

CHANGE AND TRANSFORMATION IN STUDENT TRANSFER FROM AUSTRALIAN VOCATIONAL TO HIGHER EDUCATION

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Abstract

This paper reports an examination of a special higher education statistical report on students admitted in 2008 to higher education institutions on the basis of a vocational education and training award program by higher education institution, field of education and socio economic status. It finds that public universities admitted a higher proportion of students on the basis of a vocational education qualification than private universities and colleges. While Tafe institutes admitted a reasonably high 19% of their higher education students on the basis of a vocational education and training qualification, this was much less than the proportion of their higher education students they admitted on the basis of secondary education (54%), and even less than the proportion of students they admitted on the basis of mature age qualification (20%). This suggests that there is scope for Tafe institutes to strengthen their internal ladders of educational opportunity.

Vocational education transfers were most important in the higher education fields of nursing (22% of commencing students), education (13%) and information technology (12%). Upward transfers were least important in the natural and physical sciences (3.5%) and engineering and related technologies (6%). Some 20% of vocational education transfers were from a low socio economic status background, but nursing (24%) and education (22%) provided more opportunities for students from a low socio economic status background. Conversely, fewer opportunities are provided in architecture and building (12%) and the creative arts (14%).

There are considerable variations in the proportions of students higher education institutions admit on the basis of vocational qualifications, even in a relatively homogenous field such as nursing. Some of this variation may be explained by different treatment of admissions data, but much remains unexplained.

Introduction

In the US the upward transfer of students from community colleges to four-year colleges and universities is mostly thought to reflect the success of community colleges in fulfilling an important part of their role. Thus, a recent report (Smith and Miller, 2009) on promising practices promoting transfer among low income and first generation students was a detailed study of six exemplary community colleges in Texas. Previous US studies have sought to identify factors that explain differences in transfer rates among community colleges (Wassmer, Moore and Shulock, 2003: 21), the features of community college education that result in some transfer students having lower grade point averages than students admitted directly into a university (Carlan and Byxbe, 2000), what community colleges may do to increase upward transfer (Striplin, 1999; Dougherty, 1992) and how community colleges sustain their transfer function in the face of pressures to diversify their functions such as by increasing their vocational emphasis (Shaw and London, 1995).

Transfer from vocational to higher education emerged as an issue more recently in the UK and hence there is less literature on this issue. But UK research is more likely to accept Gelin's (1999: 11) argument for British Columbia that 'Effective transfer is a function of both sending and receiving institutional policies, practices, and culture. Using transfer rates to measure the effectiveness of the sending institution leaves out one half of the equation' (Hefce, 2007; Hoelscher et al, 2008). This is reinforced by the transfer from vocational to higher education often being within the same mixed sector institution (Parry, 2003; Gallacher, 2003) which in turn has stimulated UK interest in mixed sector institutions (Garrod and Macfarlane, 2009; Bathmaker et al, 2008).

The Australian literature on upward student transfer is more likely to be the converse of the US literature, concentrating on receiving rather than the sending institutions (Moodie, 2005, 2008; Curtis, 2006; Wheelahan, 2009). This is partly because public vocational institutions have had no formal role in transferring students to higher education since at least 1992 because it is thought this may divert them from training workers for employment and because some feel that such a role is demeaning (White, 2009).

This paper follows the Australian tradition of considering higher education institution's role in upward student transfer. It first considers transfer rates by different types of higher education institution, for the first time in the author's knowledge reporting rates for private higher education institutions and Technical and Further Education (Tafe) institutes. It then considers transfer rates by field of education and concludes by examining transfer rates for nursing in some detail. Nursing is interesting because higher education institutions admit an unusually high proportion of bachelor of nursing students on the basis of vocational education qualifications, which may inform other fields.

Variations by institution type

As has been observed before, universities of different types admit distinctly different proportions of undergraduate students on the basis of vocational education qualifications. The table below groups universities by the members of the Australian Technology Network universities which were institutes of technology for much of their history and the similar Swinburne University of Technology, the new generation of universities established as universities after 1988, those established from the mid 1960s to the mid 1970s, the universities which are mostly based in rural areas and the members of the Group of Eight universities established over 50 years ago in the mainland capital cities which have big research expenditure. (The members of each university type are listed in table 7, the last in this paper.)

Also shown are the proportions of commencing undergraduate students institutions admit from a low socio economic status background. Again, this has been reported before. We see here that there is not a strong correlation between the proportion of undergraduates a university admits on the basis of a vocational education qualification and the proportion of undergraduates it admits from a low socio economic status background – the correlation is a very modest 0.17. As we shall see later, this is affected much more strongly by field of education.

Table 1 reports new data on the proportion of undergraduates that private providers admit on the basis of a vocational qualification and the proportion they admit from a low socio economic status background. The 32 private providers which admitted more than a handful of undergraduate students in 2008 are grouped into 8 creative arts colleges such as JMC Academy (878 commencing bachelor students) and Qantm Pty Ltd (318), 10 private religious colleges such as Avondale College (334) and Tabor College Adelaide (239), 5 private business colleges such as Billy Blue (219) and the Melbourne Institute of Business and Technology (288), and 4 private health colleges such as the Australian College of Natural Medicine (1,465) and Nature Care College (184 commencing undergraduates). Finally, there is a group of 5 other private colleges such as the Australian College of Physical Education (386) and the Australian Institute of Public Safety (135).

It will be noted that private colleges admit a lower proportion of undergraduate students on the basis of a vocational qualification than all university types except the Group of Eight. It will also be noted that private colleges broadly do not admit a higher proportion of students from a low socio economic status background than public universities. This is very different from the US, where private for profit colleges admit a rather higher proportion of students from a low socio economic status background than public institutions (Lederman, 2009).

It will be further noted that while Tafe institutes admit a higher proportion of students on the basis of vocational qualifications than other institutions, they admit a lower proportion of students from a low socio economic status background than all other types of institutions except for the Group of Eight universities and private art colleges.

Table 1: proportion of domestic bachelor students admitted on the basis of a vocational qualification and proportion from a low socio economic status background by type of institution, 2008 (%)

Institutional type	Basis of VET	Low SES
ATN-like universities	14	16
New generation universities	13	16
Universities established in the 1960s - 70s	10	19
Rural universities	9	26
Group of Eight universities	2	11
<i>All universities</i>	9	17
Private creative arts colleges	5	10
Private religious colleges	4	19
Private business colleges	4	12
Private health colleges	0	18
Other private colleges	1	15
<i>All private colleges</i>	3	14
<i>All Tafe institutes</i>	19	12
All institutions	9	17

Source: Doherty (2009).

The figures we considered in table 1 were averages or means for each type of institution. Thus the universities established in the 1960s - 70s admitted an average of 10% of their undergraduates on the basis of a vocational qualification. We can get an idea of the variation within institution types by examining their standard deviation. The standard deviation for the proportion of undergraduates admitted on the basis of vocational education by the 1960s-70s universities was 2, or about a third of the mean. The standard deviation for the Group of Eight universities was also 2, but since this is the same as the mean there is much greater variation within Group of Eight universities than the 1960s-70s universities.

A formal comparison of the mean and standard deviation and hence of variation in values is the coefficient of variation. This is the standard deviation divided by the mean and multiplied by 100 percent -

$$(1) \quad \text{Coefficient of variation} = \frac{\text{Standard deviation}}{\text{Mean}} \times \frac{100}{1}$$

A coefficient of variation of less than 50 indicates very little dispersion, a coefficient of around 100 indicates moderate dispersion and a coefficient of more than 100 indicates very considerable dispersion in values.

Table 2 shows the mean, standard deviation and coefficient of variation in the proportion of undergraduates admitted on the basis of a vocational qualification by institution type. This shows that there is considerable variation within the Group of Eight universities since it has a reasonably high coefficient of variation. We also observe considerable variation between religious and creative arts colleges.

Table 2: mean, standard deviation and variation of proportion of domestic bachelor students admitted on the basis of a vocational education qualification by type higher education institution, 2008 (%)

Type of institution	Mean	Standard deviation	Coefficient of variation
ATN-like universities	14	8	62
New generation universities	13	7	54
Universities established in the 1960s - 70s	10	3	29
Rural universities	9	6	66
Group of Eight universities	2	2	106
<i>All universities</i>	9	7	72
Private creative arts colleges	5	8	167
Private religious colleges	4	5	112
Private business colleges	4	2	38
Private health colleges	0	0	0
Other private colleges	1	1	94
<i>All private colleges</i>	3	5	169
All	9	7	72

Of particular interest are the Tafe institutes that offer baccalaureates. Only 3 Tafe institutes reported useable data on the basis of admission of their undergraduate students in 2008 - Box Hill Institute of Tafe, the Gordon Institute of Tafe and Northern Melbourne Institute of Tafe. These reported small intakes in 2008 so they are considered together. It will be noted that Tafe institutes admitted a smaller proportion of their bachelor students on the basis of a higher education qualification than all higher education institutions, but higher proportions on the basis of vocational education and mature age qualifications. Even so, the Tafe institute that admitted the highest proportion of students on the basis of a vocational qualification admitted only 24% on this basis, less than Swinburne University (27%) and equal to Victoria University (24%). Charles Sturt University (22%) and RMIT (21%) also exceeded the Tafe average for proportion of students admitted on the basis of a vocational qualification.

Table 3: proportion of domestic undergraduate students admitted by basis of admission, Tafe institutes and all higher education institutions, 2008 (%)

Institute	Total students	Basis of admission of commencing undergrads (%)				
		Higher	Secondary	Vocational	Mature age	Other
Box Hill Tafe	187	4	67	19	9	1
Northern Melb	76	3	28	24	32	12
Gordon Institute	21	0	24	0	67	10
<i>All Tafes</i>	<i>284</i>	<i>4</i>	<i>54</i>	<i>19</i>	<i>20</i>	<i>3</i>
All higher ed	206,939	23	45	9	6	17

Source: Doherty (2009).

Variations by field of education

We now consider variations in the proportions of undergraduates admitted on the basis of a vocational education qualification by field of education. I have included only fields with reasonable numbers of commencing students, thus excluding food, hospitality and personal services and mixed field programs because they have low numbers of commencing students. We note from table 4 that management and commerce had the biggest share of undergraduates admitted on the basis of a vocational qualification (23%) closely followed by society and culture – the humanities and social sciences – at 20%. One possible reason for management and commerce having the highest share of transfer students is the higher proportion of vocational education students in management and commerce. We note that management and commerce had the highest share (33%) of vocational education enrolments in certificate IV or higher. There is indeed a strong correlation (0.79) between a field of education's share of certificate IV or higher vocational education enrolments and its share of students admitted on the basis of a vocational qualification. But there is an even stronger correlation of 0.89 between a field of education's share of students admitted on the basis of a vocational education qualification and its share of students commencing a bachelor program and its share of commencing bachelor students from a low socio economic status background.

This suggests that while the ‘push’ factors from sending institutions are important in Australian upward student transfer, the ‘pull’ factors from receiving institutions are even more important in the proportion of students admitted on the basis of a vocational qualification. This confirms Australian analysts’ concentration on receiving institutions.

Table 4: each broad field of education’s share of enrolments in vocational education programs of certificate IV or higher, share of domestic students admitted to a bachelor program on the basis of a vocational education qualification, and share of domestic low socio economic status backgrounds in higher education, 2008 (%)

Field of education	Cert IV or higher enrolments	Admitted to HE on VET basis	Share of HE commencements	Share of HE low SES commencements
Management and commerce	33	23	17	15
Society and culture	16	20	26	24
Health	8	18	14	15
Education	8	16	10	12
Creative arts	6	8	9	8
Engineering and related technologies	11	4	6	6
Information technology	4	4	3	3
Natural and physical sciences	1	3	8	9
Architecture and building	5	3	3	2
Agriculture, environmental and related	2	1	2	2
Food, hospitality and personal services	2	0	0	0
Mixed field programs	3	0	2	4
Total	100	100	100	100
Correlation with admitted on VET basis	0.79	1	0.89	0.89

Sources: NCVET (2009) Table 1 Course field of education (major) by highest qualification level (current) for students created on 18 November 2009, and Doherty (2009).

We now consider for each higher education field of education the proportion of commencing bachelor students admitted on the basis of a vocational qualification and the proportion of commencing bachelor students admitted from a low socio economic status background. I include nursing which is part of the health field of education because it admits an unusually high proportion of students on the basis of a vocational qualification. Nursing admits almost 2.5 times the proportion of students on the basis of a vocational qualification than other fields and almost 70% higher than the next highest field, education. Nursing also admits the highest proportion of students from a low socio economic status background.

Table 5: proportion of domestic students admitted to a bachelor program on the basis of a vocational education program and proportion of students commencing a bachelor program from a low socio economic status background for each broad field of education in 2008 (%)

Field of education	Admitted to HE on VET basis	% of HE low SES commencements
Nursing	22	24
Education	13	22
Information technology	12	18
Management and commerce	11.6	16
Health	11	19

Field of education	Admitted to HE on VET basis	% of HE low SES commencements
Architecture and building	11	12
Agriculture, environmental and related studies	8	21
Society and culture	7	17
Creative arts	7	14
Engineering and related technologies	6	18
Natural and physical sciences	3.5	17
All	9	17

Source: Doherty (2009).

Indeed, there is a reasonable correlation of 0.54 between a field's proportion of students admitted on the basis of a vocational qualification and the proportion of its students from a low socio economic status background. This is because higher education institutions tend to admit higher proportions of students on the basis of a vocational education qualification when they have lower student demand which results in a lower cut-off score. Student attainment in year 12 is strongly associated with socio economic status so that the lower scoring students admitted to programs with lower cut off scores tend to come from low socio economic status backgrounds.

The next table considers the extent to which institutions vary in the proportion of students they admit on the basis of a vocational education qualification in each field of education. Table 5 reports the proportion of all domestic undergraduate students admitted on the basis of a vocational education qualification. Table 6 takes that proportion for each institution and then calculates an average or mean of the institutions' proportions. So while the proportion of all bachelor of nursing students admitted on the basis of a vocational qualification is 22% as reported in table 5, the institutional mean for nursing reported in table 6 is only 20%. This suggests that there are several institutions which have small nursing intakes and admit a low proportion of students on the basis of a vocational qualification, depressing the institutional mean. (This is consistent with the next table.)

We note from table 6 that universities differ least in the proportion of bachelor of nursing students they admit on the basis of a vocational qualification. There is most variation between universities in architecture and building, creative arts, and agriculture, environmental and related studies. This is probably because of the diversity of those fields of education. But there is more diversity in the proportions of students universities admit on the basis of a vocational qualification in education and engineering, which are reasonably homogenous fields with occupational registration requirements that are similar nationally. This suggests that the certificate IV in nursing is a broadly accepted and reasonably successful pathway into the bachelor of nursing.

Table 6: institutional means, standard deviations and variations of proportion of domestic bachelor students admitted on the basis of a vocational education qualification at Australian universities, 2008 (%)

Field of education	Institutional mean	Standard deviation	Coefficient of variation
Nursing	20	14	67
Architecture and building	13	20	154

Field of education	Institutional mean	Standard deviation	Coefficient of variation
Health	12	11	95
Education	11	10	91
Management and commerce	11	9	84
Information technology	10	10	96
Agriculture, environmental and related	7	7	101
Society and culture	7	7	98
Creative arts	7	9	127
Engineering and related technologies	6	6	99
Natural and physical sciences	4	4	95
All	9	7	72

Source: Doherty (2009).

Variations within nursing

Finally, we examine the proportions of bachelor of nursing students admitted on the basis of a vocational qualification at each university and the extent to which this differs from their treatment of other fields of education. First, we note that the universities established from the mid 1960s to the mid 1970s admitted the highest proportion of bachelor of nursing students on the basis of a vocational education qualification (24%). This is 10% more than the proportion of students that these universities admitted on the basis of a vocational qualification in all fields of education. Some universities such as Wollongong and Murdoch universities admit over 40% of their bachelor of nursing students on the basis of a vocational qualification, around 30% more than the proportion of transfer students these universities admitted overall.

Other universities don't offer nursing such as Macquarie, Bond, Swinburne and most Group of Eight universities. The proportion of bachelor of nursing students admitted on the basis of vocational qualifications seems improbably low at the University of South Australia. The university reports that it admits an unusually high 30% of bachelor of nursing students on the basis of occupational qualifications, and this may be division 2 nurses admitted to the bachelor of nursing on the basis of their nursing registration or on the basis of hospital qualifications.

In general it seems that universities admit a higher proportion of students on the basis of a vocational qualification in nursing than in other fields, and while this may be due partly to the lower selectivity of nursing programs, other factors are also important. The universities established in the 1960s and 70s admit a particularly high proportion of bachelor of nursing students on the basis of vocational qualifications, far more than the students they admit on the basis of vocational qualifications in other fields. The new generation and ATN-like universities admit a higher proportion of students on the basis of vocational qualifications overall than the 1960s-70s universities, but a lower proportion of nursing students on the basis of a vocational qualification.

Table 7: proportion of domestic bachelor of nursing students admitted on the basis of a vocational qualification and proportion from a low socio economic status background compared with all fields of education by Australian university, 2008 (%)

University	Admitted on basis of VET			Low SES		
	Nursing	All fields	Difference between nursing and all	Nursing	All fields	Difference between nursing and all
Wollongong	44	13	31	24	18	6
Murdoch University	41	13	27	74	23	51
La Trobe University	29	13	16	21	21	0
Deakin University	24	13	11	17	15	2
Griffith University	20	8	12	23	15	8
Flinders University	10	8	2	26	23	3
Macquarie	0	6	0	0	6	0
<i>Mean of 60s-70s</i>	<i>28</i>	<i>10</i>	<i>18</i>	<i>32</i>	<i>21</i>	<i>11</i>
Victoria University	46	24	22	28	27	1
ACU	27	16	11	14	13	1
UWS	27	16	11	17	16	1
Edith Cowan University	19	12	7	12	15	-3
Notre Dame Australia	15	7	9	9	11	-2
University of Canberra	8	11	-2	3	5	-2
Bond University	0	3	0	0	12	0
<i>Mean of new gen</i>	<i>24</i>	<i>13</i>	<i>11</i>	<i>14</i>	<i>15</i>	<i>-1</i>
UNE	41	13	27	34	24	10
Charles Darwin	39	13	26	23	13	10
Charles Sturt University	34	22	13	24	21	3
CQUni	18	7	11	43	40	3
Southern Cross	18	11	6	27	23	4
Southern Queensland	17	8	9	28	29	-1
James Cook University	12	5	7	32	27	5
University of Ballarat	12	8	4	23	21	2
Sunshine Coast	8	4	4	12	14	-2
University of Tasmania	0	0	0	33	33	0
<i>Mean of rural</i>	<i>20</i>	<i>9</i>	<i>11</i>	<i>28</i>	<i>25</i>	<i>3</i>
UTS	33	12	21	8	9	-1
RMIT	26	21	5	23	18	5
Curtin University	15	6	9	18	15	3
QUT	14	7	7	16	13	3
UniSA	7	9	-2	41	28	13
Swinburne University	0	27	0		12	0
<i>Mean of ATN-like</i>	<i>19</i>	<i>14</i>	<i>5</i>	<i>22</i>	<i>17</i>	<i>5</i>
Monash University	2	7	-5	27	14	13
University of Queensland	2	2	0	26	16	10
ANU	0	1	0	0	4	0
UNSW	0	3	0	0	8	0
University of Adelaide	0	1	-1	23	17	6
University of Melbourne	0	2	0	0	9	0

University	Admitted on basis of VET			Low SES		
	Nursing	All fields	Difference between nursing and all	Nursing	All fields	Difference between nursing and all
University of Sydney	0	1	-1	15	7	8
UWA	0	0		0	9	0
<i>Mean of Go8</i>	<i>0</i>	<i>2</i>	<i>-2</i>	<i>26</i>	<i>14</i>	<i>13</i>
All universities	22	9	13	24	17	7

Source: Doherty (2009).

We observe considerable variations in the proportions of nursing students universities admit on the basis of vocational qualifications, even within university types. Some may be due to local circumstances; some is due to different institutional priorities and practices; some may be due to variations in data recording, collecting and reporting; and some may be due to different treatment of occupational and vocational qualifications. But it is also possible that these variations are due to other factors which warrant further investigation.

Conclusion

This study has followed the Australian tradition of considering upward student transfer from the perspective of receiving institutions. It found considerable variations in the proportion of domestic undergraduates students admitted on the basis of a vocational education qualification. Private colleges admit a relatively low proportion of students on the basis of vocational qualifications. While Tafe institutes admit the highest proportion of vocational students of any institutional type, some individual universities admitted a higher proportion of students on the basis of vocational qualifications than Tafe institutes.

There are also considerable variations by field of education. While some of this variation may be due to push factors such as the number of vocational education graduates in each field, more of the variation seemed to be due to pull factors – the actions of higher education institutions. Nursing has the highest proportion of students admitted on the basis of vocational qualifications, and it seems that nursing is more homogeneous in this than other fields.

Nonetheless, there remain considerable variations in the proportions of bachelor of nursing students admitted on the basis of vocational education qualifications. Much of this variation remains unexplained and warrants further investigation. Whatever the reason, it seems that no single measure is likely to increase the proportion of bachelor students admitted on the basis of a vocational qualification either within each field of education or within each type of institution, let alone for all fields in all institutions.

There seem to be 2 options for governments seeking to increase the proportion of bachelor students admitted on the basis of vocational qualifications. One would be to seek measures specific to each field of education. This is the approach the Australian Government is taking to higher education quality assurance. It has commissioned the Australian Learning and Teaching Council (2009) to develop academic standards for

each level of qualification in each discipline. A second option would be to introduce incentives for institutions to increase their proportion of students they admit on the basis of vocational qualifications and leave institutions to develop their own policies and strategies. This is the approach the Australian Government is taking to encourage institutions to admit higher proportions of students from low socio economic status backgrounds. From January 2010 the Australian Government will give institutions a loading of 2% on the amount it pays for each equivalent full time student for students from a low socio economic status background, and this will increase to 3% in 2011 and 4% in 2012 (Commonwealth of Australia, 2009: 13). Whichever approach were adopted would be more effective than the current strategy which seems to be to state general policy goals unsupported either by detailed strategies or a general incentive.

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