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Staying Power: The effect of pathway into university on student achievement and attrition

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The expansion of the higher education sector in Australia opened up new pathways into university increasing the diversity of the student population. For non-traditional students, those who did not successfully complete secondary school, barriers to gaining entry into university have been dismantled, however, previous research suggests that non-traditional students are more likely than traditional students to drop out of higher education. This paper analyses administrative data for a cohort of first year undergraduate students attending an Australian university to examine the association between pathway to university and student retention and academic progression. Our findings show that after controlling for grade point average, students who completed an enabling course on campus prior to commencing their undergraduate program were less likely than students admitted on the basis of completing secondary school to discontinue their university studies. This suggests that enabling programs provided on campus may assist students who do not meet the minimum requirements for university entrance to complete a university degree.

Keywords: *pathways into higher education; diversity; attrition*

Introduction

The expansion of the higher education sector opened up a variety of alternative entry pathways into university, therefore, university study is no longer restricted to young people who have completed secondary school. The availability of government loans to all domestic university students, regardless of their age, allows a relatively broad cross-section of the population to undertake higher education. Consequently, around one-quarter of domestic undergraduate students were aged over 24 years at the time of their enrolment. Although alternative entry pathways have removed many of the barriers to access to university, previous research shows that traditional students are more likely than non-traditional students to complete their degree program (Long, Ferrier & Heagney, 2006). In this paper, we analyse data from one Australian university to examine the association between pathways into university and achievement and retention. After providing an overview of the context and the results of previous research, we introduce the data before presenting the results of our analysis examining the association between pathway into university and level of academic achievement as measured by grade point average; and pathway into university and the likelihood of discontinuing study.

Higher education in Australia

The Australian higher education sector is dominated by public universities owned by the state governments and funded by the federal government. Domestic students make a contribution to the cost of their tuition via the Australian Government's Higher Education Loan Program (HELP). Currently, HELP loans are interest-free (although the outstanding balance is adjusted to account for inflation on an annual basis) and are repaid via the taxation system once the student's income reaches a designated threshold, which is roughly equivalent to the average graduate entry-level salary. Students from low socio-economic (SES) families and independent students with low incomes are able to access a means-tested scheme of income support. In 2012, around 170,000 undergraduate students were in receipt of this financial assistance (DSS 2013).

The completion of a higher education degree gives university graduates a competitive advantage in the rapidly changing global labour market (Ryan & Watson, 2003). As in most countries, the employment rates and incomes of Australian university graduates are higher than those of non-graduates (Machin & McNally, 2007). According to the Australian Bureau of Statistics (ABS), in 2014, 59 per cent of degree holders were employed on a full-time basis and a further 19.5 per cent were employed on a part-time basis, with only 2.6 per cent unemployed and looking for work and 18.6 per cent not in the labour force. In contrast, of those with no post-school qualification, only 32.4 per cent were employed on a full-time basis, 21 per cent were employed part-time, 4.8 per cent were unemployed and 41.9 per cent were not in the labour force (ABS, 2014). Favorable employment conditions for graduates reflect structural changes in the Australian economy, with employment in the agricultural and manufacturing sectors declining and employment in the services sector expanding (DEEWR, 2012).

To remain competitive in the labour market, many Australian workers return to education to either up-skill or re-skill leading to more diversity in undergraduate student intakes (Bradley, Noonan, Nugent & Scales, 2008; Lomax-Smith, Watson & Webster, 2011). Around one quarter of university students are aged 25 years or older (DOE, 2014b) and less than half of all commencing domestic undergraduate students enter on the basis of their secondary school results (Watson, Hagel & Chesters, 2013). Despite this diversity, the financial returns to students who invest in higher education are similar regardless of age at graduation with there being no significant differences in regards to the employment status and earnings of graduates one year after graduation (Chesters & Watson, 2014). Furthermore, the financial benefits of a higher education degree remain relatively high in spite of an increase in the total number of domestic undergraduate students from around 200,000 in 1974 to 700,000 in 2013 (DEETYA, 1996; DOE, 2014b).

Pathways into an Australian university

The traditional pathway into university is the completion of secondary school with sufficiently high grades in qualifying subjects. Due to differences in secondary school systems across the Australian states and territories coupled with the lack of a national curriculum and national

testing at the end of secondary school, universities select students on the basis of their Australian Tertiary Admission Rank (ATAR). The ATAR is calculated from an aggregate of a student's scaled marks in 10 units of ATAR eligible courses in senior secondary school (UAC, 2011).

To meet the needs of prospective students with low or no ATARs, most Australian universities offer enabling programs, also known as preparatory, foundation or bridging programs, for applicants deemed inadequately prepared for university studies (Palmer, Bexley & James, 2011). As Hodges, Bedford, Hartley, Klinger, Murray, O'Rourke and Schofield (2013) point out, enabling programs provide a second chance for entry into higher education. An enabling program is 'a course of instruction provided to a person for the purpose of enabling the person to undertake a course leading to a higher education award' (Australian Government, 2012 p. 26). The Federal Government provides funding for enabling programs via the Commonwealth Grants Scheme and students are not required to make any contribution to the cost of tuition, although they may have to purchase course materials and/or pay service fees (Hodges et al. 2013; Lomax-Smith et al., 2011). Research conducted by Andrewartha and Harvey (2014) showed that La Trobe University's enabling program was successful in attracting under-represented groups with 86 per cent of students being mature-age and 80 per cent being first in family students. Indigenous people and refugees were also over-represented in the enabling program intake. Generally, enabling programs seek to provide students with opportunities to develop academic skills in discipline-focused subjects (Thomas, 2014). These skills include: 'critical thinking, academic writing, researching, referencing, paraphrasing and literacy skills' (Hodges et al., 2013, p. 16). Research shows that around 50 to 55 per cent of students graduate from these programs, thus qualifying for entry into university (Andrewartha & Harvey, 2014; Hodges et al., 2013; Whannell, 2013). Whannell (2013) found that older participants were more likely than younger students to complete their program and that being first in family, prior level of schooling and gender had no effect.

Students may also gain entry into university on the basis of their post-school qualifications. Research conducted by Watson, Hagel and Chesters (2013) shows that almost one quarter of all commencing Australian undergraduates are admitted on the basis of a higher

education qualification and around 10 per cent are admitted on the basis of completing a vocational education and training (VET) award. VET awards are qualifications classified under the Australian Qualifications Framework (AQF) (AQFC, 2013) ranging from a Certificate I (AQF level 1) through to an Advanced Diploma (AQF level 6). The likelihood of a VET award holder commencing university studies increases with the level of VET qualification. For example, in the year following completion of a VET award, 16 per cent of Diploma/Advanced Diploma graduates were studying at university compared to eight per cent of Certificate IV graduates and five per cent of VET completers holding Certificates II and III (Watson et al., 2013).

Although previous research indicates that students admitted to university on the basis of VET awards are more likely to be low SES and/or be the first in their family to study at university (Cattarall, Munro & Fisher, 2014), they are not a homogeneous social group. They include older people who obtained their VET award some time ago, as well as younger people in their 20s who have completed trade qualifications at advanced levels. Students admitted on the basis of a VET award can also be recent Year 12 completers whose ATAR was not high enough for them to gain entry to the university program of their choice, and who then completed a one-year VET Diploma as a bridging course to gain admission to university. While some Diploma and Advanced Diploma qualifications are designed as bridging qualifications between the VET and higher education sectors, not all VET qualifications at this level serve this purpose. Typically, the focus of VET courses is work-readiness rather than building theoretical knowledge and abstract cognitive skills (Moodie &Wheelahan, 2009), therefore, many VET courses do not purposefully equip students with the skills to engage with higher education. Consequently, students may not have developed their 'reasoned student voice' and may struggle to transition into being 'critical learners' (Cattarall et al., 2014, p. 252).

Students may also be admitted on the basis of their age (over 21 years) or their professional qualifications or experience deemed relevant to university studies (mature age/other basis). Around one fifth (21%) of all commencing undergraduates are admitted via these pathways (Watson et al., 2013). The development of alternative pathways into university has widened participation and provided access to higher education to

a broader cross-section of the population. As Harrison and Hatt (2010, p. 69) note, 'widening participation is about extending the opportunity to enter higher education to those who have the potential'. However, supporting the participation of students from diverse backgrounds in higher education involves more than simply removing barriers to entry, it also involves changing institutional policies and practices so that individuals from a wider variety of social groups are supported to engage with university studies (Seller & Gale, 2011). Forms of social support and initiatives that give students a 'sense of belonging' are now recognized as important factors in student retention (Brooman & Darwent, 2014; Wilcox, Wynn & Fyvie-Gauld, 2005).

Differences in student participation and retention

Although the Australian higher education system is one of the most inclusive in the world in terms of the age distribution of its student population (Ederer, Schuller & Willm, 2008), disparities in participation rates between social groups persist (Cardak & Ryan, 2009; DOE, 2014a). For example, only 17 per cent of undergraduate university students who entered university in 2013 were from the lowest socio-economic quartile (DOE, 2014b). Researchers have also found evidence of the under-representation of students from low SES families in the United Kingdom (Blanden & Machin, 2004; Harrison & Hatt, 2010; Simister, 2011), Europe (Breen, Muller, Luijkx and Pollak, 2009; Pfeffer, 2008) and the United States (Douglass & Thomson, 2011). Previous Australian research also shows that low SES students are less likely to graduate from university (Cardak & Ryan, 2009; Chesters & Watson, 2013; Edwards & McMillan, 2015). For example, Edwards and McMillan (2015, p. 13) found that of the students who commenced their studies in 2005, 69 per cent of students from low SES families completed their bachelor degree programs by 2013 compared to 78 per cent of students from high SES families.

As Thomas (2014) notes, students from low SES backgrounds have access to fewer resources, receive less encouragement from their families, have fewer positive educational experiences, have lower entrance scores and are more likely to experience alienation. Furthermore, they are more likely than their high-SES peers to be the first in their family to attend university and thus may experience some

difficulty adjusting to university culture and expectations (Christie, Munro & Fisher, 2004; Ellis, 2013; Kezar, 2011). In an effort to counteract some of these factors, the Australian Government introduced the Higher Education Participation Partnerships Program (HEPPP) in 2010 to fund the development of initiatives aimed at improving access for students from low SES backgrounds and the development of programs to improve their retention and completion rates (Hodges et al. 2013; Thomas, 2014).

Studies of student progression suggest that of the students who were admitted on the basis of an ATAR from their senior secondary school studies, those with high ATARs were more likely to complete a degree than those with a low ATARs (Dobson & Skuja 2005; Edwards & McMillan, 2015; Lomax-Smith et al. 2011; Marks, 2007). Marks (2007) analysed data from the Longitudinal Surveys of Australian Youth (LSAY) and concluded that ENTER (Equivalent National Tertiary Education Rank) scores, the predecessor of the ATAR, were the strongest predictor of whether or not students completed their degree program. Almost 95 per cent of students with scores above 90 completed compared to just 73 per cent of students with scores between 60 and 69 (Marks, 2007). Dobson and Skuja (2005) found that ENTER scores were a reliable predictor of attainment at university, particularly for students enrolled in engineering, agriculture or science degrees.

Previous research shows that undergraduate students admitted on a basis *other than* the completion of secondary school are more at risk of discontinuing their studies (Long et al., 2006). The Long et al. (2006) study shows that students with an apprenticeship, trade, vocational or other qualification were almost twice as likely (24.4 %) to drop out in their first year of studying for a bachelor degree than the average for all students (13.7 %). Other research shows that students admitted on the basis of a VET award were more likely to make a successful transition into higher education if their pathway was created and supported by providers in both sectors (Cram & Watson, 2008; Walls & Pardy, 2010). Levy and Murray (2005) argue that the provision of enabling programs can assist at risk students to become successful tertiary students. Lomax-Smith et al. (2011, p. 124) found that for students with a low ATAR (below 40), the completion of an enabling program concurrently with undergraduate studies was associated with a slightly higher retention rate

(86% compared to 82%). As O'Keefe, Lavan and Burgess (2011) argue, non-completion of a degree program may result from a variety of factors including there being a mismatch between the student's expectations and experiences. In many cases, students who did not gain admission into their first choice of degree program or who changed their career plans continued their studies in a different program or at a different university (see also Christie et al., 2004).

In this paper, we examine the association between pathways into university and subsequent retention and achievement for a cohort of students attending a small metropolitan university in Australia. Using institutional data, we categorise the commencing cohort into seven pathways reflecting the basis of their admission to university, two of which are enabling programs. In this university, prospective students who do not meet the minimum requirements for admission, including those with low ATARs, are offered places in the on-campus enabling program. The successful completion of this program then becomes the basis for admission to an undergraduate degree.

Methodology

This study draws on de-identified individual-level university administrative data for one cohort of domestic undergraduate students who commenced their first bachelor degree program in the first semester of 2007 (n=1738). Students beginning their honours year in 2007 or education students enrolled in graduate entry courses on the basis that they had previously completed a bachelor degree were excluded. All analyses are performed in Stata 12 (StataCorp, 2011). The key variables of interest are the student's pathway into university, academic achievement and progress. The control variables are: sex; birth cohort; socio-economic status (SES); and grade point average (GPA) at the end of 2008.

The pathway variable is derived from information on each student's basis of admission to university, their previous highest level of education and their previous educational institution. This variable has seven categories**:** completed Year 12 at secondary school; completed Year 12 at another institution such as a VET provider; completed a VET Certificate Levels I -IV; completed a higher education or VET diploma/advanced diploma; completed the university's on-campus enabling program;

completed an enabling program at another institution; and mature-age / other basis. In 2006, this university offered two types of on-campus enabling programs for students who did not meet the minimum requirements for admission to an undergraduate degree program: a 14 week course and a 22 week course. The 22 week course is an extended version of the 14 week course and is delivered at a slower pace for students with the lowest levels of educational attainment.

Sex is coded 0 for male and 1 for female and is included to control for the effects of the over-representation of females in the student population. The birth cohort variable has five categories based on the year of birth: before 1971; 1971-1975; 1976-1980; 1981-1985; and 1986-1990. Although traditional university students tend to commence their studies within two years of graduating from secondary school, non-traditional students return to education and undertake university studies at various stages of the life course. The socio-economic status variable is based on the Socio-Economic Index For Areas (SEIFA) Index of Relative Socio-economic Advantage/Disadvantage for 2006 and is derived from the postcode of the student's home address at the time of enrolment. The SEIFA index is compiled by the ABS using information such as income, occupation and levels of education as markers of relative advantage/ disadvantage in a geographical area (ABS, 2006). Although this is not an ideal measure of individual socio-economic status, measures typically used to derive individual socio-economic status such as parents' educational attainment, occupational status and income are not available in these data. We recode the SEIFA values into three groups: low= deciles 1, 2 and 3; mid = deciles 4, 5, 6 and 7; and high = deciles 8, 9 and 10. The descriptive statistics are provided in Table A.1 in the Appendix

The GPA variable refers to the student's grade point average for all semesters in 2007 and 2008. Students receive a grade of between 0 and 7 for each unit completed. Zero indicates that the student did not submit any assessment items, 4 indicates that the student passed the unit and 7 indicates that the student received the highest grade possible. We calculate the GPA by adding the final grades received for each unit and dividing the total by the number of units completed.

We use a proxy measure of course attrition based on enrolment and unit completion data. If a student who commenced study in semester 1 in 2007 had not enrolled in semester 2 in 2008 and semester 1 in 2009

and had not completed 24 units, they were deemed to have discontinued their studies. Undergraduate students may enroll in units of study in different patterns, depending on their course of study, course load (ie. full-time or part-time) and individual preference. A full-time student load is four units per semester and most undergraduate units are equivalent to 3 credit points. For this cohort of students, the university offered some units in summer and winter terms in addition to the two standard semesters. Although there is no consistent point in time when students complete their undergraduate degree, the completion of 24 units usually signals the completion of a three year program, such as Arts, and the completion of 30 units signals the completion of a four year degree program, such as Education.

Characteristics of commencing students

The seven pathways for students in the 2007 commencing cohort are displayed in Table 1. Over half of the students entered via Year 12 pathways (51% at school and 4% at another institution), 18 per cent entered via VET pathways (7% with a diploma and 11% with a certificate) and six per cent entered via the mature age/ other pathway. Sixteen per cent of students entered after completing an enabling course offered by the university on campus and a further six per cent had completed an enabling course offered by other providers.

Table 1: *Percentage of commencing students entering by each pathway to university*

Pathway	n=1738	Per cent
Year 12 completion at school	879	51
Year 12 completion at non-school institution	63	4
VET certificate	126	7
VET diploma	189	11
Enabling program on Campus	281	16
Other Enabling program	104	6
Mature age/ Other	96	6

To examine the association between pathways and sex, birth cohort and SES, we recode the pathways into four broad groups: Year 12 school completers; VET award holders; students who completed an enabling

program on campus and students admitted on all other bases. The descriptive statistics presented in Table 2 show that female students were slightly more likely than male students to have entered university via a Year 12 pathway. Pathway into university varied substantially according to birth cohort with the older cohorts being more likely to take advantage of the non-traditional pathways than the traditional pathway. Just four per cent of those born before 1971 entered university after completing Year 12 at school whereas, almost three-quarters of students born after 1985 were admitted via this traditional pathway. Over 40 per cent of those born before 1971 entered via a VET pathway compared to just 14 per cent of those born after 1985. Almost 70 per cent of the 109 students from low SES backgrounds entered university after completing Year 12 compared to less than half of the 1134 students from high SES backgrounds.

Table 2: *Selected characteristics of commencing students by pathway into university [row percent]*

Characteristic	n=1738	Year 12 school completers	VET	On-campus enabling program	Other
		%	%	%	%
Male	670	49	23	17	12
Female	1068	52	21	16	11
Birth Cohort					
<1971	120	4	43	15	38
1971-1975	58	12	34	28	26
1976-1980	102	14	28	25	33
1981-1985	420	23	32	27	18
1986-1990	1038	73	14	11	3
SES					
Low	109	69	16	5	11
Medium	485	61	19	10	9
High	1134	44	23	20	13
Missing	10	40	50	10	0

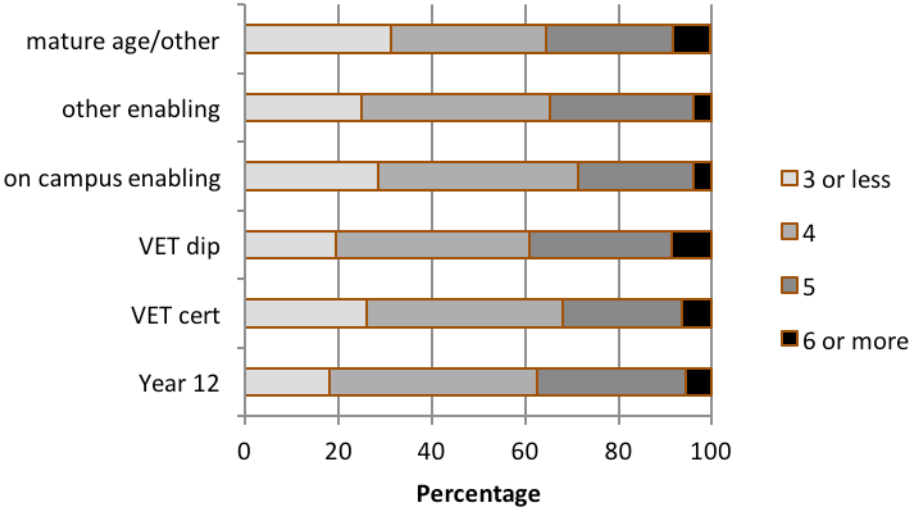
Note: the VET category includes Year 12 at a non-school institution/ VET certificate/ VET diploma; the 'Other' category includes: other enabling/ mature age/other

In the next section, we examine levels of academic achievement according to pathway into university, before examining attrition rates and the association between pathway and attrition.

Academic achievement

The distribution of GPA scores varied according to pathway into university. For example, almost one-third (31%) of students who entered university via the mature-age / other pathway recorded a GPA of 3 or less; one -third recorded a GPA of 4; 27 per cent recorded a GPA of 5; and less than 10 per cent recoded a GPA of 6 or more. Of those who entered via a Year 12 pathway, 18 per cent recorded a GPA of 3 or less; 44.5 per cent recorded a GPA of 4; 32 per cent recorded a GPA of 5; and 5.5 per cent recorded a GPA of 6 or more. The chart in Figure 1 compares the distribution of GPAs for each pathway into university.

Figure 1: *GPA band by pathway into university*



To examine the association between pathway into university and academic achievement, we conducted a simple linear regression selecting the Year 12 at school pathway as the reference category. The average GPA of students who entered university after completing Year 12 at school was 4.68. The coefficients for students who entered via the

VET pathway (-0.27), the on campus enabling pathway (-0.23) and the other enabling pathway (-0.21) are statistically significant indicating that, on average, the GPAs of these students were lower than that of the reference group (those who completed Year 12 at school). The average GPA for students who entered via the VET pathway was 4.41, the average GPA for students who entered via the on campus enabling pathway was 4.45 and the average GPA for students who entered via the other enabling pathway was 4.47.

Table 3: *Regression coefficients for GPA according to pathway into university*

Pathway	coefficient	Standard error
Year 12 at school (reference category)		
Year 12 at other institution	0.01	0.12
VET Certificate	-0.27**	0.09
VET Diploma	-0.04	0.08
On campus enabling program	-0.23***	0.06
Other enabling program	-0.21*	0.10
Mature age/other	-0.14	0.10
Constant	4.68***	0.03

****p<0.001; **p<0.01; *p<0.05*

Students who discontinue their studies

Previous research shows that some groups of students are more likely than others to discontinue their studies (Cardak & Ryan, 2009; Edwards & McMillan, 2015; McMillan, 2005), therefore we next examine the characteristics of students who discontinued their studies. The descriptive statistics provided in Table 4 show that male and female students were equally as likely to discontinue their studies (23%). Older students were much more likely to discontinue their studies than younger students, with 40 per cent of those born before 1971; 28 per cent of those born between 1971 and 1975 and 30 per cent of those born between 1976 and 1980 discontinuing study compared to 19 per cent of those born between 1986 and 1990. High SES students (25%) were slightly more likely to discontinue their studies than low or mid SES students (23%). Students who entered via the on-campus enabling

program pathway were the least likely to discontinue their studies (19%) and students who entered via the mature-age/other pathways were the most likely to discontinue their studies (38%). Forty-five per cent of students with a GPA of 3 or less discontinued their studies compared to 18 per cent of those with a GPA of 4; 14 per cent of those with a GPA of 5 and 21 per cent of those with a GPA of 6 or more.

Table 4: *Percentages of students who discontinued their studies by selected characteristics*

	n=1738	**% discontinued**
Male	670	23
Female	1068	23
Birth cohort		
<1971	120	40
1971-1975	58	28
1976-1980	102	30
1981-1985	424	27
1986-1990	1038	19
SES		
High	1134	23
Mid	485	23
Low	109	25
Pathway		
Year12 at school	879	20
Year12 at other institution	63	25
VET Certificate	126	27
VET Diploma	189	28
On-campus enabling program	281	19
Other enabling program	104	32
Mature age/ Other	96	38
GPA		
3 or less	375	45
4	744	18
5	518	14
6 or more	102	21

To disentangle the effects of pathway, sex, birth cohort and GPA, we conduct logistic regression analyses to estimate the odds ratios for discontinuing study. Odds ratios represent the change in the likelihood of discontinuing study relative to continuing study. An increase in the likelihood of discontinuing study is indicated by an odds ratio of greater than 1 whereas a decrease in the likelihood of discontinuing study is indicated by an odds ratio of less than 1. In Model 1 we include pathway into university, sex and birth cohort to examine the effects of these variables on the likelihood of discontinuing study. We select the on-campus enabling program pathway as the reference category for pathway to examine whether students who complete the on-campus enabling program are more or less likely to discontinue their studies than traditional students or those entering via any of the other non-traditional pathways. The on-campus enabling program is designed to prepare students for direct entry into an undergraduate degree program. In Model 2, we add in GPA to examine whether GPA mediates the relationships between discontinuing study and pathway into university, sex and birth cohort. The second model explains nine per cent of the variation. Unfortunately, factors that may affect a student's decision to discontinue their studies such as marital status, number of dependent children, income, welfare dependency, employment status, usual weekly hours of paid employment, and satisfaction with the university are not available in this administrative data set, therefore, we are unable to improve the goodness of fit. The results of the two models are presented in Table 5.

The results of Model 1 indicate that Year 12 school completers, those who entered university via the VET diploma pathway or the mature-age/other pathway were more likely than students who entered university via the on-campus enabling program pathway to discontinue their studies, net of the effects of sex and birth cohort. Birth cohort has an independent effect with older students (except for those born between 1971 and 1975) being more likely to discontinue their studies than those born between 1986 and 1990. The results for Model 2 show that after controlling for GPA, students who entered via each of the other pathways, apart from the VET certificate pathway, were more likely than students who entered via the on-campus enabling program pathway to discontinue their studies, net of the effects of sex and birth cohort. Students admitted on the basis of Year 12 completion at school were 1.7

times more likely than students from the on-campus enabling program with the same GPA to discontinue their studies. As expected, as GPA increased, the likelihood of discontinuing study decreased. Students in the oldest cohort were more 2.6 times more likely than those in the youngest cohort to discontinue their studies, net of the effects of GPA, pathway and sex.

Table 5: *Estimated odds ratios for discontinuing study according to pathway, controlling for sex, birth cohort and GPA*

	Model 1		Model 2	
	Odds ratios	Std err	Odds Ratios	Std err
Pathway				
On-campus enabling program (ref.)				
Yr12 at school	1.47*	0.28	1.73**	0.34
Yr12 other institution	1.92	0.64	2.40*	0.83
VET certificate	1.40	0.36	1.53	0.41
VET diploma	1.64*	0.37	1.98**	0.48
Other enabling	1.67	0.45	1.88*	0.53
Mature age/other	2.28**	0.61	2.48***	0.69
Female =1	1.02	0.12	1.21	0.15
Birth cohort				
1986-1990 (ref.)				
1981-1985	1.63**	0.26	1.61**	0.26
1976-1980	1.84*	0.46	1.63	0.43
1971-1975	1.63	0.53	1.54	0.51
<1971	2.71***	0.64	2.64***	0.65
GPA			0.24***	0.03
Constant	0.57***	0.08	0.35***	0.07
n=	1738		1738	
Pseudo R2	0.0258		0.0861	

****p<0.001; **p<0.01; *p<0.05*

Discussion

In this paper, we examined the relationship between pathway into university and academic progress to understand the influence of widening participation on student performance. The availability of alternative pathways into university increased both the size and the diversity of student populations giving rise to concerns about the academic ability of students and the ability of the higher education system to maintain high standards (Christie et al., 2004; Hare, 2014; Mather, 2013), therefore, this examination of higher education access and outcomes is timely. Our study focused on whether the characteristics and outcomes of students who undertook an on-campus enabling program offered by a small metropolitan university differed from those of traditional students (that is, students who entered university on the basis of their ATAR).

At this particular university, 51 per cent of the students were admitted to their degree programs on the basis of their ATARs and 16 per cent were admitted after completing an on-campus enabling program. Female students were slightly more likely than male students to have completed Year 12 but there was almost no difference in the percentages of male and female students who completed an on-campus enabling program (17% and 16%, respectively). As expected, younger students were more likely than older students to enter university on their Year 12 results. Almost three-quarters of the students born between 1986 and 1990 were admitted on the basis of their Year 12 results whereas just four per cent of those born before 1971 were admitted on the basis of their Year 12 results.

The average GPA of students differed according to pathway into university with those admitted on the basis of completing Year 12 at school recording higher, on average, GPAs than students who entered university via each of the alternative pathways. Students who entered after completing a VET certificate recorded the lowest, on average, GPA. The average GPA (4.47) of the students who had completed an on-campus enabling program was 0.21 points lower than that of traditional students.

Descriptive analysis indicated that the likelihood of discontinuing study was associated with pathway, age and GPA. Just under one-quarter (23%) of the students discontinued their studies between the second semester of 2007 and the first semester of 2009. As predicted by previous research, we found that older students were more likely than younger students to

discontinue their studies. Previous researchers have also found higher rates of attrition for mature age students (Edwards & McMillan, 2015; Long et al., 2006). The likelihood of discontinuing study also varied according to pathway into university with almost 40 per cent of students who entered via the mature-age/other pathway discontinuing their studies compared to 19 per cent of those who completed an on-campus enabling program. Students who entered university via the VET certificate, VET diploma or other enabling programs were also more likely to discontinue their studies (27%, 28% and 32%, respectively). One explanation of the higher rates of attrition for students entering university via VET pathways may be related to differences in teaching styles and assessment procedures (Moodie & Wheelahan, 2009; Moodie et al., 2009; Watson et al., 2013). In the VET sector, students need to demonstrate competence whereas at university, students need to articulate their understanding of abstract concepts. Almost half of the students with a GPA of 3 or lower discontinued their studies compared to just 14 per cent of those with a GPA of 5. Due to data limitations, we were unable to examine the effects of other factors, such as family background, financial status, cultural differences, employment status, hours of paid work and family responsibilities that previous research indicates are associated with discontinuation of study (Christie et al., 2004; Edwards & McMillan, 2015; James, 2008; Marks, 2007; Wilcoxson, 2010)

Given that previous research shows that sex, age, pathway into university and GPA and graduation from university are correlated (Christie et al., 2004), we conducted logistic regression analysis to isolate the effects of each of these variables on the likelihood of discontinuing study. After controlling for the effects of age, sex, and GPA, traditional students (Year 12 school completers) were 1.7 times more likely to discontinue their studies than students who had completed the university's enabling course and students who entered university via the mature age/ other pathway were 2.5 times more likely than those who entered via the on-campus enabling program to discontinue their studies. Thomas (2014) found that enabling program graduates performed just as well as those who entered via the traditional pathway.

Our results suggest that on-campus enabling programs play a role in supporting the retention of students. As Habal (2012) argues, preparation programs increase self-efficacy, providing students with the confidence

and skills to persist even if they record low levels of achievement. The main reason that students undertake an enabling program at this particular university is because they do not qualify for entry to an undergraduate degree, either because their ATAR was too low or they did not have an ATAR. Typically, between 75 and 80 per cent of school leavers and 50 and 60 per cent of mature age students who enrol in the on-campus enabling programs at this university successfully complete and are admitted into an undergraduate degree program (London, 2014). Andrewartha and Harvey (2014) found that although the completion rate for enabling programs at La Trobe University was 65 per cent, only 55 per cent of students passed the four subjects required for admission into an undergraduate degree program. Although enabling programs are principally designed to prepare students for university study, they also allow students to sample the demands and expectations of university study before they commit to the costs associated with an undergraduate program (Hodges et al., 2013).

As reviews of existing literature show, feelings of alienation within the university environment are a key factor in decisions to discontinue study at university (Christie et al., 2004; Thomas, 2014; Wilcoxson, 2010). Therefore, it may be that by participating in the on-campus enabling program, students become very familiar with most aspects of university life and have opportunities to become socially engaged and committed to the university before they commence undergraduate studies (Wilcoxson, 2010).

Conclusion

Given that the completion of higher levels of education is an increasingly important prerequisite for lifetime employment in Australia's rapidly changing labour market, encouraging an increasing proportion of the population to undertake higher education has become an economic necessity. The expansion of the higher education sector and the development of alternative entry pathways have resulted in an increasingly diverse student population. Students who embark on university study as non-traditional students have the option to undertake a free enabling program to prepare them for their studies. The results presented here show that although entering university via the on-campus enabling program is associated with a lower GPA, it is nonetheless associated with increased staying power.

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Appendix

Table A.1: *Descriptive statistics*

	n=1738	Per cent
Pathway		
Year 12 at school	879	51
Year 12 other	63	4
VET cert	126	7
VET dip	189	11
On-campus enabling	281	16
Other enabling	104	6
Mature age/other	96	5
Sex		
Male	670	39
Female	1068	61
Birth cohort		
<1971	120	7
1971-1975	58	3
1976-1980	102	6
1981-1985	420	24
1986-1990	1038	60
SES		
Low	109	6
Medium	485	28
High	1134	66

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