

Impacts and Outcomes for Students

Alan Olsen explores the comparative academic performance of international and Australian students, using measures such as progression and retention, including international comparisons. The editors wish to acknowledge the contribution of data regarding academic performance from the Group of 8 (Go8) universities.

Background

A study of the comparative academic performance in 2007 of the following three cohorts of students in Go8 universities in Australia was undertaken in 2008

- Australian students on campus in Australia
- international students on campus in Australia
- international students offshore, resident outside Australia but studying at a Go8 university, including those at offshore campuses and those international students studying by distance or online.

All Go8 universities participated: The Australian National University, Monash University, The University of Adelaide, The University of Melbourne, The University of New South Wales, The University of Queensland, The University of Sydney and The University of Western Australia.

The study used student progress rates to measure and compare academic performance. Student progress rates are generated when students complete subjects successfully. The student progress rate is the ratio of successfully completed student load to total assessed student load, simply the ratio of subjects passed to subjects attempted. The study calculated mean student progress rates for groups of students and compared these means between groups, allowing comparison of the relative performance of groups of students.

The definitive Australian study in this area is the Dobson, Sharma and Calderon 1998 paper **The Comparative Performance of Overseas and Australian Undergraduates**¹, which provided an extensive background on the use of the student progress rate methodology. In that study, international bachelor degree students in 1996 passed 84.3% of what they attempted and outperformed Australian bachelor degree students who passed 79.3% of what they attempted.

In 2006, Olsen, Burgess and Sharma published **The Comparative Academic Performance of International Students**², again using the student progress rate methodology. In that study of 338,445 full time students at all levels in 22 Australian universities in 2003, international students performed as well as Australian students. The 73,929 international students passed 88.8% of what they attempted; the 264,516 Australian students passed 89.4% of what they attempted.

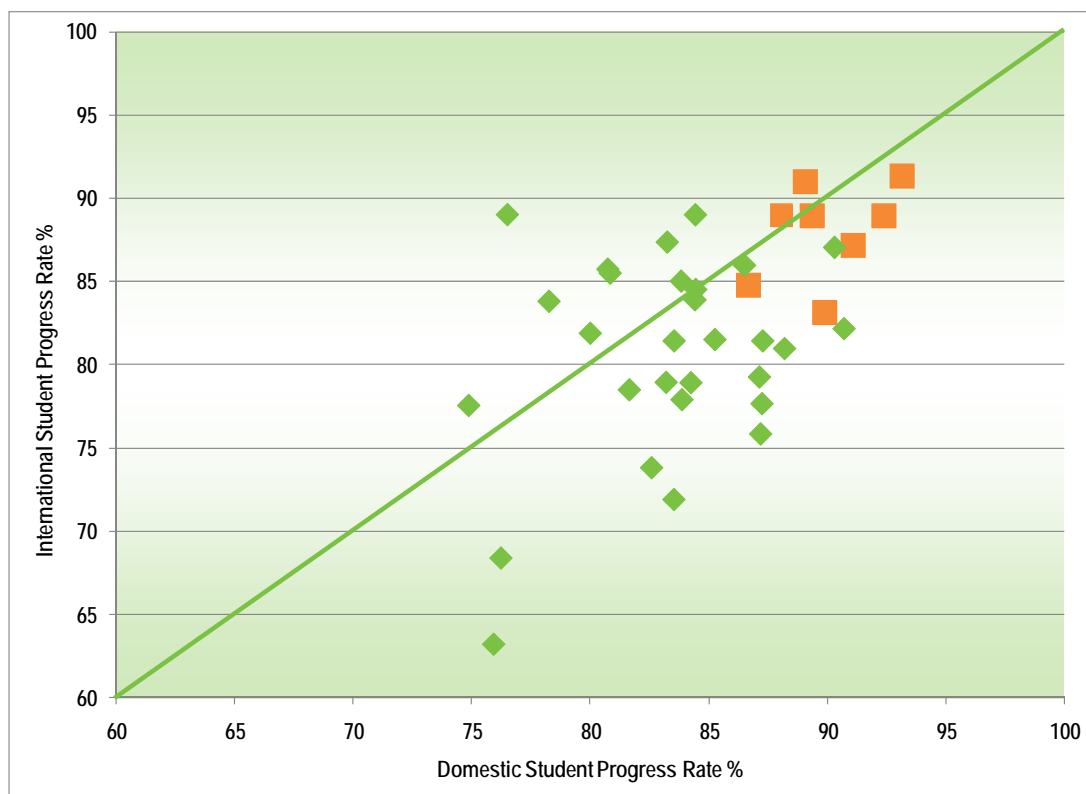
¹ Dobson I, Sharma R and Calderon A 1998

² Olsen A, Burgess Z and Sharma R 2006

In 2007 the then Australian Department of Education, Science and Training (DEST) published **Appendix 4. Attrition Progress and Retention Rates for commencing bachelor students** as part of **Students 2006 [full year]: selected higher education statistics**³. This put into the public domain for the first time information for each university on the comparative academic performance of international and Australian students, but specifically the population was commencing bachelor degree students.

The DEST data enabled the comparison of student progress rates for international and Australian commencing bachelor degree students in 2006 for each university, with the Go8 universities highlighted as in Chart 1.1 **Student Progress Rates by Universities 2006**.

Chart 1.1
Student Progress Rates by Universities 2006



Like the 1998 and 2006 studies, this study uses the student progress rate methodology. It involves two enhancements, in that it excludes postgraduate research students and adds a third cohort, offshore students.

The study includes international and Australian full time students in undergraduate and postgraduate coursework programs who were enrolled in 2007. Specifically it includes study abroad and exchange students.

³ Department of Education, Science and Training 2007

The study excludes part time students, because there are no international part time students with which to compare Australian part time students, and excludes postgraduate research students on the ground that student progress units for research students are just about meaningless.

The study compares student progress rates in 2007 for a total population of 195,694 students in the eight Go8 universities.

Overall Student Progress Rate

In Go8 universities in Australia in 2007, 195,694 students passed 91.8% of what they attempted. Their student progress rate was 91.8%.

Across the eight Go8 universities, student progress rates ranged from 89.6% to 94.4%. The average was 91.8%, the median 91.8%. Overall, international students on campus in Australia passed 91.6% of what they attempted, international students offshore 89.2% and Australian students 92.0%.

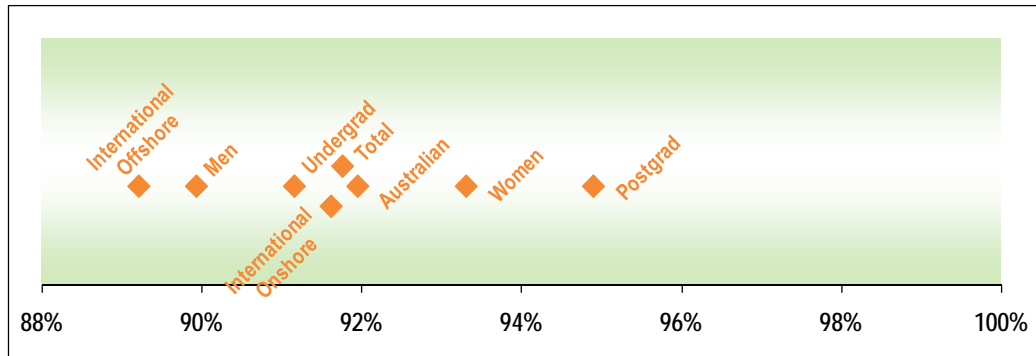
Specifically, in 2007 the 46,812 international students on campus in Australia passed 91.6% of what they attempted, and did just as well as the 140,903 Australian students, who passed 92.0%. This is consistent with the 2006 study where, across 22 universities, the 73,929 international students on campus in Australia in 2003 passed 88.8% of what they attempted, and did just as well as the 264,516 Australian students, who passed 89.4%.

In this study, in terms of student progress rates

- women did better than men
- postgraduate coursework students did better than undergraduates
- international students on campus in Australia did as well as Australian students and did better than international students offshore.

Chart 1.2 **Student Progress Rates by Groups** compares the student progress rates for these seven groups with the total population.

Chart 1.2
Student Progress Rates by Groups



Gender

The population included 105,987 female students and 89,707 male students, as in Table 1.1
Gender: Population.

Table 1.1
Gender: Population

	Female	Male	Total
International Onshore	25,082	21,770	46,852
International Offshore	4,318	3,621	7,939
Australian	76,587	64,316	140,903
Total	105,987	89,707	195,694

In total, 54% of students in the study were women, consistent with the fact that 55% of students in Australian universities in 2007 were women.

International female students onshore passed 93.1% of what they attempted and did better than international male students onshore (89.9%). International female students offshore passed 90.9% of what they attempted and did better than international male students offshore (87.2%). Australian female students passed 93.5% of what they attempted and did better than Australian male students (90.1%).

Overall, female students passed 93.3% of what they attempted and did better than male students (89.9%), as in Table 1.2 **Gender: Student Progress Rates**.

Table 1.2
Gender: Student Progress Rates

	Female	Male	Total
International Onshore	93.1%	89.9%	91.6%
International Offshore	90.9%	87.2%	89.2%
Australian	93.5%	90.1%	92.0%
Total	93.3%	89.9%	91.8%

This gender difference was consistent with the 2006 study, where female students passed 91.6% of what they attempted, and male students 86.5%.

Level of Study

The population in the study included 164,214 undergraduate students and 31,480 postgraduate coursework students, as in Table 1.3 **Level of Study: Population**.

Table 1.3
Level of Study: Population

	Undergraduate	Postgraduate Coursework	Total
International Onshore	31,133	15,719	46,852
International Offshore	6,711	1,228	7,939
Australian	126,370	14,533	140,903
Total	164,214	31,480	195,694

34% of international students onshore were postgraduate coursework students, 15% of international students offshore were postgraduate coursework students and 10% of Australian students were postgraduate coursework students. In total, 16% of students in the study were postgraduate coursework students.

International postgraduate coursework students onshore passed 95.0% of what they attempted and did better than international undergraduate students onshore (89.9%). International postgraduate coursework students offshore passed 95.3% of what they attempted and did better than international undergraduate students offshore (88.1%). Australian postgraduate coursework students passed 94.8% of what they attempted and did better than Australian undergraduate students (91.6%).

Overall, postgraduate coursework students passed 94.9% of what they attempted and did better than undergraduate students (91.2%), as in Table 1.4 **Level of Study: Student Progress Rates**.

Table 1.4
Level of Study: Student Progress Rates

	Undergraduate	Postgraduate Coursework	Total
International Onshore	89.9%	95.0%	91.6%
International Offshore	88.1%	95.3%	89.2%
Australian	91.6%	94.8%	92.0%
Total	91.2%	94.9%	91.8%

International and Australian Students

Overall, international students on campus in Australia (91.6%) did as well as Australian students (92.0%) and did better than international students offshore (89.2%), as in Table 1.5
International and Australian Students: Student Progress Rates.

Table 1.5
International and Australian Students: Student Progress Rates

	Population	Student Progress Rate
International Onshore	46,852	91.6%
International Offshore	7,939	89.2%
Australian	140,903	92.0%
Total	195,694	91.8%

Broad Field of Education

Student progress rates were compared for students in Natural and Physical Sciences, Information Technology, Engineering and Related Technologies, Architecture and Building, Agriculture, Environmental and Related Studies, Health, Education, Management and Commerce, Society and Culture and Creative Arts⁴.

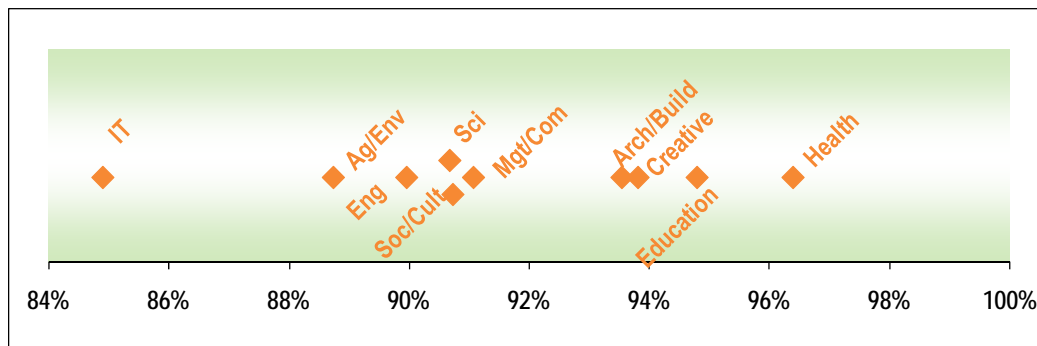
Student progress rates varied across these ten Broad Fields of Education as in Table 1.6 and Chart 1.3 **Broad Field of Education: Student Progress Rates.**

⁴ There is an eleventh field, Food, Hospitality and Personal Services, but there were no students in this field in Go8 in 2007

Table 1.6
Broad Field of Education: Student Progress Rates

Field	Population	Student Progress Rate
Management/Commerce	44,365	91.1%
Society/Culture	43,627	90.7%
Health	28,006	96.4%
Science	21,998	90.7%
Engineering	21,349	90.0%
Creative Arts	11,160	93.8%
Education	7,779	94.8%
Architecture/Build	6,158	93.5%
IT	5,035	84.9%
Agriculture/Env	3,557	88.7%

Chart 1.3
Broad Field of Education: Student Progress Rates



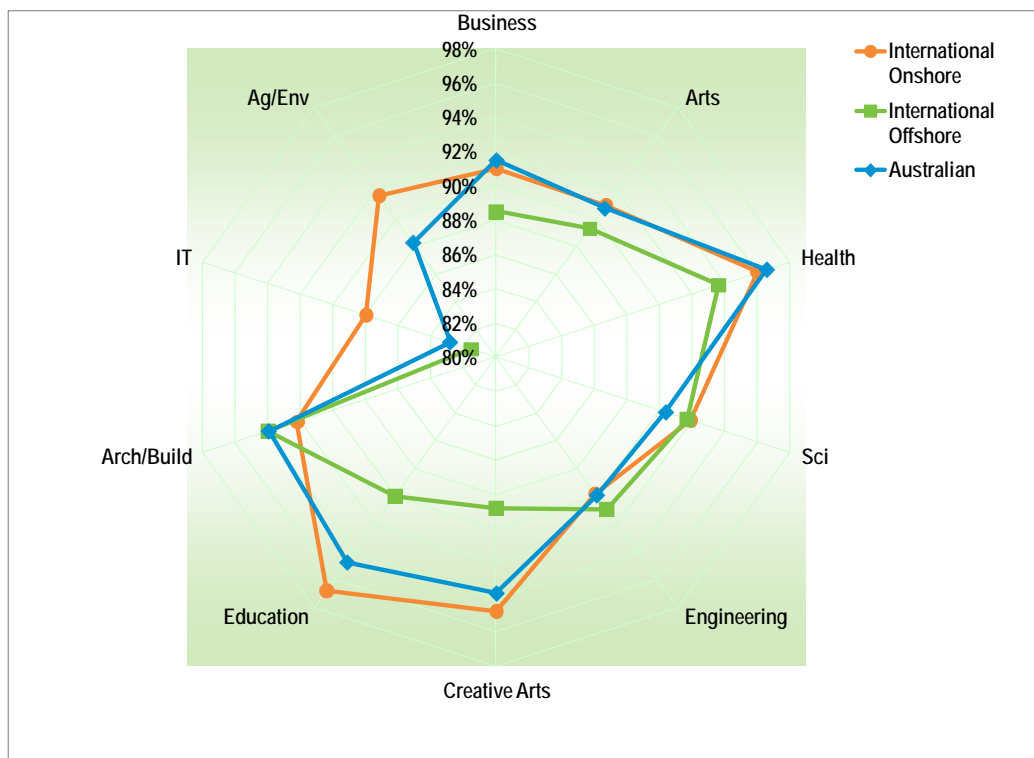
Overall, across all fields of education, Go8 students passed 91.8% of what they attempted. Students in Health, Education, Creative Arts, and Architecture/Building did better than this, and did better than students in Management/Commerce, Society/Culture, Science, Engineering, Agriculture/Environment and IT.

Across these ten Broad Fields of Education, student progress rates were compared between international students onshore, international students offshore and Australian students, as in Table 1.7 and Chart 1.4 **Broad Fields of Education: International and Australian Students**. The performance of one international offshore student in Agriculture/Environment was not included in the table or the chart.

Table 1.7
Broad Fields of Education: International and Australian Students

Field	Population			Student Progress Rate		
	Int Onshore	Int Offshore	Australian	Int Onshore	Int Offshore	Australian
Mgt/Com	19,090	3,039	22,236	91.0%	88.5%	91.5%
Soc/Culture	5,876	805	36,946	90.9%	89.3%	90.7%
Health	4,455	825	22,726	96.1%	93.6%	96.6%
Science	3,318	1,130	17,550	91.9%	91.7%	90.4%
Engineering	5,456	912	14,981	89.8%	91.0%	90.0%
Creative	1,782	282	9,096	94.8%	88.8%	93.8%
Education	857	358	6,564	96.8%	90.0%	94.8%
Arch/Build	1,473	51	4,634	92.2%	94.0%	94.0%
IT	2,125	426	2,484	88.0%	81.6%	82.9%
Ag/Env	512		3,044	91.6%		88.3%

Chart 1.4
Broad Fields of Education: International and Australian Students



Home Countries

The Go8 universities reported international country codes for 46,438 international students on campus in Australia. The students came from 179 countries, with 90 countries each the source of fewer than 10 students.

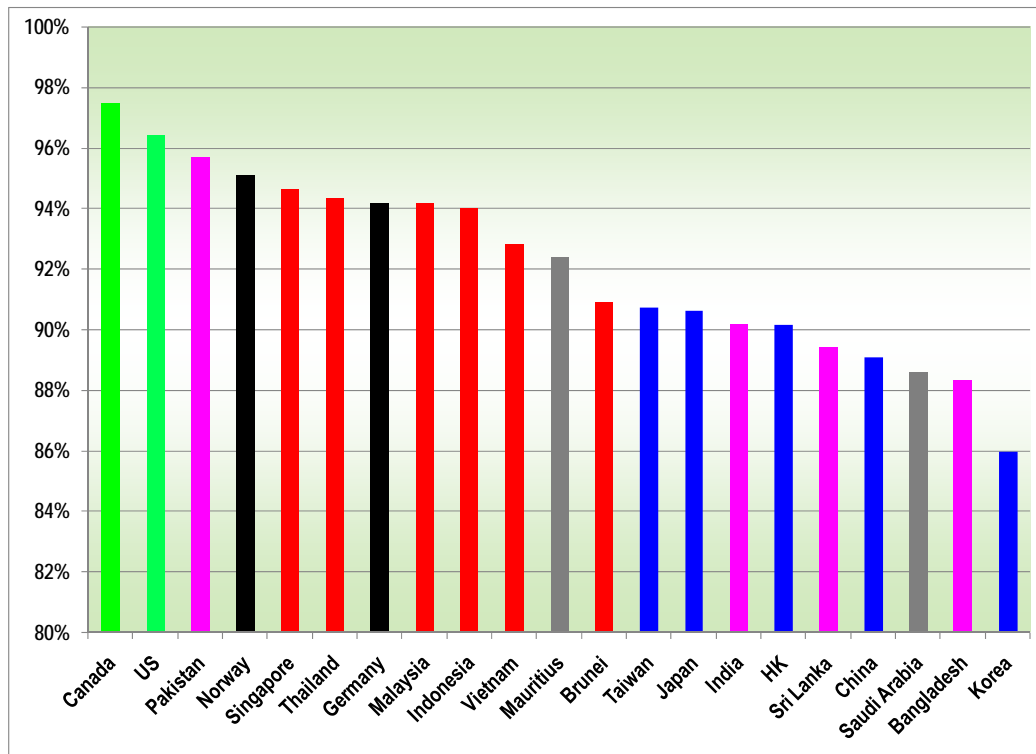
There were 21 home countries with 200 students or more in Go8 universities, and these 21 countries made up 91% of the international student population, on campus in Australia, as in Table 1.8 **Home Country of International Students Onshore: Student Progress Rates**.

Table 1.8
Home Country of International Students Onshore: Student Progress Rates

	Population	Student Progress Rate
China	14,291	89.1%
Malaysia	5,724	94.2%
Singapore	4,231	94.7%
HK	3,515	90.1%
Indonesia	2,953	94.0%
US	2,211	96.4%
India	1,738	90.2%
Korea	1,427	85.9%
Vietnam	895	92.8%
Thailand	858	94.4%
Japan	739	90.6%
Taiwan	699	90.7%
Canada	637	97.5%
Germany	464	94.2%
Sri Lanka	395	89.4%
Brunei	284	90.9%
Pakistan	268	95.7%
Mauritius	258	92.4%
Norway	237	95.1%
Saudi Arabia	214	88.6%
Bangladesh	200	88.3%

Chart 1.5 **Home Country of International Students Onshore: Student Progress Rates** on the following page displays the student progress rates for these 21 countries, with some colour coding into regions.

Chart 1.5
Home Country of International Students Onshore: Student Progress Rates



Staying the Course

Forthcoming research on attrition and retention in Australian universities⁵ also enables some comparisons between academic outcomes of international and Australian students.

The nouns retention and attrition do not lend themselves readily to active verbs. In the forthcoming report, students who are counted in retention figures *stay the course*, students who are counted in attrition figures *drop out*. The expression *staying the course*, used in the title, is taken from the UK National Audit Office 2007 report **Staying the Course: The Retention of Students in Higher Education**⁶. The House of Commons Committee of Public Accounts kept this expression in its 2008 report **Staying the Course: The Retention of Students on Higher Education Courses**⁷.

The concepts of attrition and retention need some clarity.

⁵ Olsen A 2008a

⁶ National Audit Office 2007

⁷ House of Commons Committee of Public Accounts 2008

In this forthcoming study, retention simply is the inverse of attrition, and 2006 is the base year, as follows

Attrition = $(T-C-G)/T$ (the proportion of students in year 2006 who neither completed nor returned in year 2007)

Retention = Inverse of Attrition = $(C+G)/T$ (the proportion of students in year 2006 who either completed or returned in year 2007)

where

T is Total number of students enrolled in 2006

C is number of students in population T who continued in 2007

G is number of students in population T who completed in 2006

example

If, of 100 students in 2006, 30 graduated in 2006 and 60 continued in 2007

Attrition = $(100-60-30)/100 = 10\%$

Retention = Inverse of Attrition = $(60+30)/100 = 90\%$.

In this forthcoming study of 485,983 students in 32 Australian universities in 2006, the retention figure was 89.5%; the attrition figure was 10.5%. 89.5% of students in 2006 stayed the course, 10.5% dropped out.

This study of retention and attrition of Australian and international students was carried out with the cooperation of the Australian Universities International Directors' Forum (AUIDF), the forum of the International Directors in the 38 universities that are members of Universities Australia. 32 universities chose to participate in the study.

The base student population included both international and Australian students who were enrolled in an award course in at least one reporting period in 2006, who were studying full time on campus in Australia, and excluding postgraduate research students. The study excluded offshore students, external students, part time students, postgraduate research students and non-award students. Specifically, study abroad and exchange students were excluded as non-award students.

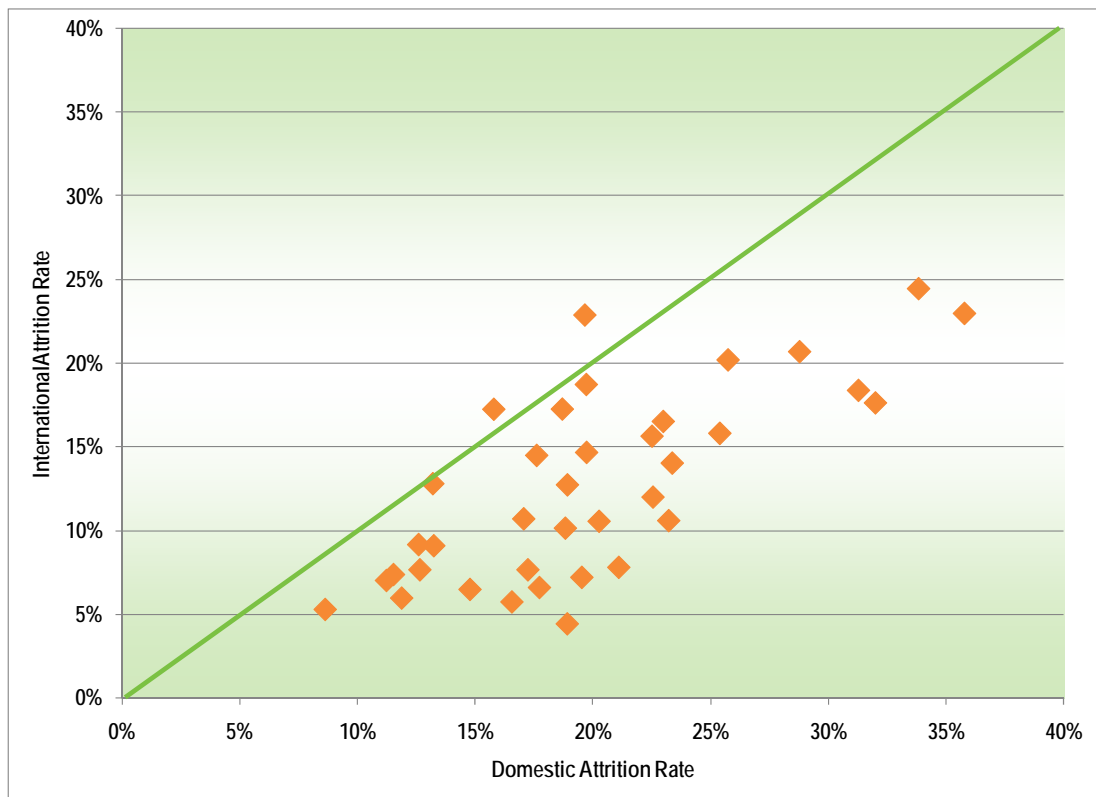
In 2007 the then DEST published **Appendix 4. Attrition Progress and Retention Rates for commencing bachelor students** as part of **Students 2006 [full year]: selected higher education statistics**⁸. This put into the public domain for the first time information for each university on the comparative attrition rates of international and Australian students, but specifically the population was commencing bachelor degree students.

The DEST data enabled the comparison of attrition rates for international and Australian commencing bachelor degree students in 2005 for each university, as in Chart 1.6 **Attrition Rates by Universities 2005**.

Chart 1.6

⁸ Department of Education, Science and Training 2007

Attrition Rates by Universities 2005

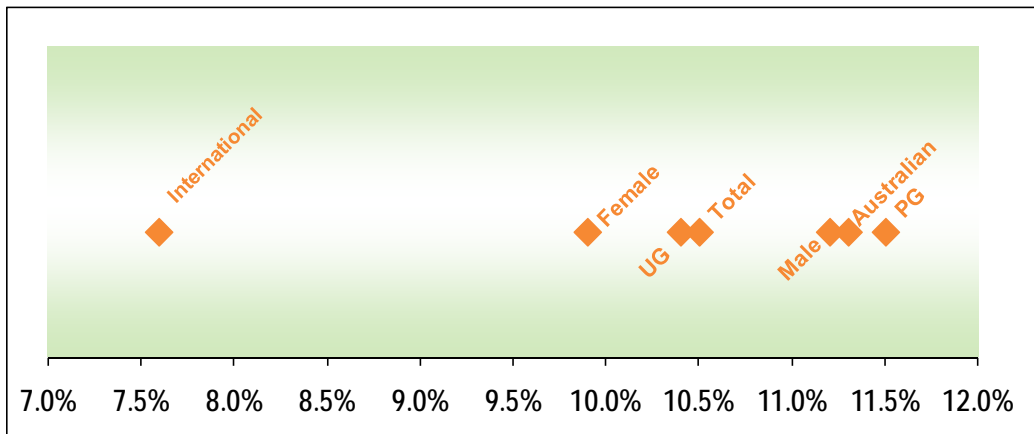


In the 2008 study of 485,983 students in 32 Australian universities in 2006

- women stayed the course better than men
- undergraduates did better than postgraduate coursework students
- international students stayed the course better than Australian students.

Chart 1.7 **Attrition Rates by Groups** compares the attrition rates for these six groups with the total population.

Chart 1.7
Attrition Rates by Groups



Overall, 7.6% of the 102,686 international students dropped out, staying the course better than the 383,297 Australian students, 11.3% dropped out, as in Table 1.9 **International and Australian Students: Attrition**.

Table 1.9
International and Australian Students: Attrition

	Population	Attrition
International	102,686	7.6%
Australian	383,297	11.3%
Total	485,983	10.5%

Across the population, 99.8% of students were aged between 17 and 60. Overall, 10.5% of students dropped out.

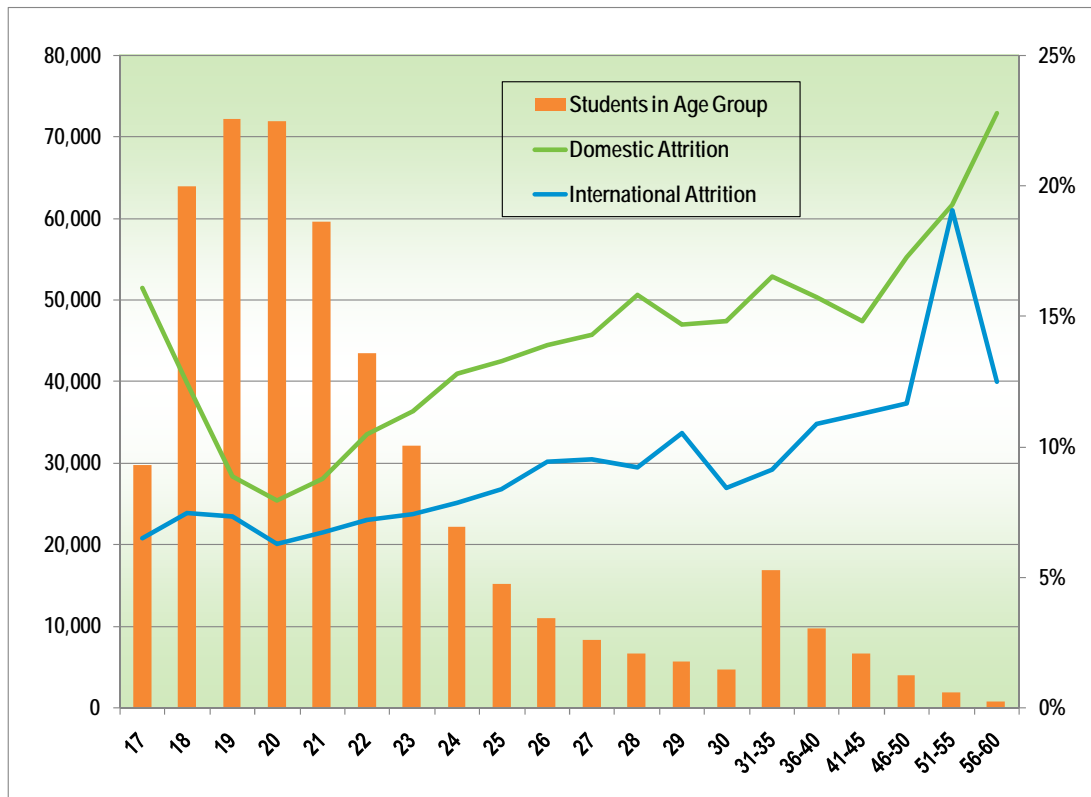
In terms of staying the course, students aged 19 to 23, 57.5% of the overall student population, did better than this.

15.8% of 17 year olds (6.1% of the student population) and 12.1% of 18 year olds (13.1% of the student population) dropped out, suggesting that slightly older students stay the course better, perhaps benefiting from experiences such as gap years. But this study did not distinguish between freshers and sophomores.

From 23 years old on, attrition rates increase with age.

Attrition rates across age groups were compared between international and Australian students, as in Chart 1.8 **Age: International and Australian Students**. At every age, international students stayed the course better than Australian students.

Chart 1.8
Age: International and Australian Students



For the 32 universities, attrition rates for international students were compared with attrition rates for Australian students. In 27 universities, international students stayed the course better than Australian students and in five universities Australian students stayed the course better than international students.

International Comparisons

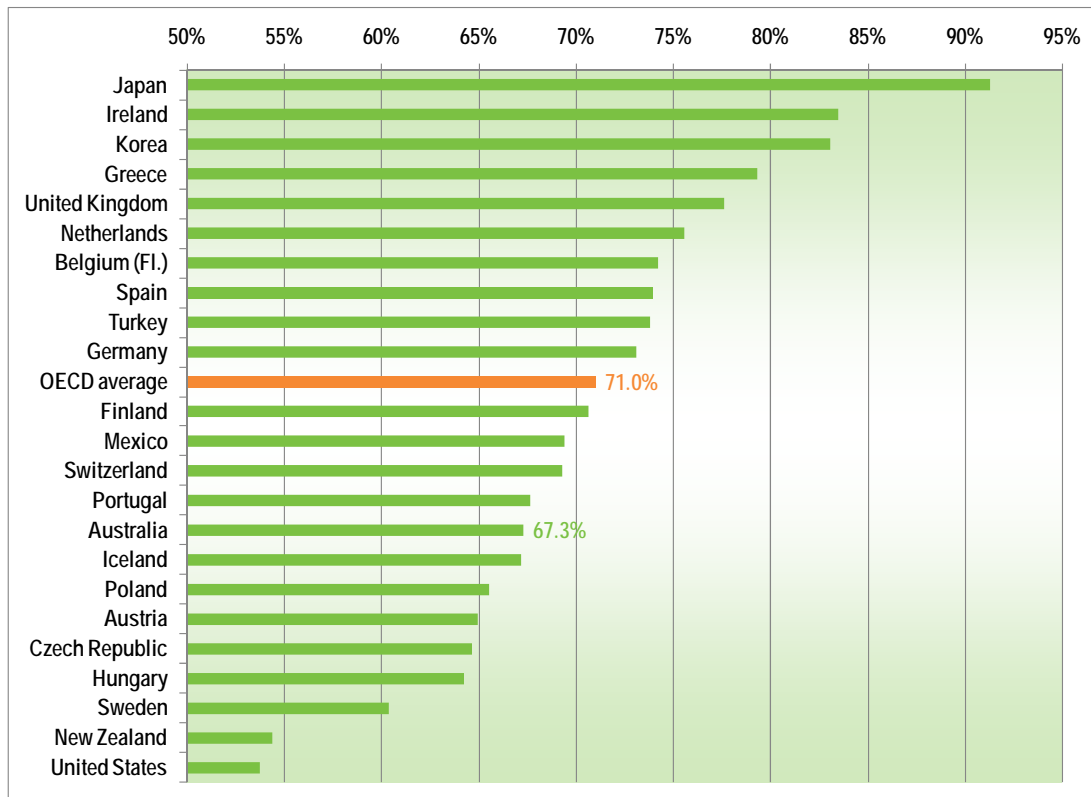
International comparisons are more readily available for retention than for student progress.

The Organisation for Economic Cooperation and Development (OECD) defines survival rates for university undergraduate students as representing the proportion of those who enter such a program who go on to graduate from such a program.

OECD in **Education at a Glance 2007: OECD Indicators**⁹ compared survival rates in 2004. Against an OECD average of 71.0%, the figure for Australia was 67.3%, as in Chart 1.9 **OECD Survival Rates**.

⁹ Organisation for Economic Cooperation and Development 2007

Chart 1.9
OECD Survival Rates



The OECD survival rate for US in 2004 was 53.7%. In the Summer 2008 issue of **International Higher Education**, Arthur M Hauptman¹⁰ commented on participation and persistence in US

Another traditional means of comparing OECD countries is persistence rates—the proportion of entering students who complete their programs. Periodic longitudinal surveys of students entering universities in the United States suggest that about half of them receive a degree within six years. For community college students, the degree completion rate in the United States is much lower—certainly less than 20 percent and perhaps less than 10 percent, as many of the students who enroll do not plan to receive a degree. The view is that the United States has tended to be below the average of many other countries in terms of persistence, in part because as one of the first of the mass or universal systems in the world, the United States has adhered to the policy of letting more and more people try higher education and not worrying as much about how many complete their programs.

The OECD survival rate for UK in 2004 was 77.7%. The UK National Audit Office¹¹ in 2007 reported on two measures of retention

- the completion rate, the proportion of starters in a year who continue their studies until they obtain their qualification, with no more than one consecutive year out of higher education (As higher education courses take years to complete, an expected completion rate is

¹⁰ Hauptman A M 2008

¹¹ National Audit Office 2007

calculated by the Higher Education Statistics Agency. Data to check whether the expected rates are close to the actual completion rates has only recently become available.)

- the continuation rate, the more immediate measure of retention, the proportion of an institution's intake which is enrolled in higher education in the year following their first entry to higher education.

The National Audit Office concluded

From the published performance indicators, of the 256,000 full-time, first-degree students starting higher education in 2004-05, 91.6 per cent continued into their second year. Also, the projected outcomes table shows that 78.1 per cent are expected to qualify with a first degree, with a further 2.2 per cent expected to obtain a lower qualification, and 5.8 per cent expected to transfer to another institution to continue their studies.

The OECD survival rate for New Zealand in 2004 was 54.4%. In the March 2005 issue of the Journal of Higher Education Policy and Management, David Scott¹² reported research on completion rates for domestic undergraduates in New Zealand. Of domestic students commencing bachelor degrees at public providers in 1998, 46% had completed successfully five years later, by 2002, and 7% were still studying.

The Gender Agenda

A comment on the extent to which *girls do better than boys*, and on the importance of taking gender into account in research on outcomes of higher education, may be appropriate.

In Go8 in 2007, female students passed 93.3% of what they attempted and did better than male students (89.9%). This gender difference was consistent with the 2006 study of 22 universities in 2003, where female students passed 91.6% of what they attempted; male students 86.5%.

In 32 universities in Australia in 2006, 9.9% of female students dropped out, staying the course better than male students; 11.2% dropped out.

From the 2005 study in New Zealand¹³

Women are more likely to complete a tertiary qualification successfully than men. For degree-level qualifications and below, the rate at which men complete is 6% to 9% lower than the rate for women.

In terms of outgoing international student mobility, a study of 37 universities in Australia in 2007¹⁴ found that women dominated all types of international study experiences. The 37 universities reported that 57.5% of students with international study experiences in 2007 were women. This is similar to the gender gap in US, where 65.5% of all study abroad students in 2005/06 were women.

¹² Scott D 2005

¹³ Scott D 2005

¹⁴ Olsen A 2008b

Girls do better than boys to the extent that, in any research on outcomes of higher education, it may be that a cohort dominated by women will do better than a cohort dominated by men. For this reason, gender needs to be on the agenda in any research on academic outcomes.

Outcomes

Go8 is a coalition of leading Australian universities, intensive in research and comprehensive in general and professional education. In this elite group of Australian universities, 195,694 students in 2007 passed 91.8% of what they attempted.

Specifically, in 2007 the 46,812 international students on campus in Australia passed 91.6% of what they attempted, and did just as well as the 140,903 Australian students, who passed 92.0%. This is consistent with the 2006 study where, across 22 universities, the 73,929 international students on campus in Australia in 2003 passed 88.8% of what they attempted, and did just as well as the 264,516 Australian students, who passed 89.4%.

In 2007, 7,939 international students offshore, resident outside Australia but studying at a Go8 university, including those at offshore campuses and those international students studying by distance or online, passed 89.2% of what they attempted.

Go8 universities are attracting talented international students to Australia, are setting entry standards at about the right levels and are achieving successful outcomes in educating these international students. In Go8 universities, international students in Australia do just as well as Australian students in key fields such as Management and Commerce, Society and Culture, Health and Engineering, and do a little bit better in Science.

International students in Australia also have successful outcomes in terms of staying the course. Of 102,686 international students in 32 Australian universities in 2006, 92.4% completed or continued, staying the course better than the 88.7% of 383,279 Australian students who completed or continued.