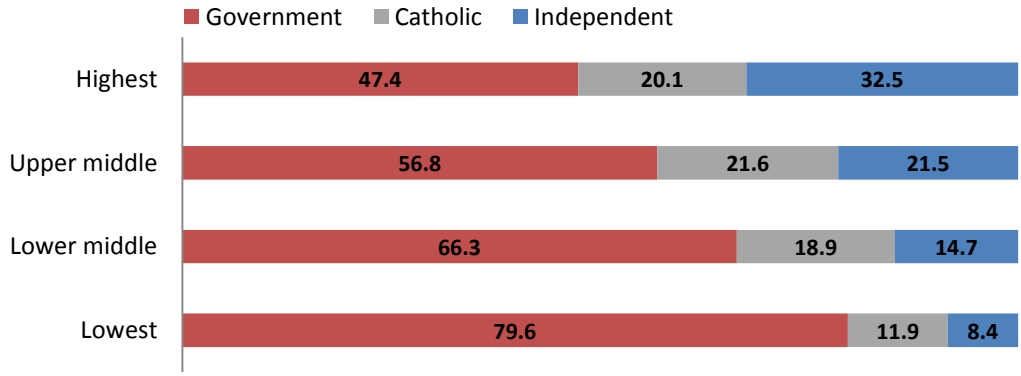
National school-level data report the proportion of students in each ICSEA quartile for each school. While not a measure of SES, this measure of socio-educational advantage provides some indication of the share of most and least advantaged learners across each school sector. Figure 2.10 shows that government schools serving primary-age students draw over half their students from the lowest two quartiles of socio-educational advantage (53.8 per cent). The importance of government schools in serving disadvantaged learners is further illustrated in Figure 2.11, which shows that almost four in five primary-age learners in the lowest ICSEA quartile attend government schools (79.6 per cent).

Figure 2.10 Socio-educational advantage (ICSEA quartile) in enrolments in schools serving primary students, by sector



Source: ACARA 2013 school profile data.

Figure 2.11 Sector share (%) of enrolments in schools serving primary students, by student socio-educational advantage (ICSEA quartile)



Source: ACARA 2013 school profile data.

Table 2.7 shows that the social and educational backgrounds of students, as measured by ICSEA, has strong effects on school performance, independently of other school-level characteristics. Controlling for other school-level factors, the level of educational advantage of students has a marked impact on the proportion of students above or below the designated Year 7 benchmark in reading and numeracy. All else equal, as the proportion of advantaged students increases at a school, so does the proportion of students achieving above the benchmarks in reading and numeracy.

As the results shown in Table 2.7 are based on school-level data, they do not distinguish between the effects of individual student characteristics and school attributes. Prior research using student-level NAPLAN data suggests that most of the variation in student NAPLAN outcomes (70–80 per cent) can be attributed to differences in student individual attributes (CIRES, 2015). There nevertheless remains a significant proportion of variation in outcomes that can be attributed to school-level factors, with the size of this effect increasing significantly as learners progress from primary to secondary school (ibid.).

Table 2.7 Standardised effects of key school-level risk factors in Year 7 NAPLAN reading and numeracy

Explanatory variable		Effect on proportion of learners below reading benchmark		Effect on proportion of learners below numeracy benchmark	
Intercept		36.2	*	35.9	*
School SES (SEIFA Index)		-16.2	*	-16.8	*
LBOTE concentration		1.3	*	0.6	*
School size		0.7	**	1.5	*
School sector	Catholic vs Government	-1.2	*	-0.9	
	Independent vs Government	-1.5	*	0.4	
State/Territory	ACT vs NSW	3.3	**	7.4	*
	VIC vs NSW	-2.3	*	-1.8	*
	QLD vs NSW	2.7	*	-0.2	
	WA vs NSW	1.0	**	0.7	
	SA vs NSW	2.3	*	4.7	*
	TAS vs NSW	-2.5	**	0.2	
	NT vs NSW	-2.4	**	-1.3	
	R-squared	0.80		0.74	

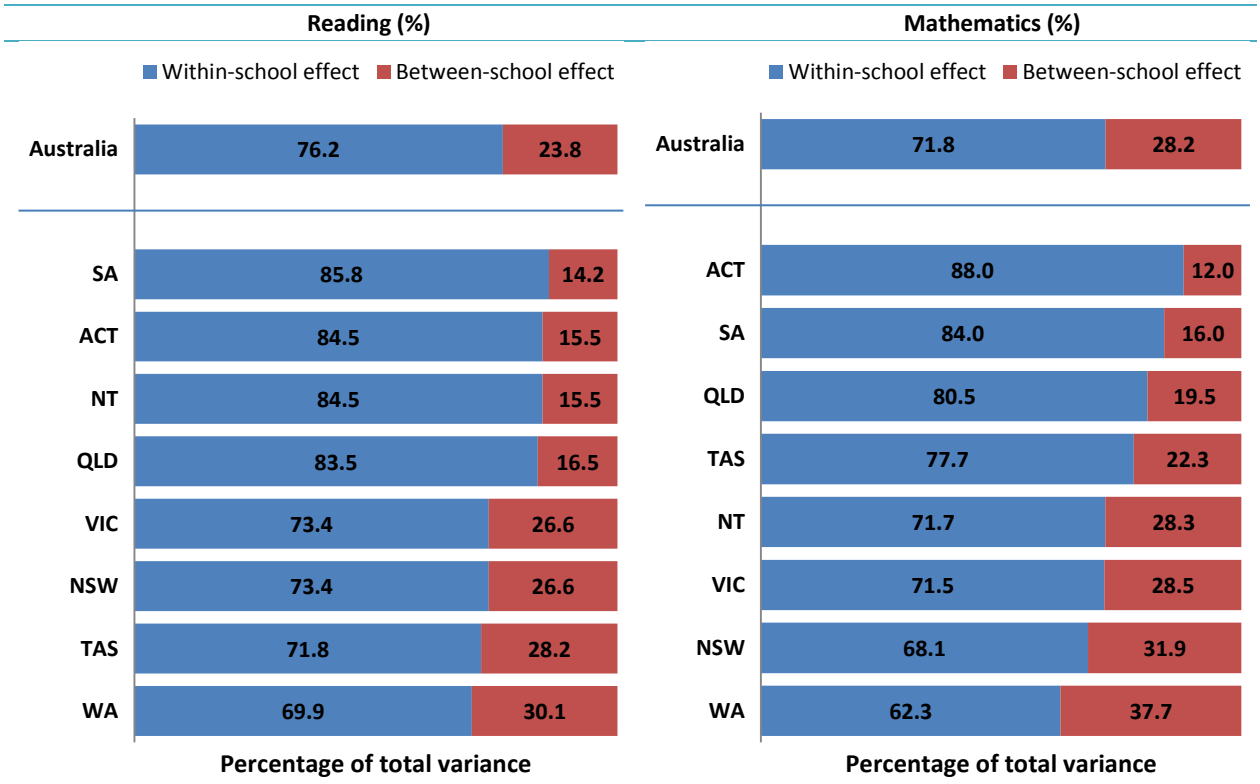
Data have been are standardised for comparison of effects.
* Indicates the results are statistically significant at 1% significance level.
** Indicates the results are statistically significant at 5% significance level.
Source: school-level NAPLAN results 2013.

Figure 2.12 compares between-school effects, or the extent to which student outcomes differ across schools, and within-school effects, or the extent to which student outcomes differ within the same school based on students' individual characteristics. This analysis indicates the extent to which the characteristics of the school affects learners' access to educational opportunity, compared to the characteristics of the learners themselves. The data represent Australian results on standardised international measures of academic progress in Year 4 reading and mathematics.

The between-school effects for Australian Year 4 students are similar to those of the United States (25 per cent in reading, 31 per cent in mathematics) and New Zealand (31 per cent in both reading and mathematics). However, they are considerably higher than in England (18 per cent in both reading and mathematics), and Canada (19 per cent in reading, no data available for mathematics). This suggests that Australia has a relatively highly segregated primary school system when compared to primarily English-speaking systems that have followed a similar policy trajectory. In Finland, noted for its high levels of both achievement and equity in international tests, the percentage of variation explained by school-level factors at Grade 4 is only 10 per cent in both reading and numeracy.[16]

[16] Based on analysis of PIRLS and TIMSS 2011 data for individual OECD countries.

Figure 2.12 Comparison of within-school and between-school effects on reading and mathematics achievement, for Australian Year 4 learners



Source: PIRLS and TIMSS 2011 data. Total student weights have been applied.

Figure 2.12 shows that approximately one quarter of the variation in learner outcomes in reading and mathematics at Year 4 can be accounted for by between-school effects (23.8 per cent in reading, 28.2 per cent in mathematics). In both reading and mathematics, these effects are highest in Western Australia, which also recorded the widest overall range of achievement on both measures. School-level effects accounted for less than 20 per cent of the total variation in the ACT, South Australia and Queensland on both measures, and also in the Northern Territory for reading. Victoria is notable for having one of the narrowest overall ranges of achievement, but a level of between-school variation above the national level on both measures.

The principle of "school choice" is a driving force in education policy in many Australian jurisdictions. The OECD cautions that school choice policies must be carefully implemented, to ensure they do not exacerbate equity issues by increasing differences in the social composition of schools (OECD, 2008). The segregation of Australian students across sectors, and the compounding effects of having disadvantaged students in disadvantaged schools, suggests that learner and family choices about schools in Australia are having detrimental effects on the level of equity within the system, and placing those who are missing out at a further disadvantage. This issue will be explored further in the following section of the report.

System effects

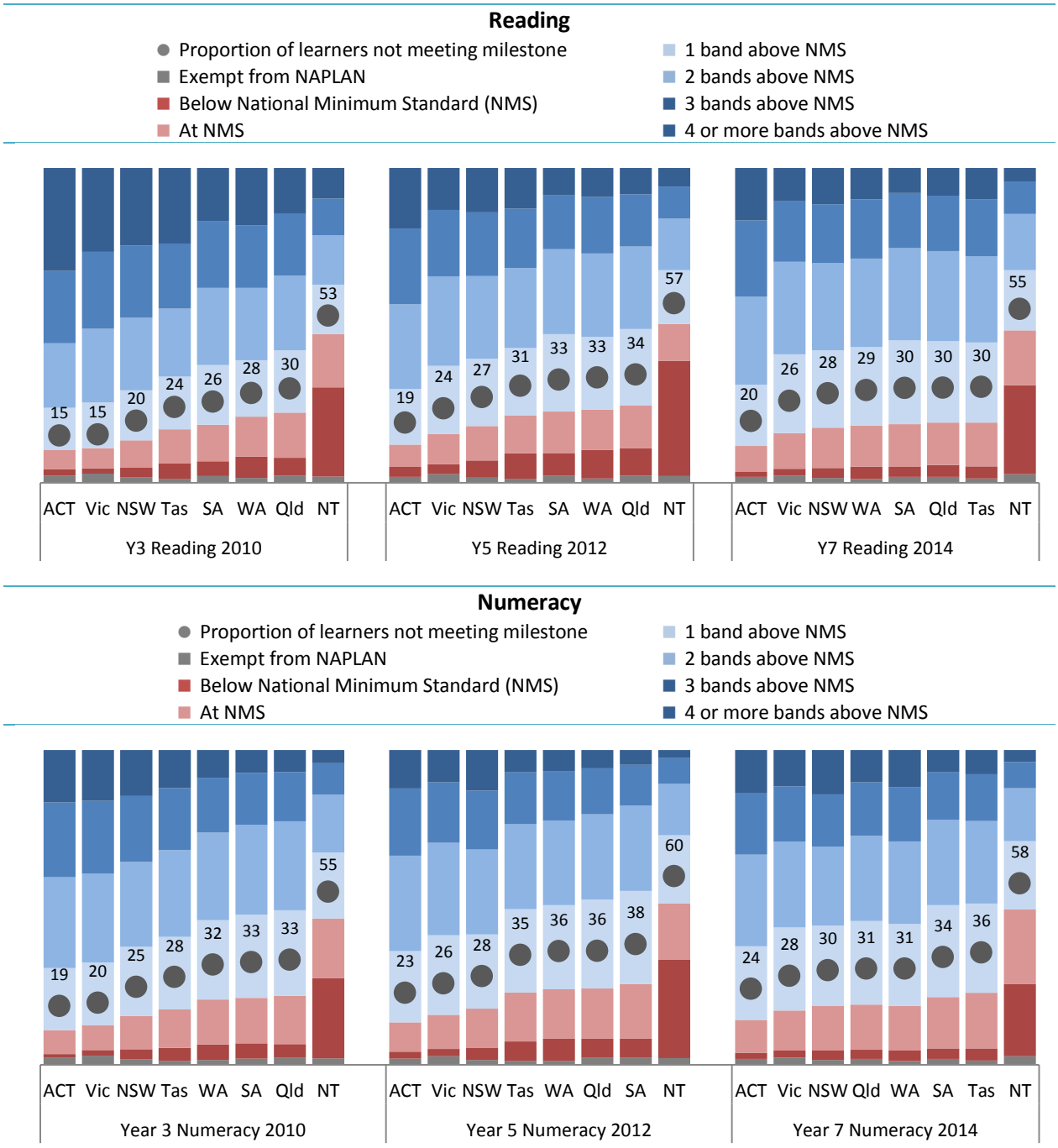
The education system in which a learner participates affects their educational opportunities. The above analysis of school-level risk factors found that differences in achievement at state/territory level appeared to remain, after adjusting for differences in the attributes of their schools. This points to the value of exploring state-level differences in patterns of achievement in the early to middle years of schooling.

In all Australian jurisdictions, the proportions of learners who fall below expected standards increase as they progress from the early to the middle years. Examining data for the Year 7 2014 cohort from 2010–2014 reveals that the differences between learners in different jurisdictions were greatest for both reading and numeracy at Year 3 (Figure 2.13). As the cohort progressed through their primary schooling, the gaps between jurisdictions became smaller, as jurisdictions that performed more strongly at Year 3 had greater overall increases in the proportions of learners falling below the benchmarks over time.

Figure 2.13 also shows how the relative positions of jurisdictions changed over time. While the ACT and the Northern Territory remained at the extreme ends of the achievement spectrum, due to the unique characteristics of their populations, there was some movement amongst the middle jurisdictions, with Western Australia improving its position over time in both reading and numeracy, and Tasmania's position worsening relative to other jurisdictions. Queensland showed improvement in the proportion of learners meeting the milestone in numeracy over the five-year period for this cohort, relative to other jurisdictions.

This suggests that the differences between learner opportunities across jurisdictions decrease as they progress through the primary years of schooling. While the Year 7 2014 cohort is the focus of this section, the same pattern was evident when Year 9 was included in the analysis, for a different cohort. The 2014 Year 9 cohort demonstrated a similar pattern, with increasing proportions of learners missing the milestone from Year 3 to Year 7, and decreasing gaps between jurisdictions over time. At Year 9, the proportion of learners who did not meet the designated milestone again increased overall, but there was little change in the gaps between jurisdictions at this stage. This suggests that the "levelling-out" between jurisdictions largely occurs within the early to middle years of schooling.

Figure 2.13 Percentage of learners in each NAPLAN band at Year 3 2010, Year 5 2012 and Year 7 2014 by state/territory, showing proportion of learners not meeting milestone



Source: ACARA NAPLAN 2010, 2012 and 2014 aggregate data.

Figure 2.14 presents the same data as Figure 2.13, this time showing the trajectory of learner achievement over time for individual states and territories. In this analysis, jurisdictions fall into two broad groups, each exhibiting a different pattern of achievement. In the first group (comprising Victoria, New South Wales (NSW) and the ACT), the proportion of learners not meeting the milestone was low in Year 3, but increased steadily through Year 5 and Year 7 in both reading and numeracy. Tasmania followed this pattern for numeracy, but showed little difference in proportions of learners not meeting the reading milestone between Year 5 and Year 7. The second group (Western Australia, South Australia and Queensland[17]) also showed an increase in learners falling below the benchmark from Year 3 to Year 5, but this was followed by a slight reduction in the proportion of learners not meeting the milestone at Year 7.

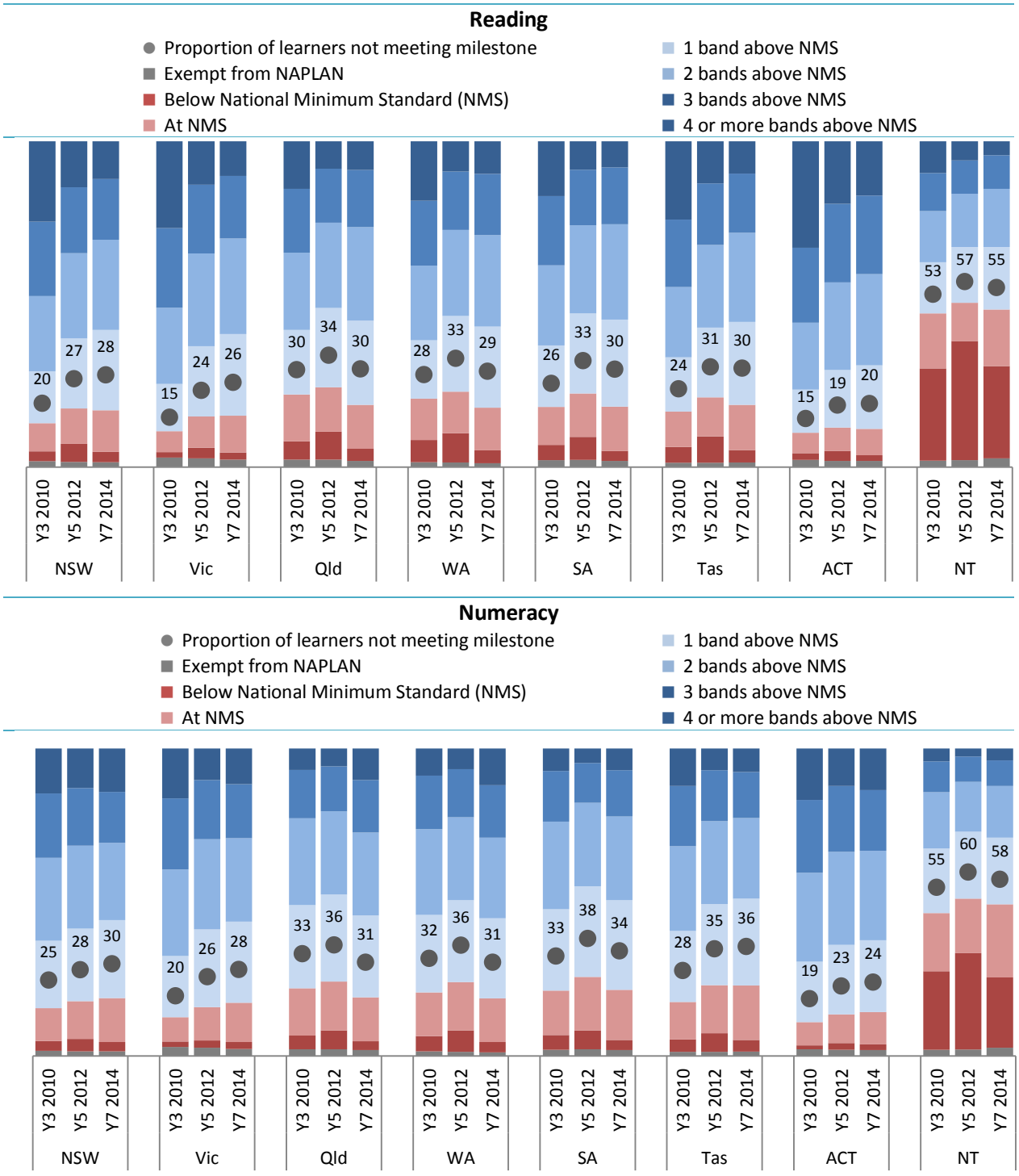
As this analysis uses cohort-level data, it is impossible to determine the extent to which these patterns arise from student characteristics within each jurisdiction, or systemic effects. Nevertheless, analysis of national data indicates that the overall trajectory of achievement does not change shape for different student groups, which suggests that student-level factors are unlikely to account for the different patterns of learner progress across jurisdictions. Further analysis using school-level data (2009–2013) also suggests that these patterns are more strongly evident for government schools, which are most impacted by state and territory policies and programs. This indicates that each jurisdiction's policy environment may make a difference to academic outcomes in the early to middle years of schooling.

There are many possible explanations for the different patterns emerging between jurisdictions. For example, Victoria's strong performance at Year 3 could be attributable to programs targeting the early primary years, although the steep increase in Victorian learners missing out in subsequent year levels suggests that these efforts must be sustained in subsequent years. The reduction in learners missing the milestone at Year 7 in Queensland, Western Australia and South Australia is notable, because these jurisdictions currently offer Year 7 within primary rather than secondary schools. Regardless of where Year 7 is located, the middle years of primary school (Years 3–5) appear to be a risk period across all systems.

A closer examination of the relationships between jurisdictional policies and programs and the progress of learners over time is needed. The above analysis simply suggests the possible presence of jurisdictional systemic effects on learner progress from the early to middle years, and that these effects appear to be durable across recent student cohorts. Each Australian jurisdiction appears to offer different points at which learners may benefit most from the educational opportunities provided, and different points at which learners are most at risk of falling behind.

[17] The reduction in learners not meeting the milestone at Year 7 in the Northern Territory might reflect the lower proportion of learners participating in NAPLAN at this stage, rather than a state/territory system effect. The Northern Territory recorded the largest decrease in participation between Year 5 2012 and Year 7 2014 of all jurisdictions.

Figure 2.14 Percentage of learners in each NAPLAN band and not meeting milestone at Year 3 2010, Year 5 2012 and Year 7 2014, showing patterns by state/territory



Source: ACARA NAPLAN 2010, 2012 and 2014 aggregate data.

3. The senior school years

Within Australia, Year 12 attainment is regarded as an important measure of the development of a platform of individual skills and knowledge needed for further study and for participation in the workforce. The benefits of completing Year 12 and gaining a school certificate or equivalent have been well documented (see, for example, Lamb & McKenzie, 2001; Lamb & Mason, 2009; Belfield & Levin, 2008). Those with Year 12 have a greater likelihood of continuing with further study, particularly in higher education, as well as entering the workforce. They also have better prospects of good health, employment and welfare, as well as improvements in the ability to participate socially and economically in their communities. At a broader level, Year 12 attainment contributes to the development of a skilled workforce, and in turn, to ongoing economic development and improved living conditions.

Conversely, young people who do not complete Year 12 or equivalent are much less likely to gain full access to Australia's economic, political, and social opportunities. It is widely recognised that young people who fail to complete Year 12 or gain equivalent qualifications can experience difficulty in making the transition from school to post-school education and training, and employment. Compared to Year 12 graduates, non-completers are more likely to experience unemployment and those who do succeed in finding work are more likely to obtain jobs in a narrow field of occupations. They earn lower wages, by as much as 10 per cent for each year of non-attainment according to one estimate (Leigh, 2008); they are less likely to enter further study; when in the workforce, they are less likely to take advantage of the benefits of training and professional development; and they are more likely to be dependent on welfare support.

In this section we look at school completion and the factors associated with it.

Milestone 3 – Completing school

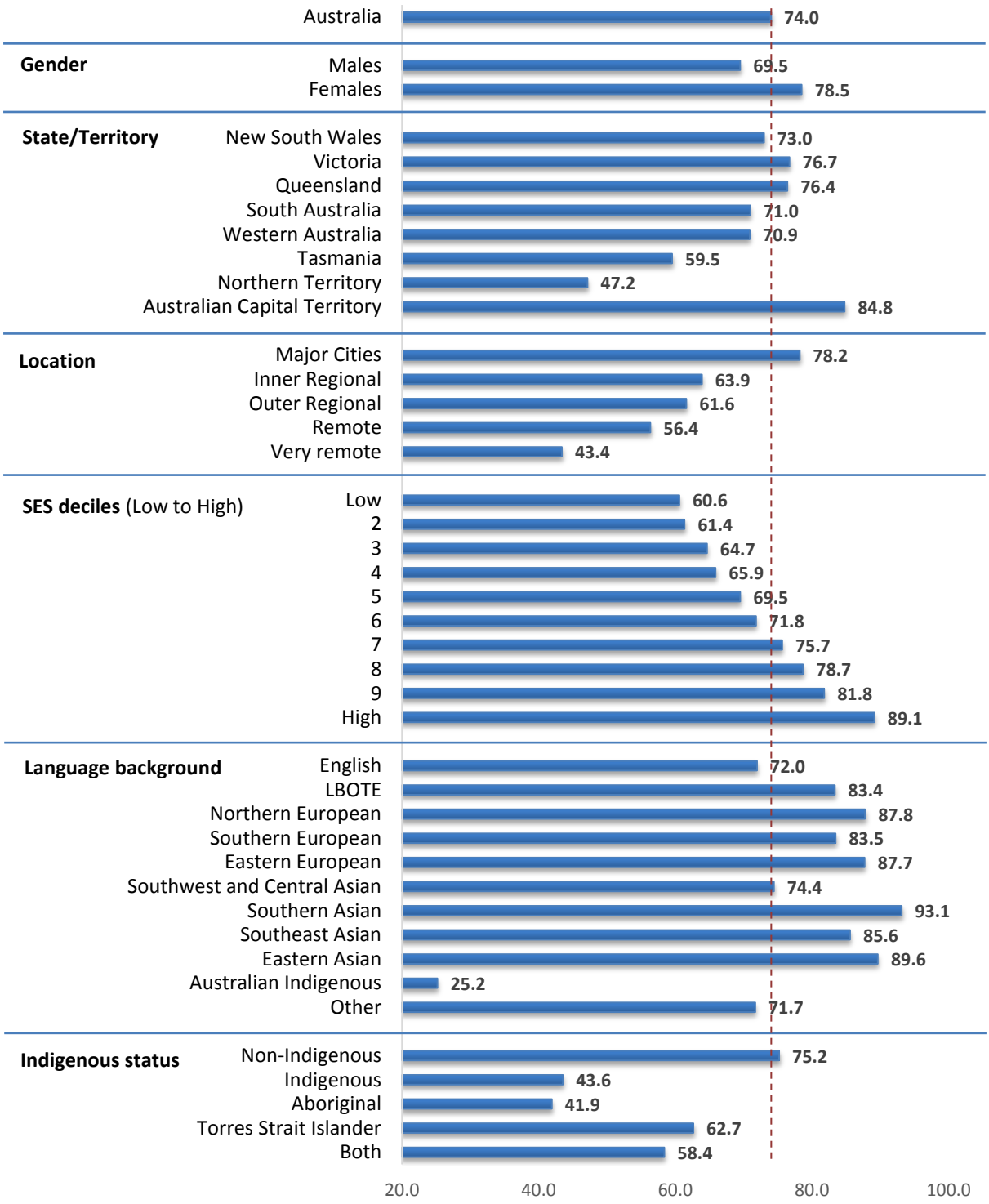
Attainment of Year 12 and/or a qualification at the level of Certificate III or higher is a recognised indicator by which to measure the educational attainment level of young Australians, and allows comparisons across states and territories as well as across different groups of young people. The ABS census of population and housing is one source of attainment data. Figure 3.1 presents the national rate of completion of Year 12 or equivalent at age 19, an age by which most young Australians have completed or left school. Census estimates for 2011 reveal that 74 per cent of 19-year-olds had attained Year 12 or Certificate III equivalent.

There are state and territory differences in attainment, largely reflecting the influence of population differences, geography and remoteness, but also policy differences related to schooling and programs. In 2011 nearly 85 per cent of 19-year-olds in the ACT held a Year 12 or equivalent qualification (Figure 3.1), but fewer than 50 per cent in the Northern Territory, reflecting effects of population and geography.

Figure 3.1 shows that location is strongly linked to Year 12 attainment. Young people in city areas of Australia have the highest rate of completion – nearly 80 per cent complete a Year 12 certificate or equivalent by age 19 –and those in remote and very remote communities the lowest.

The variations across locations and across states and territories are partly due to differences in populations. Figure 3.1 shows that Year 12 attainment among 19-year-olds varies substantially by social background. When the 19-year-old population is divided into deciles on the basis of SES area measures linked to the postcode in which young people live (using the SEIFA Index of Relative Socio-economic Advantage and Disadvantage, IRSAD), the gap between the highest and lowest deciles is 28.5 percentage points. Only 60.6 per cent of young people from the lowest SES backgrounds completed Year 12 or its equivalent. The rates of attainment increase with each rise in SES, reaching 89.1 per cent for those in the highest decile.

Figure 3.1 Completion of Year 12 or equivalent qualification at age 19, by selected background characteristics (%)



Source: ABS Census of population and housing data

Indigenous students have low rates of completion. The gap between Indigenous and non-Indigenous students in 2011, according to Census data, was over 30 percentage points. The rate of completion was lower for Aboriginal students – 41.9 per cent – than for Torres Strait Islanders – 62.7 per cent. This gap is narrower than it was at the Year 7 milestone (35.1 percentage points), suggesting that the segregation in outcomes between Indigenous and non-Indigenous learners occurs most strongly in the earlier years of

schooling. This also reflects the differences in the two milestones: while the Year 7 milestone represented a narrow measure of academic achievement in a single domain, the school completion milestone recognises a diversity of achievement.

Gender differences are quite marked. Girls are more likely than boys to complete school (78.5 per cent vs 69.5 per cent). This trend became established in the mid-1970s and reflects major changes in the social and economic environment – the loss of about two-thirds of all full-time jobs held by teenage girls since the late 1970s, the growth of services sector employment requiring higher qualifications, the continuing relative lack of access to craft apprenticeships, rising entry-level qualifications for female-dominated professions (such as nursing), and career aspirations for girls different to those 40 years ago.

The language background of families is also linked to levels of completion. Young people with LBOTE – that is, those from families in which the main language spoken at home is not English – are more likely to complete school than those whose main language at home is English; the difference is about 11 percentage points (83.4 per cent vs 72 per cent). This finding is in line with research showing that even though the average educational attainment of parents in non-English-speaking families is often lower than their native English-speaking peers, they have higher educational aspirations for their children and place a premium on completing Year 12 as a way of enhancing their children's future prospects (Miller & Volker, 1987).

There are differences based on the type of language spoken at home. The highest rates of completion are among those children whose parents speak Eastern and Southeast Asian languages (such as Chinese or Vietnamese languages). Completion rates are lowest for learners who speak an Australian Indigenous language at home, suggesting that this is a group within the Indigenous cohort that the education system serves particularly poorly, perhaps due to mismatch between their linguistic and cultural acumen and the knowledge demanded for succeeding in the system.

Quality of completion varies

In the current report, we suggest that students who complete school have "succeeded". We use this term relatively. Compared to students who drop out, completers are more likely to be successful in pursuing further study and more likely to get higher-paying jobs. In terms of strong preparation for university or the job market, completion is a necessary but far from sufficient indicator of future success.

However, it does not follow that all school completers are equally well prepared to pursue their post-school goals, whether university, other forms of study and training, or a job. Some school systems, such as Western Australia, are imposing additional hurdle requirements for Year 12 school certificate attainment because of concerns that Year 12 completers in Australia are not equally well prepared academically[18]. Results from destination surveys, such as the Victorian On-Track Survey, reveal considerable variation in transition from school linked to differences in what students have completed at school (see, for example, Department of Education and Early Childhood Development, 2014).

There is considerable of variation in what is included as "Year 12 or equivalent". Some students complete study leading to an Australian Tertiary Admission Rank (ATAR), thereby being able to compete for university entry, while others do not. Some complete applied courses that are geared more towards workforce entry than higher education. Even students completing the same type of certificate, such as a Year 12 Certificate of Education, can do quite different areas of study with different standards of proficiency.

[18] See, for example, changes proposed for WACE, www.scsa.wa.edu.au/internet/Senior_Secondary/The_WACE/WACE_Requirements/WACE_Requirements_2016_beyond

Some of this variation is explored in Table 3.1. The table shows that the majority of 19-year-olds who attain Year 12 do so by completing a Year 12 secondary school certificate rather than a vocational equivalent; this applied to 67.8 per cent of 19-year-olds nationally in 2011. However, about 6.2 per cent gain a Certificate III or above rather than a Year 12 secondary school certificate. This varies by state and territory. Queensland has the highest percentage of 19-year-olds with vocational Year 12 equivalents. Young people in remote parts of Australia are more likely to gain a Year 12 equivalent than are those in provincial and metropolitan centres – 11.6 per cent vs 6.9 per cent and 6.8 per cent, respectively.

Table 3.1 Quality of Year 12 or equivalent completion at age 19 (%)

		Year 12 rate	*Year 12 or equivalent*[1]		*ATAR attainment*[2]		*STEM study*[2]		*VETiS study*[2]	
		Year 12 or equivalent	Year 12 certificate	Equivalent	Gained an ATAR	Mean ATAR score	STEM (2 or less)	STEM (4 or more)	Any VETiS	Attained VET Certificate
National	Australia	74.0	67.8	6.2	56.8	76	61.7	38.6	23.2	11.4
Gender	Males	69.5	63.9	5.6	50.5	75	60.5	39.5	26.7	12.3
	Females	78.5	71.7	6.8	66.6	77	63.0	37.8	15.4	10.6
State/ Territory	NSW	73.0	67.4	5.6	59.2	75	58.6	37.3	26.7	21.4
	VIC	76.7	68.2	8.5	66.0	72	64.0	43.6	15.8	8.3
	QLD	76.4	63.5	12.9	49.1	77	71.1	53.7	30.6	6.3
	SA	71.0	63.3	7.7	57.2	81	55.1	25.9	12.2	6.0
	WA	70.9	61.6	9.3	47.5	79	57.3	40.3	19.3	5.5
	TAS	59.5	59.5	0.0	41.3	81	48.9	22.3	27.4	20.5
	NT	47.2	47.2	0.0	37.7	75	29.5	19.6	12.2	7.3
	ACT	84.8	77.2	7.6	64.1	81	74.4	47.6	15.4	7.8
Location	Metro	78.2	71.5	6.8	62.3	77	65.1	40.9	20.8	10.5
	Provincial	63.9	57.1	6.9	44.0	74	54.1	33.5	31.2	14.1
	Remote	61.6	50.0	11.6	27.7	74	44.9	23.8	29.0	15.9
SES* Deciles from low to high	Lowest	60.6	55.5	5.1	36.1	67	48.3	22.9	29.2	15.7
	Second	61.4	61.4	0.0	39.8	68	47.4	30.4	27.9	11.4
	Third	64.7	61.7	3.0	46.1	71	53.8	33.0	28.7	14.0
	Fourth	65.9	62.7	3.2	45.9	71	55.7	33.5	28.1	14.6
	Fifth	69.5	69.5	0.0	49.2	73	56.1	32.9	26.8	14.4
	Sixth	71.8	66.6	5.2	55.8	75	60.5	37.2	26.3	12.0
	Seventh	75.7	68.6	7.0	64.1	77	65.3	43.5	20.4	11.0
	Eighth	78.7	70.7	8.7	65.7	79	66.2	43.2	19.9	10.8
	Ninth	81.8	75.7	6.1	71.7	80	69.5	46.1	15.2	8.1
	Highest	89.1	79.9	9.2	83.3	84	78.1	53.8	12.8	4.2
Language background	English	72.0	64.6	7.3	54.6	75	59.6	36.8	24.1	11.6
	Other	83.4	79.6	3.8	71.7	81	74.6	53.0	12.4	8.8

* SES is based on the Index of Economic, Social and Cultural Status (IESCS) developed by the OECD for use in PISA. It is derived from parental education, parental occupation, family wealth, and educational and cultural resources in the home. Estimates were derived using weights for the Longitudinal Surveys of Australian Youth (LSAY) sample to address attrition bias between the base survey cohort and estimation wave.

Sources: 1=ABS Census of population and housing data; 2=LSAY 2009 data.

Gaining an ATAR and promoting your chances of entry to university varies substantially by SES background. Using data from the 2009 wave of the Longitudinal Surveys of Australian Youth (LSAY), an estimated 56.8 per cent of young Australians had gained an ATAR score by age 19. The rate for learners from the most disadvantaged backgrounds based on SES (those in the lowest decile of SES) is only 36.1 per cent. The percentage succeeding in gaining an ATAR increases with each rise in SES decile, reaching 83.3 per cent for those from the most advantaged backgrounds (highest decile).

Not only do high SES students gain an ATAR at more than double the rate of the most disadvantaged students, they achieve a higher ATAR score on average. The average scores range from 67 for those in the lowest decile of SES to 84 for those in the highest decile. So for young people from low SES backgrounds there is a double disadvantage: not only do they far less often receive an ATAR, something they need to gain entry to university, when they do they more often achieve a low score, meaning that they are more poorly placed in the race for places in higher demand courses and access to associated professions. The probabilities of participating in university and pursuing more prestigious professions for disadvantaged students are comparatively very low, as shown in the next section.

Rural and provincial gaps in ATAR attainment are marked. About 62.3 per cent of city students earned an ATAR in 2009, compared to 44 per cent of those in provincial centres and only 27.7 per cent of those in remote Australia (Table 3.1). Where young people live and where they go to school therefore matters in terms of their chances of earning a ranking in the competition for university places. For those who do receive a ranking, the gaps in scores are more modest: the average rank for city students was 77, and 74 for those in provincial and remote areas.

Gender gaps are also quite marked in terms of receiving an ATAR score, though not so for mean scores for those who do gain them. Roughly, there is a 16 percentage point gap between female and male students in gaining an ATAR by age 19 – 66.6 per cent of females vs 50.5 per cent of males. For those who did gain an ATAR, the mean score was similar – 77 for females and 75 for males.

Language background is also a discriminator in terms of ATAR attainment. While 54.6 per cent of students from English-language backgrounds attained an ATAR, 71.7 per cent of those from families where they mainly speak another language did so. Those from non-English speaking backgrounds also gained a higher average ranking – 81 vs 75. As shown previously, there is considerable variation across different language groups.

ATAR attainment rates show that Year 12 completion can be quite varied as a "success" measure because not all completers benefit and become positioned to take advantage of later opportunities. This fact is also highlighted in other differences in what Year 12 completers have gained. Table 3.1 reports differences in rates of participation in senior secondary study in science, technology, engineering, and mathematics (STEM) subjects. In recent years STEM subjects have received increased attention from policymakers, governments and educators, because they are viewed as vital for future economic and technological development and workforce predictions point to increasing demand for those trained in relevant disciplines. Access to STEM knowledge through participation in relevant subject areas in senior school is an important signal of educational opportunity, and is far from even.

About 60 per cent of young Australians by age 19 have taken up to two STEM subjects in the final years of school (Years 11 or 12). Variation by state and territory on this measure partly reflects the rates of Year 12 completion, so the rates are lower in the Northern Territory (29.5 per cent) and in Tasmania (48.9 per cent). Rates also vary by location, being lower in remote and provincial centres, and by SES and language background, again reflecting different gaps in completion rates.

Some students have a much stronger focus on STEM, studying four or more subjects in the senior years of school. This applied to 38.6 per cent of young people by the age of 19. The chances of this vary by state and territory, location, SES, and language background. If studying STEM provides advantages in terms of future opportunities, then young people from low SES backgrounds (22.9 per cent), those in remote locations

(23.8 per cent), and those in the Northern Territory (19.6 per cent) and Tasmania (22.3 per cent) are missing out, based on the gap to the national average.

Differences also exist in the likelihood of undertaking vocational education and training in school (VETiS). The LSAY sample survey suggests that almost a quarter of all school students had taken a VETiS subject or course by age 19. The rate was higher for males (26.7 per cent) than for females (15.4 per cent), and for students in remote (29.0 per cent) and provincial areas (31.2 per cent) than for those in city centres (20.8 per cent). Participation also varies by SES, with low-SES students more likely to include a VETiS course in their senior school study than high-SES students (almost two and a half times more likely for students in the lowest decile of SES than for students in the highest decile).

Only about half of those students who undertake VETiS courses gain a VET certificate. The rate is lowest for high-SES students (highest decile) with 12.8 per cent undertaking some VETiS study, but only 4.2 per cent gaining a certificate. This points to differences in the way VETiS is structured in senior school, and the way it is used by different groups of students.

Year 12 or equivalent completion is an important milestone and marker of success. However, the results in Table 3.1 highlight the fact that not all Year 12 completion is necessarily the same. Within the group of Year 12 or equivalent completers, there are important variations in how well this milestone has prepared learners for success in later life and learning.

Who is missing out?

Approximately one-quarter of all young Australians by the age of 19 have not attained Year 12 or an equivalent. According to the figures in Table 3.2, which reports the rates applied to the 2014 population, this represents 81,199 19-year-olds nationally. In other words, annual cohorts of over 80,000 young Australians are entering transition to adulthood without having completed school, and are at risk of missing out on the opportunity of university study and other benefits such as secure employment prospects. While in Australia school completion is not necessarily a guarantee of future prosperity, school completers are well ahead of non-completers in terms of the likelihood of future work and career success.

The risk factors most strongly associated with non-completion of Year 12 or its equivalent are being Indigenous, being male, and coming from a low-SES background. While the overall number at risk is over 80,000, males account for 48,924 or 60 per cent of those without Year 12.

Indigenous students have low rates of school completion, making up 6,508 of those missing out or 8 per cent of the total national number of non-completers at age 19. The high numbers of Indigenous students missing out reflects a long-term struggle for improvement, with increases in Year 12 completion, while evident in recent years, having been hard to achieve despite the efforts of policymakers, schools, communities and learners themselves. This raises important questions about how well Australian schools are creating environments where Indigenous learners feel motivated to persist in their learning.

As at previous stages of learning, low-SES learners are much more likely to miss out, and those from the lowest decile account for 11,340 (14 per cent) of the 81,199 who do not complete school. Young people from high-SES families – families in which parents tend to be university educated, have professional or managerial occupations, and possess substantial amounts of cultural resources in the home such as books and computers – are far more likely to complete school: those from the highest SES decile account for only 3,120 or 3.8 per cent of non-completers.

Table 3.2 Young Australians not meeting the milestone at age 19

	Percentage missing out			Number missing out		
	Males	Females	All	Males	Females	All
Australia	30.5	21.5	26.0	48,924	32,275	81,199
State/Territory						
NSW	31.3	22.5	27.0	15,883	10,652	26,535
VIC	28.3	18.0	23.3	11,156	6,730	17,886
QLD	27.1	20.1	23.6	8,921	6,266	15,187
SA	34.4	23.4	29.0	3,904	2,483	6,386
WA	34.0	24.0	29.1	5,948	3,837	9,785
TAS	45.5	35.2	40.5	1,655	1,146	2,800
NT	53.1	52.5	52.8	1,013	832	1,846
ACT	16.9	13.4	15.2	445	328	774
Location						
Major cities	25.5	18.0	21.8	28,736	18,688	47,424
Inner regional	42.5	29.2	36.1	11,960	8,013	19,972
Outer regional	43.8	32.5	38.4	6,230	4,193	10,423
Remote	50.9	35.6	43.6	1,138	704	1,842
Very remote	57.9	55.0	56.6	859	678	1,537
SES decile (Low to High)						
Lowest	43.6	34.8	39.4	6,592	4,747	11,340
Second	44.0	33.0	38.6	5,790	5,017	10,807
Third	40.6	29.8	35.3	5,886	4,310	10,197
Fourth	39.3	28.7	34.1	5,773	3,986	9,759
Fifth	35.3	25.5	30.5	5,422	3,542	8,964
Sixth	33.3	23.0	28.2	5,370	2,845	8,214
Seventh	28.7	19.9	24.3	4,518	2,641	7,159
Eighth	25.5	17.0	21.3	4,393	2,081	6,474
Ninth	22.3	14.0	18.2	3,148	2,019	5,166
Highest	13.4	8.3	10.9	2,032	1,088	3,120
Language background						
English	32.8	23.1	28.0	43,443	28,425	71,868
LBOTE	19.3	14.0	16.6	5,483	3,850	9,332
Northern European	15.8	9.2	12.2	108	74	183
Southern European	19.7	13.4	16.5	626	417	1,042
Eastern European	14.9	9.7	12.3	313	197	510
SW and Central Asian	31.0	19.5	25.6	1,457	794	2,251
Southern Asian	7.5	6.1	6.9	187	131	318
Southeast Asian	16.1	12.7	14.4	798	612	1,411
Eastern Asian	11.9	8.9	10.4	930	728	1,658
Australian Indigenous	75.5	74.1	74.8	467	458	926
Other	31.8	24.7	28.3	594	439	1,032
Indigenous status						
Non-Indigenous	29.3	20.1	24.8	45,447	29,244	74,692
Indigenous	59.0	53.8	56.4	3,477	3,031	6,508

Source: Proportion of learners missing out from ABS Census of Population and Housing. Population figures derived from ABS 3101.0, Australian Demographic Statistics, Dec 2014, Table 59.

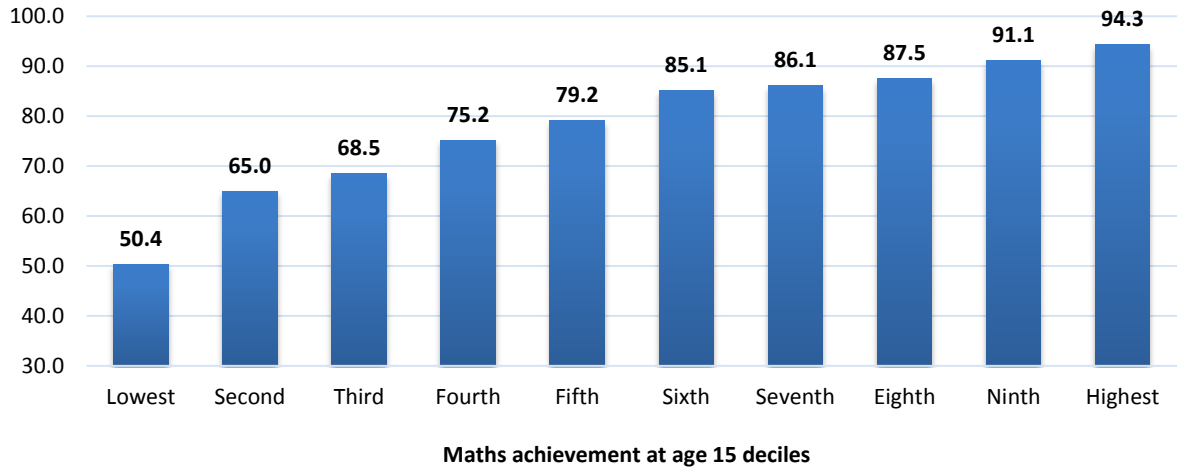
Living in a very remote area greatly increases learner chances of missing out on completing school, due in part to the concentration of other risk factors (indigeneity and low SES) in Australia's remote locations. Those living outside of major cities – 27 per cent of the population of 19-year-olds –make up 42 per cent of those missing out on school completion.

What are the experiences in school of those missing out?

Wide differences in achievement

One of the strongest predictors of who succeeds and who misses out on school completion by age 19 is scholastic achievement. Figure 3.2 reports Year 12 or equivalent completion by deciles of maths achievement at age 15. Achievement is based on the national sample of 15-year-olds who took part in PISA in 2009 and became members of the LSAY. Mapping student progress using LSAY, it is possible to identify Year 12 or equivalent completion by age 19.

Figure 3.2 Completion of Year 12 or equivalent, by maths achievement (decile)



Source: LSAY 2009.

Only one in two students in the lowest decile of maths achievers completed Year 12 by age 19. The rate of completion rises with each decile. Of the highest achievers, 94.3 per cent had completed Year 12 by age 19.

Given the strong relationship between achievement and completion, it is worth looking at patterns of achievement in secondary school and how they vary. As a measure of what students learn in school, student achievement is of great interest to education policymakers, in part because it is connected with the quality and level of skills students eventually bring to the labour market, as well as with the quality of preparation of students for further study and lifelong learning. Highly literate, numerate and scientifically skilled learners are better prepared for workplaces, as well as for active participation more broadly in community life, and promote greater economic productivity and stronger social cohesion.

National mean scores of achievement in mathematics, science and reading, as recorded in PISA for the 14,481 students who took part in 2012, are reported in Table 3.3. Also provided are estimates of the proportions of Australian students who were below the international benchmark of proficiency in each of the skill domains; that is, students not meeting the international benchmark level of skills in mathematics, reading and science, which most 15-year-olds are expected to reach. In addition to this, Table 3.3 reports the proportions of Australian 15-year-olds who are among the world's top-performing students, that is, those in the top two bands of performance in each OECD-defined skill area.

Table 3.3 Achievement in mathematics, science and reading at age 15, by selected background characteristics

	Mathematics			Reading			Science		
	Mean Score	Below standard	Top Performers	Mean Score	Below standard	Top Performers	Mean Score	Below standard	Top Performers
Australia	504	20	15	512	14	11	521	13	13
OECD average	487	26	11	496	18	8	497	19	7
Gender									
Males	510	18	17	495	19	8	524	13	14
Females	498	21	12	530	8	14	519	12	12
State/Territory									
Australian Capital Territory	518	15	18	525	12	15	534	12	16.0
New South Wales	509	19	18	513	14	13	526	13	15.9
Victoria	501	18	12	517	12	10	518	13	10.8
Queensland	503	20	14	508	14	10	519	13	11.0
South Australia	489	23	10	500	15	7	513	13	10.1
Western Australia	516	16	17	519	12	12	535	10	15.6
Tasmania	478	27	8	485	19	6	500	19	9.5
Northern Territory	452	36	6	466	29	6	483	25	9.3
Location									
Metropolitan	511	17	17	520	13	17	527	12	14
Provincial	486	23	9	490	16	9	509	14	10
Remote	444	39	5	452	21	5	471	27	4
SES decile									
Lowest	446	40	4	454	29	2	460	29	3
Second	471	29	6	480	19	4	489	17	6
Third	485	23	8	493	17	6	502	17	7
Fourth	487	23	9	497	15	6	506	13	9
Fifth	496	19	11	506	13	8	514	14	10
Sixth	511	15	15	519	11	10	528	10	12
Seventh	521	12	18	529	8	13	542	8	15
Eighth	545	8	25	551	5	20	563	4	24
Ninth	548	7	25	556	4	22	566	4	24
Highest	554	6	27	560	5	21	570	4	24
Language background									
English	506	18	14	515	12	11	525	11	13
LBOTE	509	22	21	506	18	13	508	20	14
Northern European	513	22	20	529	6	12	529	10	15
Southern European	482	33	18	492	20	12	490	30	15
Eastern European	498	15	10	500	15	6	510	12	7
SW and Central Asian	444	42	6	453	31	6	440	43	6
Southern Asian	520	17	17	520	14	10	521	15	11
Southeast Asian	505	19	17	503	17	10	506	19	10
Eastern Asian	576	6	40	555	9	24	562	7	25
Australian Indigenous	356	71	0	343	72	0	371	56	0
African	449	36	0	465	24	0	461	34	0
Pacific	411	65	0	406	43	0	410	49	0
Indigenous status									
Non-Indigenous	507	18	15	515	13	11	524	12	13
Indigenous	417	50	2	428	40	1	440	37	2

Source: Derived using OECD PISA 2012

The OECD mean score is reported in Table 3.3 to provide an international comparison. International comparisons of student achievement are one way of evaluating how effectively Australian schools are working to develop the foundations for future economic and social prosperity. The comparisons can help policymakers to set realistic expectations for schools and monitor school and system quality.

The results show that Australian 15-year-olds are doing better on average in reading, mathematics and science than students across participating OECD countries treated as a group. However, the higher average national performances in mathematics, reading and science mask large variations by region, state and territory, gender, social group, language background and Indigenous status.

Socio-economic gaps in achievement in Australia are large. According to an OECD assessment, across OECD countries, a more socio-economically advantaged student scores 39 points higher in mathematics on average than a less-advantaged student, a gap equivalent to nearly one year of schooling (OECD, 2014, p.12). In Australia, students in the lowest decile of SES are 41 points behind the OECD average in mathematics and an alarming 108 points behind students in the highest decile. The gaps between high and low SES students in Australia are just as large in reading (106 points) and science (110 points).

The social patterns are reflected in the proportions of students who do not meet the international standard of proficiency in each of the achievement areas. According to the OECD, “among students who fail to reach the baseline level of performance (Level 2) in mathematics, reading or science, meaning that, at best, they can only handle the simplest and most obvious tasks, most can be expected not to continue with education beyond compulsory schooling, and therefore risk facing difficulties using mathematics, reading and science concepts throughout their lives” (OECD, 2014, p.9). Twenty per cent of 15-year-old Australian students are below the defined mathematics proficiency standard (compared to an OECD average of 26 per cent). However, for low-SES students in Australia (those in the bottom two deciles, representing 20 per cent of all students) the rate is 29 per cent or more. Forty per cent of students in the lowest SES decile fail to reach the baseline level of mathematics performance.

At the other end of the spectrum, only 7 per cent of high-SES students (those in the top two deciles) are below the international benchmark. Instead, high-SES students are much more likely to be among the world’s top performers. Over one-quarter of those in the top three deciles of SES are in the top bands of mathematics achievement, with a similar result in science.

Indigenous students in Australia are performing 70 points below the OECD average in mathematics, or up to two years behind in learning, according to OECD quantity of learning estimates (OECD, 2014). In reading, Indigenous students are 68 points behind the OECD average level of performance, and 57 points behind in science. Just on 40 per cent do not reach the baseline level of reading performance (against an OECD average of 18 per cent), and 37 per cent in science (against an OECD rate of 19 per cent), and one in two fall below the benchmark in mathematics. Very few Indigenous students make it to the top levels of performance in mathematics (two per cent), reading (one per cent) or science (one per cent). The low level of Indigenous achievement relative to international benchmarks calls into question Australia’s claims to be a high-performing education system by international standards. The presence of a group of learners for whom the education system is consistently failing to deliver on the promise of learning for all contrasts starkly with the high achievements of those Australian learners who are among the best in the world.

Location is also linked to achievement. Table 3.3 shows that students in metropolitan areas of Australia exceed OECD averages in mathematics, reading and science. Fewer metropolitan students fail to meet the baseline levels of proficiency, and more are in the top bands on performance internationally, than students living in provincial centres or remote areas of Australia. In mathematics and reading, students in provincial centres perform at about the OECD average (mean scores of 486 for mathematics and 490 for reading). But students in remote areas of Australia perform at a mean rate almost 43 points below the OECD average in mathematics and 44 points below in reading. These levels are reflected in the higher proportions of students failing to reach baseline levels of performance, and the smaller proportions in the top bands of performance.

Gender gaps in achievement are also apparent. Girls perform much more strongly in reading. Fifteen-year-old Australian girls achieve on average 34 points above the mean for OECD students (boys and girls). In reading, Australian boys are achieving at the OECD average, well behind the level for girls. This is reflected in the percentage below baseline standard: 19 per cent of boys as against only eight per cent of girls. More Australian girls are top performers in reading than the OECD average rate – 14 per cent vs eight per cent internationally. Australian boys, however, outperform girls in both mathematics and science on mean scores, with a higher average score by 12 points in mathematics and five points in science. Boys are less likely than girls to be below baseline proficiency in mathematics, and more likely to be in the top band of performers. This pattern does not hold for science, where boys are marginally more likely not to reach baseline proficiency.

State and territory differences exist in both mean score performance and the numbers not achieving baseline proficiency. Strong performers are the ACT and Western Australia, while Tasmania and the Northern Territory have averages for mathematics and reading well below the OECD averages. However, caution should be taken when comparing the results, for two main reasons. Firstly, as noted previously, there are important population differences across states and territories that should be considered. Secondly, in 2012, proportionately more students in some jurisdictions were at a higher year level at age 15 than in others. While states and territories are coming into line over time, these important age/grade differences could affect 2012 PISA results.

Factors influencing achievement

Differences in achievement by state and territory and by location may well relay the influence of other factors linked to population differences, such as SES and the concentrations of Indigenous populations. Table 3.4 reports the results of a regression analysis to identify the main factors influencing achievement, as measured by the contribution of different factors to the amount of explained variance in mathematics, science and reading achievement. The estimates were calculated by inserting and then removing each variable to estimate the amount of independent influence each factor has on performance.

Table 3.4 Main factors influencing achievement in mathematics, science and reading: measured as percentage of contribution to explained variance (%)

	Mathematics	Reading	Science
Variance explained (%)	22	23	19
Contributing factor to variance (%)			
SES	70	57	74
Indigenous status	18	17	19
State/Territory	9	3	5
Gender	2	19	0
Location	2	4	1
Language background	0	1	1
Total	100	100	100

Source: Derived from OECD PISA 2012

The results suggest that location has little independent effect on achievement in mathematics, reading or science. That is, after taking account of SES and other population differences, location contributes little to differences in achievement. The same is true for state and territory differences, which account for less than 10 per cent of explained variance in mathematics and only three per cent in reading.

Gender contributes 19 per cent to explained variance in reading, meaning that – all else equal – girls outperform boys in reading. By contrast, gender accounts for little of the variation in mathematics and science achievement.

Differences associated with Indigenous status account for almost one-fifth of the explained variance in all three areas of achievement, independent of location and socio-economic background. This suggests that differences in Indigenous and non-Indigenous achievement not only reflect the higher prevalence of other risk factors among Australian Indigenous communities, but also factors particular to the Indigenous population.

The main factor influencing achievement is social background. Seventy per cent of the variance in mathematics achievement is due to SES differences, and 74 per cent in science achievement. SES also has a large independent influence on reading (accounting for 57 per cent of explained variance), though less than for mathematics and science, due to the effect of gender on reading achievement.

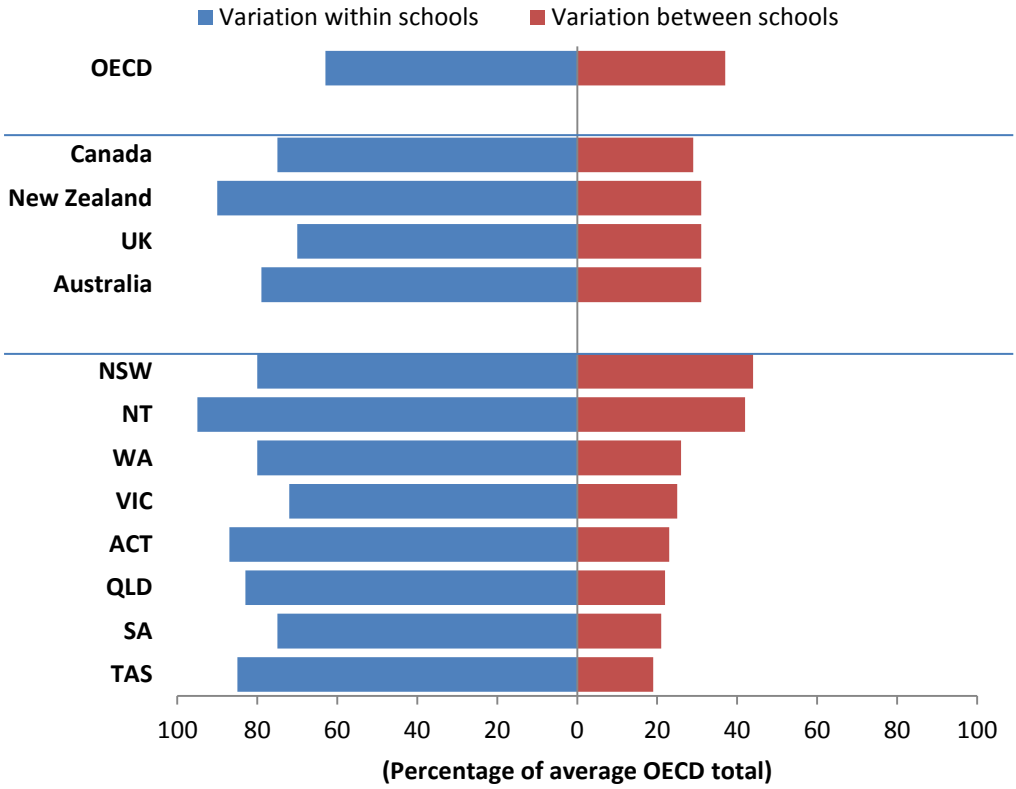
School quality

As noted earlier, student achievement is influenced by many factors including socio-economic background, family situation, engagement with education, and personal qualities such as resilience and self-confidence. While some of these factors sit outside the sphere of influence of schools, many are directly influenced by the school environment. The negative impact of other influences can be offset by the use of appropriate strategies in schools, enabling schools to exert an influence on learning independent of learner background.

An analysis of the 2012 mathematical literacy results in PISA, summarised in Figure 3.3, shows that in Australia the amount of variation between schools (31 per cent) is lower than the OECD average (37 per cent), and the amount of variation within schools is higher than the OECD average (Thomson et al., 2013). This pattern is similar to that seen in similar English-speaking countries, such as the United Kingdom, New Zealand and Canada. It suggests that the Australian school system overall is not as streamed or differentiated as in some countries which have earlier points of selection, such as Germany, Austria or the Netherlands. These systems, which stream students into schools relatively early in the secondary years, contribute to the higher OECD average for between-school effects.

The analysis also found that more than half of the performance differences observed across students in different schools can be accounted for by SES differences between students and between schools. Socioeconomic disparities between schools are closely associated with performance in Tasmania, the Northern Territory and Western Australia, where more than 75 per cent of the between-school variation in performance is accounted for by the socioeconomic background of students and schools. The impact of between-school effects in the secondary years is greater than in the early to middle years of learning (Figure 2.12).

Figure 3.3 Variation in mathematical literacy performance between and within schools by jurisdiction (PISA 2012)



Source: Reproduced from Thomson et al., 2013 (p. 277).

Student engagement, confidence and views on school

The concept of student engagement in school has attracted increasing attention in contemporary educational research. In part, this is because of the view that academic success and completion or dropout are underpinned by how engaged students are in their learning and how well schools promote this (see, for example, Fredricks et al., 2004; Willms, 2003). Engagement has come to refer to the extent to which students identify with and value schooling outcomes, and participate in academic and non-academic school activities.

The concept has been viewed as comprising several elements: a component pertaining to acceptance of school values and responses to peers and teachers referred to as *emotional* engagement; a *behavioural* component pertaining to participation in school activities; and an intellectual or *cognitive* component linked to the extent to which students connect with the tasks of learning (National Research Council & Institute of Medicine, 2004). The emotional component, according to Willms (2003), reflects sense of attachment to school, which has to do with feelings of being accepted and valued by peers, and by others at their school, including teachers. The behavioural component of engagement is characterised by factors such as school and class attendance, being prepared for class, completing homework, attending lessons, and being involved in extra-curricular sports or hobby clubs. The cognitive component is reflected in the willingness of students to exert the effort necessary to apply themselves to learning tasks and master different skills.

Engagement is of primary importance to succeeding in school. Many students who do not feel they belong at school, or reject school values, and become alienated or disaffected, struggle to succeed and place themselves at risk. Some studies point to lasting effects of engagement on student lives, including impacts on educational, career and related outcomes (see, for example, Kautz et al., 2014). Fredricks et al. (2004) pointed to direct effects on academic achievement and on the likelihood of school completion.

Table 3.5 reports information on the levels of student engagement – cognitive, emotional, behavioural – of 15-year-olds in Australia. The information is from the survey of 14,581 learners undertaken as part of PISA in 2012. Composite scales for each type of engagement were constructed on a 0 to 100 scale (low to high), with each component equally weighted.

Table 3.5 reports the mean score nationally and then by a range of background characteristics to capture differences by gender, state and territory, SES, location, language background and Indigenous status[19]. Percentages of students who score in the lowest quartile (low level) are also provided, as well as those in the top band on each scale. OECD averages and proportions are provided for comparison, as well as correlations with mathematics achievement.

At a national level, on each of the three scales of engagement, Australian students record results just below the OECD average. This is in contrast to the results for achievement (Table 3.4), which are above OECD averages. It means that levels of student engagement are roughly equivalent with the results in other OECD countries taken as a group, despite Australia's relatively strong academic performance.

However one striking difference compared to other OECD countries is in the correlation between levels of engagement and mathematics achievement. In Australia, student engagement is more correlated with mathematics achievement than across OECD countries as a group (0.26 for Australian students in cognitive engagement, compared to 0.06 for the OECD more broadly). The correlation between behavioural engagement and mathematics achievement is 0.27 for Australian students as against 0.16 for students in the OECD more broadly. This means that achievement in Australia is more strongly connected with how engaged students are in school and their learning.

Student engagement levels are almost the same in Australia for boys and girls. There is also little variation across states and territories, except in behavioural engagement, where students in the Northern Territory, Tasmania and Queensland record lower levels than the other jurisdictions. This is also reflected in the proportions of students in the lowest band of behavioural engagement, with the percentage of students for Queensland (31.0), Tasmania (34.2) and the Northern Territory (37.3) well above the level for the OECD on average (26.1).

Student engagement varies by social background. Students from high-SES families have higher average levels of cognitive, behavioural and emotional engagement in school than students from low-SES families. In terms of working hard in class, being well prepared and well organised and trying to master new skills (cognitive engagement), there are large gaps between students based on SES. The percentage of students in the lowest band of cognitive engagement for the lowest SES decile (33.1 per cent) is not far off being double that of the OECD average (18.8 per cent) and is more than double of that for high-SES students (15.2 per cent). The opposite pattern is apparent for those in the highest band of cognitive engagement. Similar SES patterns are also apparent for emotional engagement and behavioural engagement.

19 Cognitive engagement is derived from nine items that capture application, preparation, and organisation: homework completed on time, working hard on homework, preparation for exams, studying hard, studying until understanding everything, paying attention in classes, listening in class, avoiding distractions when studying, and keeping work organised. Behavioural engagement is derived from three items measuring truancy (number of days skipped over two weeks), amount of out of school study time (average hours per week) and application to school work (trying hard is important). Emotional engagement is derived from three items that measure happiness at school, feeling that things are ideal at school, and satisfaction with school.

Table 3.5 Student (15-year-olds) engagement in school, by selected background characteristics

	Cognitive			Behavioural			Emotional		
	Mean Score	Low level (%)	High level (%)	Mean Score	Low level (%)	High level (%)	Mean Score	Low level (%)	High level (%)
Australia	59.2	22.6	18.5	71.4	27.9	41.2	62.3	38.3	13.3
Corr. with achievement	.26*			.27*			.13*		
OECD average	61.4	18.8	21.6	72.3	26.1	40.4	63.1	41.0	17.5
Corr. with achievement	.06			.16*			.04		
Gender									
Females	59.5	21.5	18.7	72.1	26.2	42.4	62.1	38.0	13.1
Males	59.0	23.7	18.3	70.7	29.4	40.1	62.4	38.6	13.6
State/Territory									
ACT	60.3	21.5	20.9	74.0	22.4	45.2	65.5	33.2	18.2
New South Wales	58.7	24.6	19.1	71.5	28.3	41.5	61.2	40.5	13.2
Victoria	60.8	19.4	20.3	72.4	25.9	42.5	63.4	35.6	14.4
Queensland	59.0	23.0	17.9	69.5	31.0	38.4	63.4	36.0	12.9
South Australia	56.6	26.6	13.5	71.2	27.6	40.5	62.2	37.9	13.6
Western Australia	59.1	21.0	16.8	72.5	24.5	43.7	60.6	42.7	11.1
Tasmania	58.9	23.0	17.7	69.5	34.2	37.9	60.6	42.4	13.6
Northern Territory	57.1	24.5	13.9	67.7	37.3	34.2	62.2	38.9	11.6
Location									
Metropolitan	60.0	21.7	19.7	72.8	25.2	43.6	63.3	36.6	14.3
Provincial	57.1	25.4	15.2	67.7	35.1	34.6	59.6	43.0	10.7
Remote	56.8	22.9	9.7	65.7	38.8	36.8	57.8	47.4	9.1
SES decile									
Lowest	53.5	33.1	11.7	66.3	39.5	34.6	58.1	45.2	8.8
Second	55.7	27.9	13.6	66.8	37.7	34.5	61.5	39.5	12.8
Third	58.7	21.8	16.7	69.5	30.4	36.7	61.0	40.2	12.4
Fourth	57.2	26.6	17.9	68.9	33.1	36.5	62.0	38.6	10.9
Fifth	58.7	23.0	15.2	70.1	29.5	37.2	60.9	41.5	11.5
Sixth	59.2	22.4	18.5	71.6	26.7	38.6	61.6	38.8	11.5
Seventh	59.8	20.2	18.2	73.3	24.5	44.1	61.7	38.9	12.5
Eighth	61.7	19.1	22.2	75.8	19.0	49.4	65.0	32.5	14.4
Ninth	63.4	15.7	24.4	75.6	19.0	48.7	65.3	34.5	18.1
Highest	64.8	15.2	26.6	76.4	18.6	52.2	66.3	32.6	21.3
Language background									
English	58.5	23.6	17.4	70.9	28.9	40.1	62.0	38.9	13.2
LBOTE	65.1	14.3	27.0	75.8	19.3	50.0	65.1	32.1	14.1
Northern European	60.9	22.8	24.1	71.5	20.2	43.4	63.2	38.9	5.7
Southern European	65.2	16.6	30.0	69.6	35.6	49.4	64.2	29.1	15.0
Eastern European	70.5	8.3	37.2	71.8	28.2	42.7	69.2	32.2	23.6
SW and Central Asian	64.4	20.3	26.3	73.6	21.0	44.5	64.2	30.4	13.4
Southern Asian	68.9	11.1	33.9	78.5	12.9	47.8	72.3	18.2	24.2
Southeast Asian	62.9	11.1	19.0	76.1	18.9	51.0	63.1	35.9	8.6
Eastern Asian	67.0	10.8	30.1	80.1	11.5	58.7	63.0	35.0	12.7
Australian Indigenous	48.9	44.0	7.9	63.6	44.9	31.1	67.1	24.8	15.6
African	65.0	22.7	28.2	79.4	15.3	52.9	67.3	37.8	13.8
Pacific	64.8	17.7	30.5	66.9	46.9	36.3	67.5	37.3	19.0
Indigenous status									
Non-Indigenous	59.4	22.2	18.7	71.6	27.4	41.6	62.4	38.2	13.4
Indigenous	52.2	35.2	10.7	64.2	42.6	31.0	59.7	43.4	10.2

Source: Derived using OECD PISA 2012

Note: * P<.05

Attendance and truancy

Attendance and truancy are the most overt expressions of behavioural engagement in school. They are important because students are more likely to succeed in school when they attend consistently. It is difficult for a teacher to build student skills and promote consistent and even progress for a whole class if a large number of students is frequently absent. In addition to falling behind academically, students who are not in school regularly are more likely to drop out before Year 12.

In Australia, rates of attendance are supplied each year at a school level to the Australian Curriculum, Assessment and Reporting Authority (ACARA). Student attendance is measured and reported as a rate, based on comparing the number of schools days attended to the total possible days attended. The measure is calculated by applying the nationally agreed definition for student attendance, using data from semester one each year.

Mean secondary school and combined school attendance rates for 2012 are reported in Figure 3.4, where they are broken down by state and territory, location and socio-educational advantage (ICSEA). Attendance rates for secondary and combined schools vary by state and territory, being lower in the Northern Territory and Western Australia and highest in Victoria and NSW. The differences are likely to reflect population and related factors.

Region is an important source of difference. Attendance rates in schools located in very remote communities suggest that on average students in these schools attend only 78.8 per cent of the time, while secondary school students in major cities attend 90.5 per cent of the time. The gap suggests that on average students in very remote communities receive almost five weeks less classroom teaching and learning than equivalent students in cities. For remote communities, the shortfall is about three weeks on average.

In terms of ICSEA, students in the most disadvantaged schools (bottom decile) attend school 84.2 per cent of the time compared to 94.1 per cent for those in the most advantaged schools (top ICSEA decile). This amounts to a classroom learning time gap of four weeks every school year for every student, on average.

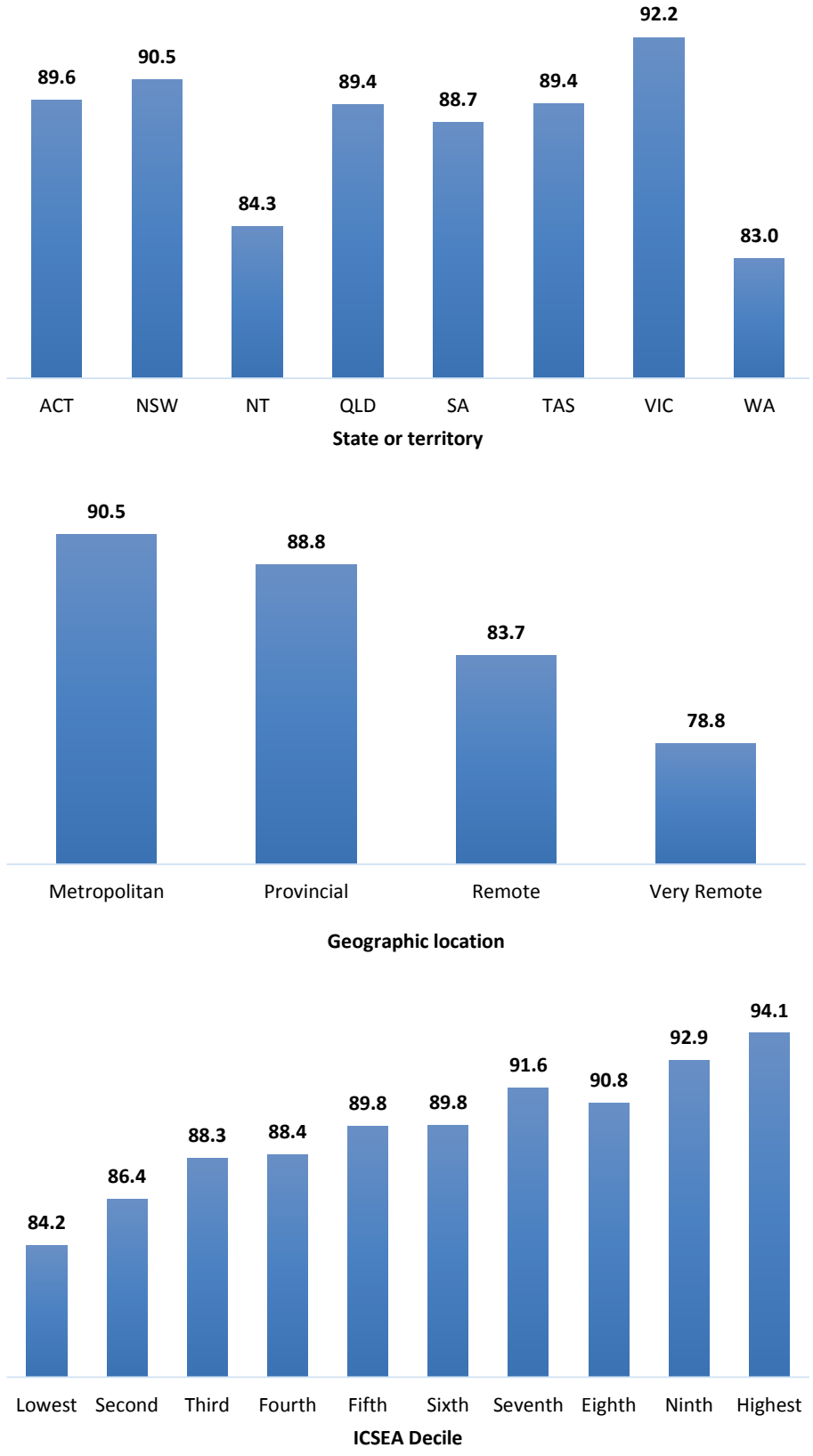
Individual student data are available for the cohort of 15-year-olds participating in PISA. Students were asked how many days in full they skipped in the past two weeks. The results are presented in Table 3.6, with the OECD average included for comparison. The numbers of students that the levels would apply to for the 2014 population of 15-year-olds are also provided.

The OECD (2013, p. 17) reported that “lack of punctuality and truancy are negatively associated with student performance: on average across OECD countries….skipping classes or days of school is associated with a 37-point lower score in mathematics – the equivalent of almost one full year of formal schooling”. If true for Australia, this has important implications given the patterns of truancy evident in Table 3.6.

Disadvantaged students are more likely to report skipping days of school. For example, 14.2 per cent of Indigenous students reported skipping three or more days in the two week period compared to 5.8 per cent of non-Indigenous students. Over 10 per cent of low-SES students (those in the lowest decile) reported being absent for three or more days, compared to 3.9 per cent of high-SES students (highest decile).

The rates for disadvantaged students help explain the differences based on location and differences across states and territories.

Figure 3.4 Mean school attendance rates (%), by state or territory, location and ICSEA



Source: Derived from ACARA school-level national attendance data for 2012.

Table 3.6 Number of days students were truant in the past two weeks, by selected background characteristics, 2012

	Number of days				Number of students			
	None	1–2	3–4	5 or more	None	1–2	3–4	5 or more
Australia	68.2	25.7	4.3	1.8	194,333	73,172	12,349	5,116
OECD Average	80.9	15.3	2.5	1.3				
Gender								
Females	71.0	23.5	3.9	1.7	98,656	32,647	5,359	2,379
Males	65.3	28.0	4.8	1.9	95,243	40,870	7,066	2,750
State/Territory								
ACT	78.9	16.8	2.9	1.5	4,210	894	156	77
NSW	69.4	24.9	4.1	1.6	62,839	22,527	3,697	1,486
VIC	70.4	24.7	3.3	1.6	50,286	17,676	2,345	1,151
QLD	63.9	28.1	6.0	2.0	36,642	16,109	3,458	1,171
SA	65.6	26.9	5.0	2.4	13,086	5,376	1,004	488
WA	67.5	27.3	3.9	1.3	20,980	8,476	1,217	392
TAS	70.4	21.4	5.0	3.2	4,727	1,441	335	214
NT	62.3	26.9	5.4	5.4	1,565	675	136	136
Location								
Major cities	69.7	24.8	4.0	1.5	145,876	51,959	8,318	3227
Inner regional	64.3	28.1	5.2	2.4	46,720	20,421	3,754	1,780
Outer regional	59.7	27.2	9.5	3.7	1,740	793	276	107
SES decile (Low to High)								
Lowest	58.6	31.1	7.5	2.9	16,747	8,885	2,133	836
Second	60.4	31.4	5.8	2.5	17,319	9,000	1,663	706
Third	65.9	28.0	4.0	2.0	18,797	7,995	1,143	575
Fourth	66.4	26.0	4.6	3.0	19,146	7,495	1,333	875
Fifth	67.1	26.6	4.7	1.5	19,624	7,782	1,381	448
Sixth	68.9	26.6	2.7	1.8	18,745	7,228	742	481
Seventh	71.4	24.0	3.9	0.8	20,674	6,944	1,117	224
Eighth	74.0	22.1	3.2	0.8	21,273	6,347	912	224
Ninth	74.4	20.6	3.8	1.2	20,981	5,802	1,058	341
Highest	75.6	20.5	2.5	1.4	21,162	5,727	709	394
Language background								
English	67.7	26.0	4.5	1.9	172,751	66,230	11,374	4,726
LBOTE	72.2	23.3	3.1	1.3	21,569	6,969	940	379
Northern European	69.1	25.2	5.6	0.0	1,343	490	109	0
Southern European	59.4	30.3	7.1	3.3	1,043	531	125	57
Eastern European	64.9	30.4	4.7	0.0	1,161	544	84	0
SW and Central Asian	62.9	32.3	2.6	2.2	2,511	1,287	103	89
Southern Asian	72.4	24.3	2.4	0.9	2,543	853	85	33
Southeast Asian	73.5	22.7	2.9	0.9	4,668	1,442	186	55
Eastern Asian	82.8	14.6	1.6	1.0	6,839	1,209	129	83
Australian Indigenous	62.8	22.3	7.7	7.2	408	144	50	47
African	72.9	24.1	3.0	0.0	538	178	22	0
Pacific	59.4	31.0	7.8	1.8	535	280	70	16
Indigenous status								
Non-Indigenous	68.7	25.5	4.1	1.7	189,238	70,120	11,417	4,697
Indigenous	53.7	32.1	9.8	4.4	5,096	3,052	931	418

Source: Derived using OECD PISA 2012

Retention rates

Remaining at school until Year 12 is a measure of student engagement. Historically, the apparent retention rate was the main measure of school completion, or at least a measure of a school's ability to hold its students. It remains an alternative way to measure the proportion of Australian students continuing their secondary school education. It is calculated by dividing the number of full-time students in Year 12 by the number of full-time students in the base year and converting the figure into a percentage. The base year is Year 7 in NSW, Victoria, Tasmania and the ACT and Year 8 in Queensland, South Australia, Western Australia and the Northern Territory.

Figure 3.5 reports apparent retention rates from 1989 to 2014. Figure 3.6 reports them by state and territory from 1995 to 2014, while Figure 3.7 reports them over the same period for Indigenous and non-Indigenous students.

During the late 1980s and up until 1992, the proportion of students continuing through to Year 12 markedly increased (rising from 60 per cent in 1989 to a peak of 77.1 per cent in 1992). This reflected the effects of declining full-time employment opportunities for teenagers, growing demand for university and further education, and growing importance of educational qualifications for employment outcomes (see Lamb, Walstab et al., 2004). After declining slightly in the 1990s, the apparent retention rate stabilised at around 75 per cent until 2010; since then, it has been increasing.

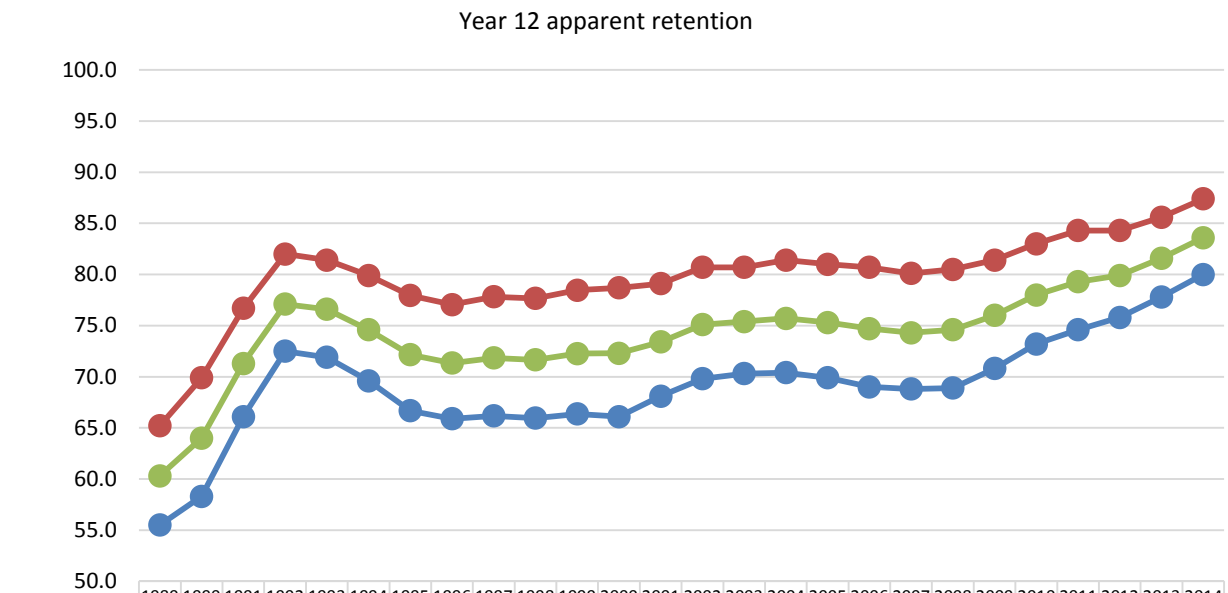
Gender gaps have remained strong over the last 15 years at around 10 percentage points. Since 2010 this gap has been narrowing, falling to 7.4 points in 2014, as the retention rates start to reach a ceiling.

National retention rates mask variations in early leaving and completion across states and territories, and across different groups. Discussion of national trends in school retention conceals the fact that schools are divided along lines of state authority and are subject to differences in state economic conditions and in the composition and dispersion of domestic populations. The impact of these political and demographic differences is apparent in the rates of retention from 1995 by state and territory presented in Figure 3.6.

It is worth noting that the comparisons are not adjusted for differences in levels of grade repeating, part-time students and migration. These can exert an influence on rates in certain jurisdictions. Despite this, state and territory comparisons are revealing because long-term patterns of growth or decline occur within the contexts of state and territory provision. Differences in economic conditions, labour markets, senior school programs and requirements, as well as in populations, can affect the rates at which opportunities in senior school are taken up.

Figure 3.6 shows that since 2010, all jurisdictions (apart from Tasmania, due to certificate and provision changes) have experienced increases in apparent retention. While the ACT at the beginning of the period in 1995 was ahead by a large margin, by 2014 four other jurisdictions were within 10 points and one had reached an almost equivalent level. Systems are now converging as they reach saturation points. Even the system with the most ground to make up (the Northern Territory) has experienced substantial growth, with an increase from 42.7 per cent in 1995 to 59.7 per cent in 2014.

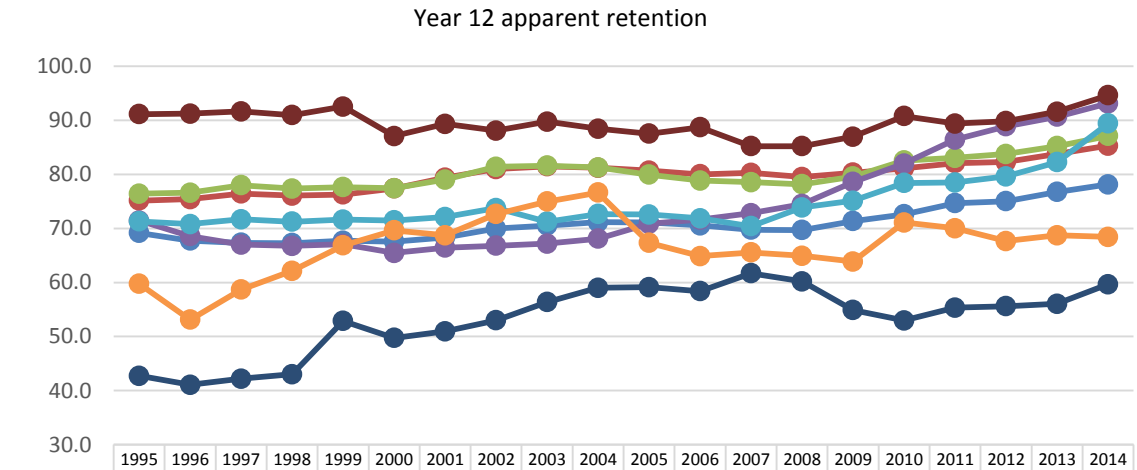
Figure 3.5 Year 12 apparent retention rates (%), by gender: Australia, 1989–2014



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Males	55.5	58.3	66.1	72.5	71.9	69.6	66.7	65.9	66.2	65.9	66.4	66.1	68.1	69.8	70.3	70.4	69.9	69.0	68.8	68.9	70.8	73.2	74.6	75.8	77.8	80.0
Females	65.2	69.9	76.7	82.0	81.4	79.9	77.9	77.0	77.8	77.7	78.5	78.7	79.1	80.7	80.7	81.4	81.0	80.7	80.1	80.5	81.4	83.0	84.3	84.3	85.6	87.4
All	60.3	64.0	71.3	77.1	76.6	74.6	72.2	71.3	71.8	71.6	72.3	72.3	73.4	75.1	75.4	75.7	75.3	74.7	74.3	74.6	76.0	78.0	79.3	79.9	81.6	83.6

Source: ABS 4221.0 Schools, Australia series.

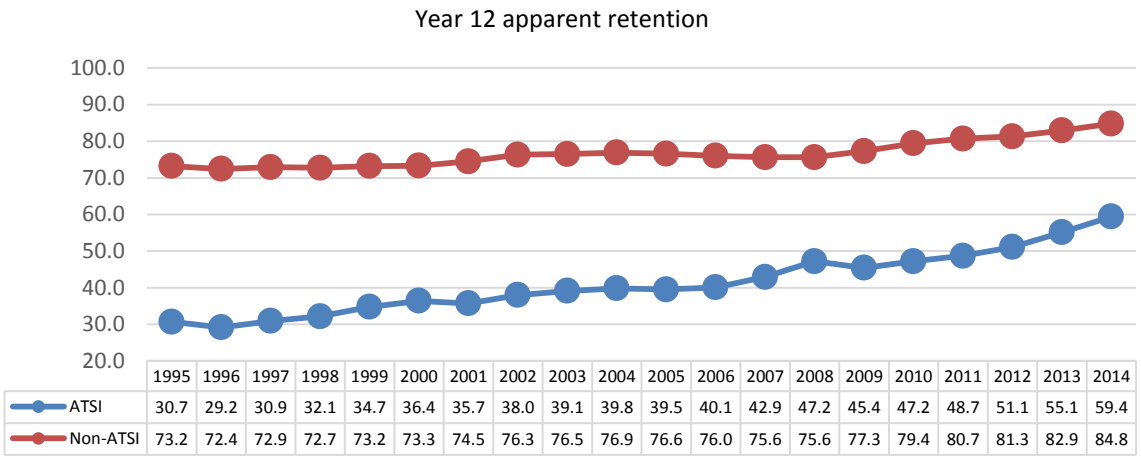
Figure 3.6 Year 12 apparent retention rates (%), by state: Australia, 1995–2014



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
NSW	69.2	67.7	67.3	67.3	67.7	67.6	68.3	70.0	70.5	71.2	71.1	70.6	69.8	69.7	71.4	72.6	74.7	75.0	76.8	78.1
VIC	75.2	75.4	76.5	76.1	76.3	77.4	79.4	81.0	81.5	81.2	80.7	80.0	80.3	79.5	80.3	81.1	82.1	82.3	83.8	85.3
QLD	76.4	76.6	78.0	77.4	77.6	77.4	79.0	81.4	81.6	81.3	80.0	78.9	78.6	78.2	79.6	82.6	83.1	83.8	85.2	87.1
SA	71.4	68.6	67.0	66.8	67.1	65.5	66.4	66.8	67.2	68.1	70.9	71.6	72.8	74.5	78.6	82.0	86.4	88.9	90.7	93.1
WA	71.3	70.8	71.7	71.3	71.6	71.5	72.1	73.8	71.2	72.7	72.6	71.9	70.4	73.9	75.1	78.4	78.5	79.6	82.3	89.4
TAS	59.7	53.1	58.7	62.1	66.9	69.6	68.7	72.7	75.0	76.6	67.3	64.9	65.6	64.9	63.9	71.1	70.0	67.7	68.7	68.4
NT	42.7	41.1	42.2	43.0	52.9	49.7	51.0	53.0	56.4	59.0	59.1	58.4	61.7	60.2	54.9	53.0	55.3	55.6	56.0	59.7
ACT	91.2	91.3	91.6	91.0	92.5	87.1	89.3	88.1	89.8	88.5	87.5	88.7	85.2	85.2	87.0	90.8	89.4	89.8	91.6	94.6

Source: ABS 4221.0 Schools, Australia series.

Figure 3.7 Year 12 apparent retention rates, by Indigenous status: Australia, 1995–2014



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
ATSI	30.7	29.2	30.9	32.1	34.7	36.4	35.7	38.0	39.1	39.8	39.5	40.1	42.9	47.2	45.4	47.2	48.7	51.1	55.1	59.4
Non-ATSI	73.2	72.4	72.9	72.7	73.2	73.3	74.5	76.3	76.5	76.9	76.6	76.0	75.6	75.6	77.3	79.4	80.7	81.3	82.9	84.8

Source: ABS 4221.0 Schools, Australia series.

The gains made in the Northern Territory reflect improvements in the apparent retention of Indigenous students (see Figure 3.7). From a low base of 30.7 per cent in 1995, the rate increased to 59.4 per cent in 2014, almost doubling over the 20 years. The gap between Indigenous and non-Indigenous students fell in this period from 42.5 to 25.4 points.

Dispositions towards learning and school

Recent research suggests that one of the best ways to improve student success in school and their likelihood of completing and not dropping out is by supporting the development of academic mindsets or dispositions, or "the psychological and social beliefs one has about oneself in relation to academic work" (Farrington et al., 2013). The view is that students with positive dispositions work harder, engage more productively in academic endeavours, and persevere to overcome obstacles to success (Farrington et al., 2013). Conversely, students with negative dispositions towards school or themselves as learners are likely to withdraw from the behaviours essential for academic success, and to give up easily when they encounter setbacks or difficulty.

Four key dispositions are measured in this analysis: sense of belonging at school (I belong here), self-confidence (I can succeed), purpose (I value what I do), and perseverance (I can overcome obstacles). While there are no ongoing assessments of such skills or dispositions in Australia, measures of them can be obtained from the 2012 PISA survey of 15-year-olds.

PISA included nine items on sense of belonging, six items on self-confidence, four on the importance or purpose of school, and five on perseverance. Using scales constructed on a 0–100 scale with items treated equally in contribution, the mean scores are presented in Table 3.7. Percentages of learners scoring in the lowest quartile (low level) are also shown, as well as those in the top band on each scale.

Generally students score highly on the measure of sense of belonging, meaning that they feel happy at school or that they feel like they belong at school. However, not all students are equally likely to report a strong sense of belonging. Students in remote communities are less likely to feel a sense of belonging than students in metropolitan areas, and Indigenous students are less likely to do so than non-Indigenous students. Low-SES students report a level almost 10 points lower on average than high-SES students.

Girls and boys record similar levels across the disposition scales. However, while girls report similar levels of self-confidence and purpose in schooling, they tend to report less perseverance.

Table 3.7 Student dispositions towards school, by selected background characteristics

	Belonging			Self-confidence			Purpose			Perseverance		
	Mean Score	Low level (%)	High level	Mean Score	Low level	High level	Mean Score	Low level	High Level	Mean Score	Low level	High level
Australia	70.3	20.0	29.6	66.4	40.9	12.9	69.6	16.0	28.6	59.1	25.0	23.4
Corr. with achievement	.13*			.34*			.26*			.33*		
OECD average	73.2	17.1	37.3	68.8	35.1	17.2	68.8	19.3	28.2	58.7	27.7	24.4
Corr. with achievement	.08*			.20*			.04*			.13*		
Gender												
Females	69.2	21.8	28.2	66.4	40.5	12.9	69.9	14.9	29.3	57.1	29.3	20.8
Males	71.3	18.3	31.1	66.3	41.4	12.8	69.3	17.2	27.8	61.0	21.0	25.9
State/Territory												
ACT	72.5	16.9	34.4	67.6	37.6	14.4	70.9	15.0	30.3	60.4	23.3	23.3
New South Wales	70.2	21.0	29.7	65.7	42.2	11.6	69.1	18.1	28.3	59.6	23.6	24.4
Victoria	71.7	17.2	33.2	67.7	37.4	15.2	70.6	14.6	31.8	59.4	24.7	24.0
Queensland	69.4	21.7	27.0	66.0	41.7	12.5	69.6	15.0	27.3	58.3	27.5	22.5
South Australia	70.0	19.7	30.4	66.1	42.3	13.8	69.7	15.1	28.7	58.3	25.5	21.5
Western Australia	69.1	20.4	26.0	65.7	44.0	10.8	68.5	15.6	24.6	59.0	24.9	23.0
Tasmania	68.5	22.2	26.0	67.5	38.6	13.9	69.3	17.7	29.3	58.3	26.0	22.1
Northern Territory	68.3	23.3	26.8	65.6	42.2	9.7	67.4	13.1	17.0	56.6	30.9	18.8
Location												
Metro	71.1	18.5	31.2	66.8	39.5	13.5	70.4	14.5	30.0	59.9	23.7	24.4
Provincial	68.2	23.7	25.4	65.1	44.8	11.2	67.4	20.3	24.7	57.0	28.5	20.7
Remote	64.3	34.3	22.0	64.7	45.0	11.2	67.7	17.9	21.3	54.9	33.6	17.9
SES decile												
Lowest	65.8	29.4	21.2	61.8	53.9	8.0	64.6	24.0	18.0	53.6	35.1	15.1
Second	68.4	23.7	27.6	64.7	45.2	11.1	67.0	19.1	22.8	54.7	33.1	15.5
Third	69.2	21.0	27.5	64.1	46.4	9.5	68.0	18.7	24.3	58.3	25.7	22.8
Fourth	70.2	19.2	28.0	65.4	43.1	11.5	69.0	17.8	28.3	56.6	29.2	18.1
Fifth	69.8	18.7	27.5	65.4	43.9	10.4	68.6	16.3	24.9	58.5	25.0	22.3
Sixth	70.3	17.8	27.5	66.6	39.8	13.5	68.5	18.4	26.3	60.3	23.2	25.4
Seventh	69.7	21.7	29.5	67.4	38.8	11.8	70.3	13.9	31.3	61.0	21.8	25.9
Eighth	73.2	14.2	34.8	69.4	32.8	16.5	73.3	10.4	36.1	60.7	21.2	23.8
Ninth	72.0	16.5	32.4	68.9	33.6	16.0	72.9	10.0	35.0	63.1	18.6	31.6
Highest	74.6	16.1	41.0	70.6	30.0	21.0	74.6	10.2	40.0	65.1	16.4	34.6
Language background												
English	70.2	20.0	29.5	66.3	41.3	12.7	69.5	16.3	28.3	58.7	26.1	22.8
LBOTE	71.1	19.5	31.2	67.5	36.5	14.7	70.7	12.7	31.1	63.1	15.8	29.4
Northern European	75.0	6.7	32.3	68.7	36.3	23.7	72.8	3.3	29.6	61.9	22.9	25.4
Southern European	74.1	15.7	37.4	63.7	47.2	18.6	69.6	18.0	42.9	66.7	15.7	42.8
Eastern European	77.8	11.6	43.3	73.9	21.8	38.4	75.6	10.5	42.8	65.8	10.7	37.8
SW and Central Asian	72.5	16.4	34.4	66.1	43.9	10.0	68.8	15.5	24.8	65.6	10.9	32.1
Southern Asian	74.8	18.0	41.9	70.7	27.7	19.0	77.4	5.8	48.8	67.3	15.4	44.1
Southeast Asian	69.1	22.3	26.8	66.8	37.4	13.8	68.8	12.9	26.7	60.9	16.3	21.5
Eastern Asian	68.7	20.2	24.8	67.4	34.3	9.4	68.2	14.9	23.4	62.6	14.0	26.5
Australian Indigenous	64.0	45.6	23.7	57.9	57.1	3.0	62.8	27.5	17.1	47.1	50.2	9.0
African	67.8	27.0	22.1	70.8	22.4	20.3	76.5	0.0	45.7	65.1	8.5	39.0
Pacific	74.1	24.1	43.6	62.3	62.7	18.5	77.1	15.3	47.0	58.9	25.1	19.4
Indigenous status												
Non-Indigenous	70.4	19.7	29.9	66.6	40.4	13.1	69.8	15.8	28.9	59.3	24.7	23.7
Indigenous	65.9	28.7	21.2	61.0	57.6	7.2	64.9	23.8	17.9	52.6	36.6	13.7

Source: Derived from OCED PISA 2012

Putting in hard work and being prepared to put aside competing interests to pursue longer-term goals can go a long way towards developing student potential, but students can only be expected to persevere and remain attached to learning goals if they believe that the effort will bring reward and that they are capable of achieving at high levels. The results suggest that students from disadvantaged backgrounds, such as low-SES and Indigenous students, and those living in non-metropolitan areas, are less likely to feel this way. They report lower perseverance (or "grit" – see Duckworth & Gross, 2014) and are less confident in their ability to succeed, even if they can see the value of schooling in terms of the things to which it gives access.

Engagement in the curriculum: views on mathematics

One of the most important subject areas, and certainly one that has become increasingly critical in selection for higher education and success in the workforce, is mathematics. Table 3.8 reports the levels of interest in mathematics of 15-year-olds, their levels of confidence, anxiety, and their sense of self-efficacy as mathematics learners. The information is from PISA 2012, which included items on these aspects, constructed into scales on a 0–100 point range.

Some of the strongest correlations with achievement, and school completion, are based on how students view mathematics. The correlations between achievement and anxiety, confidence and mathematics self-efficacy are moderately strong across the OECD (0.3 or more), but they are even stronger in Australia, reaching 0.62 for student confidence in mathematics. How well Australian students achieve in mathematics is linked more strongly to their beliefs and views about themselves as mathematics students than for learners across the OECD.

As previously shown, girls record lower rates of achievement in mathematics, compared with boys (see Table 3.3), by an average of 12 score points. They are, consistent with this, far more anxious about mathematics, less confident, and express less interest in it. These are concerns given the role that mathematics has in later success.

As well as the gender gap, there are gaps based on SES and Indigenous status. Disadvantaged students are less likely to be confident in mathematics and more likely to feel anxiety in learning.

Table 3.8 Student views on mathematics, by selected background characteristics

	Interest			Confidence			Anxiety			Efficacy		
	Mean Score	Low level	High level	Mean Score	Low level	High level	Mean Score	Low level	High Level	Mean Score	Low level	High level
Australia	**45.5**	**23.4**	**14.8**	**68.4**	**28.5**	**30.3**	**46.8**	**19.9**	**14.2**	**50.1**	**21.9**	**20.7**
Correlation achievement	.23*			.62*			-.40*			.45*		
OECD average	45.0	25.8	16.1	67.2	28.3	26.7	48.4	20.2	18.1	49.2	23.8	21.6
Correlation achievement	.08*			.49*			-.35*			.31*		
Gender												
Females	41.2	28.8	11.2	64.0	36.0	22.3	50.9	15.4	18.8	45.1	29.2	16.1
Males	49.5	18.4	18.2	72.5	21.5	37.6	42.8	24.2	9.8	54.9	14.8	25.1
State/Territory												
ACT	46.5	22.6	14.8	71.9	20.3	35.4	44.9	21.3	13.5	52.5	18.5	24.1
NSW	45.9	23.2	16.4	69.3	27.5	32.5	47.1	18.7	12.9	49.9	21.5	19.5
Victoria	46.6	23.4	15.7	67.7	29.8	27.2	46.0	21.7	15.0	50.3	23.0	23.0
Queensland	44.8	22.9	12.6	68.4	28.6	31.2	47.8	19.2	15.3	49.7	22.0	19.5
South Australia	42.1	25.4	10.7	63.9	33.9	21.3	47.9	20.0	17.1	49.4	23.1	21.1
Western Australia	44.5	24.5	14.9	70.4	24.9	34.8	45.4	20.7	13.1	50.8	21.1	20.6
Tasmania	46.5	20.6	14.0	65.7	32.3	26.6	45.7	19.9	11.7	51.6	18.2	20.3
Northern Territory	48.2	20.8	16.2	64.1	35.6	25.3	49.2	18.7	14.2	50.6	16.0	17.2
Location												
Metropolitan	45.9	23.4	15.3	69.7	26.5	32.6	46.6	20.4	14.4	50.6	21.8	21.4
Provincial	44.0	23.6	13.3	64.8	34.1	23.6	47.2	18.7	14.0	48.7	22.3	18.4
Remote	49.1	19.6	14.8	61.2	38.9	18.4	45.7	16.5	10.3	56.7	12.2	24.0
SES decile												
Lowest	44.0	24.6	12.7	58.2	46.0	14.6	50.3	14.5	17.0	45.8	25.4	15.3
Second	43.0	26.8	12.8	61.6	41.7	17.7	49.8	16.4	19.6	46.8	25.9	17.3
Third	45.8	20.8	13.7	65.2	34.4	23.9	49.1	14.2	15.3	47.6	23.7	15.4
Fourth	43.4	25.8	12.8	65.0	35.3	23.2	46.6	21.0	12.8	48.4	24.0	19.1
Fifth	43.6	26.1	14.4	66.5	28.5	24.5	48.3	17.3	13.4	47.8	25.5	18.3
Sixth	45.3	22.8	12.1	70.6	23.2	33.1	47.7	17.7	14.4	50.1	20.3	19.5
Seventh	44.6	26.9	15.0	71.0	23.2	33.1	45.1	21.2	12.3	51.0	22.0	21.5
Eighth	46.6	22.6	16.6	73.7	20.3	41.0	42.6	27.4	11.3	54.7	16.4	26.7
Ninth	49.2	18.1	19.7	75.2	17.0	43.2	43.6	24.1	12.8	55.0	17.1	27.7
Highest	49.4	18.8	17.7	77.9	14.0	49.4	44.3	26.0	13.5	54.9	17.2	27.1
Language background												
English	44.1	24.8	13.6	67.9	29.4	29.3	47.1	19.3	14.7	49.3	23.0	19.6
LBOTE	56.8	11.4	25.2	73.2	20.3	38.5	43.2	25.2	10.1	57.9	11.3	30.0
Northern European	44.2	22.6	10.7	67.6	29.5	31.7	42.7	22.1	9.8	54.0	14.5	31.0
Southern European	52.9	13.8	26.0	72.1	19.0	26.3	47.9	25.2	14.2	51.5	14.0	17.0
Eastern European	54.3	8.8	14.3	72.2	21.0	33.0	46.6	29.1	22.4	54.7	24.2	24.9
SW and Central Asian	60.7	10.5	30.2	67.6	30.0	32.0	47.2	16.9	16.1	51.6	19.7	23.6
Southern Asian	61.0	8.5	30.9	76.8	14.0	47.4	40.1	31.6	8.2	59.5	11.4	33.4
Southeast Asian	57.2	11.2	24.2	71.0	23.5	32.6	46.5	18.4	9.5	55.8	12.1	23.1
Eastern Asian	58.8	8.1	27.2	81.0	8.6	53.5	38.1	32.3	5.7	64.0	4.8	40.5
Australian Indigenous	46.4	25.7	17.8	52.5	45.0	4.7	50.7	14.1	10.1	56.7	10.4	28.0
African	52.2	19.0	21.0	66.2	38.8	25.8	41.4	28.0	7.5	59.6	2.8	30.5
Pacific	59.6	12.9	34.6	62.7	35.8	24.4	50.2	15.4	14.1	55.1	8.2	20.5
Indigenous status												
Non-indigenous	45.5	23.4	14.9	68.8	27.8	30.9	46.6	20.3	14.1	50.3	21.7	20.9
Indigenous	44.3	24.8	12.7	57.5	49.2	11.9	52.4	10.8	16.9	45.1	24.9	14.0

Source: derived from PISA 2012.

Note: * P<.05

Segregation, residualisation and division of labour

This section has examined patterns related to the milestone of school completion. We showed that about a quarter of all 19-year-olds have not completed Year 12 or equivalent. Those missing out are far more often from disadvantaged backgrounds – Indigenous, low SES, and more often living in rural, regional and remote parts of Australia. Leading up to the milestone are major related gaps in academic achievement, retention, attendance, positive student engagement and supportive outlooks on schools and learning.

Linked to the likelihood of doing well at the end of the senior school years are social and cultural factors, as well as the role of differences in the concentrations of disadvantage across schools and communities. Schools that serve largely middle-class populations do better on a range of scholastic and student outcomes. Those serving low-SES communities do not do well. Segregation, the separation of populations along social, ethnic and racial lines, is a key driver of scholastic success.

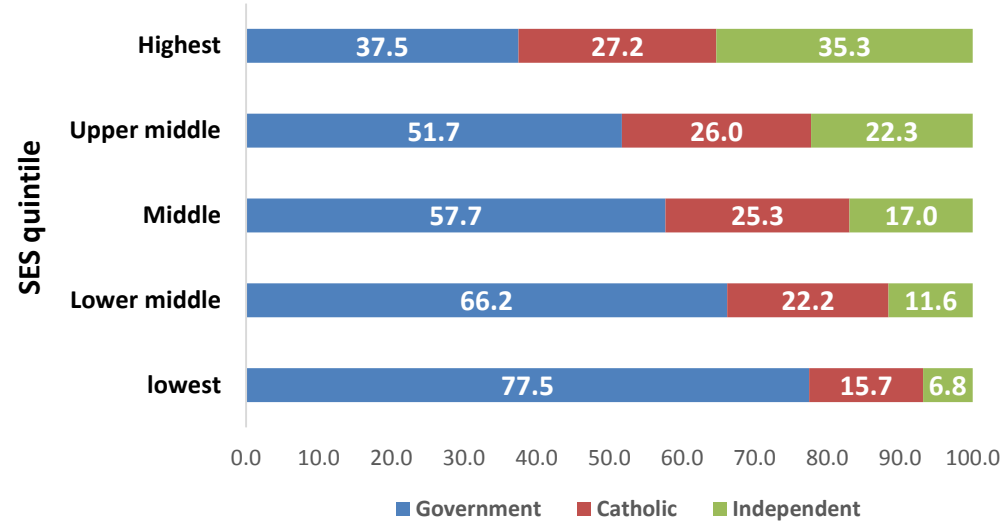
The extent of segregation is shown by differences across schools and school sectors in who schools serve. Private schools now enrol large proportions of Australian students, especially at secondary level. Figure 3.8 shows that across the nation 40.7 per cent of secondary students attended non-government schools in 2014. Proportions range from 33.4 per cent in Tasmania to 46.1 per cent in the ACT.

Figure 3.8 Percentages of secondary students in non-government schools, by state and territory, 2014

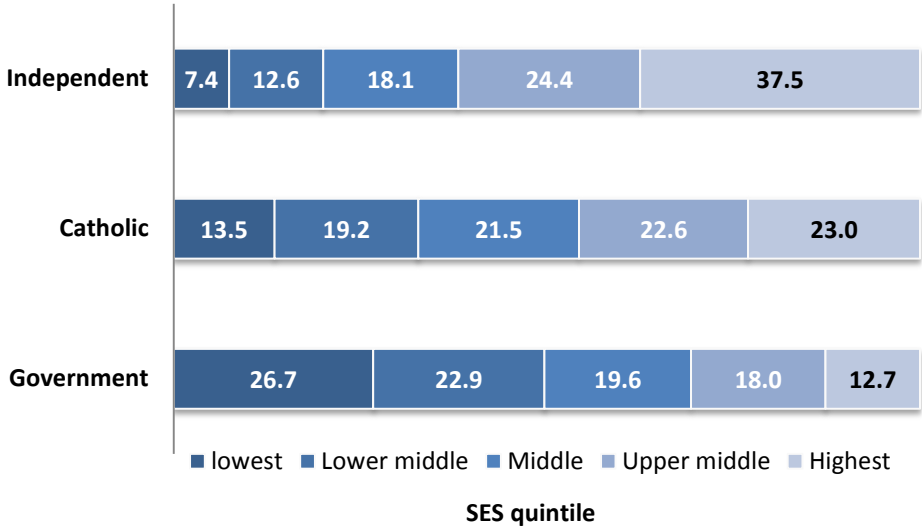
Source: ABS 4221.0 Schools Australia, 2014

It is not only the number of students in each sector that is important, but which students attend different types of schools. Figure 3.9 displays shares of students across school sectors by SES quintile. Two panels are provided. The first panel breaks the population of students in secondary schools into quintiles based on SES and looks at what proportion of students from each quintile (low to high) attends each type of school – government, Catholic and independent. The second panel looks at the proportion of students in each school sector drawn from the different quintiles of SES.

Figure 3.9 Sector shares of students (%), by SES* quintile



SES composition of student intake, by sector



* SES is based on the IESCS developed by the OECD for use in PISA. It is derived from parental education, parental occupation, family wealth, and educational and cultural resources in the home.
Source: OECD PISA 2012

There is a clear social division across sectors. Independent schools tend to draw from the top and middle of the SES quintiles, while government schools disproportionately draw from the bottom quintiles and Catholic schools more from the middle, but also the top (panel 2).

Table 3.9 Student intake characteristics (%), by school sector

	Across sector (shares)				Within sector		
	Govt	Cath	Ind	Total	Govt	Cath	Ind
Australia	59.3	22.6	18.0	100.0	100.0	100.0	100.0
Gender							
Males	60.0	22.2	17.7	100.0	51.3	49.9	49.9
Females	58.6	23.0	18.3	100.0	48.7	50.1	50.1
SES* (quintile)							
Lowest	77.5	15.7	6.8	100.0	26.7	13.5	7.4
Lower middle	66.2	22.2	11.6	100.0	22.9	19.2	12.6
Middle	57.7	25.3	17.0	100.0	19.6	21.5	18.1
Upper middle	51.7	26.0	22.3	100.0	18.0	22.6	24.4
Highest	37.5	27.2	35.3	100.0	12.7	23.0	37.5
Maths Achievement (quintile)							
Lowest	76.2	16.0	7.8	100.0	26.0	13.9	8.6
Lower middle	64.1	22.4	13.5	100.0	21.8	19.5	14.7
Middle	56.1	25.6	18.3	100.0	19.1	22.3	20.0
Upper middle	48.4	27.5	24.1	100.0	16.5	23.9	26.3
Highest	48.7	23.4	27.9	100.0	16.6	20.4	30.4
Indigenous							
Indigenous	79.4	12.3	8.3	100.0	6.2	2.5	2.1
Disabilities							
Disability	76.4	12.7	10.9	100.0	2.7	1.2	1.2
Language background							
English	57.5	23.6	19.0	100.0	87.9	91.7	91.8
LBOTE	67.4	18.2	14.4	100.0	12.1	8.3	8.2
Northern European	48.4	14.7	36.8	100.0	0.6	0.4	1.4
Southern European	37.5	44.2	18.3	100.0	0.4	1.2	0.6
Eastern European	73.1	13.6	13.3	100.0	0.8	0.4	0.4
SW and Central Asian	58.6	28.4	13.0	100.0	1.4	1.7	1.0
Southern Asian	76.5	12.0	11.5	100.0	1.6	0.6	0.8
Southeast Asian	73.8	20.1	6.1	100.0	2.8	1.9	0.7
Eastern Asian	72.1	10.2	17.7	100.0	3.6	1.3	2.8
Australian Indigenous	60.9	27.0	12.1	100.0	0.2	0.3	0.1
African	52.3	24.6	23.1	100.0	0.2	0.3	0.3
Pacific	84.1	15.9	0.0	100.0	0.5	0.2	0.0

* SES is based on the IESCS developed by the OECD for use in PISA. It is derived from parental education, parental occupation, family wealth, and educational and cultural resources in the home.
Source: OECD PISA 2012

Low-SES communities in Australia are largely served by government schools. Just on 77.5 per cent of students from the most socially disadvantaged backgrounds (lowest SES quintile) attend government schools (Panel 1). Conversely, only 37.5 per cent of the most advantaged students (top SES quintile) attend government schools. Just over 35 per cent attend independent schools and a further 27.2 per cent attend Catholic schools.

However, school sector not only divides the population in socio-economic terms. Table 3.9 reports sector differences by student characteristics including by mathematics achievement profile, Indigenous status, students with disabilities, language background and gender.

Nationally, government schools enrol 59.3 per cent of secondary school students, but they have the largest share of students with disabilities (76.4 per cent), Indigenous students (79.4 per cent), and the lowest mathematics achievers (76.2 per cent). There is therefore a very uneven division of labour across school sectors in terms of schooling-disadvantaged secondary school age Australians. There is also a segregation of the population based on these characteristics.

Academic selection and aspirational families

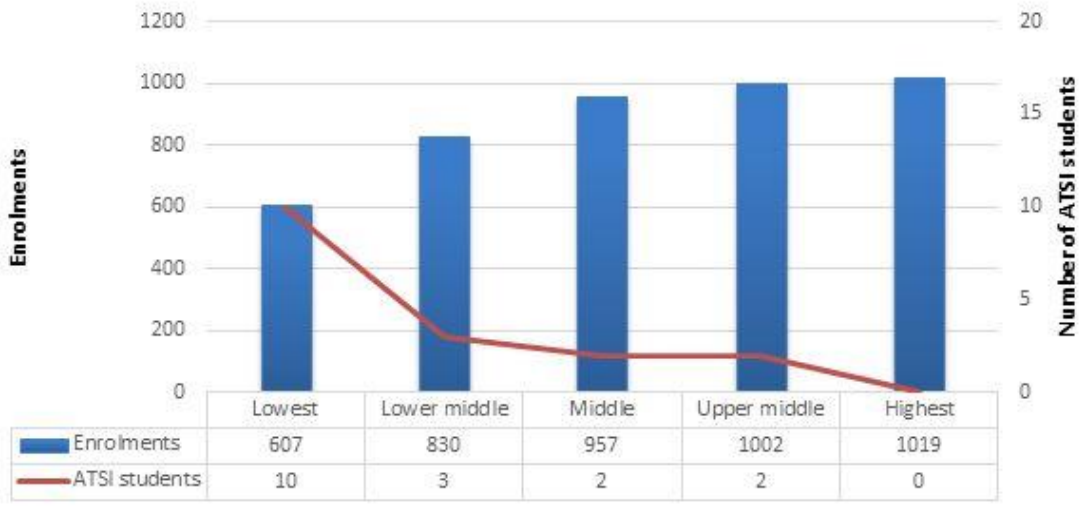
Students attending non-government schools are far more often drawn from high-SES backgrounds, and this affects the pool of students attending government schools. However, private schools are not the only factor contributing to social and scholastic segregation across the Australian population. Academic selection through the operation of selective entry schools and the expansion of selective entry classes and accelerated streams within schools work to separate populations scholastically and also socially.

Additionally, there is the impact of family aspirations. Government schools form a market, in which schools that have not reached their enrolment limit allow families to make choices, bypassing some schools in favour of others. The movement of students from aspirational families to desirable schools in both the government and non-government sectors leaves schools in some communities with residues of concentrated poverty or students with higher needs, making it harder for these schools to achieve the same outcomes for students.

The impact of this process of "residualisation" is the creation of sought-after schools that become large due to demand, and other schools that face the pressure of declining enrolments and a residual population of disadvantaged students with higher or additional learning and support needs. It may sometimes be felt that this process exists mainly in large cities and jurisdictions, where the population is diverse and where families have more choice in relation to schools, or in cities that have a more diverse population. However, the effects of this are visible across many Australian communities where there are collections of schools.

Evidence of this is provided partly by a strong relationship between school size and the SES intake of schools. Figure 3.10 presents mean enrolment sizes of secondary schools nationally (Year 7–12 schools only, to control for other effects) with schools grouped into quintiles of socio-educational advantage based on their ICSEA score. The Figure also plots the average number of Indigenous students in each school.

Figure 3.10 Mean enrolments and mean number of Indigenous students: government secondary schools in metropolitan areas



Source: Derived from ACARA data for 2012.

The results show that schools with a high SES intake are more often larger schools (average enrolment of 1019 for those in the top quintile of ICSEA) whereas schools that serve students from low SES backgrounds are generally smaller (average enrolments of 607).

The high levels of segregation of students in Australia, due in large part to residential segregation and the sector organisation of schools, tend to reinforce patterns of inequality and strengthen differences in school performance. This means that students from disadvantaged SES backgrounds tend to do worse because of the extent of segregation. One upshot of this, according to an OECD study of PISA results, is that much talent remains unused and human resources are wasted (OECD, 2001).

4. Transition to adulthood

For many Australians aged 20–24 years, early adulthood marks a shift away from full-time education and training towards the labour market, and aspirations to develop careers and secure strong economic futures. Some will have built on academic success at school in continuing to higher education, while others build on skills acquired in training or the labour market. Others deemed to be "missing out" at age 19 years will have recovered to a stable pathway through, for example, on-the-job training such as apprenticeships and traineeships. Some young adults are still or newly vulnerable to the external economic forces driving the labour market and are either in part-time jobs or are experiencing unemployment. In this section we examine patterns of participation in education, training and work for young Australians making the transition to adulthood.

Milestone 4 – fully engaged in education, training or work

Participation in education, training and work is often used as an indicator of the wellbeing of young people. Research suggests that young people who are not fully engaged in education or employment (or a combination of both) are at greater risk of unemployment, cycles of low pay, and employment insecurity in the longer term (Lamb & Mason, 2009; Pech et al., 2009). Participation in education and training, and engagement in employment, are considered important aspects of developing individual capability and building a socially inclusive society (Australian Social Inclusion Board, 2010).

By age 24 many young people have completed their post-school study and are seeking to establish themselves in the workforce. It is an important age at which to measure how well our education and training system has served them and set them up for their careers and their wellbeing more broadly. Figure 4.1 presents estimates of Milestone 4, the national rate of those fully engaged in education, training or work at age 24. The rates were derived from the ABS Labour Force Survey as at August, 2014 (ABS, 2014b). As well as the national rate, the figures are broken down by various background characteristics to provide estimates by gender, state and territory, SES, language background, location and Indigenous status.

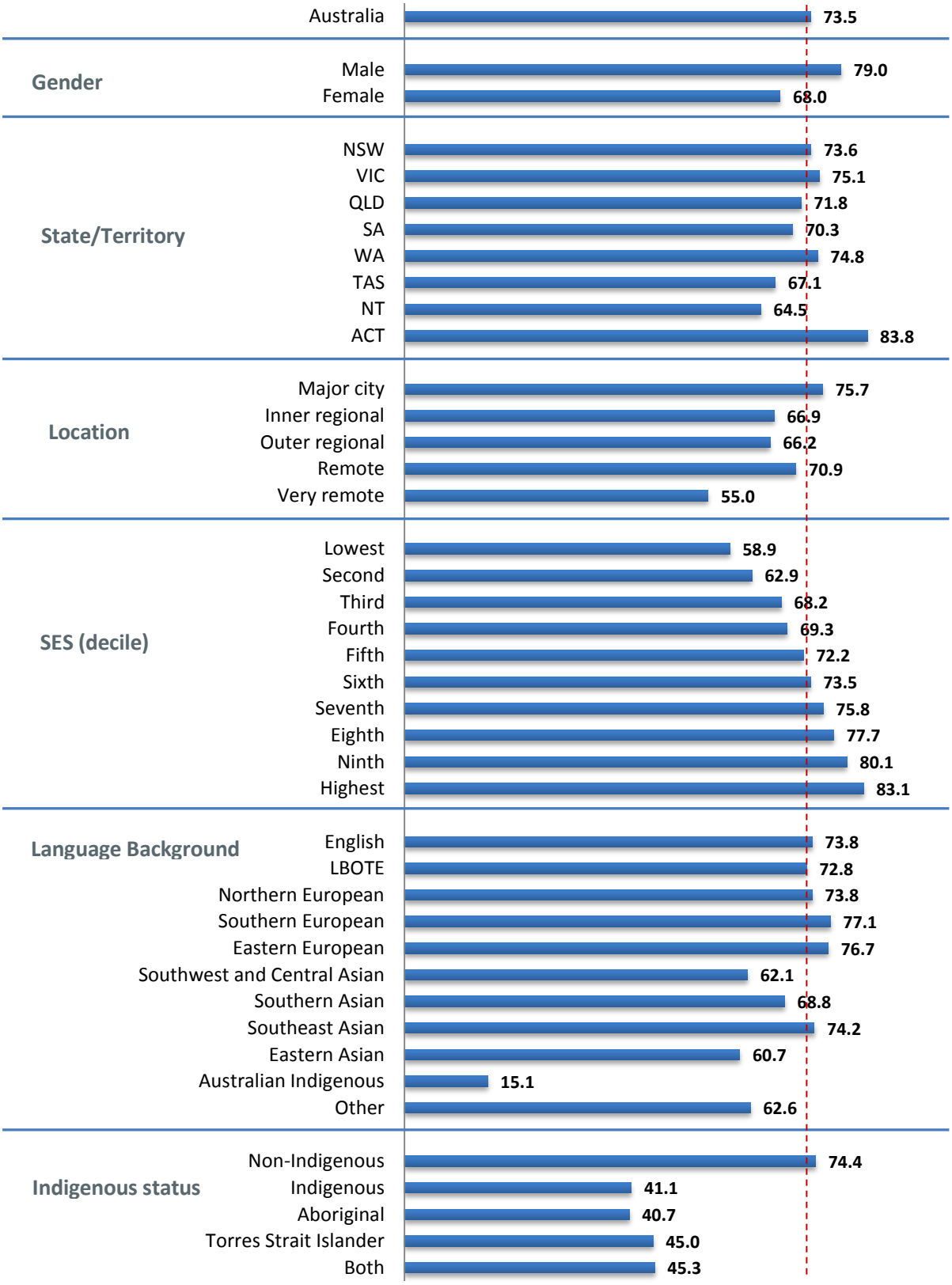
In 2014, the majority (73.5 per cent) of young people aged 24 years (from a total of around 350,000) were fully engaged in either education or work. This rate varied depending on several background factors.

State and territory differences in participation largely reflect population differences, geography and remoteness, but also policy differences related to opportunity. In 2014, 83.8 per cent of 24-year-olds in the ACT were engaged in full-time education, training or work, compared with 75.1 per cent in Victoria, 71.8 per cent in Queensland, 73.6 per cent in NSW, 70.3 per cent in South Australia and 74.8 per cent in Western Australia. Tasmania (67.1 per cent) and the Northern Territory (64.5 per cent) had the lowest levels of engagement, reflecting effects of population and geography.

The variations across locations and across states and territories are partly due to differences in populations. Figure 4.1 shows that engagement in learning and earning varies substantially by social background. The gap between the highest and lowest deciles is 24 percentage points. Only 58.9 per cent of young people from the lowest SES decile of the population were engaged in full-time study or work; this percentage rises with each SES decile, reaching 83.1 per cent for those in the highest decile.

Gender differences in engagement at age 24 show about a 10 percentage point gap, with women much less likely to be fully engaged in study and paid work at this age. This is partially due to young women being engaged in domestic unpaid work, such as child-rearing or caring responsibilities, as shown later in this section.

Figure 4.1 Fully engaged in education, training or work, at age 24, by selected background characteristics (%), 2014



Source: Derived from 6291.0.55.001 Labour Force, Australia, Detailed - Electronic Delivery. Table 03c. Labour force status for 20-24 year olds by Educational attendance, Age and Sex.

Indigenous students are far less likely to be earning or learning at age 24. The gap between Indigenous and non-Indigenous students in 2014 is over 30 percentage points. This outcome represents the culmination in adulthood of the differences in Indigenous and non-Indigenous achievement, which began at the earliest stages of the education and training system.

Who is missing out?

Just over one-quarter of all young Australians at the age of 24 are not earning or learning. According to the figures in Table 4.1, which reports the rates applied to the 2014 population, this represents 93,289 24-year-olds nationally. In other words, annual cohorts of over 90,000 young Australians in their mid-20s are struggling to establish stable study and work careers.

The most significant risk factors of being unable to secure full-time work or engage in study or training and missing out are being Indigenous, being female, and coming from a low-SES background. While the overall number of 24-year-olds at risk in 2014 was over 90,000, women accounted for 55,470 (60 per cent), partly due to child-rearing and other unpaid domestic work.

Indigenous students make up 7.5 of those missing out or eight per cent of the total national number of young adults who are finding it difficult to get work or continue on study.

Low-SES students are much more likely to be missing out; those from the lowest decile account for 13,776 (15 per cent) of those missing out. Young people from high-SES families are far less likely to be missing out, with those from the highest SES decile accounting for only 5,664 (six per cent).

As at other milestones, living in a very remote area increases learner chances of missing out on being fully engaged in work or study at age 24. The concentration of other risk factors (indigeneity and low SES) in Australia's remote locations is compounded at this stage by limitations in local opportunities for employment and further education. Those living outside of major cities – about 27 per cent of the population of 24-year-olds – make up 38 per cent of those missing out at age 24.

Table 4.1 Young Australians not meeting the milestone at age 24, 2014

	Percent	Number
Australia	26.5	93,289
Gender		
Males	21.0	37,816
Females	32.0	55,470
State/Territory		
NSW	26.4	28,764
VIC	24.9	22,633
QLD	28.2	19,742
SA	29.7	7,069
WA	25.2	10,319
TAS	32.9	1,999
NT	35.5	1,626
ACT	16.2	1,134
Location		
Major cities	24.3	58,002
Inner regional	33.1	22,060
Outer regional	33.8	10,477
Remote	29.1	1,352
Very remote	45.0	1,395
SES decile (Low to High)		
Lowest	41.1	13,776
Second	37.1	12,436
Third	31.8	10,659
Fourth	30.7	10,291
Fifth	27.8	9,319
Sixth	26.5	8,883
Seventh	24.2	8,112
Eighth	22.3	7,475
Ninth	19.9	6,670
Highest	16.9	5,664
Language background		
English	26.2	69,769
Other than English	27.2	23,517
Indigenous status		
Non-Indigenous	25.6	85,719
Indigenous	58.9	7,568

Source: Proportion of learners missing out from *62270DO004_201405 Education and Work*, Australia, May 2014. Population figures derived from *ABS 3101.0, Australian Demographic Statistics*, Dec 2014, Table 59.

Main activities

The activities of young people as they transition from school to further study and work are important to consider. Estimates for 24-year-olds are not available, but the activities of 20–24-year-olds provide a guide. Table 4.2 shows the main activities by education and labour force status of Australian 20–24-year-olds in May 2015.

Almost a third were studying full-time for a qualification, while almost 40 per cent were in full-time work. Therefore, overall, seven in 10 20–24-year-olds were fully engaged, that is, participating in full-time education or full-time employment.

Women are more likely to be in full-time study and men in full-time work. Almost one-third of 20–24-year-old women in May 2015 were in full-time study; for men the rate was 28.5 per cent. Young men are more likely to have transitioned to full-time employment, with 45.5 per cent working full-time and not in study, compared to 33.1 per cent of women.

Table 4.2 Education and labour force status by gender, 20–24 years, Australia, May 2015

	Attending full-time education					Not attending full-time education					Total
	Full-time work	Part-time work	Looking for work	NILF*	Subtotal	Full-time work	Part-time work	Looking for work	NILF*	Subtotal	
Number of 20–24-year-olds ('000)											
Men	13.8	118.5	16.7	91.1	240.1	384.2	106.4	57.8	55.1	603.5	843.6
Women	17.0	134.8	14.3	100.5	266.6	268.4	139.5	33.8	101.5	543.2	809.8
Persons	30.7	253.3	30.9	191.6	506.5	652.6	245.9	91.6	156.6	1,146.7	1653.2
Per cent of 20–24 year olds											
Men	1.6	14.0	2.0	10.8	28.5	45.5	12.6	6.9	6.5	71.5	100.0
Women	2.1	16.6	1.8	12.4	32.9	33.1	17.2	4.2	12.5	67.1	100.0
Persons	1.9	15.3	1.9	11.6	30.6	39.5	14.9	5.5	9.5	69.4	100.0

* Not in the labour force.

Source: ABS *Labour Force Australia* (2015) (data cube LM3)

While most 20–24-year-olds were fully engaged in productive activities in 2015, a significant minority were vulnerable. Nearly 30 per cent of young adults were not engaged in full-time education or full-time employment, including 14.9 per cent in part-time work, 5.5 per cent looking for work and 9.5 per cent not in the labour force.

A higher proportion of women than men were in this less secure position (33.9 per cent of women vs 26 per cent of men), reflected in the higher rates of female part-time workers (17.2 per cent vs 12.6 per cent) and higher rates not working and not looking for work (12.5 per cent vs 6.5 per cent). Unemployment is higher amongst men: 6.9 per cent of those not in full-time education or training were seeking employment compared to 4.2 per cent of their female counterparts.

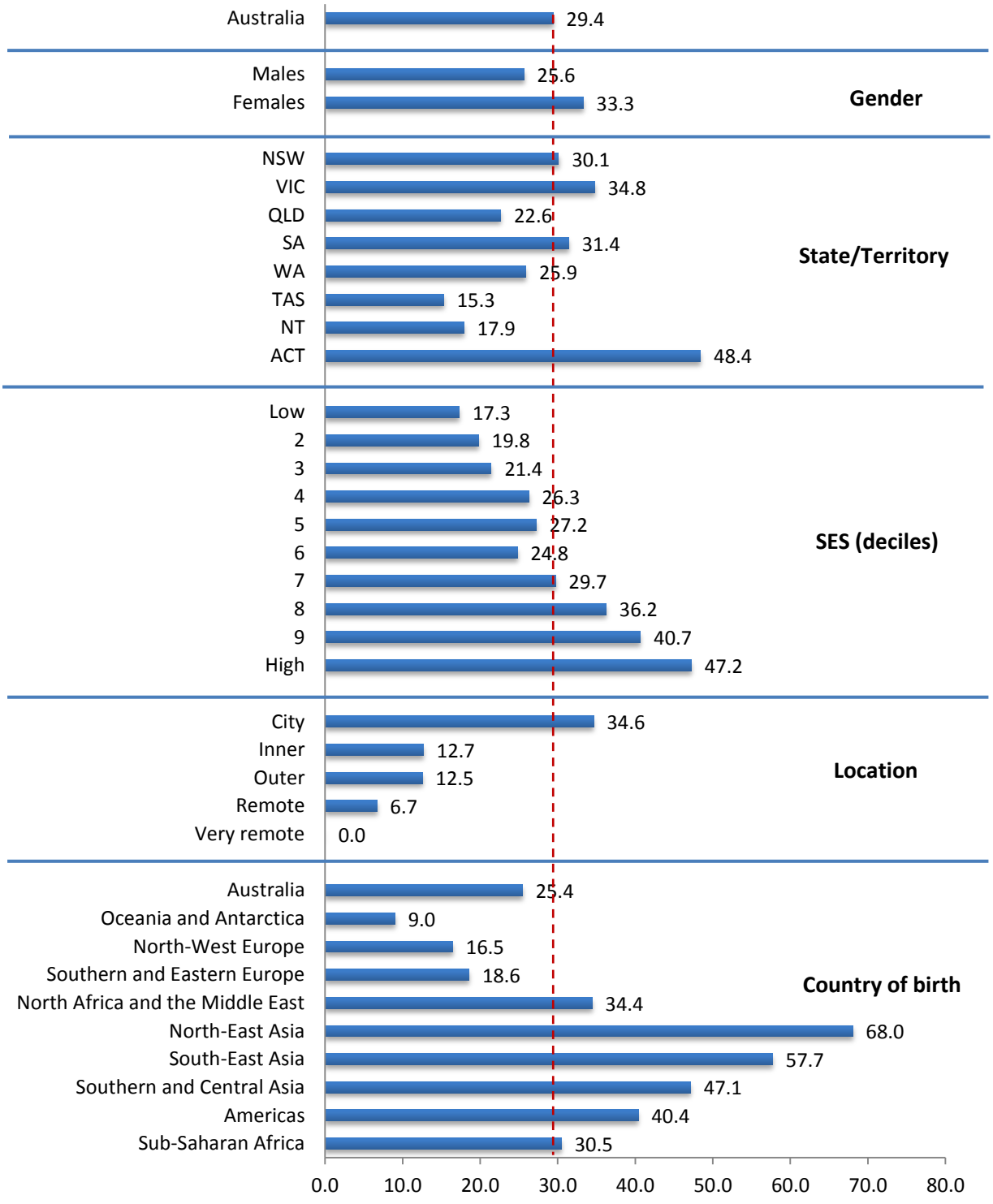
Most young Australians are engaged in some form of study and training during their early twenties. Higher education is important to many learners in the transition from school to adulthood, but so is VET, and apprenticeships. It is important to look at these in turn.

Participation in higher education

University plays a very important role in the lives of young people making the transition from school. While 50 years ago university was the preserve of a small proportion of school leavers (less than five per cent), today it involves over 40 per cent (see VDET, 2015). While the Australian university system has the potential to absorb even more young people, and the Bradley Review established an ambition for even spread across the population, it remains uneven in its reach.

Figure 4.2 presents the proportions of 20–24-year-old Australians enrolled in universities and for a variety of selected sub-groups. Just on 29.4 per cent of Australians between the ages of 20 and 24 were enrolled in university in 2014 according to the ABS Survey of Education and Work (ABS, 2014). The rate was higher for women than for men, and varied by state and territory. The rate was highest in the ACT and lowest in Tasmania and the Northern Territory.

Figure 4.2 Proportion of 20–24-year-olds enrolled in higher education, by selected background characteristics, 2014



Source: ABS 62270DO001_201405 Education and Work, Australia, May 2014

The rates vary by social background. Only 17.3 per cent of young adults from the most disadvantaged backgrounds (lowest decile of SES) attended university, compared to 47.2 per cent from the most advantaged (highest decile). The opportunity for higher education study, and the professions to which it often leads, is far from evenly shared.

Location also shows marked differences. While over a third of young adults in city areas gain the opportunity for university study, the rate for other parts of Australia are low: about 13 per cent in inner and outer regional areas, and seven per cent or lower in remote areas.

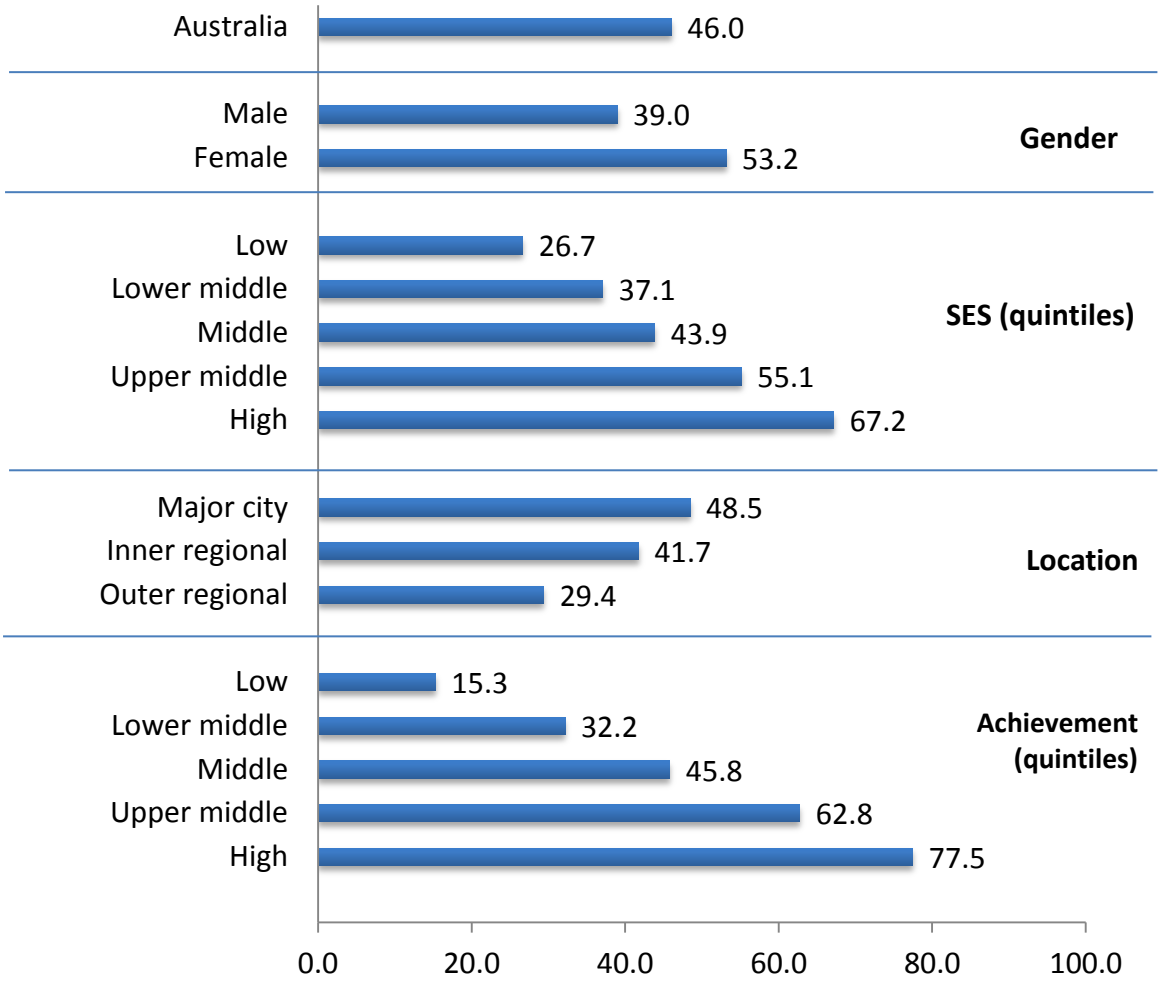
Figure 4.2 provides a cross-sectional snapshot of participation for young people between 20 and 24 years of age. It is possible to get a view of the role of university for young people in transition from school by using longitudinal data following a cohort of 15-year-olds as they transition from school until their mid-twenties.

Figure 4.3 presents rates of participation in university for all young people from the age of 15 to the age of 24. It shows that 46 per cent of young people enrolled in university between school and their mid-20s.

Differences in access to university study are partly linked to how well students do in school. Transition from Year 12 to university study is intrinsically linked to the level of senior secondary certificate achievement, due to the gatekeeper role that Year 12 assessment plays in entry to higher education. The link with school achievement pushes further back down the year levels to the middle years. Figure 4.3 shows that the lowest achievers had very little chance of enrolling in higher education, with only 15.3 per cent enrolling by age 24. This relationship is linear as we ascend SES until, in a mirror-image reflection of the lowest achievers, 77.5 per cent of the highest achievers transition to university by age 24. Figure 4.3 further shows that more than one in two young women enrol in university, whereas only two in five young men do.

Over two-thirds of young people from advantaged SES backgrounds (highest quintile) enter university by their mid-20s, while only a quarter of those from disadvantaged backgrounds (lowest quintile) do. Students living in major city areas of Australia are more likely to attend university than those outside of city areas.

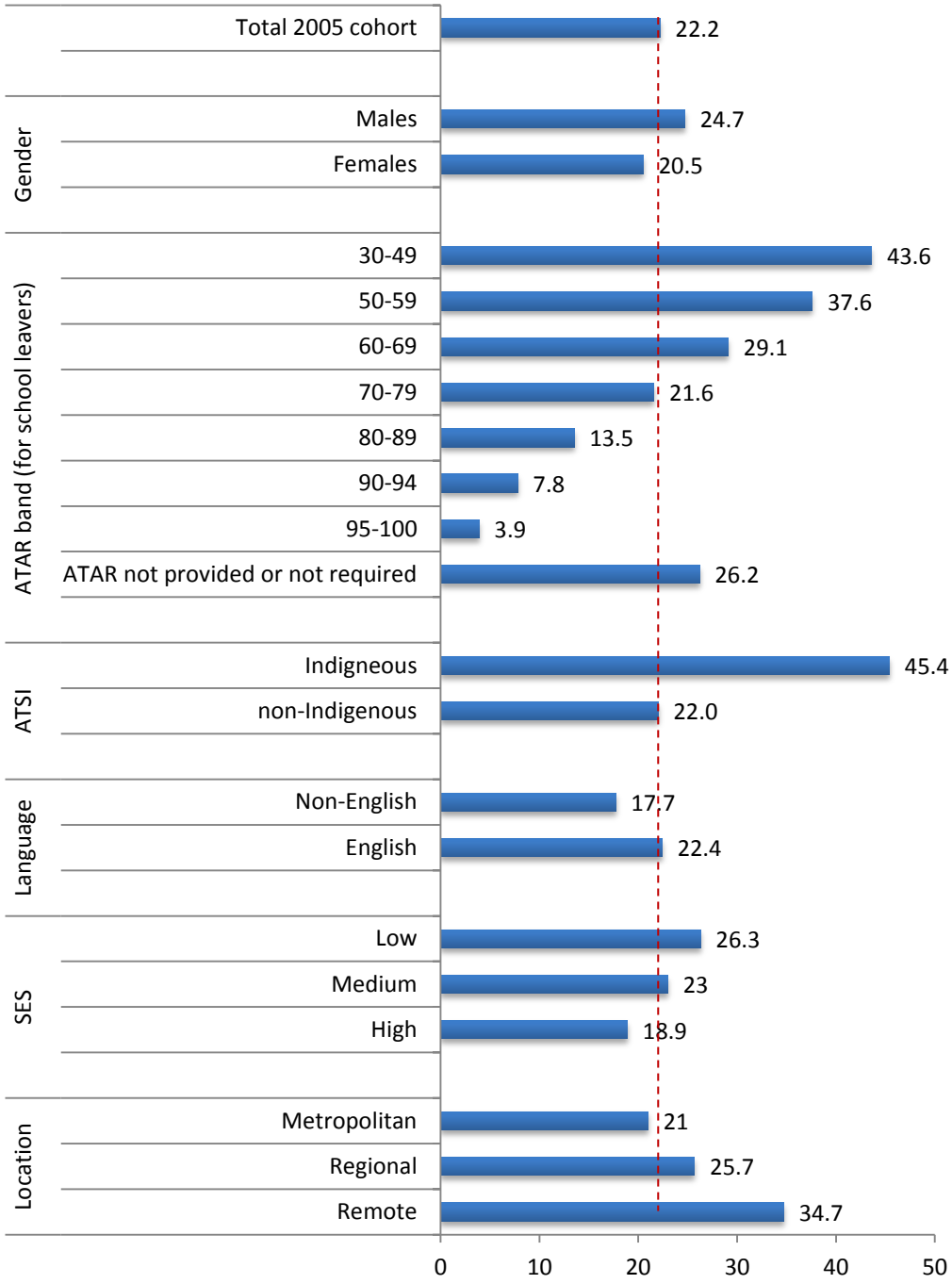
Figure 4.3 Participation in higher education by age 24 (%), selected background characteristics, 2003



Dropout rates in university

Figure 4.4 reports university dropout rates, presenting the proportion of bachelor-degree students who had not completed their course and were no longer enrolled eight years after commencement. It shows that roughly 22 per cent of university entrants dropped out or had not completed within eight years. The rates of dropout vary by background. Men are more likely to drop out than women (24.7 vs 20.5 per cent). Nearly one in two Indigenous students does not complete university, compared to one in five non-Indigenous students.

Figure 4.4 University dropout rates, by various background characteristics, Australia, 2013 based on the 2005 entering cohort



Source: Australian Government Department of Education (2015), Completion Rates of Domestic Bachelor Students - A Cohort Analysis, 2005-2013

The ATAR scores of school leavers are a major predictor of non-completion. Almost all those entering university with ATAR scores above 95 complete (only 3.9 per cent drop out). The rate for those with average ATAR scores (70–79) is 21.6 per cent, while for those with ATAR scores between 50 and 59 the dropout rate is 37.6 per cent.

Location and SES are also related to the completion rate. Students from regional (25.7 per cent) and remote (34.7 per cent) Australia were more likely not to complete the course they commenced, compared to students drawn from metropolitan centres (21 per cent). Despite the much lower chances of gaining entry

to university (and potentially selection of only the most able), low-SES students experience a higher rate of dropout than high-SES students. Over a quarter of low-SES students did not complete their course, compared to less than a fifth of high-SES students (26.3 per cent vs 18.9 per cent). These data illustrate the compounding negative effect that social disadvantage has on a young person's ability to access and succeed in higher education, as well as indicate the different roles that higher education has in the lives and aspirations of young people from different social groups.

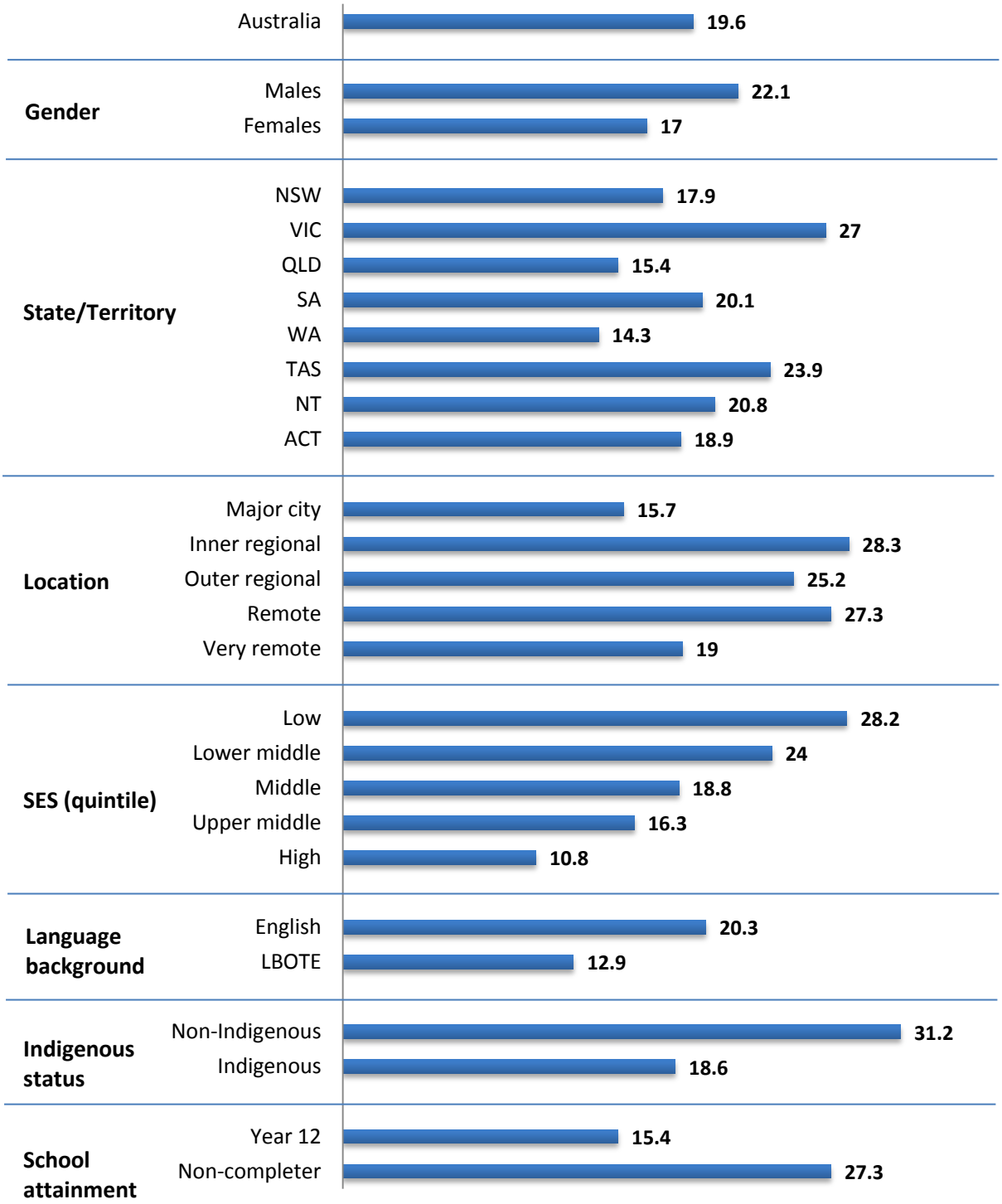
Participation in Vocational Education and Training

Across Australia, many young adults undertake VET at technical and further education (TAFE) institutes, and private and community education providers. Figure 4.5 shows the participation rates in VET for 20–24-year-olds by selected background characteristics. At a national level, it shows that in 2014 nearly one in five of all 20–24-year-olds were enrolled in VET (19.6 per cent, NCVER 2014). The participation rate is higher for men than for women. Participation rates vary across jurisdictions. VET participation is particularly strong amongst young adults from Victoria and Tasmania and lowest in Western Australia and Queensland.

Young people who completed Year 12 and early leavers alike access VET. In 2014, 36.9 per cent of 20–24-year-olds in VET had not completed Year 12; despite this, early school leavers are more likely to enrol in VET. Just on 27.3 per cent of early school leavers aged 20–24 years were engaged in VET study or training, compared to 15.4 per cent of Year 12 completers aged 20–24 years.

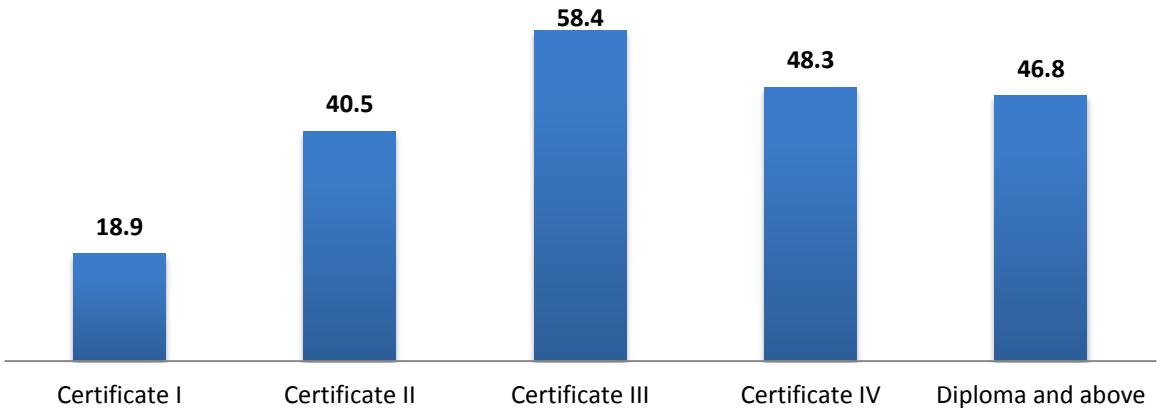
There is also a relationship between qualification enrolment and SES. Young adults from more disadvantaged backgrounds are more likely to enrol in basic-level VET courses at Certificate I and II. These courses are below the threshold of Year 12 equivalence. Figure 4.9 shows the proportion of students aged 20–24 years at each SES quintile enrolled in Certificate I and II courses in 2014. This matters, not just because disadvantaged young adults are not entering vocational training at the same certificate level as their more advantaged peers, but also because course completion rates for lower Australian Qualification Framework (AQF) level VET courses are much lower than for higher-level VET courses. Among full-time VET students aged 25 years and under with no post-school qualifications, the completion rate for those commencing a Certificate I course is estimated to be 18.9 per cent, compared to 46.8 per cent for those commencing a Diploma course (see Figure 4.6).

Figure 4.5 VET participation rates, 20–24-year-olds, Australia, 2014



Sources: NCVER Students and Courses 2014 (VocStats), ABS Census of Population & Housing 2011, ABS Australian Demographic Statistics (2014)

Figure 4.6 Estimated completion rates for qualifications at Certificate I and above, commencing 2009–2012, full-time, aged 25 years and under, with no post-school qualification



Source: NCVER 2014, Australian vocational education and training statistics: the likelihood of completing a VET qualification, 2009–12

It is possible to get a view of the role of VET for young people in transition from school by using longitudinal data following a cohort of 15-year-olds until their mid-twenties. Table 4.3 presents rates of participation in VET for all young people from the age of 15 to 24. It shows that one in two young people undertook some type of VET study in their teenage years or early 20s. While many enrolled, about 70 per cent had completed the study by their mid-20s. This meant that 35.6 per cent of all young people had completed a VET course by their mid-20s.

In contrast to university study, men were more likely to enrol in VET than women. More men than women had completed a VET qualification by their mid-20s.

VET study is an important pathway for early school leavers. Nearly 70 per cent enrolled in VET, compared with just under 45 per cent of Year 12 completers. Almost one in two early leavers had completed a VET qualification by their mid-20s.

The take-up of VET study in the transition from school is higher for disadvantaged students (in terms of SES) and for low achievers in school. The majority of young people from low and middle SES backgrounds enrol in VET during the transition years. Over 40 per cent complete a VET qualification.

Roughly one in two low achievers at age 15 (lowest quintile of mathematics achievement) had completed a VET qualification by their mid-20s. The rate for high achievers was about one in seven, largely because high achievers pursued forms of further study other than VET.

Table 4.3 Participation in vocational education and training by age 24 (%), selected background characteristics

	Participated	Completed
Australia	50.1	35.6
Gender		
Men	55.2	38.4
Women	45.0	32.8
SES (quintiles)		
Lowest	58.3	40.1
Lower middle	58.0	42.2
Middle	54.0	41.6
Upper middle	46.4	32.2
Highest	34.3	22.0
Mathematics achievement (quintiles)		
Lowest	68.1	50.3
Lower middle	61.0	43.8
Middle	55.7	40.4
Upper middle	38.4	25.9
Highest	24.9	15.4
Location		
Major city	48.7	34.3
Inner regional	52.6	38.6
Outer regional	59.5	40.1
Remote	54.5	40.9
Attainment		
Year 12	44.9	31.6
Non-completer	68.8	49.6

Source: Derived using LSAY, 2003.

Participation in apprenticeships

Nearly three in ten of all VET students aged 20–24 years are combining their VET course with on-the-job training by undertaking an apprenticeship or traineeship (29 per cent in 2014). In 2014, 5.9 per cent of 20–24-year-old Australians were doing an apprenticeship or traineeship. These are more prevalent among men, who were nearly three times as likely to be indentured as women (8.7 percent vs 3 per cent). Participation rates in apprenticeships and traineeships by young adults also varied across states and territories (Table 4.3). Jurisdictions where new apprenticeships are playing a relatively strong role in the training of young adults are Tasmania, South Australia and the ACT.

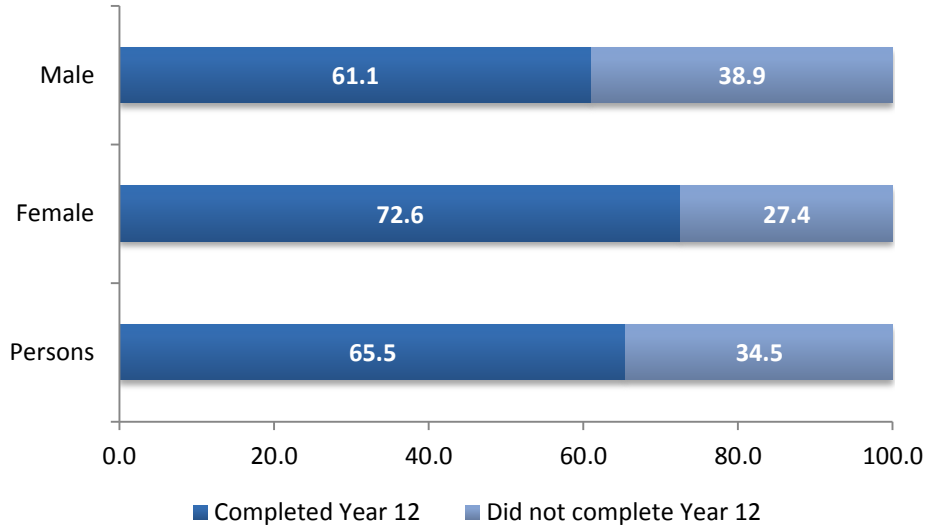
Employment-based training programs, and in particular the more lengthy apprenticeships, provide a critical recovery pathway to a secure economic future for those who have left school without completing Year 12. As can be seen in Figure 4.7, over one-third of all commencing apprentices and trainees aged 20–24 years in 2014 had not completed Year 12. Early school leavers make up an even greater proportion of male commencers.

Table 4.4 Participation in apprenticeships & traineeships, 20–24-year-olds, by gender & state & territory, 2014 (%)

State/territory	Male	Female	Total
New South Wales	8.5	3.1	5.9
Victoria	8.9	2.6	5.8
Queensland	8.8	2.6	5.7
South Australia	9.2	3.2	6.3
Western Australia	8.0	2.9	5.5
Tasmania	9.4	5.7	7.7
Northern Territory	7.0	2.5	5.0
Australian Capital Territory	9.2	5.7	7.5
Australia	8.7	3.0	5.9

Sources: NCVER National Apprentice and Trainee Collection (2014) (VocStats); ABS Australian Demographic Statistics (2014)

Figure 4.7 Commencing apprentices and trainees by gender and school completion status, Australia, 2014 (%)



Sources: NCVER National Apprentice and Trainee Collection (2014) (VocStats); ABS Australian Demographic Statistics (2014)

Not all apprentices and trainees complete their indenture. In 2010, the individual apprentice and trainee completion rate, adjusted for recommencements, was 57.3 per cent (NCVER 2015).

An estimate using LSAY data is that 27.2 per cent of all young people commence an apprenticeship or traineeship during the transition from school to their mid-20s (see Table 4.5). Very similar proportions take up traineeships (15.5 per cent) and more traditional craft-based apprenticeships (15.8 per cent). Two-thirds of those who had commenced apprenticeship or traineeship training had completed by age 24.

Table 4.5 Participation in apprenticeships and traineeships by age 24: selected background characteristics (%)

	Entry and completion			Type of training	
	Participated	Completed		Apprenticeship	Traineeship
Australia	27.2	17.8		15.8	15.5
Gender					
Males	36.5	23.3		25.6	11.0
Females	17.8	12.3		4.3	13.5
Maths achievement					
Lowest	36.2	23.6		22.0	23.0
Lower middle	33.5	22.2		18.8	19.6
Middle	30.4	20.3		18.9	14.8
Upper middle	22.0	13.1		12.2	11.2
Highest	12.4	9.0		5.9	7.5
SES (quintile)					
Lowest	33.9	22.4		18.0	21.1
Lower middle	34.5	22.2		20.5	17.9
Middle	29.8	22.1		18.1	17.3
Upper middle	25.0	15.4		15.8	12.9
Highest	13.3	7.3		6.8	6.8
Location					
Major city	24.0	15.5		14.6	9.4
Inner regional	34.8	22.7		18.6	16.2
Outer regional	40.6	28.4		20.3	20.3
Remote	38.1	28.1		23.8	14.3
Attainment					
Year 12	21.9	14.4		11.1	10.8
Non-completer	46.3	30.1		32.2	14.1

Source: LSAY 2003

Apprenticeships and traineeships are particularly important to early school leavers wanting to obtain Year 12 equivalent qualifications. Just on 46.3 per cent of early leavers commenced an apprenticeship by their mid-20s, and 30.1 per cent had completed by their mid-20s.

Table 4.5 shows that apprenticeships play a bigger role for early school leavers than do traineeships, whereas for Year 12 completers, traineeships were as important as apprenticeships as a source of work-based training.

Apprenticeships and traineeships are an important pathway for low achievers in school as well as for students from low-SES backgrounds. Over a third of young people in the lowest quintile of mathematics achievement at age 15 gained an apprenticeship, and almost a quarter had completed their trade training by their mid-20s. Similar estimates occur for young people from low-SES backgrounds.

Labour market participation

Table 4.6 reports the labour force status of young Australian adults aged 20–24 years, regardless of study and training status. Overall, in 2015, 41.3 per cent of 20–24-year-olds were employed full-time, 30.2 per cent were employed part-time, 7.4 per cent were not working and looking for work, while 21.1 per cent were not working and not looking for work. Labour force status varies for men and women.

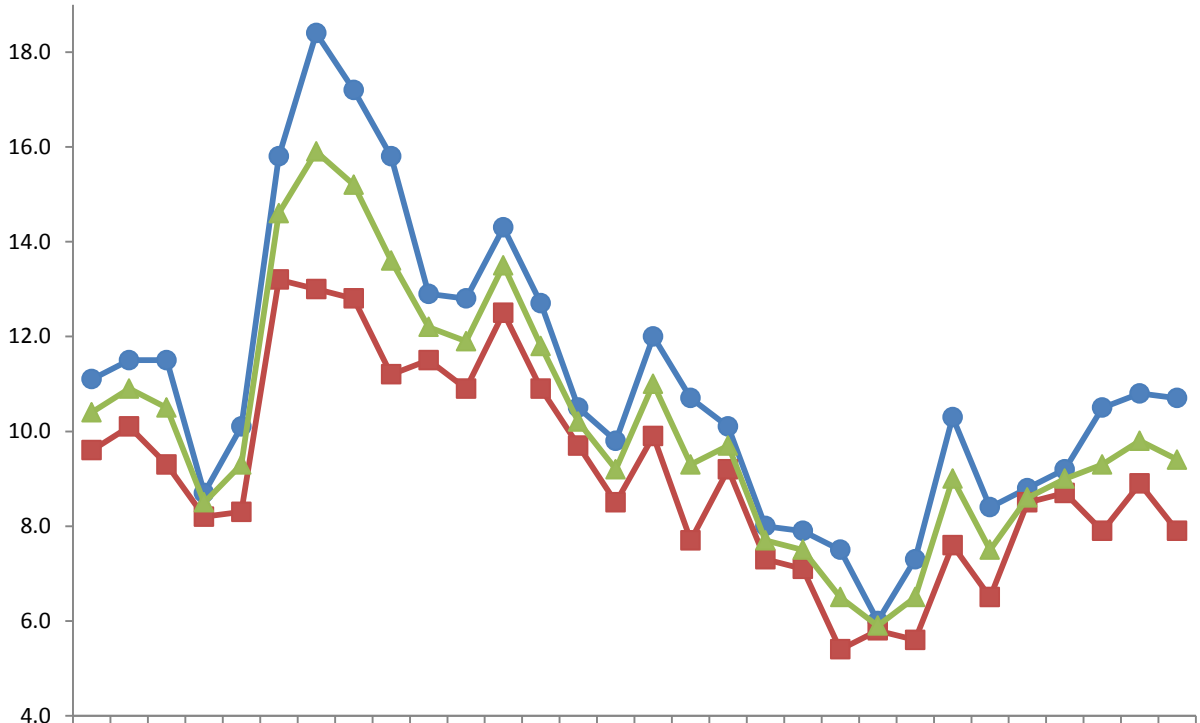
Table 4.6 Labour force status by gender, 20–24 years, May 2015

	Full-time work	Part-time work	Unemployed	Not in the Labour Force	Total
			Number of 20–24-year-olds ('000)		
Males	398.0	224.9	74.5	146.2	843.6
Females	285.4	274.3	48.1	202.0	809.8
Persons	683.3	499.2	122.5	348.2	1,653.2
			Per cent of 20–24-year olds		
Males	47.2	26.7	8.8	17.3	100.0
Females	35.2	33.9	5.9	24.9	100.0
Persons	41.3	30.2	7.4	21.1	100.0

Source: ABS Labour Force Australia (2015) (data cube LM3)

Men were much more likely to be employed in full-time positions than women (47.2 per cent vs 35.2 per cent), yet were also more likely to be unemployed (8.8 per cent vs 5.9 per cent). The gender gaps in rates of unemployment for 20–24-year-olds contracted in the aftermath of the Global Financial Crisis in 2010 and 2012, have increased in more recent years (see Figure 4.8, which shows the unemployment rates for 20–24-year-olds over time).

Figure 4.8 Unemployment rates, 20–24-year-olds by gender, 1986–2015, May, Australia (%)



	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Males	11.1	11.5	11.5	8.7	10.1	15.8	18.4	17.2	15.8	12.9	12.8	14.3	12.7	10.5	9.8	12.0	10.7	10.1	8.0	7.9	7.5	6.0	7.3	10.3	8.4	8.8	9.2	10.5	10.8	10.7
Females	9.6	10.1	9.3	8.2	8.3	13.2	13.0	12.8	11.2	11.5	10.9	12.5	10.9	9.7	8.5	9.9	7.7	9.2	7.3	7.1	5.4	5.8	5.6	7.6	6.5	8.5	8.7	7.9	8.9	7.9
Persons	10.4	10.9	10.5	8.5	9.3	14.6	15.9	15.2	13.6	12.2	11.9	13.5	11.8	10.2	9.2	11.0	9.3	9.7	7.7	7.5	6.5	5.9	6.5	9.0	7.5	8.6	9.0	9.3	9.8	9.4

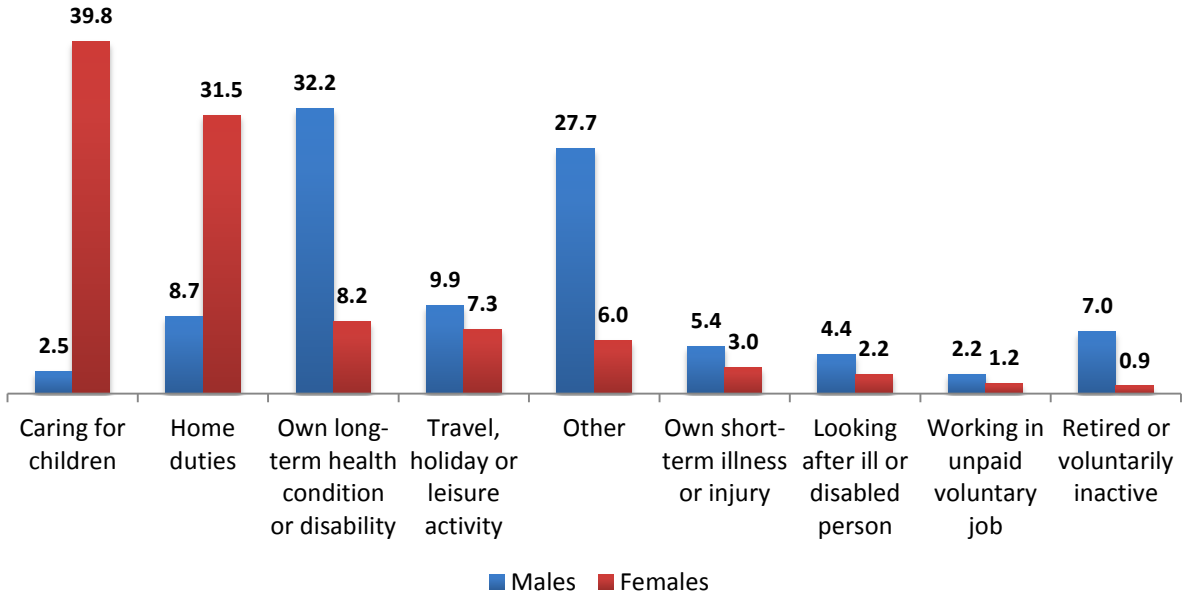
Source: ABS Labour Force Australia (2015) (data cube LM3)

Young people not in education and not in the labour force

Many young people are not participating in education or training or the labour force. In 2013, this description accounted for 200,000 Australians aged between 15 and 24 years, comprising 72,600 males and 127,400 females (the figures for teenagers and young adults are not reported separately, see ABS 2014). Young women thus heavily dominate this group, making up 63.7 per cent of 15- to 24-year-olds not in education and not in the labour force.

There are good reasons for this, which become clear when their main activities are examined. Figure 4.9 shows the main activities reported by this group, for young men and women separately. Caring for children and home duties are primary activities for these young women, taken together accounting for 71.3 per cent (vs 11.2 per cent of males). For young men, health issues predominate, with one in three reporting a long-term health condition or disability. Travel, which would include those undertaking a 'gap year', was the main activity of 9.9 per cent of males and 7.3 per cent of females. It is expected that many in this group would have returned to full-time study in the following calendar year.

Figure 4.9 Activities of 15–24-year-olds not in education and not in the labour force by gender, 2013 (%)



Source: ABS Persons Not in the Labour Force (2013)

Table 4.7 presents information on the characteristics of young people not in the labour force and not in education or training. Females are more prevalent in this group than males, at roughly double the percentage. Young people from disadvantaged backgrounds are more likely to be in this position than those from less advantaged backgrounds. Only 2.6 per cent of 20–24-year-olds from high-SES (highest decile) origins were not in the labour force, versus 14.2 per cent of those from the lowest SES category.

Table 4.7 Backgrounds of those not in the labour force: 20–24-year-olds, 2011

	% of 20–24-year-olds	% of those not in the labour force	Number
National	7.8	100.0	127,100
Gender			
Males	5.4	35.5	45,100
Females	10.2	64.5	82,000
State and Territory			
NSW	7.6	32.6	41,592
VIC	6.0	20.6	26,247
QLD	9.4	27.0	34,424
SA	5.6	5.2	6,663
WA	6.8	10.6	13,527
TAS	7.1	1.9	2,423
NT	12.5	1.8	2,322
ACT	1.6	0.4	505
SES (decile)			
Lowest	14.2	17.4	21,707
Second	11.5	16.2	20,260
Third	10.7	16.9	21,128
Fourth	6.8	9.0	11,288
Fifth	4.9	6.8	8,490
Sixth	8.1	12.3	15,340
Seventh	5.3	7.6	9,455
Eighth	4.5	7.5	9,358
Ninth	2.2	2.6	3,184
Highest	2.6	3.7	4,631
Location			
Major city	6.0	64.6	79,610
Inner regional	10.7	24.8	30,547
Outer regional	8.2	7.7	9,493
Remote	8.4	1.8	2,162
Very remote	13.9	1.1	1,410

Source: ABS Census of population and housing, 2011

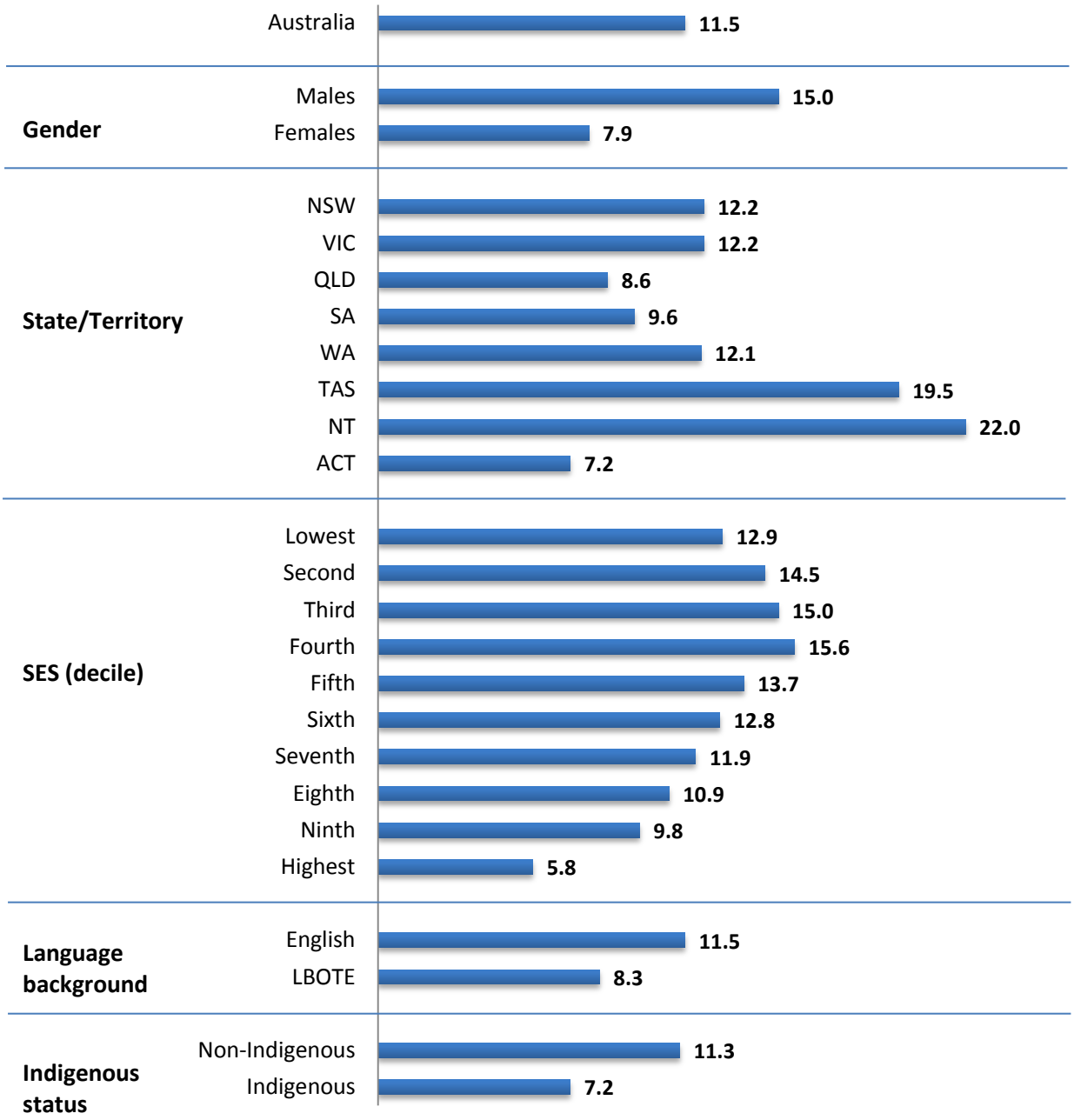
Second chance opportunities

The strength and fairness of education and training systems can partly be measured by the extent to which they offer 'second chance' opportunities for those who are missing out. Figure 4.10 reports on the increase in the proportion of the population completing Year 12 or equivalent between ages 19 and age 24. Thus, the national rate of 11.5 per cent indicates that there was an additional 11.5 point increase in the population that had completed a Year 12 or equivalent qualification between age 19 and age 24. Nationally, this saw the rate of Year 12 or equivalent completion rise over these ages, from 74 per cent to 85.5 per cent. Part of the reason for the improvement is the role of apprenticeships and VET study, as discussed in the previous section.

The increases in levels of attainment were larger for those subgroups with lower rates of completion at age 19, such as men, and young people living in Tasmania and the Northern Territory (see Figure 4.10). The SES patterns show that the most disadvantaged SES group (lowest decile) which had the lowest Year 12

completion rate at age 19 also made up some ground, but not as much as those in the low to middle deciles of SES. Indigenous students had only a modest increase, despite being among the groups most in need of opportunities for educational recovery.

Figure 4.10 Increase in proportion of population completing Year 12 or equivalent between age 19 and age 24, by selected background characteristics (percentage point increases)



Source: ABS Census of population and housing

5. Succeeding and missing out: a summary

We have drawn together information on the opportunities being provided to Australian young people as they negotiate the various stages of education and training and then attempt to establish themselves in the workforce as they transition to adulthood. Many young people succeed at each key milestone at the end of the main stages of learning and development, but a minority miss out, not yet sufficiently well-prepared to take on the challenges of the following stages of their lives. Of those missing out at any one milestone, some make up ground and move back on track, while others succeeding at some points can fall behind for various reasons.

Figure 5.1 provides a summary of the numbers succeeding and missing out at each stage. It also shows the number that makes up ground across stages, as well as those who start to fall behind. The numbers are our best estimates based on available data. In a similar assessment undertaken in the United States, the Brookings Institute used national longitudinal cohorts of youth which followed children across all of the main stages (Sawhill et al., 2012); unfortunately Australia lacks longitudinal data covering all stages, so an equivalent analysis is not possible. However, we do have information about each stage and progression from one to the next. Using this data provides robust estimates of the numbers who succeed and miss out at each stage, as well as the numbers who gain ground and those who fall behind.

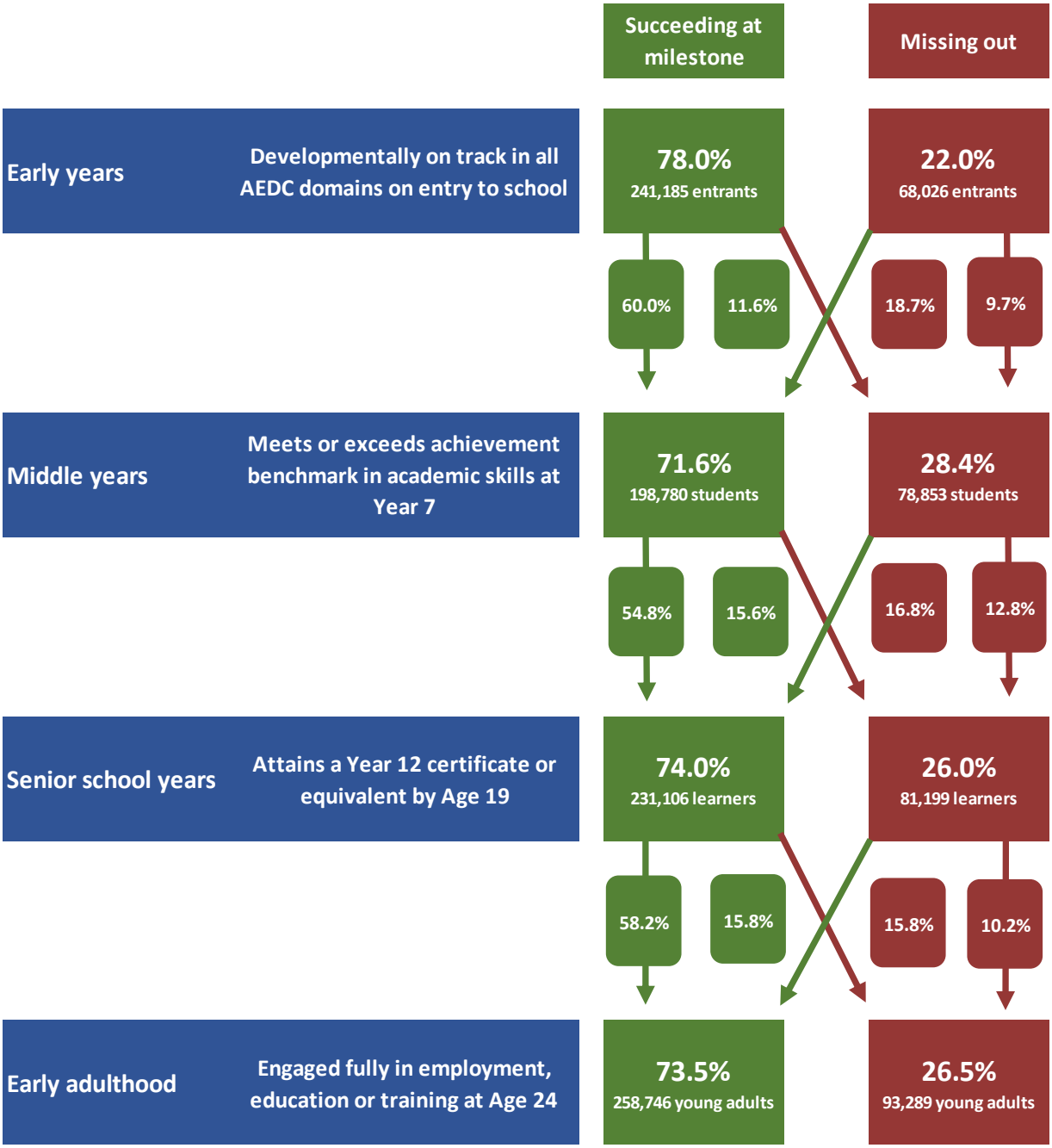
As Figure 5.1 shows, about six in 10 or more of all children starting school get through early and middle childhood with the kinds of academic and social skills needed for later success. Similar numbers complete school and are fully engaged in education or work by their mid-20s. For this large group of young Australians, the education and training system works well and they succeed across all stages, making the most of the opportunities that the system provides.

Some children begin school before being developmentally ready and remain behind across all stages. We estimate this occurs in up to 10 per cent of the population. Between entry to school and Year 7, one in 10 remain behind. Roughly this number from the beginning to the end of school do not complete Year 12 or equivalent, and the same proportion remains marginalised at age 24, unable to secure full-time work or be in study or training. This number misses out across all stages and is not gaining the preparation needed to take up later opportunities in life.

Some young people succeed at some milestones but fall behind by the next stage. This occurred in about 16.8 per cent of Year 7 students, who were doing well in school above benchmark standards, but failed to complete Year 12 or equivalent by age 19. A marginally smaller proportion of school completers were not fully engaged in education or work at age 24, and struggling to secure a foothold in the labour market.

There are also points at which young Australians are behind or missing out – at lower levels of development and success than others – but recover over following stages, succeeding at the following milestone. This is affirming information because it suggests that schools, training providers and other centres can bridge gaps and help young people overcome setbacks. It is possible for schools to promote opportunity. Approximately 12 per cent were not yet ready for school, but had achieved the academic learning benchmark at Year 7. Almost 16 per cent missed out in the middle years, but remained to complete Year 12 or equivalent by age 19. About 16 per cent did not complete school by age 19, but were in full-time work or full-time study by age 24, and many had done so through taking advantage of education and training opportunities offered to assist early school leavers.

Figure 5.1 Index of educational opportunity in Australia



The challenge of helping young people who are falling behind to catch up and take advantage of opportunities over later stages is no easy task, because those missing out are far more likely to have disadvantaged backgrounds. Success at each stage varies by Indigenous status, language background, region and gender, and by the SES background of students. Only 68.3 percent of children born to parents in the bottom fifth of family SES are school-ready, compared with 84.8 percent of children in the top fifth. The disparity is similar in the middle years. Strikingly, only three in five from the bottom fifth (bottom two deciles of SES) complete a Year 12 certificate or equivalent by age 19, compared to more than four in five from the top fifth. Finally, SES affects the likelihood of economic success in the transition to adulthood, with 85 percent of those born into the top fifth being fully engaged in education, training or work at age 24, compared to just 65 percent of those in the bottom fifth.

But what we learn from the patterns of recovery and students coming back on track is that it is possible for young people missing out to gain ground. Being behind at any point need not be a life sentence, even for the disadvantaged, though even here the chances of recovery and of gaining ground are still in favour of students from more advantaged backgrounds. The most advantaged learners are not only less likely to fall below expected standards in the first place, but more likely to catch up again if they do.

Concluding reflections

The OECD has identified large differences between countries in student skills and achievement and in the extent to which student disadvantage influences outcomes. They point to this as evidence that it is possible to do something about gaps in learning and, more importantly, it is possible to combine high performance with high levels of equity in education (OECD, 2014). They outline several policies that they view as important to promoting stronger performance and greater equity:

- Target low performance by supporting low-performing schools or low-performing students within schools, depending on the extent to which low performance is concentrated by school.
- Target disadvantaged children through additional instructional resources or economic assistance.
- Apply more universal policies that raise standards for all students, such as establishing common rather than differentiated programs, and improving pedagogy and classroom instruction.
- Reverse the effects of concentrated disadvantage by removing streaming and creating comprehensive schools and classrooms that serve all students in communities.

The effects of student disadvantage are quite strong in Australia compared to other countries, partly due to the extent of segregation and effects of differences in the concentrations of disadvantage on the performance of individual learners, and the education providers that they attend. Learners who miss out on learning and development in the early years are more likely to live in communities served by lower-quality ECEC services. The data generated through regulatory assessments of ECEC services demand a policy response, as market forces threaten to extend the social segregation evident in the school years into the early years of learning. Improving the quality of ECEC services is a complex policy task, which requires recognition of the multiple challenges faced by young learners in disadvantaged communities, and the services and supports that they need to overcome them.

Improving the quality of ECEC services may have little effect if those who are most in need are less likely to access them. As ECEC policy in Australia is often geared towards the needs of parents, rather than the rights of children to learning and support, participation in ECEC services remains a game of chance for many Australian children, gambling on the right combination of service availability, affordability and parental workforce participation. Families in communities with greater social and economic resources are better able to stack the odds of this game in their favour, and further enhance their children's learning advantages. Families in disadvantaged communities may need greater support to engage with the system in a way that will give their children the best possible chance of success.

Ensuring that Australian learners get off to a good start in the education system also requires follow-up at later years of learning. The benefits gained from participation in early learning programs have been found to fade by the later primary years (Claessens & Garrett 2014), pointing to a need for sustained interventions to capitalise on early progress. While many Australian education systems are achieving strong results in the early years of schooling, the substantial decline in the proportion of learners meeting milestones at Year 5 suggests that these efforts must be sustained.

Several policy options could address the impact of disadvantage on the performance of Australia's schools. One is differential resourcing to provide schools serving larger numbers of disadvantaged students with the resources to address the more intensive educational needs of their students. The findings in this report, consistent with those from a substantial body of research (see, for example, Audas & Willms, 2001; OECD, 2001; Lamb & McKenzie, 2001), both local and international, demonstrate that children from socially disadvantaged backgrounds tend to achieve less well at school, are less likely to stay on at school or enter further or higher education and are more likely to be unemployed or in low-paid jobs. These students have higher levels of need and require additional support to achieve the outcomes attained by other groups of students. This means that schools with larger numbers of disadvantaged or high-need students must invest more resources than other schools to meet the same standards.

Another option is to address current selection and funding arrangements that work to intensify the effects of disadvantage. Current levels of funding may contribute to continuing levels of educational inequality in Australia. While total funding of school education has increased over time (and has led to real increases for all sectors) it has been directed disproportionately to non-government schools (Lamb, Long & Baldwin, 2004). Total government expenditure on non-government schools increased by 107 per cent between 1991 and 2000. The growth in funding for government schools was less than half that rate – 52 per cent. It means that the share of funding being directed to non-government schools increased from 16 to approximately 21 per cent. The growth in funding for non-government schools has far outstripped growth in enrolments. Funding to non-government schools by the Commonwealth government is currently provided without the same levels of accountability as public funding for government schools. The funding is provided despite the fact that average combined per capita funding from both private and government sources is as much as 40 per cent higher in independent schools than in government schools (Lamb, Long & Baldwin, 2004).

School policies and school practices are also important to consider. Previous work has shown, consistent with this study, that school policies and practices can play a vital role in raising levels of achievement, promoting greater effectiveness and improving student outcomes (see, for example, Lamb, Walstab et al., 2004). Schools in each sector obtain far greater scholastic performance than would be expected from on their student profile. High performance is not limited to non-government schools.

School performance is linked to a range of factors, including resources, classroom practices, programs and teachers, each of which needs to be considered in explaining why some schools have better results than others. Targeting improvements will need to take account of the interplay of these factors. Also important in helping schools perform at high levels is the academic climate schools create, reflected in the behaviour of students, broad aspiration levels, student views on teachers and school and engagement in school life. High-achieving schools have policies that facilitate student engagement, through the provision of programs, extra-curricular programs and student support.

The climate and effectiveness of schools are also influenced by 'push-down' from systemic effects in post-school education and employment. Australian school leavers are caught in a difficult position, between an increasingly constrained labour market, which pushes young learners (especially women, who have lower uptake of apprenticeships) towards tertiary education, and competitive thresholds for university entrance. The squeeze at this critical transition point has severe consequences for learners who have not stayed on track throughout their schooling, and who are thereby disadvantaged in relation to their peers in accessing tertiary study and employment. While the system offers some 'second chances' that benefit many of these learners, data indicates that these are not accessed by some of the groups most in need. This means that the differences in educational opportunity that arise in the course of learners' progress through the education and training system translate to inequalities in life outcomes at adulthood, reducing equity, productivity and social cohesion in Australian society.

References

Abbott-Chapman, J, Martin, K, Ollington, N, Venn, A, Dwyer, T, & Gall, S (2014), The longitudinal association of childhood school engagement with adult educational and occupational achievement: findings from an Australian national study. *British Educational Research Journal,* 40(1), 102–120.

ACECQA (2015), National Registers. Retrieved 6 September 2015, www.acecqa.gov.au/national-registers

Armstrong, S, Buckley, S, Lonsdale, M, Milgate, G, Kneebone, LB, Cook, L & Skelton, F (2012), *Starting school: a strengths-based approach towards Aboriginal and Torres Strait Islander children,* Camberwell: ACER.

Audas, R & Willms, JD (2001), *Engagement and dropping out of school: a life course perspective*, Human Resources and Social Development Canada, Retrieved 20 August 2015, http://sbisrvntweb.uqac.ca/archivage/15292281.pdf

Australian Bureau of Statistics [ABS] (2014), *Labour Force Survey 2014*, Canberra: ABS.

Australian Bureau of Statistics [ABS] (2014), *Survey of Education and Work*

Australian Bureau of Statistics [ABS] (2014), 4221.0 Schools, Australia

Australian Bureau of Statistics [ABS] (2014), *Australian Demographic Statistics*

Australian Bureau of Statistics [ABS] (2013), *Persons Not in the Labour Force*

Australian Bureau of Statistics [ABS] (2011), *Census of Population & Housing*

Australian Early Development Census [AEDC] (2014), Research snapshot: Gender differences in the AEDC and into the school years, Retrieved 27 July 2015, <www.aedc.gov.au/resources/detail/gender-differences-in-the-aedc-and-into-the-school-years>

Australian Early Development Census [AEDC] (2013), A snapshot of early childhood development in Australia 2012: Australian Early Development Index (AEDI) National Report, Retrieved 27 July 2015, <www.aedc.gov.au/resources/detail/national-report-2012>

Australian Government Department of Education (2015), *Completion rates of domestic bachelor students – a cohort analysis, 2005-2013,* Canberra: Department of Education.

Australian Social Inclusion Board (2010), *Social Inclusion in Australia: How Australia is faring*, Canberra: Commonwealth of Australia.

Bamblett, L (2015), Aboriginal advantage: an insider look at an Aboriginal community, Parliamentary Library National Reconciliation Week Lecture, Parliament of Australia, 3 July 2015.

Belfield, CR & Levin, HM (2008). *The price we pay: economic and social consequences of inadequate education,* Washington: Brookings Institution Press.

Brinkman, S, Gregory, T, Harris, J, Hart, B, Blackmore, S, & Janus, M (2013), associations between the early development instrument at age 5, and reading and numeracy skills at ages 8, 10 and 12: a prospective linked data study, *Child Indicators Research,* 4, 695–708.

Brinkman, SA, Silburn, S, Lawrence, D, Goldfeld, S, Sayers, M & Oberklaid, F (2007), Investigating the validity of the Australian Early Development Index, *Early Education and Development*, 18(3), 427–451.

Centre for Community Child Health [CCCH] (2008), Rethinking school readiness, Policy Brief No. 10, Retrieved 27 July 2015, <www.aedc.gov.au/resources/detail/policy-brief-10-rethinking-school-readiness>

Centre for International Research on Education Systems [CIRES] (2015), *Low SES School Communities National Partnership: Final Report,* Melbourne: Victoria University.

Claessens, A & Garrett, R (2014), The role of early childhood settings for 4–5 year old children in early academic skills and later achievement in Australia, *Early Childhood Research Quarterly,* 29, 550–561.

Creagh, S (2014), A critical analysis of problems with the LBOTE category on the NAPLaN test, *Australian Educational Researcher,* 41, 1–23.

Curtis, K (2015), Address to Together We Grow: Investing in our future conference, *Early Learning Association Australian and Gowrie Victoria*, Saturday 30 May 2015, Flemington Racecourse, Melbourne.

Daraganova, G, Edwards, B & Sipthorp, M (2013), *Using National Assessment Program – Literacy and Numeracy (NAPLAN) data in the Longitudinal Study of Australian Children (LSAC)*, LSAC Technical Paper No. 8, Melbourne: Australian Institute of Family Studies.

Department of Education and Early Childhood Development (2014), *The On Track Survey 2014: the destinations of school leavers in Victoria,* Melbourne: DEECD.

Department of Education, Employment and Workplace Relations [DEEWR] (2009). For the Council of Australian Governments. *Belonging, Being and Becoming: The Early Years Learning Framework for Australia.* Canberra: Commonwealth of Australia.

Duckworth, A & Gross, JJ (2014), Self-control and grit: related but separable determinants of success, *Current Directions in Psychological Science,* 23(5), 319–325.

Education Quality and Accountability Office [EQAO] (2014), *EQAO's Provincial Elementary School Report, 2014*, Retrieved 29 July 2015, <www.eqao.com/ProvincialReport/Files/14/PDF/provincial-report-elementary-2014.pdf>

Farrington, CA, Roderick, M, Allensworth, E, Nagaoka, J, Keyes, TS, Johnson, DW & Beechum, NO (2012), *Teaching adolescents to become learners. the role of noncognitive factors in shaping school performance: a critical literature review*. Chicago: University of Chicago.

Fredricks, JA, Blumenfeld, PC & Paris, AH (2004), School engagement: potential of the concept, state of the evidence, *Review of Educational Research*, 1, 59–109.

Harrison, L, Ungerer, JA, Smith, G.J, Zubrick, S, Wise, S, Press, F & Waniganayake, M (2009), *Child care and early education in Australia: the Longitudinal Study of Australian Children,* Canberra: Dept. of Families, Housing, Community Services and Indigenous Affairs.

Hoffman, D, Perillo, P & Calizo, LSH (2005). Engagement versus participation: a difference that matters, *About Campus,* 10(5), 10–17.

Jordan, WJ (2010), Defining equity: multiple perspectives to analyzing the performance of diverse learners, *Review of Research in Education,* 34, 142–178.

Kautz, T, Heckman, JJ, Diris, R, ter Weel, B & Borghans, L (2014), *Fostering and measuring skills: improving cognitive and non-cognitive skills to promote lifetime success*, NBER Working Papers: 20749, Cambridge (MA): NBER.

Ladwig, JG & Luke, A (2014), Does improving school level attendance lead to improved school level achievement? An empirical study of Indigenous educational policy in Australia, *Australian Educational Researcher,* 2, 171.

Lamb, S, Long, M, & Baldwin, G (2004), *Performance of the Australian education and training system*, Melbourne: Centre for Postcompulsory Education and Lifelong Learning, University of Melbourne.

Lamb, S & McKenzie, P (2001), Patterns of success and failure in the transition from school to work in Australia, Longitudinal Surveys of Australian Youth (LSAY) Research Report 18, Retreived 19 August 2015, <http://research.acer.edu.au/lsay_research/67>

Lamb, S & Mason, K (2009), *How young people are faring 2009*, Melbourne: Foundation for Young Australians.

Lamb, S, Walstab, A, Teese, R, Vickers, M & Rumberger, R (2004), *Staying on at school: improving student retention in Australia: main report,* Queensland Department of Education and the Arts, Brisbane.

Leigh, A (2008), Returns to education in Australia. *Economic Papers - Economic Society Of Australia*, 3, 233–249.

Lesnick, J., Goerge, R., Smithgall, C., & Gwynne J. (2010), *Reading on Grade Level in Third Grade: How Is It Related to High School Performance and College Enrollment?* Chicago: Chapin Hall at the University of Chicago.

Lyon, GR (1998), *The NICHD Research Program in Reading Development, Reading Disorders and Reading Instruction,* Bethesda (MD): National Institute of Child Health and Human Development.

McCain & Mustard (1999), *Early Years Study: Reversing the Real Brain Drain,* Ministry of Children and Youth Services. Toronto, Ontario.

Miller, PW & Volker, PA (1987), *The youth labour market in Australia: a survey of issues and evidence*, Canberra: Australian National University, Centre for Economic Policy Research.

Mitra, D. (2011), *Pennsylvania's Best Investment: The Social and Economic Benefits of Public Education.* Philadelphia: Education Law Center.

NCVER (2015), *Australian vocational education and training statistics: completion and attrition rates for apprentices and trainees 2014*

National Reading Panel (2000), *Teaching children to read: an evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*, Bethesda (MD): National Reading Panel.

National Research Council and the Institute of Medicine. (2004), *Engaging Schools: Fostering High School Students' Motivation to Learn. Committee on Increasing High School Students' Engagement and Motivation to Learn.* Board on Children, Youth, and Families, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

Organisation for Economic Co-operation and Development [OECD] (2001), *Knowledge and skills for life: first results from PISA 2000*, Paris: OECD.

Organisation for Economic Co-operation and Development [OECD] (2006), *Starting Strong II: early childhood education and care*, Paris: OECD.

Organisation for Economic Co-operation and Development [OECD] (2008), *Policy brief: ten steps to equity in education*, Paris: OECD.

Organisation for Economic Co-operation and Development [OECD] (2013), *PISA 2012 results: ready to learn: Students' Engagement, Drive and Self-Beliefs* (Volume III), Paris: OECD.

Organisation for Economic Co-operation and Development [OECD] (2014), *PISA 2012 results in focus: what 15-year-olds know and what they can do with what they know*, Paris: OECD.

Pech, J, McNevin, A & Nelms, L (2009), *Young people with poor labour force attachment: a survey of concepts, data and previous research*, Canberra: Australian Fair Pay Commission.

Productivity Commission (2014), *Childcare and early childhood learning*, vol. 1, Inquiry Report No. 73. Canberra: Productivity Commission.

Purdie, N, Reid, K, Frigo, T, Stone, A & Kleinhenz, E (2011), *Literacy and numeracy learning: lessons from the Longitudinal Literacy and Numeracy Study for Indigenous Students*, ACER Research Monograph 65, Camberwell: ACER.

Romer, N, Ravitch, NK, Tom, K, Merrell, KW, & Wesley, KL (2011), Gender differences in positive social-emotional functioning, *Psychology in the Schools,* 48(10), 958–970.

Sanson, A, Misson, S, Wake, M, Zubrick, SR, Silburn, S, Rothman, S & Dickenson, J (2005), *Summarising children's wellbeing: the LSAC Outcome Index*, LSAC Technical Paper #2, Melbourne: Australian Institute of Family Studies.

Sawhill, I, Winship, S & Grannis, KS (2012), *Pathways to the middle class: balancing personal and public responsibilities,* Washington, DC: Brookings.

Steering Committee for the Review of Government Service Provision [SCRGSP] (2010), *Report on Government Services 2010*, Canberra: Productivity Commission.

Thomson, S, De Bortoli, L & Buckley, S (2013), *PISA 2012: How Australia measures up,* Camberwell: ACER.

Thomson, S, Hillman, K, Wernert, N, Schmid, M, Buckley, S & Munene, A (2012), *Monitoring Australian Year 4 student achievement internationally: TIMSS and PIRLS 2011,* Camberwell: ACER.

Warren, D & Haisken-DeNew, JP (2013), *Early bird catches the worm: the causal impact of pre-school participation and teacher qualifications on year 3 National NAPLAN Cognitive Tests*, Parkville: Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Willms, JD (2003), *Student engagement at school: a sense of belonging and participation; results from PISA 2000*, Paris: OECD.

Appendix 1: Identifying on track and missing out learners in LSAC B Cohort (early years)

To relate the LSAC data to the first milestone in this report, it was necessary to identify a group of learners within LSAC that paralleled as closely as possible the group of learners identified in AEDC 2012 as missing out. LSAC contains various measures across physical, social-emotional and learning domains, but these do not all correlate strongly with AEDC domains, even for the same children (Brinkman et al., 2007).

The strongest correlations exist between measures of cognitive development and learning ability in both data collections, as some items on these scales are identical across both the LSAC and AEDC instruments. For this reason, the LSAC learning measures at age 4/5 were adopted as the measure most likely to yield a group of learners missing out approximately equivalent to that identified in the AEDC. These measures have the additional advantage of being most predictive of subsequent learning outcomes (Brinkman et al., 2007).

Although a composite learning outcomes index had been developed for LSAC, a new measure was desirable for this report. The LSAC scale combines parent- and teacher-administered measures of children's learning (Sanson et al., 2005), which have found to be weakly correlated within measures relating to the AEDC domains (Brinkman et al., 2007). A scale based on teacher-administered measures alone would be better aligned to the concept of teacher-reported school-readiness for the first milestone of this report.

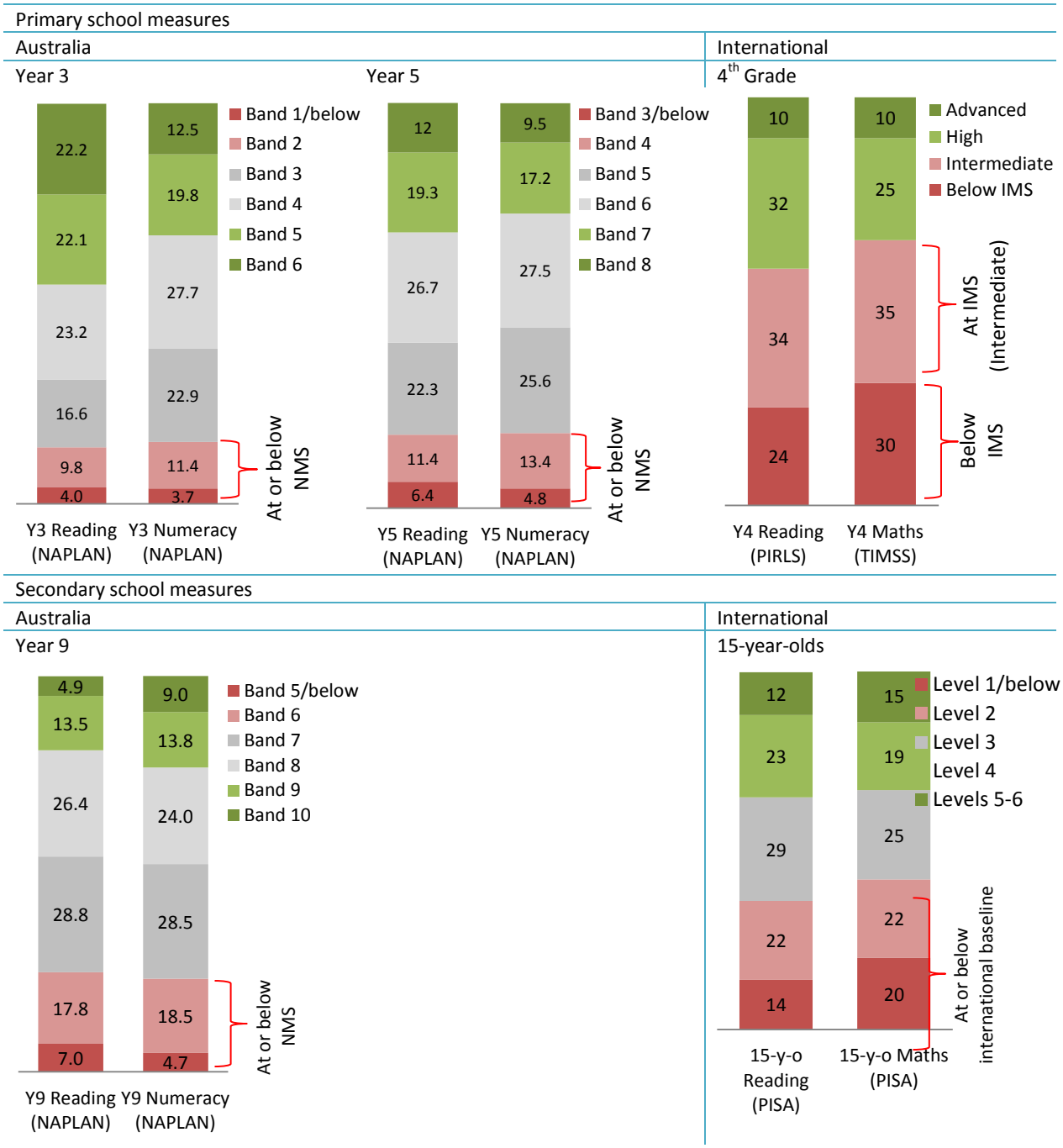
A new composite scale was developed, incorporating the three LSAC teacher-reported measures of children's competency in literacy, numeracy and writing. A fourth measure, the "Who am I?" measure of school readiness, was also incorporated in the new scale, as this was strongly correlated with the other teacher-administered measures, and increased the validity of the scale (alpha 0.794 for LSAC B Cohort, 0.808 for LSAC K Cohort). As age variation had been found on some measures, each measure was standardised by age group (Brinkman et al., 2007) before combining into a single scale by adding the standardised scores.

Appendix 2: Rationale for setting designated benchmark in NAPLAN data

The rationale for setting the benchmark for the Year 7 milestone in the middle of the third NAPLAN band is based on the following Australian and international evidence.

1. Comparison with international standardised tests

Figure 2.1.1 Comparison of NAPLAN and international benchmarks for similarly-aged learners



Source: ACARA 2010 and 2012, PIRLS 2011, TIMSS 2011 and PISA 2012.

Comparison between learners in each NAPLAN band, and Australian learners falling above and below international benchmarks for similarly-aged learners, suggests that the NAPLAN NMS does not capture all learners who are below international expectations for achievement (see Figure 2.1.1).

2. Comparison with externally-referenced measures

NAPLAN benchmarks are based on the distribution of student scores in any given year, rather than designated expectations for what students should know and be able to do. This results from the diverse curricula used across Australian jurisdictions at the time NAPLAN was developed, which made it impossible to reference achievement benchmarks directly to curriculum goals. Ontario, Canada, is a similar system to Australia in demographic terms, but has a provincial standardised testing program directly referenced to curriculum benchmarks. It therefore provides some indication of what the distribution of achievement in Australia might look like if benchmarks were referenced to curriculum-based standards.

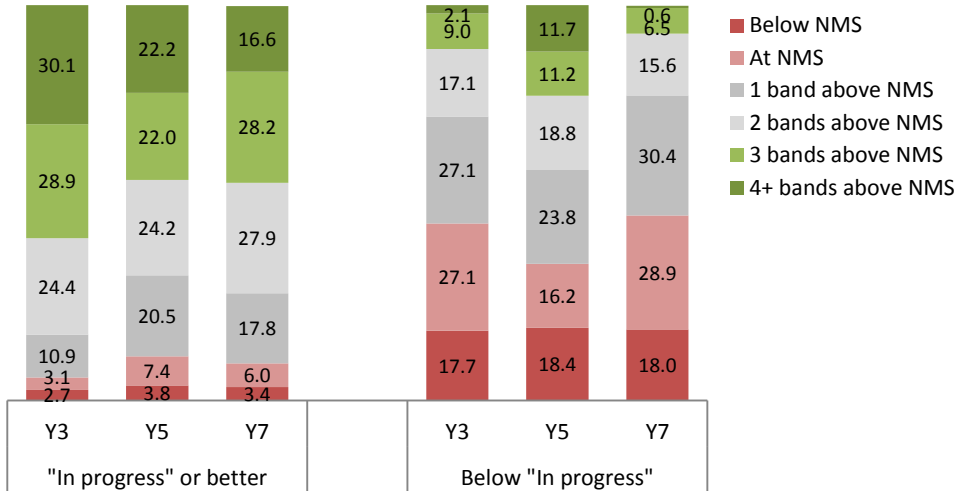
In 2014, 30 per cent of Ontario learners in Grade 3 and 21 per cent in Grade 6 fell below provincial standards, according to the national testing program (EQAO, 2014). At both grade levels, the proportion of learners meeting the provincial benchmark has been increasing steadily over the past five years. In contrast, 33 per cent of Grade 3 and 46 per cent of Grade 6 learners fell below the benchmark in mathematics in 2014, representing a continuing negative trend in mathematics achievement (EQAO, 2014). These figures show the value of setting challenging but defensible (curriculum-referenced) benchmarks for system performance in clearly showing areas of system strength, as well as signposting areas in which educational opportunities can be improved for a significant proportion of learners who are currently missing out.

3. Comparison with other measures of learning for Australian children

The LSAC enables NAPLAN scores for a nationally-representative sample of Australian children to be compared to other measures of their learning ability. Teachers administered an Academic Rating Scale: Language and Literacy Skills (ARS) at age 6/7 and 8/9, which compares a child's language and literacy skills to other children of the same age known by the teacher. This gives a broad indication of whether the teacher believes the child is on track. Ratings on the ARS are strongly correlated with NAPLAN scores for reading (Daraganova et al., 2013).

Comparison of NAPLAN reading scores and ARS scores shows that children who had an average rating on scale items of "In progress" or better almost all scored at least one band higher than the NMS in NAPLAN reading (Figure 2.1.2). Many learners with an ARS rating below "In progress" also scored at least one band higher than the NMS. This suggests that the NAPLAN NMS does not adequately differentiate between learners who are on track and learners who are achieving below expected standards.

Figure 2.1.2 Comparison of NAPLAN and LSAC learning measures for similarly-aged learners



Source: LSAC K Cohort.

Appendix 3: Identifying on track and missing out learners in LSAC K Cohort (middle years)

The following process was used to track learners in LSAC back through their primary schooling, to establish how many milestones they had met between school entry and Year 7.

- To identify a group which approximated the learners missing out in the LSAC sample, we established benchmarks on each measure to yield equivalent proportions of learners missing out to those identified in the relevant year-level cohort. As the LSAC cohort has lower proportions of disadvantaged learners, the NAPLAN scores of LSAC learners were higher than those in the population, and the cut-off score at each level therefore fell slightly above the midpoint of the third NAPLAN band.
- The analysis only included LSAC participants with data for every measurement point: school entry, Year 3, Year 5 and Year 7. The results presented therefore constitute a sub-sample of the LSAC sample, which does not accurately represent the entire Australian population, even after LSAC population weightings are applied. In particular, disproportionate attrition of children and families from disadvantaged population groups may affect the accuracy of the analysis.
- The composite outcome measure developed for the Early Years (Appendix 1) was more highly correlated with subsequent NAPLAN results than any other available outcomes measures at the point of entry to school. However, there was still a weaker correlation between this measure and the NAPLAN outcomes than between the NAPLAN outcomes themselves at each year level. Some movement between the school entry and NAPLAN benchmarks may therefore be accounted for by the different measures used at each stage.