



LONGITUDINAL SURVEYS OF AUSTRALIAN YOUTH BRIEFING PAPER 21

The impact of VET in Schools on the intentions and achievements of young people

NHI NGUYEN, NCVER



OVERVIEW

Vocational education in schools declined significantly following the demise of the 1970s of technical high schools. By the 1990s, it had undergone a renaissance after formal school vocational education and training (VET) programs became an accepted feature of the latter years of schooling. There is now a diverse range of school VET options available to young people in their senior years of schooling. Over 90% of senior secondary schools offer VET subjects and programs, and nationally over 40% of students participate in VET in Schools programs.

Young people participating in the Longitudinal Surveys of Australian Youth (LSAY) can be tracked as they make their transitions from school to work, providing an opportunity to assess the impact of VET in Schools programs on their educational and employment outcomes. This briefing paper uses previous research on the impact of VET in Schools and some primary analysis of the data from LSAY participants who were first interviewed in 1995 or 2003 (Y95 and Y03) to assess the effect of these programs on school retention, post-school VET and employment, and young people's school and post-school aspirations.

HIGHLIGHTS

- VET in Schools programs are seen as a way to increase Year 12 retention by broadening subject choices in the school curriculum. LSAY research suggests that, while participation in these programs has positive effects on attitudes to and satisfaction with school, it does not necessarily lead to increased Year 12 retention.
- Instead, school VET programs assist in post-school employment choices and in the transition to the workforce for young people by providing a greater exposure to the world of work. Although this is viewed as an 'unsuccessful' school outcome if the transition occurs before Year 12 completion, it may, depending on the nature of the job, be a successful employment outcome.
- Participation in school VET provides a pathway to further post-school VET for some students; however, participation is not a prerequisite for participating in post-school VET study. Among those students who do continue with post-school VET, most undertake study that is not related to their school VET subjects.
- Participation in school VET, at least for males, reflects a disposition away from formal study at certificate level III or above.
- For the majority of students, their post-school plans change little between Years 11 and 12, and participation in school VET in the senior years of secondary school may be too late to influence post-school plans. However, we do find that participation in school VET can influence one small group of students who are intent on getting a job straight after school, to change their post-school plans to include further VET study or an apprenticeship or traineeship.

INTRODUCTION

Vocational education in schools declined significantly following the demise of technical high schools in the 1970s. However, the high proportion of young unemployed people around this time raised concerns about the school-to-work transitions of young Australians. It was argued that young people who completed Year 12 enter the labour market with better skills than early school leavers. But successful transitions from school to work also require young people to develop other life skills beyond being 'good learners in school settings' (Resnick 1987, cited in Ainley & Fleming 1997).

Around this time, there were also perceptions that the senior secondary school curriculum was becoming too academic and did not meet the needs of young people entering the labour market (Keating 1998; Ainley & Fleming 1997). VET in Schools programs therefore began to gain traction because they offered a broader range of curriculum designed to encourage young people to stay at school and complete Year 12; at the same time they provided these young people with exposure to the world of work, thus smoothing the school-to-work transition. These programs are now an integral part of each state and territory's senior secondary certificate of education (SSCE).

Young people from the Longitudinal Surveys of Australian Youth (LSAY) who are undertaking VET in Schools programs can be tracked as they make their transitions from school to work, providing the opportunity to assess the impact of these programs on their educational and employment outcomes. Young people first interviewed in 1995 (Y95 respondents) can be followed into their mid-20s, allowing an assessment of the impact of early programs (1998) on their post-school outcomes observed in 2006. However, this analysis does not capture the major changes in VET in Schools delivery that has occurred in the last decade. Those first interviewed in 2003 (Y03 respondents) provide more recent information on the impact of current VET in Schools delivery (2005). But the bulk of these young people have only made their initial transitions from school and the analysis is limited to very early post-school outcomes.

This briefing paper assesses whether participation in VET in Schools assists the transitions of young people, particularly whether participation affects young people's aspirations to stay in school and their post-school plans. Both the early and current programs of VET in Schools are explored using data from the Y95 and Y03 LSAY respondents. The paper also draws on previous LSAY research that evaluates the effectiveness of VET in Schools.¹

DIFFERENT STRATEGIES FOR VET IN SCHOOLS DELIVERY

VET in Schools programs provide credit towards a nationally recognised VET qualification and training that reflects industry specific standards. Under these arrangements, students can undertake VET courses or VET subjects, or school-based New Apprenticeships and traineeships. The nature and structure of VET in Schools programs are largely influenced by the policy directions in each state and territory, particularly the way each jurisdiction structures their senior secondary certificate of education. Over time, these programs have also responded to industry standards for VET delivery and the need to strengthen links between senior secondary schooling and employment (Keating 1998).

Consequently, there are many variations of school VET models available across different jurisdictions (table 1). For example, schools can deliver VET in Schools directly as registered training organisations

(RTOs), as is the case for most schools in Queensland and New South Wales. However, in Western Australia, VET in Schools is offered mainly by training providers. Partnerships are also common across jurisdictions, whereby schools work with providers such as TAFE (technical and further education) institutes to deliver training programs. In addition, many states offer stand-alone VET subjects and courses as well as curriculum-based VET in Schools programs. The Tasmanian Polytechnic and the Tasmanian Academy, and the industry centres of excellence in Queensland provide significantly different models for the school-to-work transition. These variations in VET in Schools delivery can potentially affect student outcomes, but these differences are difficult to categorise and hence measure. Despite these issues, research drawing on the LSAY data provides an insight into the impact that VET in Schools programs have on young people's educational and employment outcomes.

¹ This briefing paper was written in 2009 and all data were correct at the time of writing.

Table 1 Strategies for VET in Schools delivery in Australia by state/territory

State/ territory	Strategies for direct recognition of VET and recognition within curriculum- based qualifications	Delivery
NSW	<ul style="list-style-type: none"> • Curriculum-based: HSCVET courses under industry curriculum frameworks • Direct: Credit transfer 	<ol style="list-style-type: none"> a. Approximately two-thirds of HSCVET delivered by school system and sector registered training organisations (RTOs) b. The remaining third is delivered by TAFE NSW institutes
Vic.	<ul style="list-style-type: none"> • Curriculum-based: VCEVET programs delivered as stand-alone contributing to the VCE or VCAL • Direct: Block credit recognition 	<ol style="list-style-type: none"> a. Schools may apply as RTOs to deliver VCEVET b. Auspicing arrangements: schools working with an RTO in partnership to deliver the training program
Qld	<ul style="list-style-type: none"> • Curriculum-based: embedded VET syllabuses have been almost phased out and replaced with stand-alone delivery of VET in Schools • Direct: Recognition of full or partial qualifications 	<ol style="list-style-type: none"> a. Around 370 Queensland schools are RTOs b. Schools also provide access to a wider range of higher Australian Qualifications Framework certificate-level VET through arrangements and partnerships with RTOs with the appropriate scope of registration
WA	<ul style="list-style-type: none"> • Curriculum-based: general VET integrated into courses; VET industry-specific courses introduced in 2008 • Direct: VET credit transfer 	<ol style="list-style-type: none"> a. Auspice: where a school purchases quality assurance aspects from an RTO b. Fee for service: where a school purchases delivery and assessment from an RTO c. Profile: where schools access VET in Schools profile hours through a TAFE college d. Schools as an RTO: in WA only 22 schools are RTOs (in 2008)
SA	<ul style="list-style-type: none"> • Curriculum-based: mainstream SSABSA–VET subjects • Direct: stand-alone units of competency/modules granted towards completion of the SACE 	<p>Schools provide VET programs by:</p> <ol style="list-style-type: none"> a. becoming an RTO b. partnering with an existing RTO by entering into a VET in Schools Arrangement (VISA) c. purchasing VET from an RTO
Tas.	<ul style="list-style-type: none"> • Direct: recognition of full or partial qualifications 	<ol style="list-style-type: none"> a. Most senior secondary providers are also RTOs b. Some VET training is done by specialist providers <p>The Tasmanian Polytechnic provides VET to advanced diploma level and general education to post-Year 10 students—both adults and learners straight out of Year 10</p>
NT	<ul style="list-style-type: none"> • Curriculum-based: SSABSA-VET • Direct: stand-alone VET: modules credited towards NTCE completion in groups of 50 hours 	<ol style="list-style-type: none"> a. Schools may apply as RTOs to deliver VET b. Schools that are not RTOs may form partnerships with a suitable RTO
ACT	<ul style="list-style-type: none"> • Curriculum-based: BSSSVET programs and subjects designed around a training package • Direct: stand-alone VET credited towards senior secondary certificate • Recognition of full or partial qualifications 	<ol style="list-style-type: none"> a. BSSS subjects delivered mainly through colleges as RTOs b. Colleges may also opt to send students to Canberra Institute of TAFE c. The Board also recognises VET qualifications from other RTOs

PARTICIPATION IN VET IN SCHOOLS PROGRAMS

Over 90% of senior secondary schools offer VET subjects and programs, and nationally over 40% of students participate in VET in Schools. Close to 12% of these students are undertaking a school-based apprenticeship or traineeship (NCVER 2010).

Many previous LSAY studies have described the characteristics of students who participate in school VET programs (Coates & Rothman 2008; Anlezark, Karmel & Ong 2006; Fullarton 2001). Over the past decade these characteristics have remained consistent, with students of lower levels of achievement and from more disadvantaged backgrounds being more likely to participate in school VET programs.

Porter (2006) suggests that one of the reasons students self-select into VET is because it is a better fit with their academic ability. This is consistent with

the findings of Anlezark, Karmel and Ong (2006), as shown in table 2. Here we see an increased likelihood of school VET participation for lower achievers, those less engaged with school, and those with lower career aspirations and lower self-perceived academic ability. Of note in the analysis of table 2 is the limited influence of peers on the likelihood of participating in VET in Schools, supporting the idea that students are self-selecting into these programs, irrespective of the choices of their peers.

Overall, the proportion of young people in LSAY participating in these programs increased from 28% in 1998 to 32% in 2005. These students are equally males and females, with the majority attending government schools.

Table 2 Predicted proportion of students undertaking VET in Year 11, holding other variables constant (%), LSAY Y98 cohort

Student characteristics	Predicted proportion
Academic achievement (assessed)	
Low score	31.5
Lower middle score	25.9
Upper middle score	21.7
High score	13.5
Engagement with school	
Low score	26.7
Medium score	26.1
High score	22.3
Aspiration (asked in Year 10)	
Intended to do Year 12	24.9
Intended to leave before Year 12	32.4
Perceived attitude of peers*	
Very poor	26.3
Poor	26.3
Good	26.3
Very good	26.1
Self-perceived academic ability	
Low score	30.2
Lower middle score	26.4
Upper middle score	22.6
High score	16.6

Note: * Attitude of peers was derived from students' perceived rating of their peers' ability to make good progress, eagerness to learn, working hard and being well behaved.

Data sourced from Anlezark, Karmel and Ong (2006, table 1).

VET IN SCHOOLS AND YEAR 12 RETENTION

VET in Schools programs have been seen as a way to increase Year 12 retention by broadening the school curriculum so that it appeals to a wider range of students. These programs can help students form a positive view of learning and encourage them to stay in school.

Lamb and Vickers (2006) found that the attitudes of school VET students in Year 12 were as positive about school as a place of learning as non-VET students. This was a significant change from their attitudes in Year 9,² where school VET students had less positive views of school compared with students who never engaged in VET. It was also an improvement on the findings of Fullarton in 2001 who reported that VET in Schools

students showed early signs of disengagement with negative attitudes to, and dissatisfaction with, school.

VET in Schools changes the attitudes of some students towards school but is this enough to keep them sufficiently engaged to complete Year 12? The change in a student's aspirations from Year 9 to Year 11 provides some evidence on the impact on Year 12 completion.

In LSAY, only a small proportion of students in Year 9 indicate an intention to leave before finishing Year 12, with the proportion slightly larger for school VET students than non-school VET students (6% and 2.4% respectively, table 3).

Table 3 Changes in intention to complete Year 12 from Year 9 to Year 11, by VET in Schools participation (%), 1997, Y95 cohort

Change in aspirations (Year 9 to Year 11)		VET in Schools (N = 648)	No VET in Schools (N = 2115)
Year 9 aspiration	Year 11 aspiration		
Complete Yr 12	Complete Yr 12	92	96
Complete Yr 12	Leave before Yr 12	2	1
Leave before Yr 12	Leave before Yr 12	1	0.4
Leave before Yr 12	Complete Yr 12	5	2
Total		100	100

Note: Percentages exclude 'unknowns'.

By 2005, all 15-year-olds participating in LSAY (Y03 cohort) indicated an intention to complete Year 12, regardless of VET exposure in school.

We can see that most students in Year 9 have already made up their minds about finishing Year 12 and that participating in school VET does not deter students from completing school (table 3). However, there is little difference in changes in aspirations to complete Year 12 between students participating in school VET and those who do not, indicating that these programs are unlikely to improve school completion.

The growth of VET in Schools and the stability of the Year 12 retention rate over the past decade is also an indication that school VET is not affecting school completion. Anlezark, Karmel and Ong (2006) suggest that school VET has a slightly negative effect on Year 12 retention, but has a positive effect on retention

between Years 10 and 11. The researchers measured the impact of school VET on school retention by taking an aggregate approach using Australian Bureau of Statistics (ABS) data, and also used the LSAY Y98 cohort to compare the school outcomes of students who undertook school VET with those who did not. The observed effects were larger for boys compared with girls but not statistically significant and of no major policy concern.

It is important to note that the increasing popularity of VET in Schools among secondary school students may also reflect the strong integration of these programs into the school curriculum over time. Nationally, the number of senior secondary students participating in VET in Schools has increased by 25.8% (NCVER 2010).

2 The LSAY cohort is biased towards higher achieving students who are more likely to stay in the survey than those in the lower achievement quartile. We find that students who make it to Year 12 generally complete school; therefore, the comparison point of students' aspirations to complete Year 12 is taken from Year 11.

VET IN SCHOOLS AS A PATHWAY TO FURTHER EDUCATION AND TRAINING

By providing more diverse pathways from school to work and/or study, VET in Schools is seen as a way to improve the transitions of young Australians. Young people who participate in school VET are more likely to undertake post-school vocational education and training than higher education (tables 4 and 5). Table 4 looks at the longer-term outcomes from those first interviewed in 1995 who undertook VET activity as

part of their Senior Secondary Certificate of Education in 1997–98. Those first interviewed in 2003 and who undertook their VET in Schools activity in 2004–05 were also more likely to be enrolled in a VET course compared with their non-school VET counterparts. These students were also less likely to be enrolled in a bachelor degree or higher.

Table 4 Educational attainment at average age 24.5 by VET in Schools participation (%), 2006, Y95 cohort

Educational outcomes	VET in Schools (N = 906)	No VET in Schools (N = 2657)
Completed Year 12	91*	94*
Highest education completed		
Certificate I/II	7	4
Certificate III/IV (includes apprenticeships and traineeships)	16	10
Certificate – level unknown	9	4
<i>Sub-total VET</i>	32	18
Advanced diploma/ diploma (incl. associate degree)	11	7
Bachelor degree or above	24	50
<i>Sub-total higher education qualifications</i>	35	57
No study leading to a qualification completed	33	25

Note: Percentage calculated is based on the total and includes 'unknown' responses.

* The completion rates in the LSAY cohort are higher than observed in the general population statistics (for example, ABS).

Participation in post-school VET has been demonstrated by other research to be related to academic ability more so than prior exposure to VET, but participation in school VET can still provide a pathway to further post-school VET for some students. Male school VET students with lower academic ability (Fullarton 2001) and those studying engineering or building courses (Anlezark, Karmel & Ong 2006) were more likely to go on to an apprenticeship or traineeship than other students. However, participation in VET in Schools programs is not a prerequisite for participating in post-school VET study. Early schools leavers (Year 10 completers) who are not generally exposed to school VET participated in post-school VET at a rate comparable with previous school VET students (Anlezark, Karmel & Ong 2006).

The pathway into post-school VET is not linear. Many students, particularly girls, who go on to post-school VET undertake study that is not related to their

school VET subjects (Anlezark, Karmel & Ong 2006). One explanation is that VET undertaken by students in schools does not mirror subjects offered outside school; rather VET in Schools subjects are those that tend to fit more readily into the school curriculum VET (Karmel 2008). In addition, VET subjects undertaken by school students are usually at a lower level (certificate I or II), whereas the bulk of post-school VET is undertaken at certificate III level. These lower-level qualifications have been demonstrated to provide limited benefit for young people seeking employment outcomes (Stanwick 2008).

Looking at the educational outcomes of young people aged on average 25 years in 2006 (and controlling for background characteristics), we can see whether school VET impacts on the likelihood of obtaining a qualification at certificate III or above. Overall, students participating in school VET are less likely to obtain qualifications at certificate III or above compared with students with no school VET experience (table 6).³

3 Details of the regression analysis displayed in tables 5 and 6 are contained in appendix A.

Table 5 Educational participation and early outcomes at average age 20.7 by VET in Schools participation (%), 2008, Y03 cohort

Educational outcomes	VET in Schools (N = 1954)	No VET in Schools (N = 4009)
VET studies		
Currently undertaking	21	11
Completed	24	18
Commenced but did not complete	7	5
Never commenced	47	66
Total	100	100
Studies in bachelor degree or higher		
Currently undertaking	20	46
Completed	2	3
Commenced but did not complete	0	0
Completed and undertaking further study at bachelor or higher	2	2
Never commenced	76	49
Total	100	100

Table 6 Predicted probability of attaining certificate III or above qualifications, Y95 cohort at 24.5 years

	Males (N = 811)		Females (N = 1198)	
All students	School VET	No school VET	School VET	No school VET
Certificate III & above	0.68	0.81	0.83	0.83

Females are more likely to obtain a higher qualification than males, and there are no real differences in the likelihood of achieving a qualification at certificate III level or above between female school VET students and those with no prior exposure to VET. Males, on the other hand, are less likely to obtain higher-level qualifications by 13 percentage points if they participate in school VET programs (refer to tables A3 and A4 for details of regression results).

Does VET assist those of lesser academic ability to achieve higher-level qualifications? If we repeat the analysis in table 5 for those in the lower academic achievement distribution, we get very similar results (table 7), although there is a marginal increase for

females undertaking school VET. It seems that, at least for males, participating in school VET reflects a disposition away from formal study.

For females, we see that school VET may be of assistance, with a slightly higher probability observed for these students compared with their non-school VET counterparts (0.79 and 0.76 respectively, table 7). For males of lesser academic ability, participation in school VET leads to a lower probability of obtaining qualifications at certificate III level and higher (0.59), compared with male students with no prior school VET exposure (0.69, refer to tables A5 and A6 for details of regression results).

Table 7 Predicted probability of attaining certificate III or above qualifications, lower achievement quartiles, Y95 cohort at 24.5 years

	Males (N = 202)		Females (N = 372)	
Students in the last two achievement quartiles	School VET	No school VET	School VET	No school VET
Certificate III & above	0.59	0.69	0.79	0.76

SCHOOL VET AS A PATHWAY TO POST-SCHOOL EMPLOYMENT

Anlezark, Karmel and Ong (2006) found that, for those who leave school before completing Year 12, participation in VET in Schools programs helped to provide a smoother school-to-work transition. Successful post-school outcomes are influenced by the amount of time the student has in the labour market. The longer the time, the more diluted the positive effects from participation in school VET programs become. However, Year 12 completers, irrespective of their school VET participation, have better immediate (one year) post-school transition into post-school employment or study than early school leavers.

If post-school employment occurs before Year 12 completion, then this early school leaving is viewed as an 'unsuccessful' school outcome, but it can still be a successful employment outcome, although this

depends on the nature of the employment. This can create tensions between positive school (retention and completion) and post-school employment outcomes (Lamb & Vickers 2006) because early school leaving is generally viewed as a less satisfactory outcome than Year 12 completion.

Outcomes from school VET also depend on the composition of VET studies, including the level of structured workplace learning (Coates & Rothman 2008). Rural school VET courses with a strong emphasis on structured workplace learning were found to be more successful in retaining students who were otherwise likely to have left school early and assisted the transition into local employment and apprenticeships (Johns et al. 2004).

SCHOOL VET AND POST-SCHOOL PLANS

School VET programs are often integrated into broader school career education programs, which include careers advice, work experience and vocational education and training. But do they help young people in their career choices? As indicated earlier, students with lesser academic ability and with lower aspirations are more likely to participate in school VET programs, but does it assist their post-school career plans?

Post-school plans are fundamentally shaped by vocational aspirations, which are also linked to cognitive ability (Beavis et al. 2004; Misko, Nguyen & Saunders 2007). A positive orientation towards lifelong learning and an active academic engagement can have an influence on post-school plans of school students (Khoo & Ainley 2005; Beavis et al. 2004). Students who have a positive experience with school VET may be encouraged to participate in post-school study. Lamb and Vickers (2006) found that a much larger proportion of Year 12 completers who had studied VET had changed their plans compared with non-VET students.

LSAY asks students about their post-school plans at different points in time. Changes to student post-school intentions can be inferred by comparing the change in plans from Year 11 to Year 12. Tables 8 and 9 contain some primary analysis of the LSAY Y95 cohort to explore whether participation in school VET changes post-school plans.

Table 8 illustrates that, for the majority of students, their post-school plans change little between Years 11 and 12, and participation in school VET in the senior years of secondary school may be too late to influence post-school plans. However, students who participated in school VET are more likely to change their plans to include post-school VET (15% and 14% in 1998 and 2005 respectively) than their non-school VET counterparts (7% and 9% in 1998 and 2005 respectively).

Table 8 Changes to post-school plans from Year 11 to Year 12 (%), 1998 and 2005, Y95 and Y03 cohort

	1998		2005	
	VET in Schools (N = 681)	No VET in Schools (N = 2225)	VET in Schools (N = 1369)	No VET in Schools (N = 3032)
No change from VET	28	7	32	9
Changed to VET	15	7	14	9
No change from non-VET	50	80	44	78
Changed to non-VET	7	6	10	4
Total	100	100	100	100

Note: Percentages excludes unknowns and 'other' category.

Table 9 explores this issue further by providing more detail on changes in post-school plans for those intent on getting an apprenticeship or traineeship, or intent on post-school employment. It demonstrates that undertaking school VET does increase orientation

towards post-school study, but mostly in terms of an apprenticeship or traineeship that combines training and employment. It can also reinforce post-school VET pathways for other students.

Table 9 Change in post-school plans from Year 11 to Year 12 (%): apprenticeships/traineeships and employment, 1998 and 2005, Y95 and Y03 cohort

	1998		2005	
	VET in Schools (N = 681)	No VET in Schools (N = 2225)	VET in Schools (N = 1369)	No VET in Schools (N = 3032)
Year 11 plans: intend to get an apprenticeship/traineeship				
No change	72	56	64	59
Change to TAFE	17	17	14	18
Change to university	5	14	5	11
Change to work	6	12	17	12
N	132	172	275	189
Year 11 plans: intend to work				
No change	37	37	38	40
Change to TAFE	22	22	23	10
Change to university	12	24	15	38
Change to apprenticeship/traineeship	29	17	24	13
N	163	373	206	248

Note: Percentages excludes unknowns and 'other' category.

CONCLUSION

VET in Schools subjects and courses help to improve student attitudes to school, but participation in school VET does not necessarily lead to increased Year 12 retention. It does help to smooth the transition to employment for some students through an exposure to the world of work, particularly if the school VET program contains a structured workplace learning component.

For the majority of students, their post-school plans do not change between Years 11 and 12, with school VET having limited influence on post-school plans. However, we do find that participation in school VET can influence a small group of students intent on getting a job straight after school to change their post-school plans to include further VET study or an apprenticeship or traineeship. School VET programs also reinforce post-school plans for those intent on post-school VET pathways.

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APPENDIX A

This appendix contains the results of the regression models. The following summarises the definition of each output measure for logistic regression:

- *b*: these are the estimated beta coefficients for the logistic regression equation for predicting the dependent variable from the independent variables. The logistic prediction equation is:

$$p = 1 / (1 + \exp^{-z})$$

Where $z = b_0 + b_1 \times x_1 + \dots + b_n \times x_n$

- S.E.: the standard errors of the regression coefficients
- Wald and Sig.: provide the Wald Chi-Square Statistic ($[\text{coefficient}/\text{S.E}]^2$) and the 2-tailed p-value used in testing to determine whether the coefficient is significantly different from 0 (the reference category).
- DF: this column lists the degrees of freedom for testing the coefficients.

Tables A1 and A2 contain the results of the logistic regression, which models the probability of participating in VET in Schools in Years 11 and 12 by gender. The propensity scores for these regressions are then used to summarise the background information of respondents into a single value. These provide a method for reducing selection bias in the modelling of our treatment effects of hours worked.

The propensity scores are calculated as the probability that an individual will participate in VET in Schools, given the known background characteristics; that is, they 'average' out the effects of the background characteristics. These propensity scores are included as covariates in the subsequent regression models (tables A3 to A6) used in the school and post-school outcomes. Propensity score regression assesses the importance of participation of VET in Schools after removing the background effects.

Tables A3 and A4 contain the regression results for table 6 in the main body of the paper. Tables A5 and A6 contain the regression results for table 7 in the main body of the paper.

Table A1 Maximum likelihood estimates: participation in VET in Schools, Y95, males

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr>ChiSq
Intercept	1	-1.259	0.662	3.615	0.057
State/territory					
NSW	1	0.256	0.381	0.453	0.501
NT	1	0.289	0.566	0.261	0.610
QLD	1	1.404	0.372	14.272	0.000
SA	1	0.198	0.393	0.253	0.615
Tas.	1	0.481	0.482	0.996	0.318
Vic.	1	0.332	0.376	0.780	0.377
WA	1	0.815	0.387	4.439	0.035
School type					
Catholic	1	0.623	0.221	7.975	0.005
Government	1	0.613	0.185	11.006	0.001
Locality of school					
Metro area	1	-0.205	0.165	1.553	0.213
Regional area	1	-0.260	0.183	2.018	0.156
Indigenous status					
No	1	-0.575	0.487	1.395	0.238
Achievement quartile					
Lower middle	1	-0.096	0.161	0.359	0.549
Unknown	1	0.108	0.241	0.201	0.654
Upper	1	-0.625	0.234	7.161	0.007
Upper middle	1	-0.389	0.189	4.243	0.039
Parental education					
Completed secondary school	1	0.067	0.172	0.153	0.696
Higher education qualification	1	-0.457	0.202	5.131	0.024
Trade/technical qualification	1	-0.213	0.242	0.769	0.381
Unknown	1	-0.042	0.177	0.056	0.814

Table A2 Maximum likelihood estimates: participation in VET in Schools, Y95, females

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr>ChiSq
Intercept	1	-2.274	0.617	13.601	0.000
State/territory					
NSW	1	0.296	0.280	1.116	0.291
NT	1	-0.064	0.428	0.023	0.881
QLD	1	0.808	0.282	8.212	0.004
SA	1	-0.034	0.292	0.013	0.909
Tas.	1	0.158	0.373	0.180	0.672
Vic.	1	-0.789	0.295	7.174	0.007
WA	1	0.004	0.300	0.000	0.989
School type					
Catholic	1	0.257	0.218	1.388	0.239
Government	1	0.810	0.186	18.906	<.0001
Locality of school					
Metro area	1	-0.125	0.148	0.712	0.399
Regional area	1	-0.070	0.163	0.186	0.666
Indigenous status					
No	1	0.751	0.513	2.146	0.143
Achievement quartile					
Lower middle	1	-0.179	0.147	1.491	0.222
Unknown	1	0.054	0.241	0.050	0.823
Upper	1	-0.349	0.212	2.714	0.100
Upper middle	1	-0.423	0.176	5.742	0.017
Parental education					
Completed secondary school	1	-0.173	0.162	1.140	0.286
Higher education qualification	1	-0.216	0.166	1.690	0.194
Trade/technical qualification	1	0.180	0.225	0.640	0.424
Unknown	1	-0.128	0.167	0.588	0.443

Table A3 Maximum likelihood estimates: males at average age 24.5 years, Y95

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr>ChiSq
Intercept	1	0.754	0.069	119.231	<.0001
No VET in Schools	1	0.714	0.078	84.395	<.0001

Table A4 Maximum likelihood estimates: females at average age 24.5 years, Y95

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr>ChiSq
Intercept	1	1.572	0.069	522.339	<.0001
No VET in Schools	1	0.003	0.075	0.002	0.965

Table A5 Maximum likelihood estimates: males at on average 24.5 years in the lower half of the academic achievement quartile, Y95

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr>ChiSq
Intercept	1	0.384	0.099	15.134	0.001
No VET in Schools	1	0.396	0.120	10.914	0.001

Table A6 Maximum likelihood estimates: females at on average 24.5 years in the lower half of the academic achievement quartile, Y95

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr>ChiSq
Intercept	1	1.325	0.097	187.122	<.0001
No VET in Schools	1	-0.172	0.110	2.460	0.117

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and Workplace Relations



National Centre for Vocational Education Research Ltd Level 11, 33 King William Street, Adelaide, South Australia
M PO Box 8288, Station Arcade, SA 5000 Australia T +61 8 8230 8400 F +61 8 8212 3436 W www.ncver.edu.au E ncver@ncver.edu.au

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