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The need for increased support for Aboriginal and Torres Strait Islander students – statistical analysis and some lessons from the United States

prepared for

Federal Government's Review of Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander People

November 2011

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INTRODUCTION

As we write this paper, Rebecca Richards has just commenced her time at Oxford University on a Rhodes Scholarship, and Paul Gray and Christian Thompson are starting the second year of their doctorates at Oxford as Charlie Perkins Scholars. On the other side of the Atlantic, Tim Goodwin is undertaking his Master's at Harvard University as the inaugural Roberta Sykes Harvard Club Scholar.

With over 10,000 Aboriginal and Torres Strait Islander students at Australian universities,[1] there has been substantial progress since Margaret Williams graduated from the University of Melbourne in 1959[2] and Charlie Perkins graduated from Sydney University in 1966.[3]

However, the achievements of the last 12 months need to be considered more closely. Rebecca is the first Indigenous student to **apply** for a Rhodes Scholarship in the 108-year history of the scholarships in Australia, and Christian and Paul are the first Indigenous students to study for a degree at Oxford (or Cambridge for that matter). Moreover, when one looks at the number of students like Christian, Paul, Rebecca and Tim, who have gone directly from school to university and have undertaken postgraduate study while in their twenties, the numbers become more alarming. Instead of a steady, strong stream of students passing from high school to university and on to postgraduate study, there is barely more than a trickle.

In order to address higher education access and outcomes for Aboriginal and Torres Strait Islander students, more attention needs to be paid to the transition from high school to university. In the sections below, we outline the situation currently facing Aboriginal and Torres Strait Islander students and discuss the need for programs that can work towards increasing the number of students entering university from high school.

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[1] This figure includes those students enrolled in university under alternative entry schemes and bridging programmes. Indigenous Education Data & Reporting Team, Department of Education, Employment and Workplace Relations (DEEWR, 2008). See also, J. Lane, 'Indigenous Participation in University Education', *Issue Analysis*, 110 (2009), 4.

[2] I. Anderson, *The Knowledge Economy and Aboriginal Health Development* (presented at the Dean's Lecture, Faculty of Medicine, Dentistry and Health Science, The University of Melbourne, 2008), 3, http://www.onemda.unimelb.edu.au/docs/deanslecturefinal.pdf

[3] Charlie Perkins Trust for Children & Students, *Charlie Perkins Biography* [website] (Charlie Perkins Trust for Children & Students, 2000). Accessed 29 August, http://www.perkinstrust.com.au/html/charlieperkins.html

In Part 1, we examine how Aboriginal and Torres Strait Islander students compare to non-Indigenous students, in terms of high school completions, university eligibility, university enrolment and university completions.

Part 2 briefly considers the international literature on some of the factors that may influence whether a student will make it to and succeed at university.

In Parts 3, we outline the academic enrichment programs available in the United States. By highlighting the structures and characteristics of these programs, and some of their success stories, we consider the gaps that currently exist in Australia in the provision of academic support programs for Aboriginal and Torres Strait Islander students.

Scope of Research

This paper has been prepared in response to a request from the Review of Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander people.[4] The Aurora Project agreed to provide a paper that includes:

- A brief analysis of the available data on:
  - the number of Indigenous students eligible for university out of high school;
  - the number of Indigenous enrolments and completions at the university level for 'direct pathway students' (that is, students attending university directly from high school – under 25 for undergraduates and under 30 for postgraduates) versus 'mature age students' (that is, 25 and over for undergraduate students, and 30 and over for postgraduates).
- An overview of programs in the United States that assist disadvantaged students from minority backgrounds to succeed at high school, make it to university and excel while there.[5]
- Lessons to be learnt from these overseas programs and their relevance for the Australian context.

The research undertaken for this paper includes:

- analysis of statistical data from:
  - the Indigenous Education Data & Reporting Team and the University Statistics Unit, Higher Education Group, Department of Education, Employment and Workplace Relations (**DEEWR**);
  - the Australian Bureau of Statistics (**ABS**); and
  - Dr. Nicholas Biddle at the Centre for Aboriginal Economic Policy Research, Australian National University (**CAEPR**).
- Australian and international literature on education for Indigenous peoples and people from disadvantaged backgrounds or minority groups
- primary research on residential academic enrichment programs in the United States. This research was undertaken in October 2010 when Aurora Project staff met with education professionals and academic camps program managers and coordinators in various states across the country. See *Appendix A* for a list of the United States programs and organisations visited.

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[4] The Aurora Project is grateful to Ekaterina Pechenkina, a PhD student at the University of Melbourne, for her assistance with the background research for this paper.

[5] Note that it was originally requested that Aurora also analyse the Canadian experience; however, it was later agreed between the parties that the scope of this portion of the paper be limited to the United States and to the programs Aurora has visited there.

PART 1
Aboriginal and Torres Strait Islander students in Australia

In Part 1, we examine available government data for Aboriginal and Torres Strait Islander students first at the university level and then at the high school level.

University Data. Our analysis of DEEWR's university data differs from what has been done in the past in a number of ways.[6]

First, we separate **direct pathway** students from **mature age** students. Direct pathway students are those who enrol at university within a few years of finishing high school. For the purposes of this paper, direct pathway students are defined as those that complete undergraduate studies by the age of 25 years and complete postgraduate studies before they are 30. Mature age students are those who do not go to university directly from high school. Mature age students have been defined as undergraduate students aged 25 years and above and postgraduate students aged 30 years and above.

Secondly, with the assistance of DEEWR, we have excluded all overseas students from the data set. This allows us to compare enrolment and completion numbers for Aboriginal and Torres Strait Islander students with domestic non-Indigenous students.

In this paper, we compare the number of Aboriginal and Torres Strait Islander enrolments and completions with the number there would be if Aboriginals and Torres Strait Islander students enrolled or completed at the same rate as non-Indigenous Australians. We describe this latter number as the **Parity Target**. Relevant age-adjusted population figures have been used in order to determine Parity Targets.[7]

For example, if there are 100 non-Indigenous Australian direct pathway undergraduate completions in a particular discipline and 4.5% of the population in the 15-24 year old age group is Aboriginal or Torres Strait Islander, then the Parity Target in that discipline would be 4.5 Aboriginal and Torres Strait Islander completions.

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[6] We are very grateful to Yew May Martin and her team in the University Statistics Unit within the Higher Education Group at DEEWR for providing us with the data necessary to undertake the analysis in this paper.

[7] The Aurora Project would like to thank Dr. Nicholas Biddle at CAEPR for his work in analysing ABS data to produce the age-adjusted population weights that have been used to generate the Parity Targets in this paper.

Finally, we have taken an average of the DEEWR data over a six-year period – from 2004 to 2009.

Note that parity with non-Indigenous student levels may not be the appropriate goal in all circumstances but it at least provides a benchmark for an initial comparison.

Please also **note** that due to space and time constraints a detailed analysis of the data has not been undertaken in this paper. There are many observations that can be made and conclusions that can be drawn from analysing the statistical information in this paper. However, will have to wait for another day.

High School Data. It is worth noting that comparable state and territory data on university eligibility out of high school is only available through to 2008, at which point DEEWR stopped collecting these measures.

Summary of Findings in Part 1

To briefly summarise the analysis that follows, Table 1 below shows average Aboriginal and Torres Strait Islander enrolments at Australian universities over the period 2004-09.

These are broken down into undergraduate and postgraduate enrolments, and within these, into mature age and direct pathway students.

For each actual enrolment total, we also express that figure as a percentage of the Parity Target. Thus for mature age undergraduates, 118% indicates that there were 18% more Aboriginal and Torres Strait Islander enrolments than one would expect given age-adjusted population sizes.

Table 1: Average annual Aboriginal and Torres Strait Islander enrolments, 2004-09

Study level	Age group	Number of enrolments	% of Parity Target
Undergraduate	Mature age	3,698	118%
	Direct Pathway	3,170	23%
Postgraduate	Mature age	1,073	47%
	Direct Pathway	293	13%

Source: Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

Table 2 below summarises undergraduate completions for mature age and direct pathway students. Completions are then split into ten broad fields of education for direct pathway students.[8]

Table 2: Average annual Aboriginal and Torres Strait Islander undergraduate completions, 2004-09

Age group	Field of Education	Number of completions	% of Parity Target
Mature age	All Fields of Education	610	89%
Direct Pathway	All Fields of Education	399	15%
	Education	76	30%
	Society & Culture	117	18%
	Health	68	18%
	Creative Arts	49	18%
	Agriculture, Environmental & Related Studies	8	16%
	Architecture & Building	7	11%
Direct Pathway	Natural & Physical Sciences	28	9%
	Management & Commerce	47	8%
	Engineering & Related Technologies	12	7%
	Information Technology	7	6%

Source: Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

Table 3 below shows the same breakdown for postgraduate student completions.

[8] Although there are 11 broad fields of education, the field of Food, Hospitality and Personal Services has been excluded due to insignificant numbers recorded. Note that students undertaking studies in more than one field of education are counted for every completion in each field. Accordingly, the sum of the ten broad fields of education does not equal the number of completions for 'All fields of education'.

Table 3: Average annual Aboriginal and Torres Strait Islander postgraduate completions, 2004-09

Age group	Field of Education	Number of completions	% of Parity Target
Mature age	All Fields of Education	241	36%
Direct Pathway	All Fields of Education	88	13%
	Health	20	18%
	Education	23	16%
	Creative Arts	6	16%
	Society & Culture	22	14%
	Management & Commerce	13	9%
	Architecture & Building	2	9%
	Natural & Physical Sciences	2	6%
	Information Technology	1	6%
	Agriculture, Environmental & Related Studies	1	4%
	Engineering & Related Technologies	1	2%

Source: Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

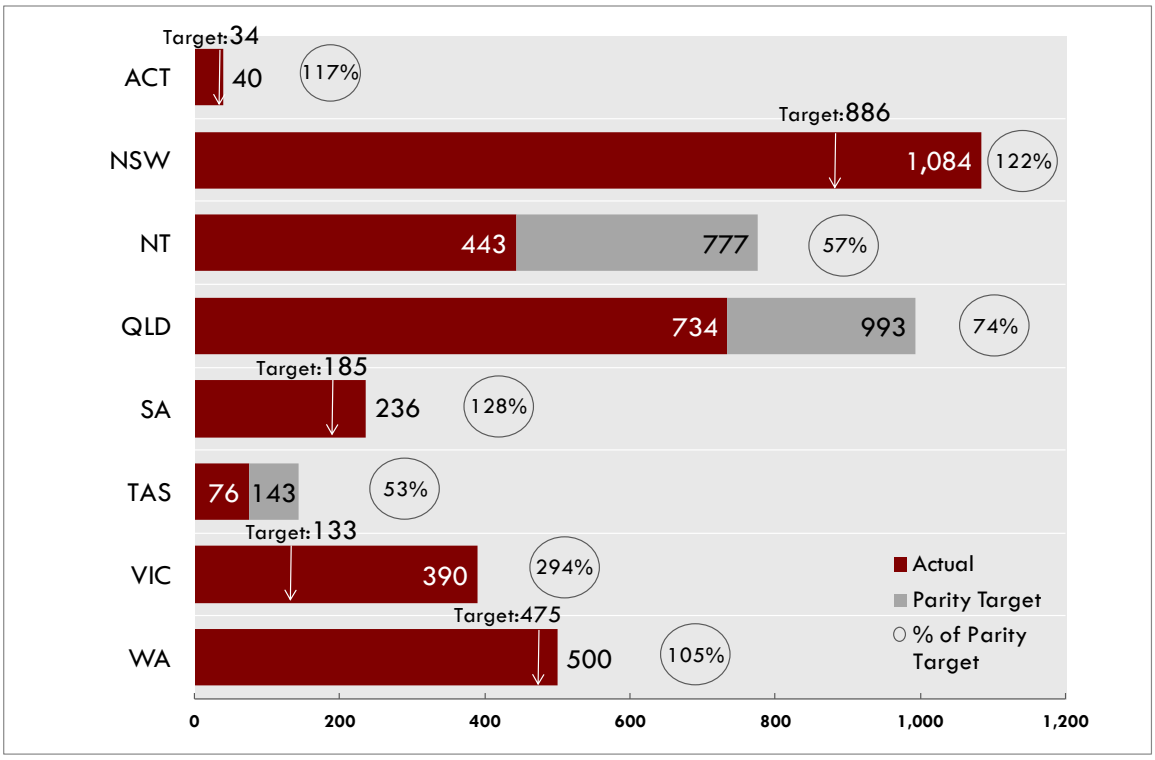
The sobering statistic coming out of the most recently available high school data is that out of a group of **100** Aboriginal and Torres Strait Islander Year 8 students at government schools, only **3.4** would be eligible to go to university following the completion of high school, in comparison to **34** non-Indigenous students.

Of Year 12 graduates, **10%** of Aboriginal and Torres Strait Islander students are **university eligible**, in comparison to **46%** of non-Indigenous students.

Undergraduates – mature age students

If we start by reviewing average mature age undergraduate student **enrolments** between 2004 and 2009, we find that Aboriginal and Torres Strait Islander student numbers outperform their non-Indigenous counterparts with actual enrolments above the Parity Target by 18%. Based on mature age non-Indigenous enrolments, the Parity Target for Aboriginal and Torres Strait Islander annual enrolments, given age-adjusted population sizes, was 3,132 students, whereas the actual Aboriginal and Torres Strait Islander annual enrolment figure was 3,698 students (**118%** of the Parity Target).[9] In Figure 1 below, the mature age undergraduate enrolment numbers are broken down by state/territory.[10]

Figure 1: Average annual Aboriginal and Torres Strait Islander mature age undergraduate enrolments, 2004-09[11]



[9] Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

[10] Note that Parity Targets have been calculated according to the age-adjusted population size of each state and territory. Accordingly, the sum of the targets in each figure below does not sum to the national target.

[11] Note that multi-state universities have been excluded in this figure. Accordingly, actual completions do not sum to the national total of 3,700. The category 'multi-state' refers to the Australian Catholic University, which is located in NSW, Victoria, Queensland and the ACT.

Source: Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

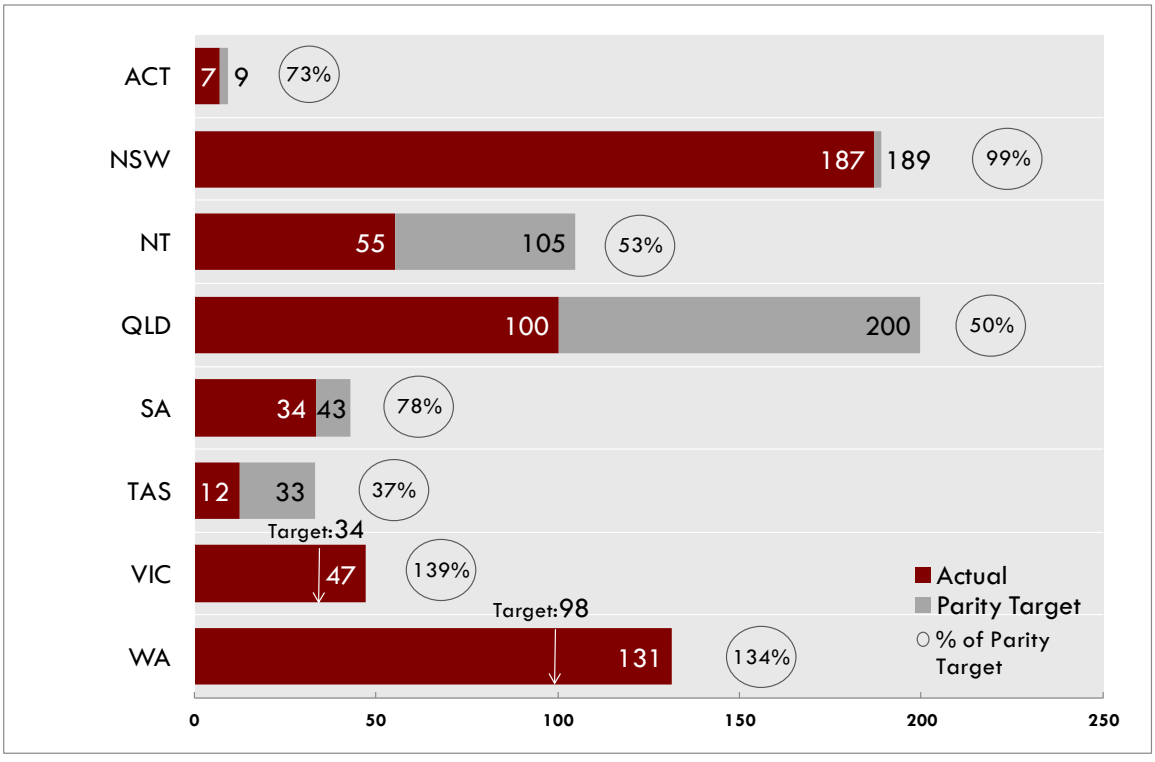
Again please note that we realise that numerous explanations and observations can be made about the data in this paper. However, at this point in time, our aim is merely to report rather to analyse.

In relation to mature age undergraduate **completions**, the Parity Target given the age-adjusted population sizes was 687 Aboriginal and Torres Strait Islander completions, whereas the actual number of Aboriginal and Torres Strait Islander completions was 610 (**89%** of the Parity Target).

A breakdown by gender paints a somewhat different picture. The Parity Target for female Aboriginal and Torres Strait Islander completions was 413 students, which was below the actual number of Aboriginal and Torres Strait Islander completions of 418 (**101%** of the Parity Target). On the other hand, the target for male completions was 274 students with the actual completions below this at 192 students (**70%** of the Parity Target).

In Figure 2 below, the mature age undergraduate Aboriginal and Torres Strait Islander completion numbers are broken down by state/territory.

Figure 2: Average annual Aboriginal and Torres Strait Islander mature age undergraduate completions, 2004-09



Source: Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

For a further breakdown of these state/territory numbers by gender, see Figure 2.1 and Figure 2.2 in *Appendix B*.

Undergraduates – direct pathway students

There are notable benefits associated with entry into the university system shortly after the completion of high school. For example, there are more graduate programs for those completing university study before the age of 25, which in turn creates greater opportunities for career advancement. Furthermore, in areas such as science, technology, engineering and mathematics, individuals are known to be more productive before the age of 35.[12] While improved employment, income and also health outcomes are known to be associated with the completion of tertiary qualifications, the benefits accrued are greatest for those gaining qualifications at a younger age.[13]

At the undergraduate level, in contrast to the cohort of mature age students, we find that proportionally fewer Aboriginal and Torres Strait Islander direct pathway students are enrolling in and completing their studies.

Between 2004 and 2009, the average annual Parity Target for Aboriginal and Torres Strait Islander direct pathway undergraduate **enrolments**, given age-adjusted population sizes, was 13,630, whereas the actual number of Aboriginal and Torres Strait Islander enrolments was 3,170 (**23%** of the Parity Target).[14] Compare this percentage to the mature age statistics where enrolments were 118% of the Parity Target.

In Figure 3 below, the direct pathway undergraduate enrolment numbers are broken down by state/territory.

Figure 3: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate enrolments, 2004-09

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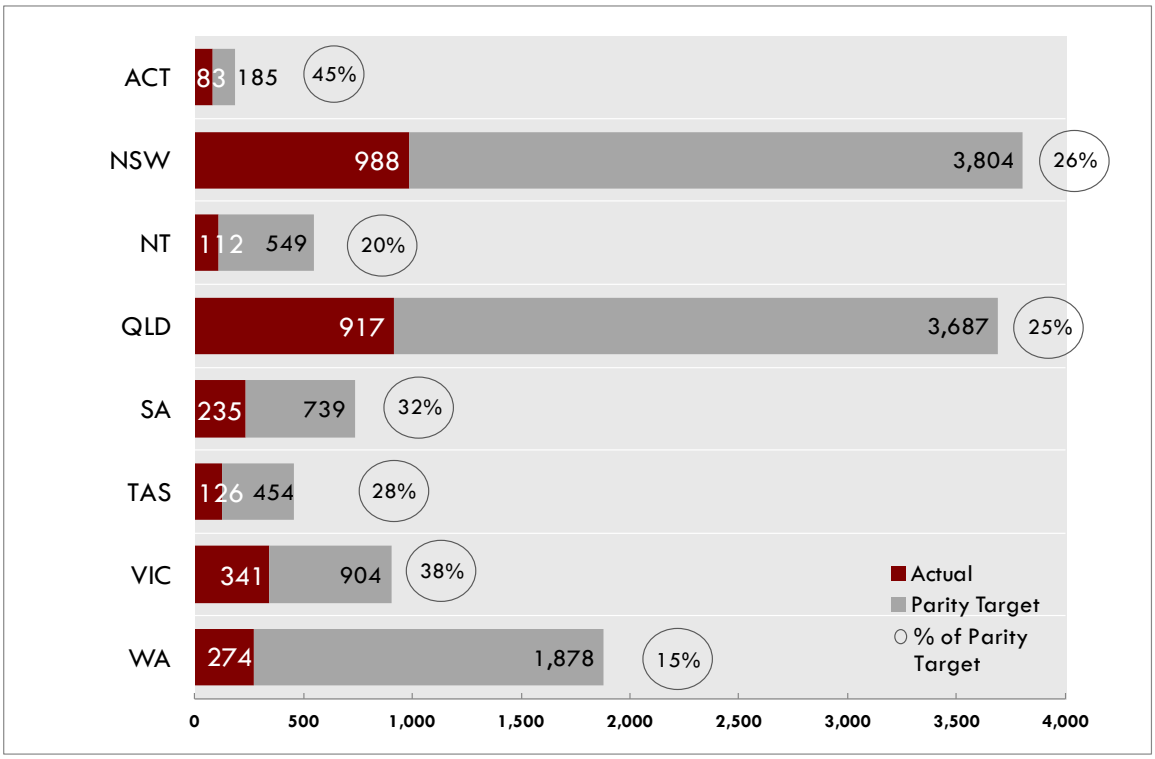
[12] S Kanazawa, "Why productivity fades with age: the crime-genius connection," *Journal of Research in Personality*, 37 (2003), 259.

13 N. Biddle, A Human Capital Approach to the Educational Marginalisation of Indigenous Australians, Centre for Aboriginal Economic Policy Research, CAEPR Working Paper No.67/2010, 2010, http://caepr.anu.edu.au/sites/default/files/Publications/WP/CAEPRWP67_0.pdf, 16

[14] Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).



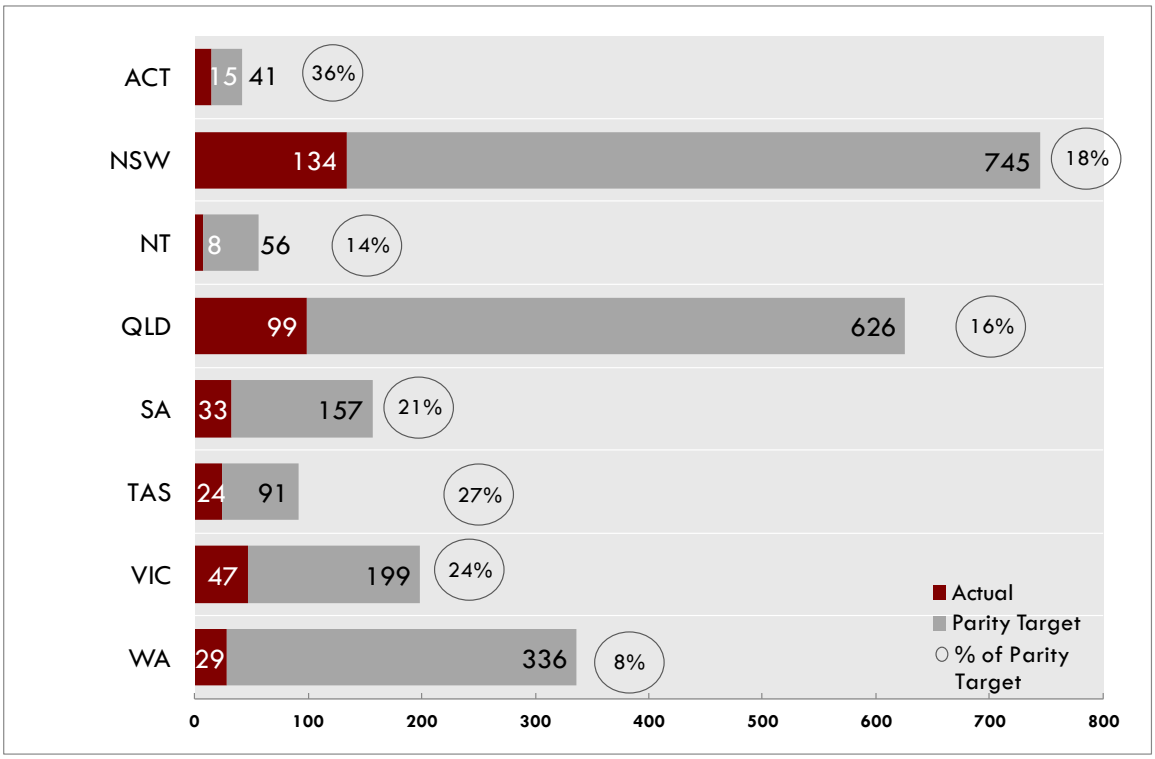
Source: Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

During the 2004-09 period, the annual Parity Target for Aboriginal and Torres Strait Islander direct pathway undergraduate **completions**, given age-adjusted population sizes, was 2,686, whereas the actual number of Aboriginal and Torres Strait Islander completions was 399 (**15%** of the Parity Target). By comparison, the number of mature age completions was 89% of the Parity Target.

The breakdown by gender again shows female Aboriginal and Torres Strait Islander students outperforming their male counterparts both in absolute and proportional terms. The Parity Target of female completions was 1,608 and the actual number of Aboriginal and Torres Strait Islander completions was 265 (**16%** of the Parity Target). For male students, the Parity Target was 1,077 and the actual number was 134 (**12%** of the Parity Target).

In Figure 4 below, the direct pathway undergraduate completion numbers are broken down by state/territory.

Figure 4: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions, 2004-09

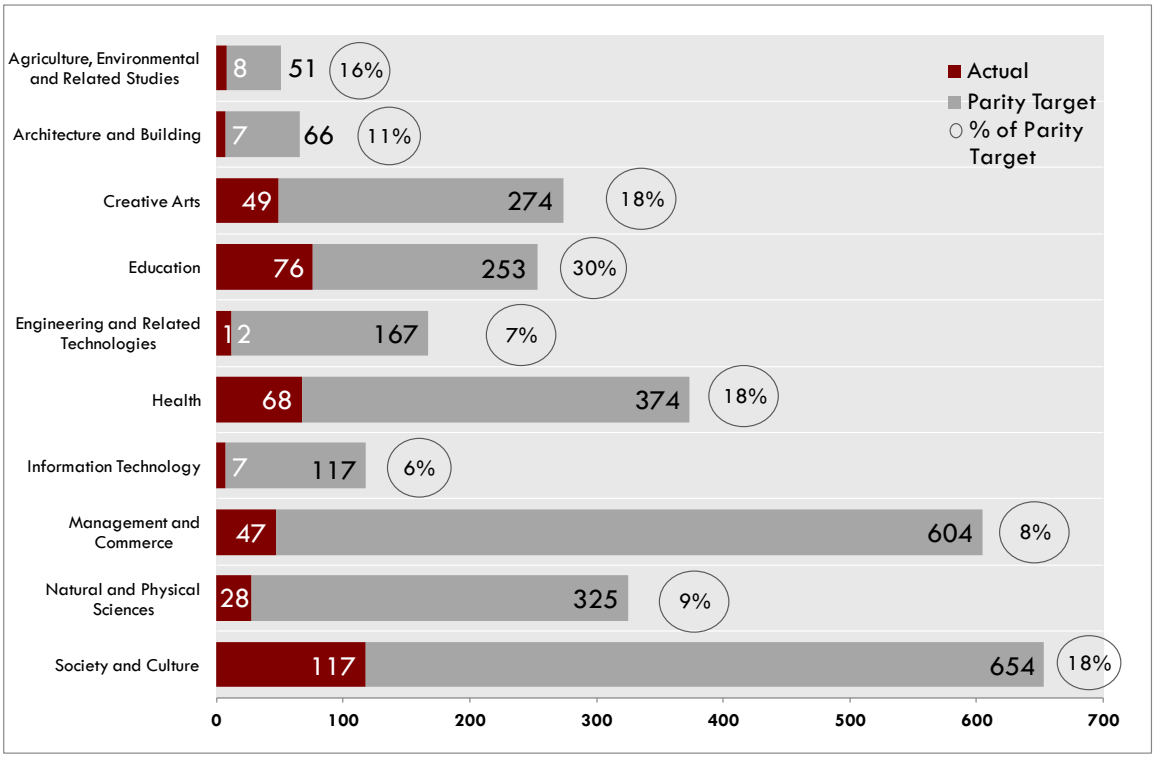


Source: Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

For a further break down of these state/territory numbers by gender, see Figure 4.1 and Figure 4.2 in *Appendix B*.

The national completion figures for Aboriginal and Torres Strait Islander direct pathway undergraduates can be further broken down into 10 broader fields of education – see Figure 5 below. The percentage of the Parity Target, given age-adjusted population sizes, ranges from 6% for Information Technology through to 30% for Education.

Figure 5: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions by broad field of education, 2004-09



Source: Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

Please refer to Tables 5.1 to 5.10 in *Appendix* C for completion data by state/territory for direct pathway students across each of 10 broad fields of education. Each table includes the actual number of completions, the Parity Targets and the number of actual completions as a percentage of the relevant Parity Target.

Postgraduates – mature age students

In looking at the average mature age postgraduate student **enrolments** between 2004 and 2009, in contrast to mature age undergraduate students, we find that Aboriginal and Torres Strait Islander student numbers are significantly below the Parity Targets. The annual Parity Target for enrolments, given age-adjusted population sizes, was 2,296 enrolments, whereas there were actually 1,073 enrolments annually (**47%** of the Parity Target).[15] Compare this to the 118% of the Parity Target for mature age undergraduate enrolments.

In Figure 6 below, the mature age postgraduate enrolment numbers are broken down by state/territory.

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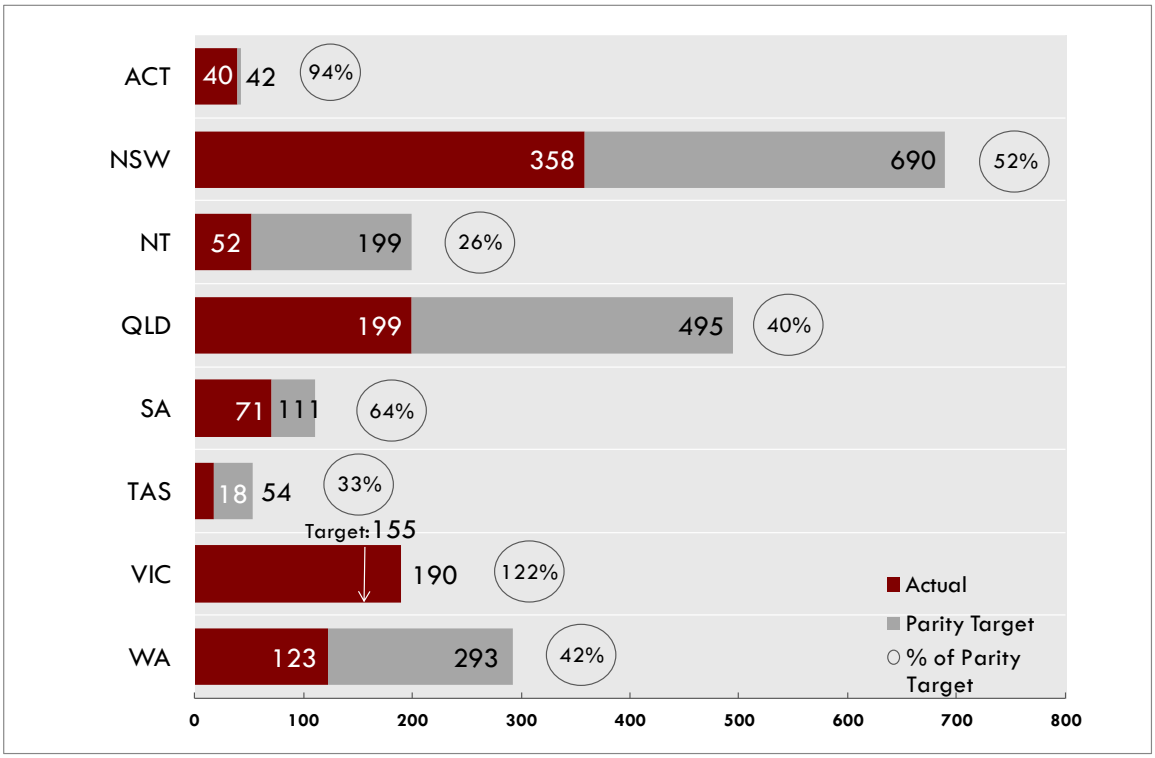
[15] Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

Figure 6: Average annual Aboriginal and Torres Strait Islander mature age postgraduate enrolments, 2004-09

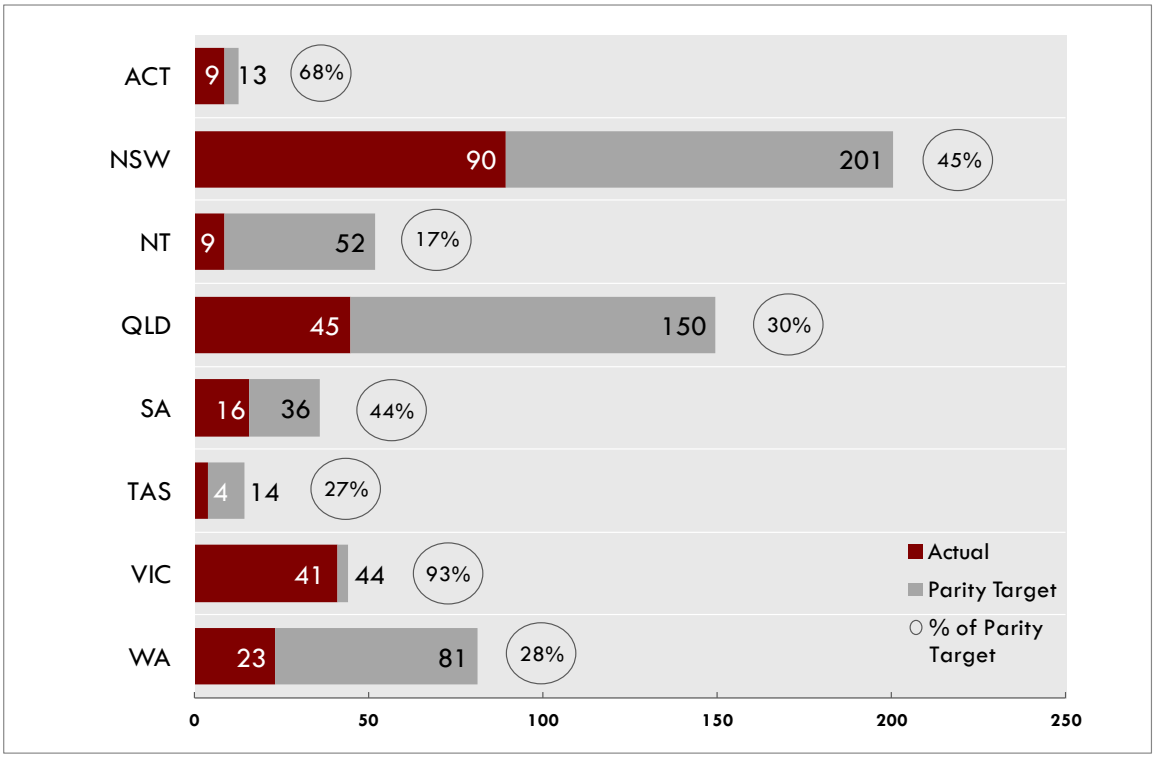


Source: Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

For mature age postgraduate students, the Parity Target for Aboriginal and Torres Strait Islander **completions**, given age-adjusted population sizes, was 669, whereas the actual number of Aboriginal and Torres Strait Islander completions was 241 (**36%** of the Parity Target). As with mature age students at the undergraduate level, a breakdown by gender reveals female students to be completing postgraduate studies at a higher rate than male students. The Parity Target for female completions was 373, in comparison to 152 actual completions (**41%** of the Parity Target). In comparison, the Parity Target for male students was 296, with the actual number of completions at 89 (**30%** of the Parity Target).

In Figure 7 below, the mature age postgraduate completion numbers are broken down by state/territory.

Figure 7: Average annual Aboriginal and Torres Strait Islander mature age postgraduate completions, 2004-09



Source: Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

For a further break down of these state/territory numbers by gender, see Figure 7.1and Figure 7.2 in *Appendix B*.

Postgraduates – direct pathway students

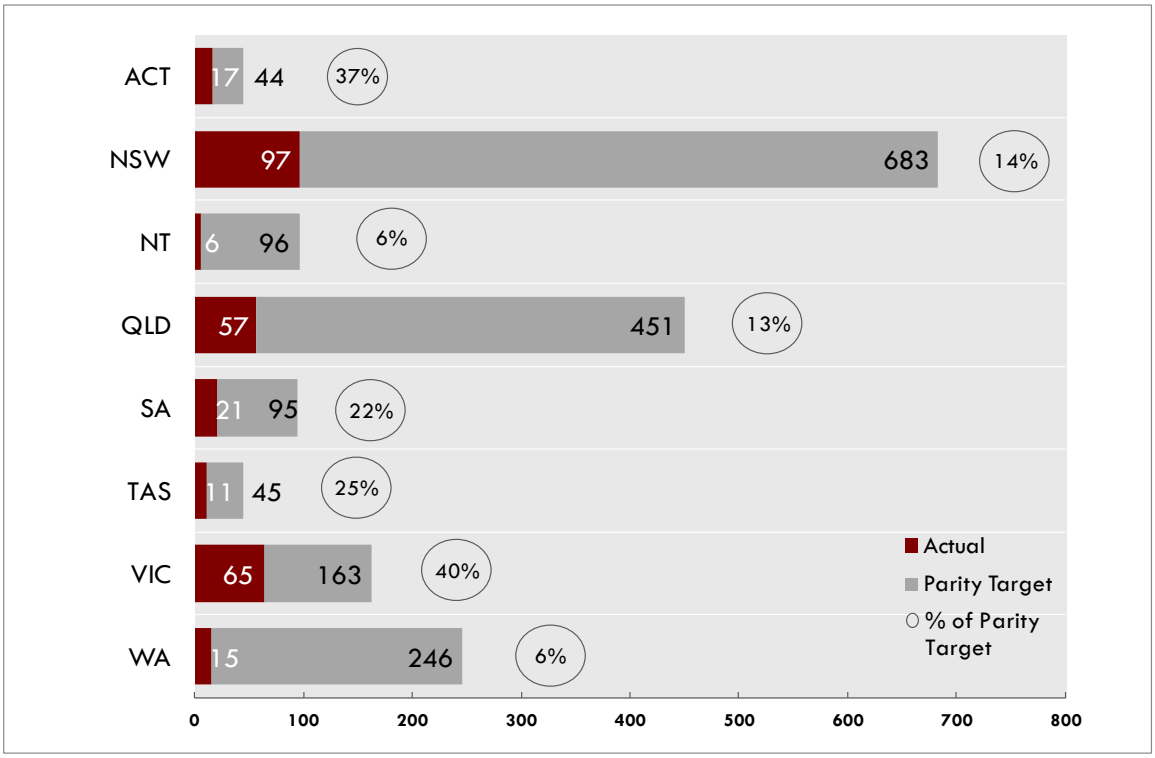
As with students at the undergraduate level, at the postgraduate level we find that fewer Aboriginal and Torres Strait Islander direct pathway students are enrolling in and completing their studies than mature age students both in absolute and proportional terms.

Between 2004 and 2009, the average annual Parity Target for Aboriginal and Torres Strait Islander direct pathway postgraduate **enrolments**, given age-adjusted population sizes, was 2,200, and the actual number of Aboriginal and Torres Strait Islander enrolments was 293 (**13%** of the Parity Target).[16] Compare this to 47% of the Parity Target for mature age postgraduate enrolments.

In Figure 8 below, the direct pathway postgraduate enrolment numbers are broken down by state/territory.

[16] Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

Figure 8: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate enrolments, 2004-09

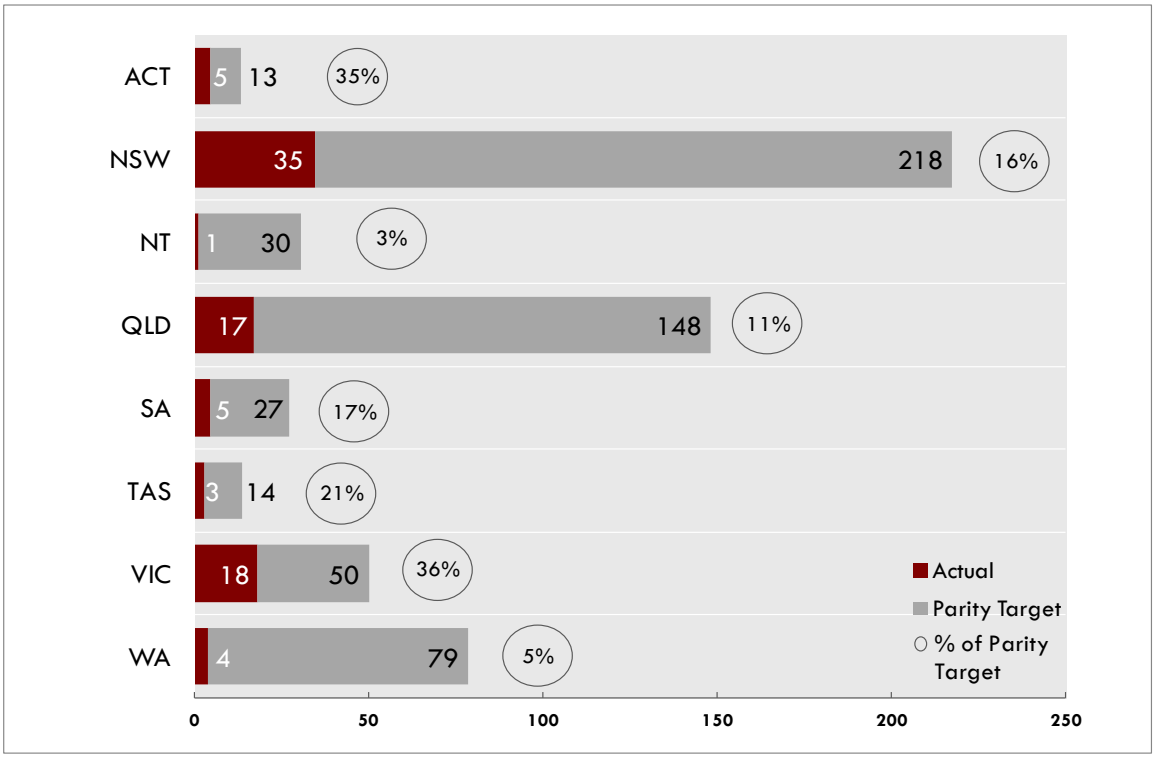


Source: Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

For Aboriginal and Torres Strait Islander direct pathway postgraduate students, the Parity Target for **completions**, given age-adjusted population sizes, was 696, whereas the actual number of completions was 88 (**13%** of the Parity Target). A breakdown by gender reveals female students to be completing postgraduate studies at a slightly higher rate than male students. The Parity Target for female completions was 437, in comparison to 60 actual Aboriginal and Torres Strait Islander completions (**14%** of the Parity Target). For males, the Parity Target was 259, with the actual number of Aboriginal and Torres Strait Islander completions at 28 (**11%** of the Parity Target).

In Figure 9 below, the direct pathway postgraduate completion numbers are broken down by state/territory.

Figure 9: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions, 2004-09



Source: Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

For a further break down of these state/territory numbers by gender, see Figure 9.1 and Figure 9.2 in *Appendix B*.

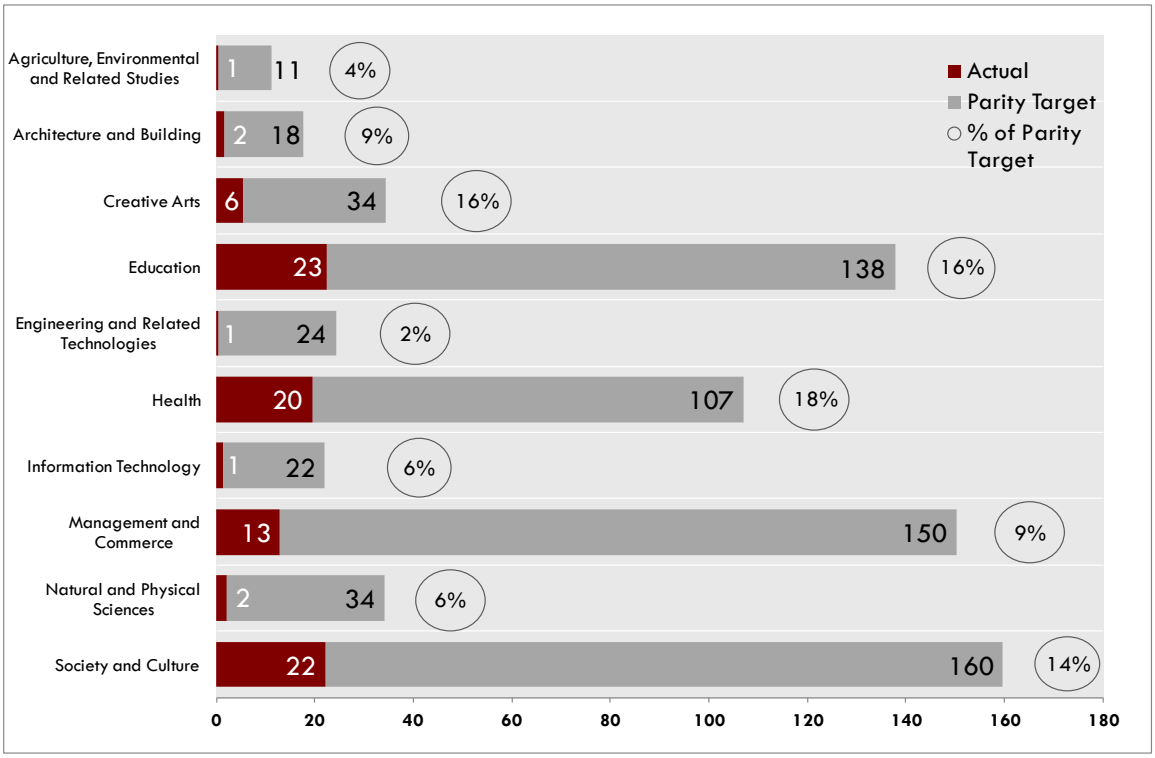
The national completion figures for Aboriginal and Torres Strait Islander direct pathway postgraduates can be further broken down into 10 broader fields of education – See Figure 10 below.

As can be seen below the vast majority of the 88 average annual completions are in the areas of Education (23), Society and Culture (22) – which includes Law – and Health (20).

Between 2004 and 2009, there have been on average no more than two Aboriginal and Torres Strait Islander completions annually in:

- Natural and Physical Sciences (2.0 students);
- Architecture and Building (1.7);
- Information Technology (1.3);
- Agriculture, Environmental and Related Studies (0.5); and
- Engineering (0.5).

Figure 10: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions by broad field of education, 2004-09



Source: Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

Please see Tables 10.1 through Table 10.10 in Appendix C for the breakdown of each broader field of education by state/territory.

High school completions and university eligibility

The low numbers of direct pathway enrolments and completions at the postgraduate level can be traced back to the undergraduate figures and back further to high school, where too few Aboriginal and Torres Strait Islander students finish Year 12 with the subjects and marks necessary to be eligible for university.

In 2008, there were nearly 23,000 Years 10, 11 and 12 Aboriginal and Torres Strait Islander students across the country.[17] Within government schools, 3,073 Aboriginal and Torres Strait Islander students graduated from Year 12. Given age-adjusted population sizes, the number of Aboriginal and Torres Strait Islander high school

[17] ABS, *Schools Australia 2010, Cat. no. 4221.0* (2010), http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4221.02010?OpenDocument

completions at these schools should have been closer to 4,600 (3,073 is **67%** of the Parity Target).[18]

However, the most important question is "how many of the 3,073 Aboriginal and Torres Strait Islander high school graduates were eligible to go on to university?"[19] Only **10%** or 300 Year 12 graduates were eligible to go directly to university in their home state or territory. By comparison, **46%** of non-Indigenous Year 12 graduates in Australia were eligible to attend university (see Table 4 below).[20]

Table 4: High school completions and university eligibility for Aboriginal and Torres Strait Islander government school students, 2008

	Year 12 completions	University eligible	University eligible as a % of completed Yr 12 (Indigenous)	University eligible as a % of completed Yr 12 (non-Indigenous)
ACT	23	5	22%	42%
NSW	824	63	8%	33%
NT	114	12	11%	49%
QLD	1,115	106	10%	36%
SA	86	9	10%	44%
TAS	180	21	12%	34%
VIC	146	68	47%	76%
WA	585	16	3%	30%
National	3,073	300	10%	46%

Source: Aurora analysis of data from Indigenous Education Data and Reporting Team (DEEWR, 2008).

[18] Aurora analysis of data from Indigenous Education Data and Reporting Team (DEEWR, 2008).

[19] Defined as meeting the minimum eligibility requirements for a university in that state/territory.

[20] Eligible students are those that were able to enrol in university without the assistance of an alternative entry scheme. For non-Indigenous students, approximately 78,700 out of 166,800 were university eligible. Aurora analysis of data from Indigenous Education Data and Reporting Team (DEEWR, 2008). Note that 2008 was the last year university eligibility data was tracked nationally.

To put this in perspective, if we were to take a group of **100** Aboriginal and Torres Strait Islander Year 8 students at government schools in 2004, only **3.4** would have been eligible for university after the completion of high school in 2008.[21] By comparison, **34** or ten times as many non-Indigenous students would have been university eligible.

The state of WA demonstrates both the progress in Indigenous educational attainment, but also the magnitude of the task ahead. In 2008, 585 Aboriginal and Torres Strait Islander students completed Year 12 at government schools – a notable increase when considering that in 1994 no Aboriginal or Torres Strait Islander student completed Year 12 in WA.[22]

The reason for this increase could be due to the growth in high school academic support programs, such as the Follow the Dream / Partnerships for Success program (http://www.det.wa.edu.au/aboriginaleducation/detcms/navigation/teaching-and-learning/attendance-and-retention/follow-the-dream) and the Clontarf Academy (http://www.clontarffootball.com). However, graduating from high school does not necessarily imply eligibility for university. In WA, of those 585 students who completed Year 12, 16 or less than 3% were eligible to attend university in WA, in comparison to 30% of non-Indigenous graduates.

Thus, using the same analysis as above, if we were to take a group of **100** Aboriginal and Torres Strait Islander Year 8 students at government schools in 2004, only **1.1** would have been eligible for university in WA after the completion of high school in 2008.[23] By comparison, 21.4 or 19 times as many non-Indigenous students would have been university eligible in WA.

As stated early on in this paper, the stark reality is that rather than a strong flow of Indigenous students surging through the pipeline from high school to university; there is little more than a trickle.

Figure 11 below indicates the proportion of Year 8 students at government schools in 2004 that were eligible to attend university in 2009, with a breakdown by state and territory. Up to 65% of the cohort of non-Indigenous students was eligible for university, as was the case in Victoria, with WA having the lowest proportion of university eligible non-Indigenous students at 21%. In comparison, at best, 13% of the

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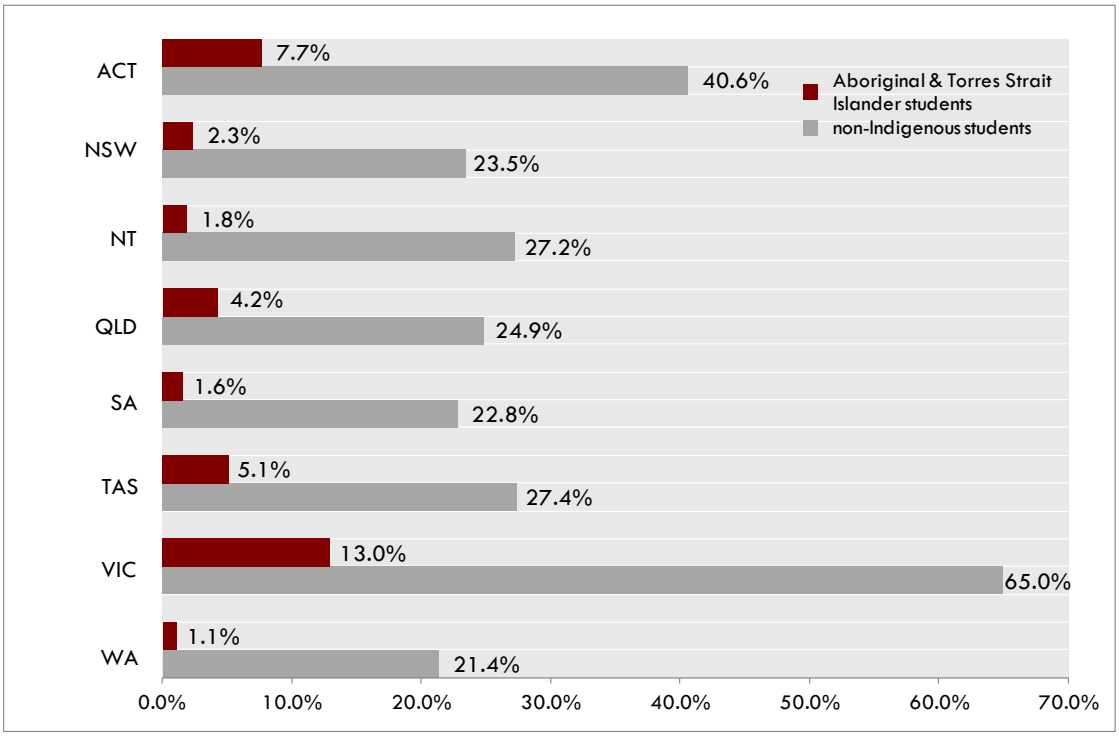
[21] Approximately 8,900 Aboriginal and Torres Strait Islander students and 161,000 non-Indigenous students were in Year 8 in 2004 across the country. ABS 2010; Aurora analysis of data from Indigenous Education Data and Reporting Team (DEEWR, 2008).

[22] Interview with David Axworthy, Deputy Director General, Western Australia Department of Education (2011).

[23] Approximately 8,900 Aboriginal and Torres Strait Islander students and 161,000 non-Indigenous students were in Year 8 in 2004 across the country. ABS 2010; Aurora analysis of data from Indigenous Education Data and Reporting Team (DEEWR, 2008).

cohort of Aboriginal and Torres Strait Islander students was eligible for university, as was the situation in Victoria.

Figure 11: Proportion of Year 8 government school students (2004) eligible for university in 2009



Source: ABS 2010; Aurora analysis of data from Indigenous Education Data and Reporting Team (DEEWR, 2008).

Recommendation: The information above on university eligibility broken down by state/territory is only available through to 2008. This data is crucial if we are to meaningfully assess performance. We would ask that the Commonwealth once again track this. In addition, greater transparency as to the minimum mark for university eligibility in each state and territory would further facilitate the assessment of student performance. For example, the Victorian numbers may be skewed by lower minimum entry scores.

Although the present analysis in this section has been limited to students at government high schools, as Table 5 below indicates, it is worth noting the available data on Year 12 enrolments. For example, around 50% of Aboriginal and Torres Strait Islander students from non-government schools are in the state of Queensland. In Queensland, 72% of Aboriginal and Torres Strait Islander Year 12 students attend government schools, whereas in NSW and Victoria, by comparison, 82% are in government schools.

Table 5: Number of Aboriginal and Torres Strait Islander high school students in Year 12, 2010

	Government	Catholic	Other	Total
QLD	1,571	289	327	2,187
NSW	1,088	183	58	1,328
WA	600	88	86	774
SA	373	31	25	429
NT	291	32	34	357
VIC	239	36	15	290
TAS	221	24	6	251
ACT	48	9	1	58
Total	4,432	690	552	5,674

Source: Aurora analysis of data from Indigenous Education Data and Reporting Team (DEEWR, 2011).

Transition to university

The significant numbers of mature age Aboriginal and Torres Strait Islander students studying at Australian universities demonstrate that many Aboriginal and Torres Strait Islanders aspire to go to university, but it can often take decades for them to get there. This is the case even for those that achieve academically during high school. Indeed, the 2010 Longitudinal Surveys of Australian Youth (**2010 Longitudinal Surveys**) found that Aboriginal and Torres Strait Islander students performing within the top brackets at school are not proportionately represented in university participation.[24]

Although there are more Aboriginal and Torres Strait Islander students completing Year 12 than ever before, and many are aspiring to go to university, this is not reflected in university participation.[25] Whilst the results of the 2010 Longitudinal Surveys do not make it clear as to why this is the case, as outlined in Part 2 below, one contributing factor could be that many students are the first in their family to attend

[24] For example, only 39% of the Aboriginal and Torres Strait Islander students who scored in the highest reading quartile continued directly into tertiary study, compared to 65% of non-Indigenous students. Dusseldorp Skills Forum, *Early post-school outcomes of Indigenous youth: the role of literacy and numeracy,* Longitudinal Surveys of Australian Youth Briefing Paper 22 (National Centre for Vocational Education Research, 2010), 8.

[25] *Ibid.,* 3. See also, Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

university. For a greater number of direct pathway students to progress through the pipeline to university, more attention needs to be paid to the transition between high school and university. The above analyses indicate the need to nurture and assist students from a young age in order to support their educational aspirations and potential. To start this support at the university level may be too late. What is a natural and often assumed progression for many non-Indigenous students can still be a major barrier for some Aboriginal and Torres Strait Islander students.

PART 2
The university experience – evidence from international literature

From Part 1 it is clear that Aboriginal and Torres Strait Islander direct pathway students are under-represented in tertiary education and may not be realising their potential both at high school and university. Part 2 explores some of the reasons for this, namely, the experience of 'first generation students', and the importance of having a supportive peer group.

It must be acknowledged that these factors are not exhaustive; there is a complex array of factors at play, which influence the uptake of university study by Aboriginal and Torres Strait Islander students. Detailed analyses of reasons for the under-representation of Aboriginal and Torres Strait Islanders in tertiary education have also been undertaken by others, including Andersen, Bunda et al., Farrington, Page et al., and Pechenkina and Kowal.[26]

Given that the first Aboriginal and Torres Strait Islander student graduated from university in 1959,[27] it is no surprise that today, some fifty years on, many Aboriginal and Torres Strait Islander students are the first in their family to attend university ('**first generation students**'). In some cases, the families of these students may not have the experience or resources to provide all of the educational support necessary for students to pursue their academic goals. This is described as '**cultural capital**': the social, economic and educational resources necessary for students to successfully navigate the university environment.[28] This includes, for example, students knowing what is expected of them and feeling a sense of belonging.

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[26] C. Andersen, T. Bundaz, M. Walter, "Indigenous higher education: the role of universities in releasing the potential", *The Australian Journal of Indigenous Education,* 37 (2008), 1-8; S. Farrington, S. Page, K.D. DiGregorio, "The Things That Matter: Understanding the Factors that Affect the Participation and Retention of Indigenous students in the Cadigal program at the Faculty of Health Sciences, University of Sydney", *Journal of the Australian and New Zealand Student Services Association* (2001), 40-55; E. Pechenkina and E Kowal, "Indigenous Australian students' participation rates in higher education: exploring the role of universities," *The Australian Journal of Indigenous Education,* in press (2011).

[27] Anderson, *The Knowledge Economy and Aboriginal Health Development, supra note* 2 at 3.

[28] J. Quinn and L. Thomas, *First Generation Entry into Higher Education: An International Study* (Berkshire, UK: Open University Press, 2007), 77.

Research on first generation students in Australia and overseas has examined the impact of a family history of tertiary education on university achievement.[29] It suggests that first generation students (a group which includes many Aboriginal and Torres Strait Islander students) are less likely to attend university and to complete their studies than the broader student population. According to a recent study conducted by The Smith Family, 65% of students whose father went to university attained university qualifications, compared to 29% of students whose father left school by Year 10.[30]

Similar findings have been recorded in international literature. Quinn and Thomas' comparative international study, for example, highlights that in Canada, 70% of students who had one parent with a university education went on to attend university themselves.[31] In contrast, amongst students who did not have a parent with a college degree, only 30% enrolled in university. The same study showed that in Germany students were more likely to enrol in university if their father had been to university (55% compared to 9% of students whose father had not completed school).[32] Moreover, Quinn and Thomas report that in a small study conducted in the United Kingdom in 2005, 77% of first generation students dropped out of their university degree in the first year, with 40% leaving during the first semester.[33] In another study by Chen and Carroll, it was found that in the United States, 68% of students whose mother or father had a bachelor's degree also completed university studies. By comparison the percentage was only 24% for students whose parents did not have a degree.[34]

International research has further shown that talented students from disadvantaged backgrounds, particularly first generation students, do not automatically succeed at university; they need to be continuously challenged and supported.[35] Such support could be established through an academic enrichment program which focuses on building cultural capital, particularly the necessary skills required to thrive at school

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[29] See *ibid.*

[30] R. Cassells, J. McNamara, H. Gong, and S. Bicknell, *Unequal Opportunities: Life chances for children in the 'Lucky Country'* (The Smith Family, Sydney, 2011), 15.

[31] *Ibid.,* 39.

[32] *Ibid.,* 35.

[33] *Ibid.,* 83.

[34] X. Chen and C. D. Carroll, *First Generation students in postsecondary education: A look at their college transcripts,* National Center for Education Statistics (Washington, D.C. U.S. Department of Education, 2005), 6, http://nces.ed.gov/pubs2005/2005171.pdf.

[35] J. Wyner, J. A. Bridgeland, and J. Diiullo, *Achievement trap: How America is failing millions of high achieving students from lower-income families* (Jack Kent Cooke Foundation and Civic Enterprises with Original Research by Westat, 2009), 4. See also, W. Bedsworth, S. Colby, and J. Doctor, *Reclaiming the American Dream* (The Bridgespan Group, Inc., 2006), 11, http://www.bridgespan.org/LearningCenter/ResourceDetail.aspx?id=412, 7.

and university. It would be necessary to not only involve students in the program, but also their families, providing assistance for those who wish to know more about the university system and better support the academic pursuits of their children. In this way, even if parents and carers have not attended university, they can improve their understanding of how to support the educational needs of their children.

The importance of having a support network such as this, as well as a close peer group should not be underestimated. In fact, research in the United States indicates that students are four times more likely to enrol in university if their friends do.[36] Consequently, there is also a need to create a strong cohort of Aboriginal and Torres Strait Islander students who can support each other throughout school and university.

As discussed in Part 3, successful programs which bring students from disadvantaged backgrounds together in an academic environment during their high school years have been running in the United States for many years. The success of one such program, the Posse Foundation, which is described below, demonstrates the effectiveness of building a cohesive cohort of schools students that can then support each other at university.

[36] Bedsworth, Colby, and Doctor, *Reclaiming the American Dream, supra note* 35 at 11.

PART 3
An overview of best practice in the United States of academic support programs for minority students from disadvantaged backgrounds

In October 2010, Aurora Project staff visited the United States to meet with managers and coordinators of a variety of residential academic enrichment programs. The main aim of these meetings was to understand how academic camps and other programs for disadvantaged youth from minority backgrounds have been developed and run in the United States, and to find out what makes them successful and sustainable. Although few programs of this type exist in Australia for Aboriginal and Torres Strait Islander students, successful models have been running in the United States for over 30 years. In fact, hundreds of millions of dollars are spent annually on well over a thousand academic initiatives aimed at assisting promising disadvantaged and minority students. These include programs for Native American, African American and Hispanic American students that are held over the course of their school and university study.

Consultations in the United States and subsequent research indicate that an ongoing nature of engagement with students is crucial. Promising students from disadvantaged backgrounds do not automatically succeed in their studies, but need to be continuously supported.[37] Experience in the United States demonstrates that the three key program characteristics necessary to have a positive impact on students' educational outcomes are:

- a significant number of contact hours with students (usually a minimum of 200 hours per annum, although often programs involve at least twice as many hours)
- support which starts early (starting before students are 15 years of age)
- continued support over a long-term period (at least three years).

Programs with a residential component that run over consecutive school holiday periods achieve continuity by encouraging students to remain in touch with each other and their mentors or teachers beyond the official contact hours and even after they complete the program. In some cases, program graduates can remain involved in a program by becoming mentors or tutors to other program participants.

Most programs also maintain databases which allow them to track participants through high school and university. Information gathered on program alumni and their

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[37] Wyner, Bridgeland, and Diiullo, *Achievement trap: How America is failing millions of high achieving students from lower-income families, supra note* 35 at 4. See also, Bedsworth, Colby, and Doctor, *Reclaiming the American Dream, supra note* 35 at 7.

academic and professional pathways can assist with a program's ongoing development, assessment and reporting.

Below, we outline some of the primary school, high school and university pathway or scholarship programs visited by Aurora staff. Although there are many other programs at all levels in the United States, the programs below provide an indication of best practice methods that could be adapted to the Australian context.

For more information on the United States programs Aurora visited, please see Appendix A: *United States meetings*.

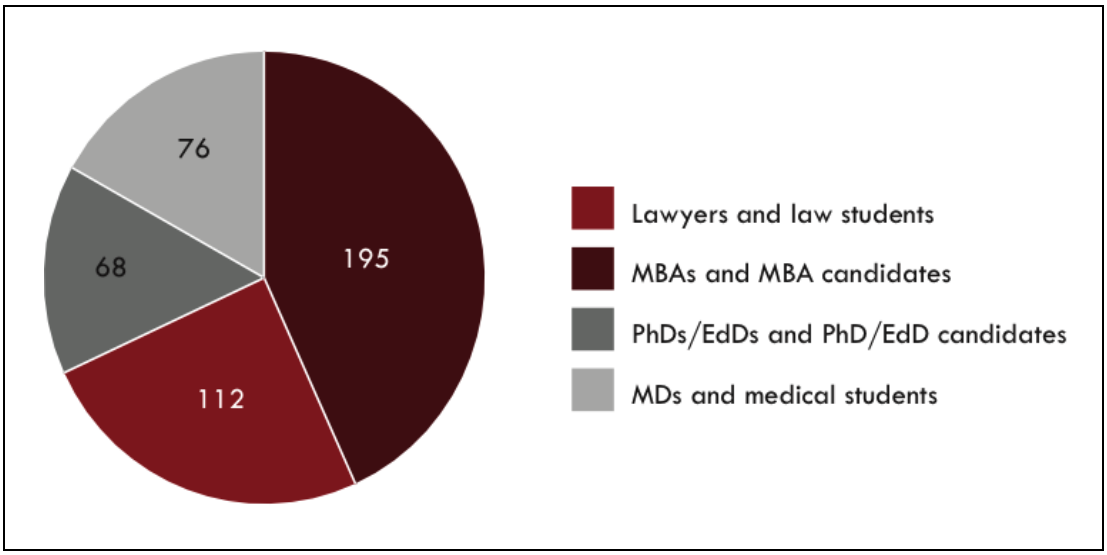
Primary School Programs

'PREP FOR PREP' (NEW YORK)

Prep for Prep (http://www.prepforprep.org) is a New York based program that was started 30 years ago. Prep for Prep focuses on providing bright students from African American, Latino and Asian backgrounds with the opportunity to be placed in the best boarding and independent schools in the city. Each year the program receives an average of 6,000 applicants. These applicants are nominated by their schools and must be achieving in the top 10% on their statewide "English Language Arts" tests. Out of all the applicants, only around 200 Year 5-7 students are selected.

Students attend classes over a 14-month period to prepare them for entry and success at independent schools. The classes take place during the summer holidays (9am to 5pm on week days for seven weeks) and throughout the school year (Wednesday after school and all day Saturday), with students engaged in approximately 700 hours of Prep for Prep activities each year. Classes include literature, writing, history, research, maths, laboratory science and Latin. During Prep for Prep's holiday programs, all students receive 3 hours of homework each day. Students are also provided with counseling, leadership opportunities, a strong peer network, an emergency assistance fund and tutoring when needed. The program has a 99% attendance rate and over 2,000 alumni. In fact, 92% of Prep for Prep's university graduates have completed their degrees at the most competitive universities in the United States – Harvard is the most popular choice. Of those attending Harvard, for example, 97% graduate. Figure 12 below outlines the types of degrees earned by Prep for Prep alumni.

Figure 12: Advanced degrees earned by Prep for Prep alumni



Source: Prep for Prep, *2009 Annual Report: Paving the Way* (New York, 2009), 27.

Prep for Prep has been criticised in the past for supporting students who would have excelled in their studies without such a program. However, as mentioned above the research shows that talented students from disadvantaged backgrounds need to be continually supported and challenged in order to achieve at school. According to a report conducted by the Jack Kent Cooke Foundation, these students "disproportionately fall out of the high-achieving group during elementary and high school, they rarely rise into the ranks of high achievers during those periods, and, perhaps most disturbingly, far too few ever graduate from college or go on to graduate school".[38]

Following the success of Prep for Prep, John Simon and Michael Danziger set up the Boston-based Steppingstone Foundation (http://www.tsf.org/program.php) in 1990. The Steppingstone Academy provides a similar 14-month support program to Prep for Prep, helping prepare students to be accepted into top independent and public schools. Following acceptance into their new school, Steppingstone students are also provided with counseling, academic support and college guidance. Students are also encouraged to stay connected to Steppingstone through the program's alumni database.

'SALMON CAMPS' (OREGON)

The **Salmon Camps** program (http://www.salmoncamp.org) was established by Native American tribal leaders, the Oregon Museum of Science and Industry and the National Science Foundation in 1995. It aims to diversify America's science, technology, engineering and maths (or STEM) workforce by inspiring more Native American students to engage in STEM and IT careers. Since 1995, over 500 students have participated in the program.

To take part in Salmon Camps, primary and high school students attend a three-week summer camp, a one-week spring-break camp and four weekend enrichment programs each year. Salmon Camp teachers/counsellors also communicate with students throughout the school year by e-mail and phone. In total, students spend approximately 350 contact hours engaged in the Salmon Camps program. On these programs, students go camping and travel from tribal sites to universities, participating in hands-on field visits. They meet with tribal leaders, science professionals and environmental experts and are taught to use different technologies and field equipment to analyse and track the farming of salmon. At the end of each program, students work in small groups to write and present a report on the issues they studied. They present their reports to parents and community members at a traditional dinner hosted by the local tribe of the area.

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[38] Wyner, Bridgeland, and Diiullo, *Achievement trap: How America is failing millions of high achieving students from lower-income families, supra note* 35 at 4.

By focusing on salmon farming, the program combines Indigenous and Western knowledge, providing the students with hands-on, meaningful and culturally significant experiences. Furthermore, through encouraging students to connect culture to academic learning, the program has helped to build and strengthen students' identities as intelligent, proud and resilient Native American people.

Some students have been involved in the program for up to seven years and one Salmon Camp alumna, based on her experiences in the program, is currently studying a combined degree in ecological engineering and wildlife biology.

'PROJECT EXCITE', CENTRE FOR TALENT DEVELOPMENT, NORTHWESTERN EDUCATION (CHICAGO, ILLINOIS)

Project EXCITE (http://www.ctd.northwestern.edu/excite) provides ongoing support to 25 primary school students from minority backgrounds each year. Participating students all attend District 65 elementary schools in the area surrounding Northwestern University. The program has been running for 10 years in partnership with the Center for Talent Development and has supported over 120 students. The first cohort of Year 3 Project EXCITE students recently graduated from high school.

Project EXCITE involves after-school enrichment classes, weekend enrichment programs, summer holiday programs, ongoing tutoring, exam preparation and practice, and educational guidance and counseling. Students receive ongoing support until they begin high school, at which point they enter other existing programs for students from minority backgrounds. By the time EXCITE students finish Year 8, they are expected to be in a position to enrol in advanced science and mathematics classes.

Throughout the program, EXCITE students are paired with high school students, who offer continuous mentoring. Parents are also a key part of the program and are required to sign a contract with Project EXCITE which outlines their responsibilities in best supporting their children through the program.

High School Programs

CENTRE FOR TALENTED YOUTH (CTY), JOHN HOPKINS UNIVERSITY (BALTIMORE, MARYLAND) AND THE JACK KENT COOKE FOUNDATION YOUNG SCHOLARS PROGRAM (WASHINGTON DC)

The Center for Talented Youth (**CTY**) at Johns Hopkins University (http://cty.jhu.edu) has been running residential academic programs for gifted and talented students for over 30 years. Approximately 10,000 gifted and talented students participate in CTY's three-week holiday program each year. The program is offered for students in Year 7, and students can choose to return to the program year after year. During the camps, students select classes and activities according to their interests and talents.

In the late 1990s, CTY expanded their program to low-income students, but it was found that three weeks was not long enough to support and nurture these students. Many of the students' parents had never been to university and as such did not know how to guide their own children towards making informed choices about their

education. It was recognised that these students - who were going to be the first in their family to attend university (**first generation students**) - needed additional support to keep them on the right track throughout the school year. This would include support to strengthen their skills, learn about other opportunities and stay engaged in learning. This led to the establishment of a number of scholarship programs including the Jack Kent Cooke Foundation Young Scholars Program in 2002 and the John Hopkins University CTY Scholars Program (**CTY Scholars Program)** in 2004.

The Jack Kent Cooke Foundation Young Scholars Program started in 2002 (http://www.jkcf.org/scholarships/young-scholars-program). The overall goal of the program is to assist students from low-income backgrounds gain access into top colleges across the United States. The program specifically targets the needs of low income, high potential students and gives them the opportunity to participate in enrichment activities and plan for future academic study. Each year approximately 1,500 students apply for the program but only 75 are selected. The program begins in Year 7 where students are assigned to an advisor (counselor). After working with the family and student to determine their needs and realistic goals, the advisor designs a tailored academic support program to help their student succeed academically. In some cases, support may involve organising extracurricular activities, buying a computer or arranging for tutoring. In other cases, support could involve moving a student from a public school to a boarding school or top independent school. The support given completely depends on the needs of each student. The advisor remains in contact with their students through once-a-year home visits and fortnightly telephone calls and emails. The foundation has also created an online community for all students to connect with each other.

The Jack Kent Cooke Foundation found that many students face transitional issues when they go to college, therefore each student's advisor continues to support and guide them through college. Involving families in the academic journey is seen as an important factor in students' success. Consequently, the foundation has also established a 'parents' weekend', where they assist parents to visit their children's colleges.

In the program's initial year, student attrition was an issue. Out of the first cohort of 50 students, 15 dropped out. It is believed by program coordinators that this was due to the fact that there was no application or interview process. The program now employs a rigorous application process and has a 95% retention rate.

The CTY Scholars Program starts in Year 8 and continues for five years (http://cty.jhu.edu/gifted/jhuctyscholars.html). To be selected for the program, students have to be already attending CTY summer camps and have a family income of $US75,000 or below. Students must also submit a formal application (an essay) and attend an interview with their parents. The program involves a series of three four-hour workshops each year, as well as a one-week business and leadership course. Workshop topics include goal setting, resume building, business and leadership development, life skills, essay writing, public speaking and project planning. In order to assist parents in best supporting their children, separate workshops on university are

designed for participants' parents. Furthermore, all students have access to an academic advisor who provides ongoing academic and social guidance and support. In total, students spend approximately 300 contact hours at CTY programs (camps and workshops) each year. Over the past seven years, 500 students have graduated from the CTY program, 98% of whom have been accepted into university.

COLLEGE SUCCESS FOUNDATION (WASHINGTON STATE AND WASHINGTON D.C.)

The College Success Foundation (**CSF**) (http://www.collegesuccessfoundation.org) has been supporting underserved, low-income African American and Hispanic students for over ten years. Today, there are over 5,000 students in CSF programs.

One of CSF's programs, Higher Education Readiness Opportunity (**HERO**) responds to research that indicates that males disengage from school at higher a rate than females. The HERO program specifically targets African American and Hispanic males and aims to inspire male students to go to college. The program also provides ongoing support to equip them with the skills and tools to succeed at college and beyond. The HERO program operates in schools in both Washington State and Washington, D.C.

HERO is a four-year program that begins in Year 7. The program operates through government schools, whereby each HERO school has a HERO coordinator whose job it is to oversee the program and support the students. There are on average 20 students in a HERO program at each school (HERO operates in 40 middle schools). Students are supported by the HERO coordinator who works with them for 50 minutes once a week. These sessions are built into students' school timetable. Sessions include academic advising, tutoring, leadership development, motivational speakers, college information and visitation sessions, test preparation and academic enrichment. HERO also provides support to students' families to ensure each family has the resources necessary to help their children achieve.

In the first 10 years, 500 HERO students have been awarded Gates Millennium Scholarships to attend College. In December 2010, the program was expanded to serve women, focusing on inspiring them to study in the areas of science, technology, engineering and mathematics.

'UPWARD BOUND' (UNITED STATES)

The **Upward Bound** program (www2.ed.gov/programs/trioupbound/index.html) started in 1992. Similar to the CTY Scholar's program at John Hopkins University, the federally funded Upward Bound program provides academic and social support for first generation high school students, and students from low-income backgrounds. By focusing on first generation and low-income students, Upward Bound aims to increase the rate at which disadvantaged students from minority backgrounds complete secondary education, are eligible for university and graduate from tertiary study.

There are 700 Upward Bound programs across the United States, with a total cost to the Federal Government of $250 million per year. Over 42,000 students participate

in these programs that typically provide around 400 contact hours a year. Students begin the program in Year 9, and receive ongoing support up until and throughout university. During the school year, students attend monthly Saturday seminars, receive weekly tutoring and attend a six-week residential summer program. On each holiday program there is a team of staff dedicated to the academic development and social wellbeing of every student which includes teachers, tutors (often past or present university students and graduates of the Upward Bound program) and counsellors. The impact of an ongoing program with consistent support has meant that many Upward Bound students have undergone significant transformations. In some cases, a number of Upward Bound students have reached university where previously their teachers did not think this was possible.

MATHS AND SCIENCE FOR MINORITY STUDENTS (MS)² PHILLIPS ACADEMY ANDOVER (MASSACHUSETTS)

Mathematics and Science for Minority Students (**(MS)²**) (www.andover.edu/ms2), based in Andover, Massachusetts has been operating for the past 34 years. (MS)² offers a program comprised of three successive five-week residential academic summer camps for African American, Latino and Native American students, commencing in Year 9. The program aims to increase opportunities and possibilities for students. For example, a student from Arizona may grow up unaware of university options outside Arizona. By continually attending (MS)²'s programs, students are encouraged to look broadly and realise the wider range of university options that are available.

Students participate in 350 hours of mathematics, science and English classes each year and receive ongoing college application advice and training, continuous mentoring, excursions to universities and personalised time with a university counsellor. This assists in developing students' aspirations and knowledge about university study. There is also a cultural component to the program called 'cultural sharing', where students come together to showcase a chosen aspect of their culture and history. Students form groups and present a 30-minute presentation on their culture. Throughout the school year, (MS)² staff remain in contact with the students by sending them letters. Staff are also available to help students with their essay writing. In order to help staff keep track of student development, each school sends (MS)² staff their students' transcripts and report cards.

(MS)² has over 1,100 alumni, the vast majority of whom have completed university. Of the students attending the program, 97% have enrolled in four-year college courses, and 50% have enrolled in elite universities, such as Harvard and Yale.

It is worth noting that the success of this program did not happen overnight. Only 13 of the 34 students in their first cohort continued through to the end of the program. Now they have a retention rate of around 95%.

'PROJECT ACHIEVE' (BELIN BLANK CENTRE, IOWA)

In the 1990s the Connie Belin & Jacqueline N. Blank International Center for Gifted Education and Talent Development (Belin-Blank Center) at the University of Iowa (http://www.education.uiowa.edu/belinblank) established **Project ACHIEVE** to provide support for gifted and talented students from low-income backgrounds living in inner-city Chicago. The program aimed to better prepare students for study at the University of Iowa. Students were selected in Year 10 and, over the course of two years, participated in two six-week residential academic programs before attending university. During their time at university, they attended weekly two-hour seminars that focused on how to be successful at university. All students selected for the program were ranked first in their high school classes and all were to be the first in their family to attend university.

Whilst these programs provided over 500 hours, the program had a 50% retention rate, and only 40% of the students that started the program graduated from university. Program organisers reported that in order to be more successful, Project ACHIEVE would need to start earlier when students are in middle school. This is further supported by Hahn and Price's research that identifies early high school as the optimal time for an academic support program to commence.[39] Project AHIEVE organisers also noted that the program should have been more consistent (year-round), rather than only two camps towards the end of high school. For example, the Belin Blank Center's Iowa Talent Program that starts in Year 8 and continues through to university achieves 85% graduation rates. Furthermore, the program provides services for students throughout the academic year, not just in their summer holidays.

SPONSORS FOR EDUCATION OPPORTUNITY (NEW YORK)

> Sponsors for Education Opportunity (**SEO**) (http://www.seo-usa.org/Home) is a New York based program that aims to close the college admissions gap. The program, which has been operating since 1963, supports high potential low-income students by assisting them to graduate from high school with good marks, apply for college and make successful college and subject choices. The program has an average of 300 contact hours per year. This includes three to four Saturday sessions per month, after-school classes and a summer camp program. Students also attend college excursions and campus visits. All classes take place at local area colleges.

The classes are all pre-planned by SEO staff. They are very structured and rigorous and aim to help students increase their basic skills, but also challenge students to think critically. There is a strong focus on maths, critical reading, critical writing, vocabulary, grammar and comprehension. Students are given two to three hours of homework each day. Out of 450 applicants, 80 receive admission into the program. Some argue that the high potential students would go on to university even without the program, but the coordinators maintain that without a program such as SEO, the

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[39] R. Hahn and D. Price "Promise Lost: College-Qualified Students Who Don't Enrol in College" (Institute for Higher Education Policy, n.d.).

students will not have the skills, tools and basic knowledge to succeed while at university.

University Pathway and Scholarship Programs

POSSE FOUNDATION (NEW YORK)

The **Posse Foundation**, (www.possefoundation.org) a scholarship program based in New York, brings cohorts of talented students from public high schools together during their final year of school to participate in facilitated workshops, two hours a week, for eight months (over 75 hours per year). At the end of the eight-month period, all students receive four-year, full-tuition leadership scholarships from Posse's partner institutions of higher education. The program has been running for over 20 years and supports over 500 students each year from a potential 12,500 applicants.

Posse students attend university together at a range of universities around the United States. Once at university, Posse Scholars have a faculty member who acts as a mentor, meeting with them individually and as a cohort several times each month. Older Posse students attending the same university also act as mentors for younger Posse students. The impact of this program on participants has been remarkable, with one Posse alumnus stating, "Posse provided love, support and a sense of understanding that you're always going to have the backing of people that you respect and who will not let you fail."[40] The Posse Foundation has a 90% university graduation rate.

NATIVE AMERICAN HIGH SCHOOL SUMMER PROGRAM (HARVARD MEDICAL SCHOOL, BOSTON)

The Native American High School Summer Program at Harvard University (http://www.mfdp.med.harvard.edu/k12/programs/NativeAmerican.html) was established in 2001 to encourage students from Native American and Hawaiian backgrounds to consider studying undergraduate or postgraduate degrees in biomedical science.

Participating students come from a range of tribes, including Hopi (Arizona), Fort Peck (Montana) and the Wampanoag Tribes of Aquinnah and Mashpee (Massachusetts). All students are selected by their community leaders and are supported on the program by mentors and teachers from their own communities. As most students come from reservations, having the support of mentors from their own communities allows students to feel comfortable and safe in the unfamiliar environment of Harvard University. Participating teachers from Native American communities are also provided with professional development training.

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[40] Carela, in R. Salandy and T. Hanson, *The Posse Foundation's 2009 Annual Report: Celebrating Twenty Years* (The Posse Foundation, Inc, 2009), 13, http://www.possefoundation.org/m/posse-annual-report-09.pdf

Students participate in three weeks of classes, designed and delivered by Harvard Medical School Faculty, Native American educators and guest speakers. Topics include biology, psychology, addiction and abuse studies. Ultimately, the program allows students to experience life at university, such as attending lectures, living in dorms, doing your own laundry and eating at the cafeteria. The aim is for participants to understand what it is like to be an independent student and learner.

The first program in 2001 was attended by nine students. Today over 200 students have gone through the program (approximately 28 each year). The majority of these students have continued on to study at university.

CONCLUSION

The current situation in Australia

As we celebrate the achievements of individuals like Tim Goodwin, Paul Gray, Rebecca Richards and Christian Thompson, it is important to remember that at present these individuals are for the most part the exception. Part 1 above clearly indicates the pipeline crisis in Indigenous education in Australia. Too few Aboriginal and Torres Strait Islander students finish Year 12 with the subjects and marks necessary to be eligible for university, which leads to too few students completing university. Instead of a steady, strong stream of students passing through the pipeline to university, there is barely more than a trickle. Some of the key reasons for this are:[41]

- The current focus on low-performing students

Many of the educational programs for Aboriginal and Torres Strait Islander students are focused on attaining basic literacy and numeracy levels, particularly during early years of schooling. The only programs for high achievers that start early and have sustained ongoing support for a number of years, including hundreds of contact hours per year, are in the area of sports.

- First generation experience

Many Aboriginal and Torres Strait Islanders are first generation students. Due to the fact that their parents or other family members have not been to university, these students may not have the educational support or 'cultural capital' needed to successfully navigate the university environment. In fact, studies have shown that first generation students are less likely to reach university and, if they do, are less likely to complete their studies, than the broader student population.[42]

- Support networks

As described above, research indicates that students are four times as likely to enrol in university if their friends do.[43] There is a need to create a strong cohort of Aboriginal

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[41] It must be acknowledged that these factors are not exhaustive; there is a complex array of factors at play,

which influence the uptake of university study by Aboriginal and Torres Strait Islander students. See *supra note* 26

[42] Quinn and Thomas, *First Generation Entry into Higher Education: An International Study, supra note* 28 at 77.

[43] Bedsworth, Colby, and Doctor, *Reclaiming the American Dream, supra note* 35 at 11.

and Torres Strait Islander students who can support each other throughout school and on to university.

Part 3 outlines just some of the hundreds of academic support programs that have been operating in the United States for many years. Although not all of these programs have been successful for every participating student, overall significant progress has been made. Taken together, these programs illustrate the collective commitment required from government, families, communities, students and universities to make a real impact on the educational outcomes of minority students from disadvantaged backgrounds. Unlike the United States, it appears that Australia does not have comparable programs for high potential Aboriginal and Torres Strait Islander students that include the key characteristics of successful programs in the United States. We are not arguing that Australia should imitate one particular program model from the United States, rather we are suggesting that there are many key aspects that can make a program successful. As mentioned above in Part 3 above, these include:

- a significant number of contact hours with students (usually a minimum of 200 hours per annum, although often programs involve at least twice as many hours)
- support which starts early (starting before students are 15 years of age)
- continued support over a long-term period (at least three years).

Research conducted in Australia also indicates that these characteristics are essential for the success of those programs aiming to improve higher education outcomes for disadvantaged students.[44] Gale *et al*. similarly emphasise the need for early, long-term and sustained programs, which involve collaboration with local communities, schools, universities and education departments. Craven et al. have further suggested that such programs should raise aspirations about tertiary study, in addition to preparing students for the university admissions process and the study demands of university life.[45]

In order to address higher education access and outcomes for Aboriginal and Torres Strait Islander students, more attention needs to be paid to the transition from high school to university. There is an urgent need to move beyond basic levels of attainment and focus on students who are performing at or above the national average in early high school. These students need to be challenged and supported

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[44] T. Gale, S. Sellar, S. Parker, R. Hattam, B. Comber, D. Tranter, et al., Interventions early in school as a means to improve higher education outcomes for disadvantaged (particularly low SES) students): A design and evaluation matrix for university outreach in schools (DEEWR, 2009).

[45] A. Parente, R.G. Craven, G. Munns, et al. Indigenous students aspirations: an in-depth analysis of Indigenous students' career aspirations and factors that impact on their formulation (NZARE AARE, 2003), Auckland, New Zealand.

over a number of years through programs that instill in them an aspiration to achieve excellence.

Immediate investment in sustained educational programs that realise the academic potential of Aboriginal and Torres Strait Islander high school students is crucial for supporting these students to successfully complete Year 12 and excel at university.

APPENDIX A
United States meetings

General academic support programs and residential programs

Ariel Community Academy (Chicago, Illinois)

Belin Blank Center for Gifted Education and Talent, University of Iowa (Iowa)

Centre for Talented Youth at Johns Hopkins University (Baltimore, Maryland)

College Success Foundation (Washington State and Washington D.C.)

Cristo Rey Network (Chicago, Illinois)

Ford Foundation International Fellowships Program (International)

Gates Millennium Scholars Program (Across the United States)

Gear Up Conference (Vancouver, Washington – spoke with representatives from Montana, Arizona, Washington and Oregon)

Jack Kent Cooke Foundation (Washington D.C.)

Math and Science for Minority Students (MS)2 Phillips Academy Andover (Massachusetts)

MESA (Oregon)

Posse Foundation (New York)

Prep for Prep (New York)

Project EXCITE, Centre for Talent Development, Northwestern Education (Chicago, Illinois)

Sponsors for Educational Opportunity (New York)

Steppingstone Foundation (Boston, Massachusetts)

Upward Bound, St Norbert College (Across the United States – visited St Norbert College, Wisconsin)

White House Initiative on Educational Excellence for Hispanic Americans (Washington D.C.)

Native American focus

American Indian Center (Chicago, Illinois)

College of Education, University of Oregon (Eugene, Oregon)

College of Menominee Nation, Green Bay Campus (Wisconsin)

Education Northwest (Portland, Oregon)

Harvard Project on American Indian Economic Development (Cambridge, (Massachusetts)

National Congress of American Indians (Washington D.C.)

National Indian Education Association (Washington D.C.)

Native American High School Summer Program, Harvard Medical School (Massachusetts)

Native American Political Leadership program, George Washington University (Washington D.C.)

Salmon Camps (Oregon)

Washington Internships for Native Students (WINS), American University (Washington D.C.)

White House Initiative on Tribal Colleges and Universities (Washington D.C.)

APPENDIX B
Figures with gender breakdown of university completions[46]

Mature age undergraduate completions

Figure 2.1: Average annual Aboriginal and Torres Strait Islander mature age undergraduate completions – females, 2004-09

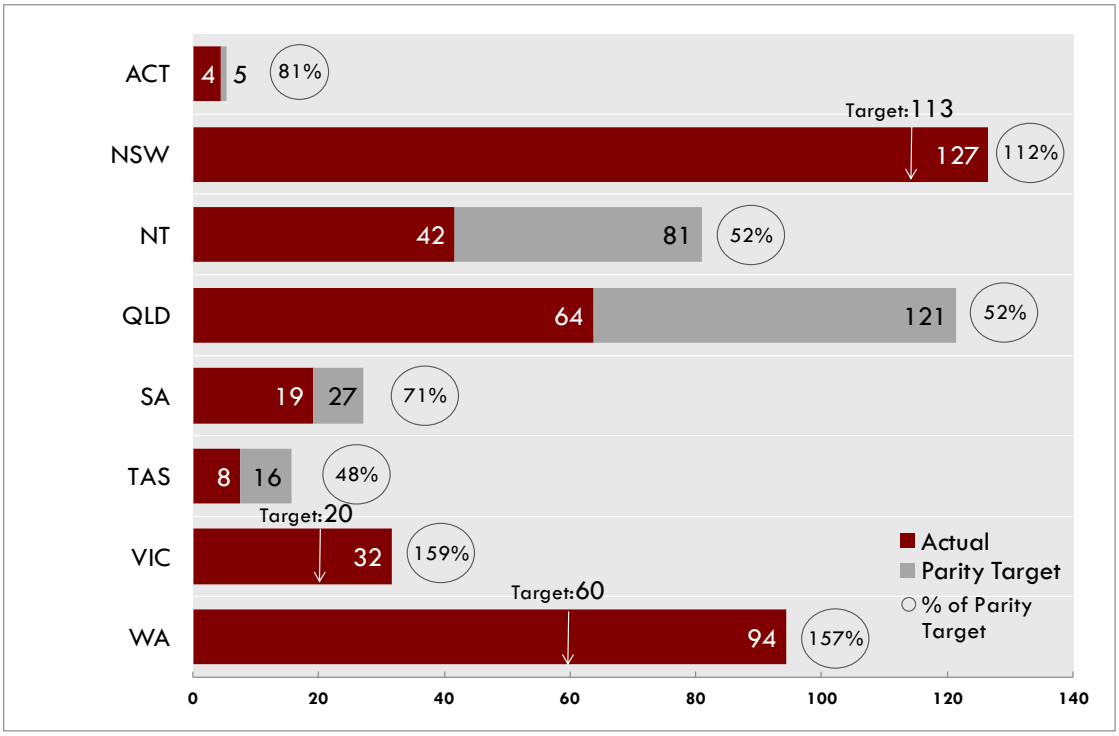
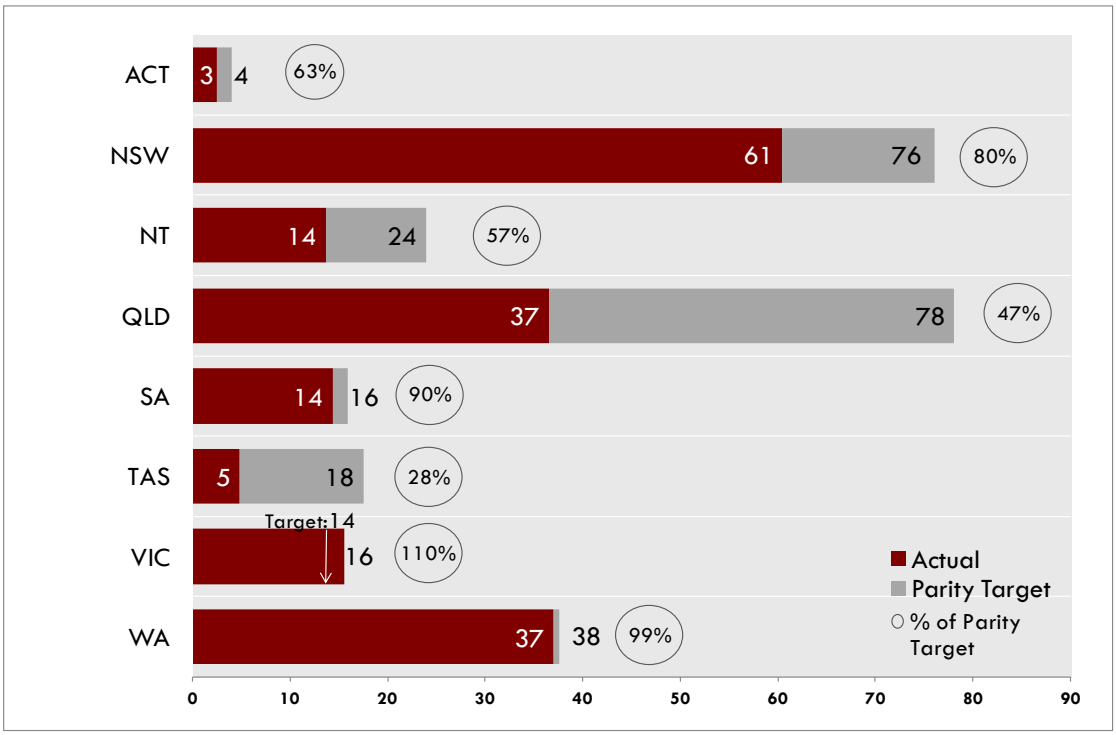


Figure 2.2: Average annual Aboriginal and Torres Strait Islander mature age undergraduate completions – males, 2004-09

[46] Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).



Direct pathway undergraduate completions

Figure 4.1: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions – females, 2004-09

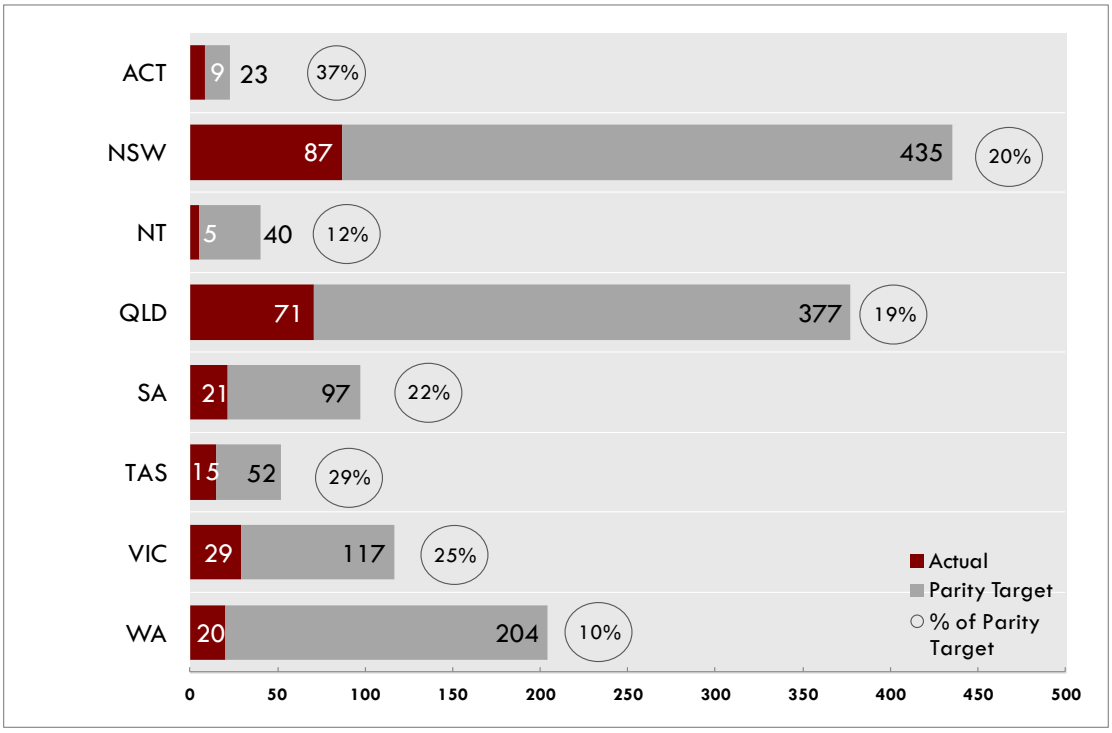
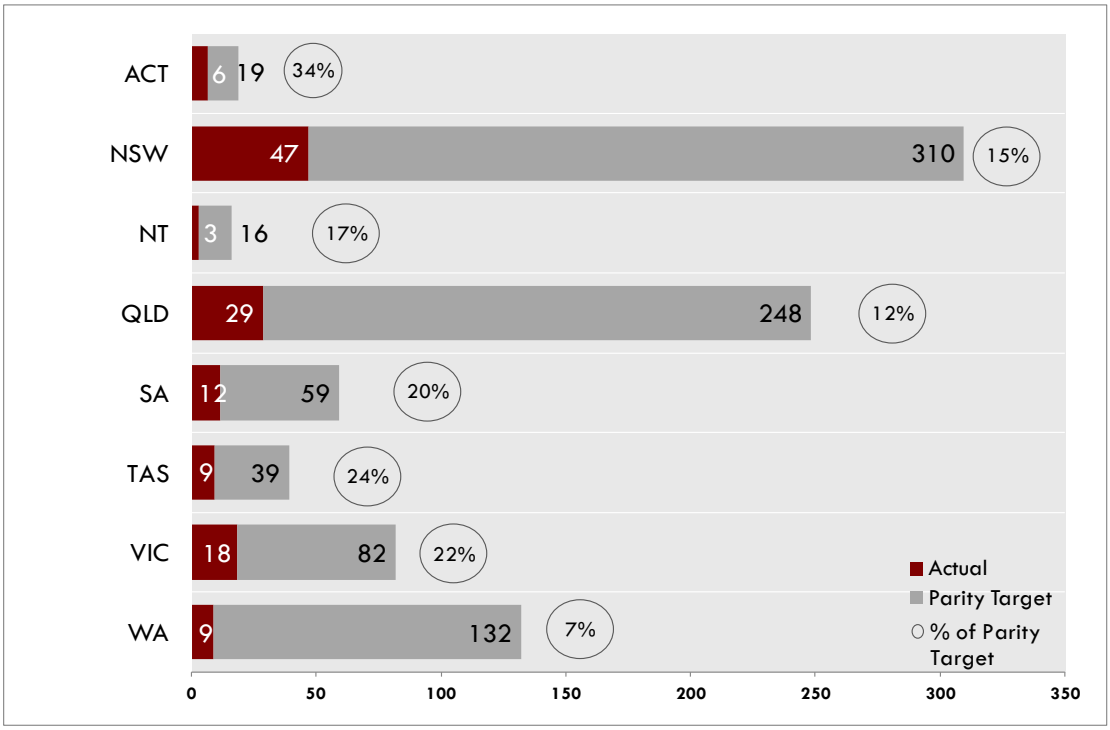


Figure 4.2: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions – males, 2004-09



Mature age postgraduate completions

Figure 7.1: Average annual Aboriginal and Torres Strait Islander mature age postgraduate completions – females, 2004-09

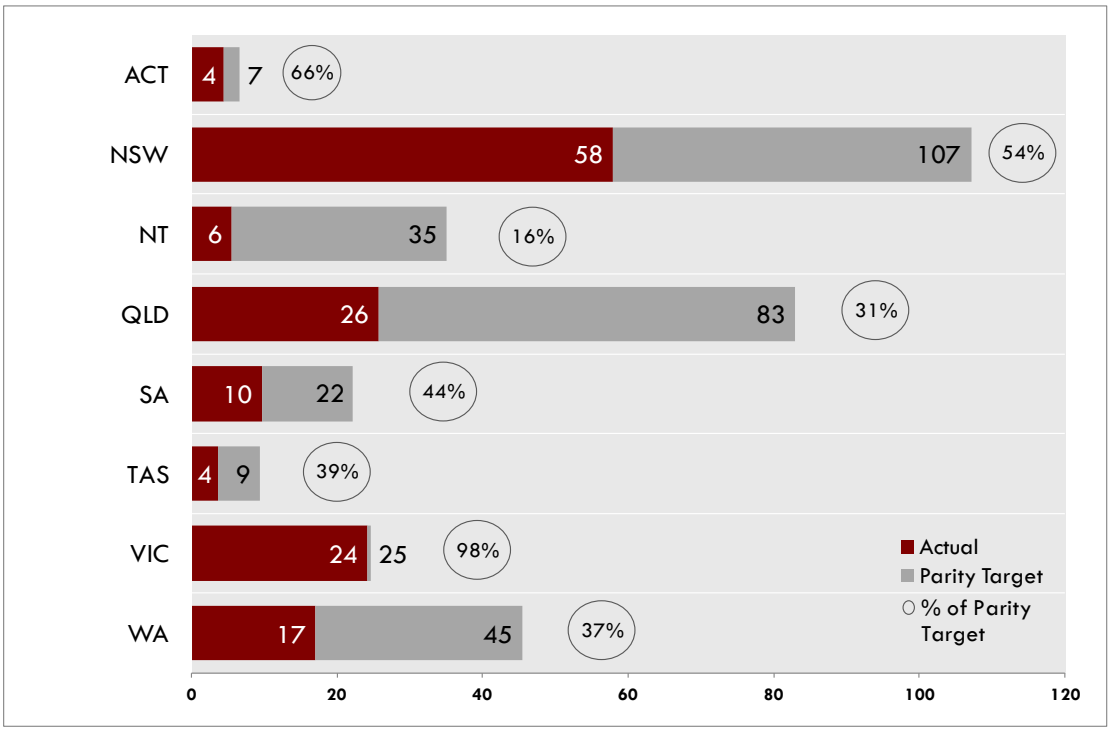
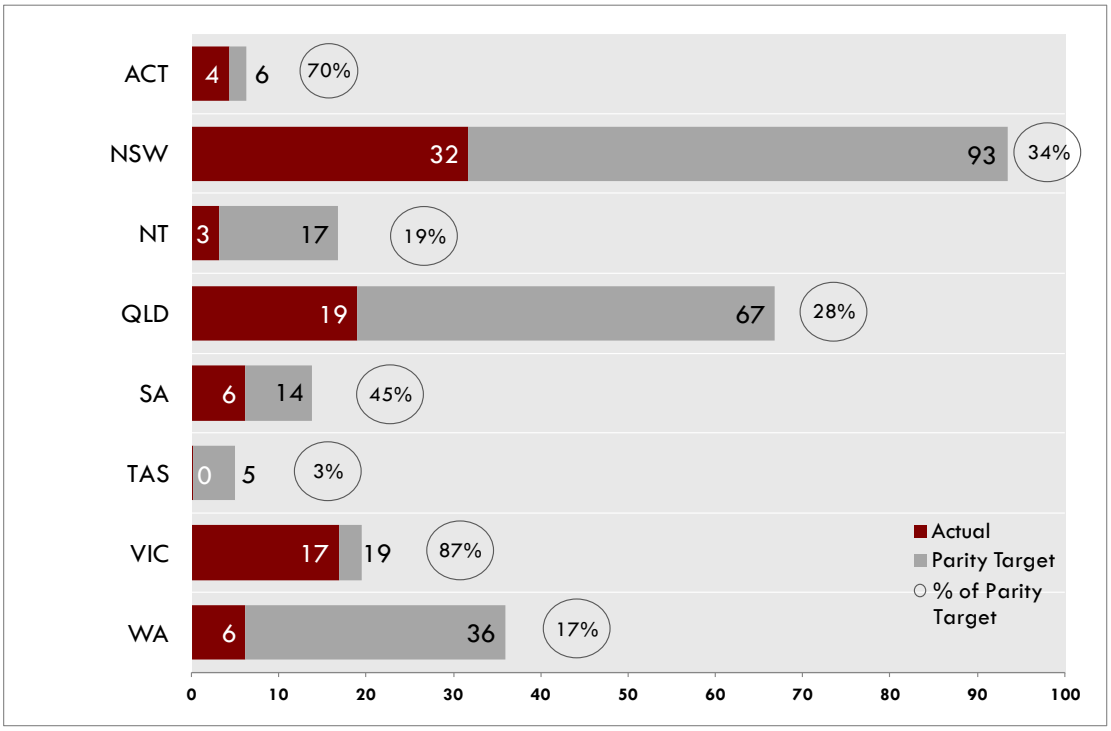


Figure 7.2: Average annual Aboriginal and Torres Strait Islander mature age postgraduate completions – males, 2004-09



Direct pathway postgraduate completions

Figure 9.1: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions – females, 2004-09

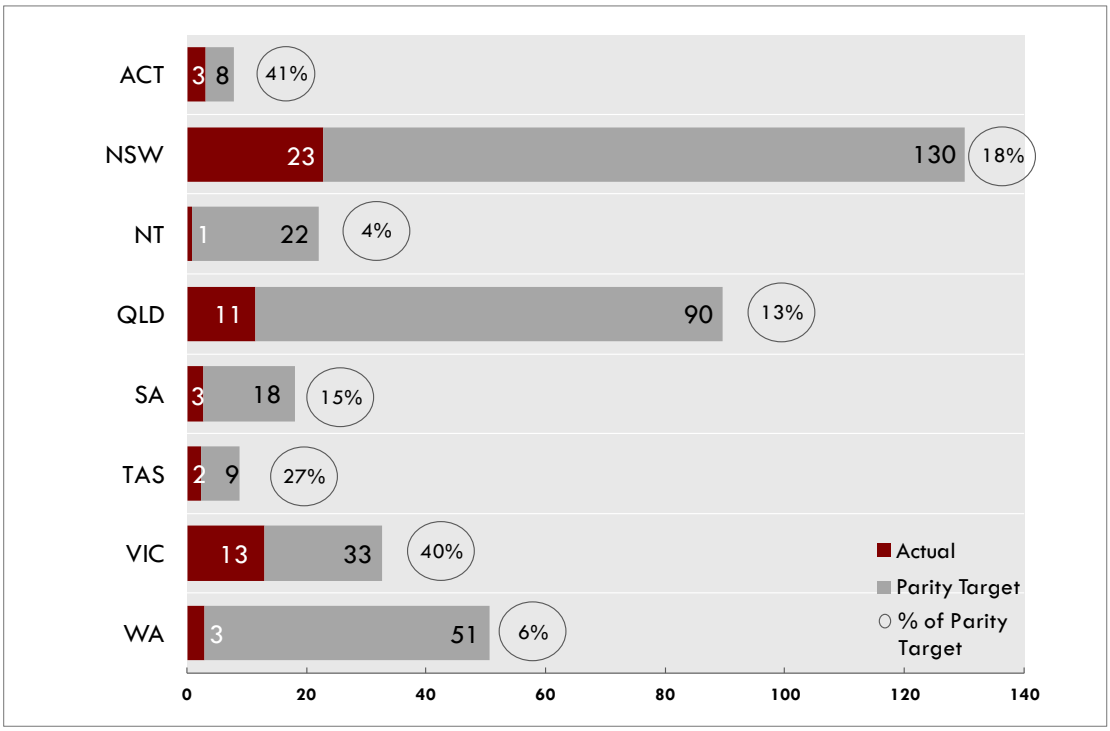
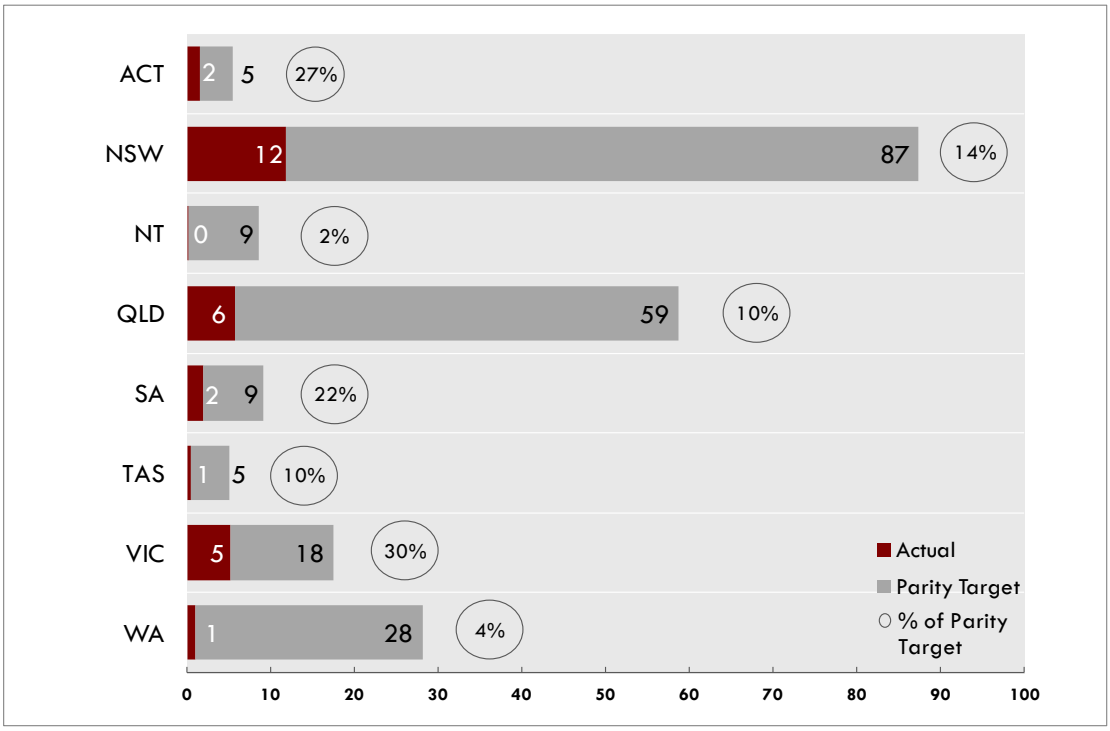


Figure 9.2: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions – males, 2004-09



APPENDIX C
Tables of direct pathway completions by broad field of education[47]

Direct pathway undergraduate completions

Table 5.1: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions in Agriculture, Environmental and Related Studies, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	0.2	0.6	30%
NSW	1.8	12.4	15%
NT	0.2	0.6	26%
QLD	2.2	12.7	17%
SA	0.8	4.4	19%
TAS	0.8	3.2	26%
VIC	1.7	3.4	49%
WA	0.7	8.2	8%
National	8.3	51.3	16%

Table 5.2: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions in Architecture and Building, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	0.2	1.3	13%
NSW	1.3	18.7	7%
NT	0.0	1.6	0%

[47] Aurora analysis of data from University Statistics Unit, Higher Education Group (DEEWR, 2009).

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
QLD	2.0	15.6	13%
SA	1.3	4.6	29%
TAS	0.7	2.2	30%
VIC	1.3	4.7	28%
WA	0.3	7.7	4%
National	7.2	65.8	11%

Table 5.3: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions in Creative Arts, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	2.2	4.3	50%
NSW	15.2	87.7	17%
NT	0.5	2.8	18%
QLD	14.5	73.7	20%
SA	6.7	14.4	46%
TAS	1.8	5.8	31%
VIC	5.3	16.8	32%
WA	3.0	34.7	9%
National	49.2	274.0	18%

Table 5.4: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions in Education, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	1.3	1.9	70%
NSW	28.3	71.0	40%
NT	4.2	11.4	36%

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
QLD	20.5	76.3	27%
SA	3.8	15.8	24%
TAS	4.3	10.0	43%
VIC	2.8	12.7	22%
WA	4.3	30.1	14%
National	76.0	253.3	30%

Table 5.5: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions in Engineering and Related Technologies, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	0.5	2.1	24%
NSW	3.3	40.6	8%
NT	0.0	1.7	0%
QLD	2.3	39.7	6%
SA	0.8	8.9	9%
TAS	2.2	7.8	28%
VIC	1.3	14.1	9%
WA	1.5	25.9	6%
National	12.0	166.8	7%

Table 5.6: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions in Health, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	0.2	1.0	17%
NSW	23.7	93.7	25%
NT	0.7	8.1	8%

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
QLD	17.8	95.3	19%
SA	6.3	9.0	23%
TAS	3.5	14.3	24%
VIC	8.2	25.9	31%
WA	5.0	54.7	9%
National	67.8	373.6	18%

Table 5.7: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions in Information Technology, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	0.2	1.9	9%
NSW	2.2	29.9	7%
NT	0.0	3.2	0%
QLD	2.8	27.7	10%
SA	0.5	4.3	12%
TAS	0.8	5.0	17%
VIC	0.7	10.8	6%
WA	0.2	12.7	1%
National	7.3	117.4	6%

Table 5.8: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions in Management and Commerce, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	2.3	10.4	23%
NSW	13.0	176.4	7%
NT	0.5	10.5	5%

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
QLD	14.8	142.0	10%
SA	3.8	26.9	14%
TAS	3.0	14.1	21%
VIC	6.7	45.9	15%
WA	2.3	78.8	3%
National	47.0	604.4	8%

Table 5.9: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions in Natural and Physical Sciences, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	1.0	6.3	16%
NSW	8.0	84.3	9%
NT	1.0	7.2	14%
QLD	6.8	73.1	9%
SA	2.7	19.1	14%
TAS	2.2	9.9	22%
VIC	4.7	25.6	18%
WA	1.7	48.2	3%
National	28.0	324.7	9%

Table 5.10: Average annual Aboriginal and Torres Strait Islander direct pathway undergraduate completions in Society and Culture, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	7.7	16.9	45%
NSW	42.7	185.6	23%
NT	1.5	13.2	11%

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
QLD	22.5	127.2	18%
SA	7.8	39.1	20%
TAS	6.2	24.6	25%
VIC	16.3	49.9	33%
WA	11.3	65.9	17%
National	117.3	653.7	18%

Direct pathway postgraduate completions

Table 10.1: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions in Agriculture, Environmental and Related Studies, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	0.0	0.1	0%
NSW	0.0	3.3	0%
NT	0.0	1.0	0%
QLD	0.2	2.7	6%
SA	0.0	0.6	0%
TAS	0.2	1.4	12%
VIC	0.2	0.6	28%
WA	0.0	1.6	0%
National	0.5	11.1	4%

Table 10.2: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions in Architecture and Building, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	0.0	0.2	0%

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
NSW	0.5	6.2	8%
NT	0.0	0.0	N/A
QLD	0.2	4.5	4%
SA	0.3	1.2	27%
TAS	0.2	0.5	35%
VIC	0.1	1.1	45%
WA	0.0	1.4	0%
National	1.7	17.7	9%

Table 10.3: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions in Creative Arts, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	0.2	0.3	54%
NSW	2.3	11.0	21%
NT	0.0	0.0	N/A
QLD	0.3	7.4	4%
SA	0.2	1.0	16%
TAS	0.3	0.9	37%
VIC	2.0	3.0	66%
WA	0.2	3.1	5%
National	5.5	34.4	16%

Table 10.4: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions in Education, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	0.3	1.1	29%

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
NSW	8.0	32.8	24%
NT	0.7	13.8	5%
QLD	5.2	24.9	21%
SA	0.5	3.6	14%
TAS	0.2	0.4	43%
VIC	5.7	12.3	46%
WA	1.5	21.9	7%
National	22.5	137.7	16%

Table 10.5: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions in Engineering and Related Technologies, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	0.0	0.3	0%
NSW	0.2	8.5	2%
NT	0.0	0.4	0%
QLD	0.0	5.9	0%
SA	0.0	1.1	0%
TAS	0.0	0.3	0%
VIC	0.3	1.7	20%
WA	0.0	2.4	0%
National	0.5	24.3	2%

Table 10.6: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions in Health, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	0.7	0.7	93%

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
NSW	7.8	26.5	30%
NT	0.0	4.8	0%
QLD	3.3	24.2	14%
SA	2.2	7.0	31%
TAS	0.8	3.1	27%
VIC	3.5	8.4	42%
WA	0.5	14.8	3%
National	19.5	106.9	18%

Table 10.7: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions in Information Technology, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	0.0	0.3	0%
NSW	0.8	5.4	16%
NT	0.0	0.4	0%
QLD	0.0	5.3	0%
SA	0.0	0.6	0%
TAS	0.2	0.5	33%
VIC	0.3	2.2	15%
WA	0.0	2.6	0%
National	1.3	21.9	6%

Table 10.8: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions in Management and Commerce, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	1.0	1.9	53%

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
NSW	4.7	56.1	8%
NT	0.0	2.6	0%
QLD	3.5	33.0	11%
SA	1.2	5.6	21%
TAS	0.2	1.3	13%
VIC	1.8	10.0	18%
WA	0.3	16.4	2%
National	12.8	150.2	9%

Table 10.9: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions in Natural and Physical Sciences, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	0.0	0.0	0%
NSW	0.7	8.7	8%
NT	0.0	0.0	0%
QLD	0.5	8.0	6%
SA	0.0	1.6	0%
TAS	0.3	1.0	34%
VIC	0.5	2.6	19%
WA	0.0	4.4	0%
National	2.0	34.2	6%

Table 10.10: Average annual Aboriginal and Torres Strait Islander direct pathway postgraduate completions in Society and Culture, 2004-09

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
ACT	2.5	6.9	36%

State/Territory	Actual completions	Parity Target	% of Actual completions over Parity Target
NSW	9.7	59.1	16%
NT	0.3	6.7	5%
QLD	3.8	32.5	12%
SA	0.3	4.9	7%
TAS	0.5	4.4	11%
VIC	3.3	8.2	41%
WA	1.3	10.3	13%
National	22.2	159.7	14%

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