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The Tasmanian Polytechnic: Some thoughts from a research perspective

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About the research

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The Tasmanian Polytechnic: Some thoughts from a research perspective
by Tom Karmel, NCVER

The latter years of secondary schooling have received considerable attention from governments in recent years. Questions have been asked on how schools need to change so that all young people are provided with a solid foundation for transition to further study or the labour market. Developments such as VET in Schools and school-based apprenticeships and traineeships have been targeted at those students who may not be headed on an academic pathway.

The most radical innovation in the area has occurred in Tasmania. The structure of Year 11 and 12, and vocational education and training to both young people and adults, have been fundamentally re-engineered into:

- the Tasmanian Academy, catering for school students on track to university
- the Tasmanian Polytechnic, focusing on practical learning for Year 11 and Year 12 students and adults
- Training Tasmania, catering for the training needs of employers.

As part of the implementation of this model, the Tasmanian Department of Education and TAFE Tasmania conducted a two-day conference on the Tasmanian Polytechnic. At this, I presented some thoughts on the concept of the Tasmanian Polytechnic, drawing on a range of research mostly undertaken by the National Centre for Vocational Education Research (NCVER).

The presentation considers a number of 'goals' that are clearly relevant to judging the success of the polytechnic: Year 12 retention (or its equivalent); the completion of Australian Qualifications Framework (AQF) qualifications; university entrance; transition to the workforce; and the provision of opportunities for 'second chancers'. It then makes a number of observations on relevant issues, including that certificate I and II qualifications are considerably less valuable than higher level qualifications, that VET that has been delivered in schools is rather different than that delivered in the VET mainstream, that VET has a large degree of generic education in it, and that apprenticeships and traineeships outside the school setting are very important for young people.

All speakers at the conference were invited to pose three questions for discussion. My three questions are:

- How do you ensure that 'people are challenged to do their best'?
- How do you ensure that the polytechnic offers an alternative that does not cut off pathways?
- How do you integrate 'school VET' with 'industry VET'?

Regardless of these, however, the real measure of the polytechnic model's success will be the extent to which it equips Tasmanians with skills they need for a modern economy. And while generalisations are always dangerous, the possession of at least a certificate III or a diploma is a good benchmark to aspire to.

Tom Karmel
Managing Director, NCVER

Introduction

I have been asked to speak on the research that the National Centre for Vocational Education research (NCVER) has undertaken as it relates to the Tasmanian Polytechnic. I will try to keep to my brief, but where useful I will go wider than NCVER research.

The Tasmanian Polytechnic will be a fascinating experiment. It is rare in public policy to have such a radical innovation, and I will follow its progress with great interest and a little trepidation. The trepidation comes from the responsibility that NCVER has from being the national statistical agency for vocational education and training (VET) data, and the challenges that the polytechnic will provide in sorting out the interface between school and VET statistics. It is this confounding aspect that makes the polytechnic so interesting: the joining together of the last years of secondary schooling with the VET sector at large.[1]

In looking at relevant research, the approach I will take is to first ask the question *how will we know whether the polytechnic has been a success?* This question invites me to suggest some aims and some indicators. It also provides me with a structure to introduce some relevant background material. Having done this I will then canvass a range of research under the banner *some things you should know*. Following instructions from the conference organisers, I will conclude with three issues for you to take away and discuss in subsequent workshops.

How will we know whether the Tasmanian Polytechnic has been a success?

To answer this question we need to consider the various aims of the polytechnic. I have taken the liberty of providing a personal view of relevant benchmarks (there is no guarantee that my list corresponds with that of the Tasmanian Department of Education), as follows:

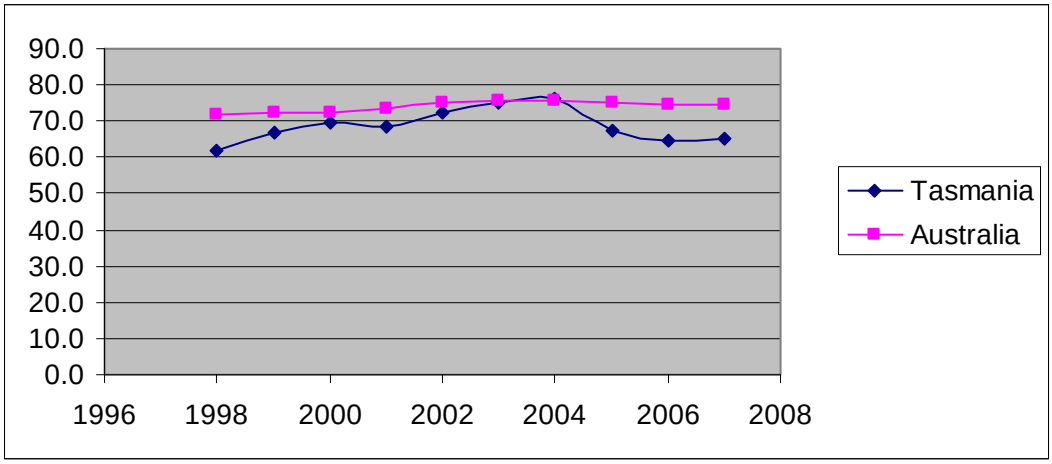
- Year 12 retention (or its equivalent)
- the completion of Australian Qualifications Framework (AQF) qualifications (preferably at certificate III or higher)
- university entrance
- transition to the workforce (including to a non-school-based apprenticeship or traineeship)
- high participation rates, and successful qualification completions, for 'second chancers'.

Year 12 retention and its equivalent.

Tasmania has traditionally had relatively low school retention (figure 1), and no doubt one of the aims of the polytechnic is to remedy this by providing an alternative to the traditional schooling model provided by the senior secondary colleges.

[1] I note that the polytechnic subsumes the student-based portion of the previous technical and further education (TAFE) system. The employer-based part of the business, including apprentices and trainees, will be the responsibility of Training Tasmania, as I understand it.

Figure 1 Apparent retention from Year 7/8 to Year 12, Tasmania and Australia.



Source: ABS (1996–2008).

Over the last few years there has been criticism of Year 12 retention as being unduly narrow indicator. The idea of 'an equivalent' has been bandied around, and various equivalents have been proposed. In Karmel (2004) I discuss this issue and make the point that, in considering the educational foundation of young people, the focus needs to broaden to include both school and vocational education and training, and to acknowledge that full-time study is not for everyone. Of course, this is exactly what the polytechnic is doing. I look at two possibilities. The first, analogous to an apparent Year 12 retention rate, is to focus on Year 12 retention, but include (with an appropriate adjustment to avoid double-counting) part-time students and early school leavers undertaking a certificate III or better. I restrict the VET certificates to certificate III or better because of a personal view that lower-level qualifications are not equivalent to completing Year 12.[2] Some calculations of such a measure appear in Karmel (2004) for South Australia. Analogous calculations could be done for Tasmania (and would have been done if time had permitted). However, the South Australian figures are quite instructive in any case, given that South Australia also has low retention.

Table 1 Estimation of a Year 12 retention rate alternative, South Australia, 2003

	Males	Females
Apparent Year 12 retention (full-time)	60.8	73.7
Part-time Year 12 students	6.9	9.7
Early school leavers at VET, certificate III or better	7.9	4.2
Alternative Year 12 retention rate	75.6	87.7

Source: Karmel (2004).

The obvious drawback with this indicator is that it focuses on participation not achievement. This is true, but it is an inherent problem with the concept of Year 12 retention. While data are available for the number of senior secondary certificates issued, each state has a different approach to whom gets such a certificate, so the notion of Year 12 completion is quite problematic. Nevertheless, let's assume that we can get such data. To get an appropriate benchmark for the polytechnic we would need to add the numbers of individuals who complete an appropriate level VET qualification instead of the senior secondary certificate. Table 2, based

[2] This view is supported by relative wage data (presented later) which shows that people with Year 12 tend to earn more than those with certificates I or II.

on a life table approach where we look at the proportion of each individual age to complete a qualification, provides an estimate for South Australia of the number obtaining a certificate III or better having left school before Year 12.

Table 2 Proportion of an age cohort achieving certificate III or better having not completed Year 12, South Australia, based on 2002 completions

By age (years)	Females	Males
19	3.0	2.8
24	7.3	11.8
29	10.3	14.9
39	20.3	23.0

Source: Karmel (2004).

To operationalise such an approach we need to define a reference age. My suggestion is that we focus on age 24. This, it seems to me, captures the spirit of a Year 12 retention by considering young people, but allows some flexibility in young people's pathways. Nineteen years is too young, because relatively few on a VET pathway have completed by this age. Any age over 24 years would change the emphasis away from young people to 'second chance' adults.

Given that we are talking about Year 12 retention, it is worth referring to research that looks at the effect of VET in Schools on Year 12 retention.[3] While much of the literature is very positive about this initiative, I am rather suspicious of findings that VET in Schools has increased Year 12 retention. Research I have been involved with (Anlezark, Karmel & Ong 2006) indicates, on the basis of data from the Australian Longitudinal Survey of Youth, that if anything it has had a negative effect on Year 12 retention, despite increasing retention to Year 11. The reason for this is the other finding of that research—that it very significantly improved the transition to the workforce for those who left school after Year 11. This finding is of obvious relevance to the polytechnic and one to which we return later.

AQF qualifications completion

I acknowledge that completing full qualifications is not the be all and end all of VET. Indeed Karmel and Nguyen (2007) find that it is qualifications at a higher level than those already possessed that appear to have a payoff—at least in terms of average wages. If anything, completing a lower-level qualification appears to have a negative wage premium. However, a clear aim of the polytechnic is for students to complete a qualification.

Completion rates are tricky to calculate because we do not have unique student identifiers in our statistical systems and so it is difficult to track students over time. Nevertheless, NCVER has made some estimates for Australia (table 3). For certificates I or II we see that the majority do not complete a course.

Table 3 Projected completion rates in the longer term (%)

	15 to 19-year-olds		20 to 24-year-olds		15 to 24-year-olds	
	Cert. I	Cert. II	Cert. I	Cert. II	Cert. I	Cert. II
Completed a course	34.6	44.2	23.5	33.5	32.9	42.6
Did not complete a course	65.4	55.8	76.5	66.5	67.1	57.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Stanwick (2005).

[3] Karmel (2007) provides a survey on VET in Schools.

Estimates are available for apprenticeships and traineeships for all states and territories and these provide a pretty good benchmark for certificate IIIs (table 4). These completion rates are rather better than those for the lower-level qualifications.

Table 4 Apprentice and trainee completion rates, Tasmania, commencing cohort 2001

Occupation (ASCO) group	Individual completion rates (%)	Number of Individuals ('000)
Managers and administrators	62.2	0.1
Associate professionals	73.4	0.3
Tradespersons and related workers	57.8	1.2
Advanced clerical, sales and service workers	58.9	0.2
Intermediate clerical, sales and service workers	68.0	3.3
Intermediate production and transport workers	64.7	1.5
Elementary clerical, sales and service workers	61.1	1.3
Labourers and related workers	75.5	1.1
All occupations	65.8	8.9

Source: NCVER National Apprentice and Trainee Collection, 2006, web tables.

University entrance

The link between the polytechnic and university education is important. Unless there is a good proportion of students going on to higher education, the polytechnic will be accused of cutting off pathways, and this is clearly not the intention. As can be seen from table 5, VET qualifications are already an important element of university entrance in Tasmania.

Table 5 University domestic commencing students by basis for admission to undergraduate course, 2005

	Tasmania		Australia	
	No.	%	No.	%
Secondary qualification	1400	30.1	79 200	41.9
VET qualification	600	12.7	18 800	10.0
Other (e.g. adult entry)	2700	57.2	90 800	48.0
Total	4800	100	188 800	100

Source: Department of Education, Employment and Workplace Relations Higher Education Statistics Collection, Commencing students, 2005.

The worrying feature of this table is in fact the small number of students being admitted on the basis of their secondary education. However, the proportion of commencing students admitted on the basis of a VET qualification does not really provide a suitable benchmark. It would be better to look it the other way; that is, the proportion of the commencing cohort at the polytechnic who go on to university at some stage. Work by Stanwick (2006) indicates that quite a high proportion of young people who achieve a VET diploma go onto university (table 6). So the challenge will probably be to ensure that a high proportion of polytechnic students aspire to diploma studies in the first instance, while acknowledging this is not for everyone (especially those interested in the trades).

Table 6 Proportion of diploma graduates going on to further study at bachelor degree level or higher, Australia

Field of education	Proportion going on to further study at bachelor level or higher	
	15–24	25 and over
Information technology	37	13
Engineering and related technologies	33	9
Architecture and building	21	5*
Agriculture	29	18
Health	26	14
Management and commerce	39	15
Banking and finance	*54*	*22*
Accountancy	*53*	*23*
Society and culture	24	16
Human welfare studies	*27*	*20*
Creative arts	24	17
Total	32	14

Source: Stanwick (2006).

Transition to the workforce

The Student Outcomes Survey provides us with some data on transition to the workforce. Transition is an issue for those without employment before their training (no doubt many adult students of the polytechnic will be in full-time employment while they are studying). The precise statistic we present is the number in full-time employment six months after VET training as a proportion of those not in full-time employment before training.

Table 7 Employed after training as percentage of those not employed before training, TAFE, government-funded training, Tasmania

	Graduates	Module completers
2003	47.4	23.5
2004	43.8	26.2
2005	50.6	36.2
2006	48.3	32.3
2007	49.9	37.8

Source: Student Outcomes Survey, 2007.

Note: These percentages have been derived from rounded percentages and therefore may differ slightly from direct estimates.

As noted earlier, Anlezark, Karmel and Ong (2006) found that VET in Schools was very beneficial to the proportion of early school leavers making a successful transition in the year after leaving school. For those leaving after Year 11, having done VET in Schools increased the probability of a successful transition by 11.3 percentage points and 14.8 percentage points for males and females, respectively.[4]

[4] A successful transition was defined as one resulting in full-time employment, full-time study or work and study.

Second-chance education

VET has the deserved reputation for being the education sector that provides a second chance to those who leave school early or who do not continue with their tertiary education from school (Karmel & Woods 2008). Karmel and Woods find that 50% of early school leavers and the vast majority of eligible adults undertake VET. However, the percentage of second-chance students leaving the sector with a qualification is low. The percentage is particularly low when restricted to certificate III or higher VET qualifications.

- Just over 10% of early school leavers complete a certificate III or higher VET qualification within four years of leaving school.
- 10 to 30%[5] of adults eligible for a second chance in education will complete a certificate III or higher VET qualification (at least up to the age of 49 years).

Some things you should know

In thinking about how the polytechnic will operate, a number of things occurred to me which impinge on how the polytechnic may work. I will discuss these in no particular order.

Some qualifications are more valuable than others

One of the features of the polytechnic model is multiple entry and exit points. While this gives great flexibility, it is important to note that lower-level qualifications have little value.

Table 8 shows earnings by highest education qualifications. Earnings for those with certificates I or II are lower than those with Year 12 and no non-school qualification.[6]

Table 8 Average weekly earnings in current full-time job by age, sex and highest educational attainment, 2005 ($s)

	25 to 44-year-olds		45 to 64-year-olds	
	Male	Female	Male	Female
Postgraduate[(a)]	1410	1180	1480	1220
Bachelor degree	1250	1050	1430	1160
Advance diploma/diploma	1150	900	1210	890
Certificate III/IV	1030	760	1040	730
Certificate I/II	870	620	840	810
Certificate nfd	710	na	850	540
Year 12	970	830	1190	820
Year 11 and below	900	750	930	730

Source: ABS, Survey of Education and Training, 2005 confidentialised unit record file.

I suggested that the lower-level certificates should be thought of as pathways to higher-level qualifications. In practice, however, this is the exception rather than the rule. Of 15 to 19-year-olds undertaking certificate I or II courses, Stanwick (2005) estimates that less than a quarter go on to further study (table 9).

[5] The estimate varies depending on the methodology used.

[6] Average wages for those with a certificate I or II are lower than those who left school at Year 11 and below (with non non-school qualification) for males and females 25–44 years and males 45–64 years.

Table 9 Estimated proportions going on to further study at a higher level (%)

	15 to 19-year-olds		20 to 24-year-olds	
	Cert. I	Cert. II	Cert. I	Cert. II
Graduates				
Projected percentage of graduates as a proportion of all students	34.6	44.2	23.5	33.5
Percentage of graduates who went on to further study at a higher level	33.5	42.9	35.2	43.2
Graduates going on to study at a higher level as a proportion of all students	*11.6*	*19.0*	*8.3*	*14.5*
Subjects-only completers				
Projected percentage of subjects-only completers as a proportion of all students	65.4	55.8	76.5	66.5
Had not completed a course by end 2003 but enrolled at a higher level	18.4	9.1	9.8	7.0
Subjects-only completers going on to study at a higher level as a proportion of all students	*12.0*	*5.1*	*7.5*	*4.7*
Estimated percentage of all students enrolling in further study at a higher level	**23.6**	**24.1**	**15.8**	**19.2**

Source: Stanwick (2005).

'Real world' VET has been different from 'school' VET

VET in Schools has been a feature of Australia's secondary education system for some years. One point to note, however, is that the subjects offered have not mirrored those being undertaken by VET students outside VET, both in terms of field of study and level (table 10). It appears that the VET in Schools subjects are those that fit more easily in an academic framework. An example is that information technology courses are very popular as VET in Schools subjects but less so for young people outside a school setting. Similarly, certificates I an II are dominant in VET in Schools, but are far less important outside school. The Tasmanian Polytechnic provides an opportunity to break this mould and provide 'real' VET alternatives.

Table 10 Course information in 2004 for a range of VET students

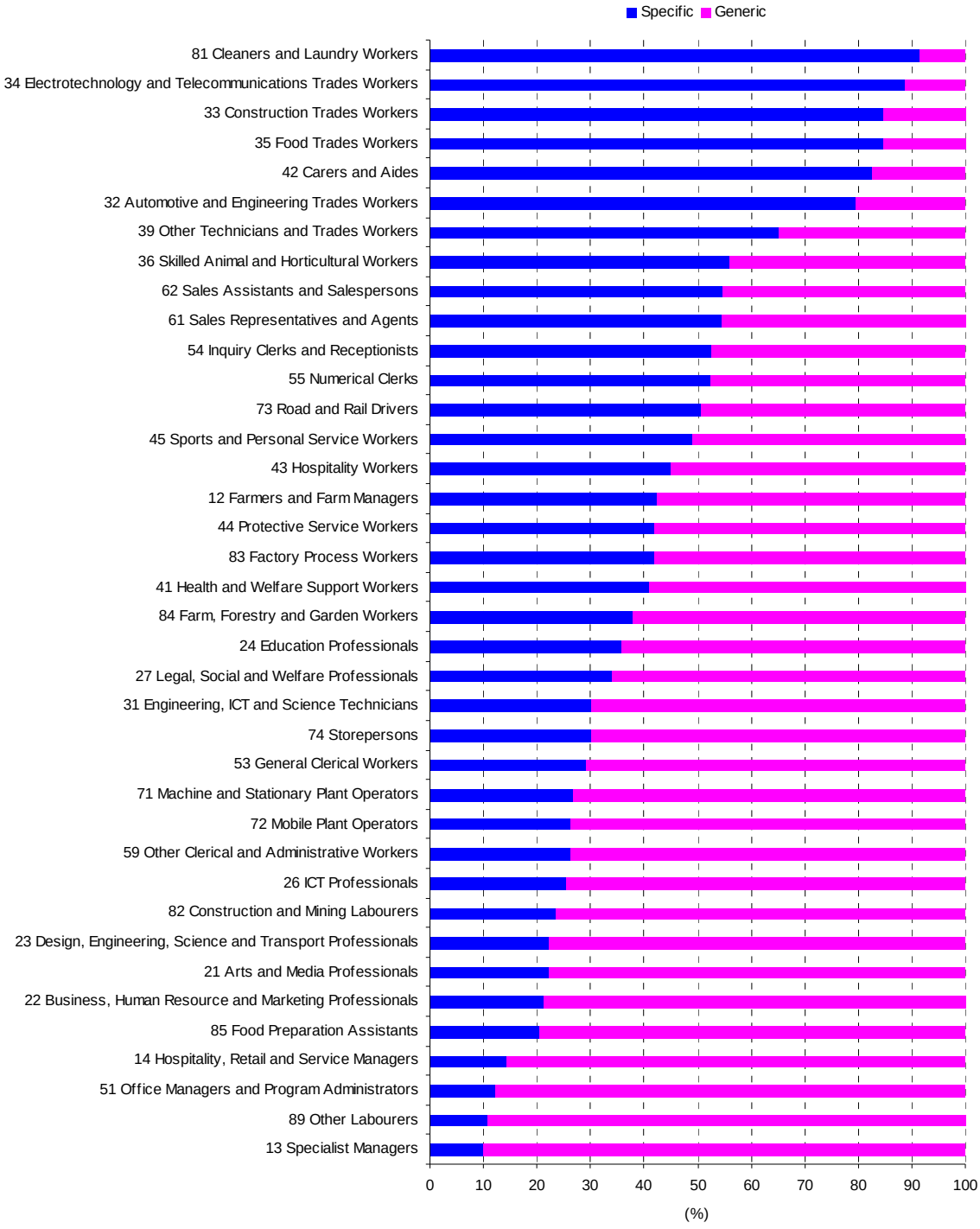
	Boys			Girls		
	16–17 years, school VET	16–17 years, non-school VET	18–19 years, post-school VET	16–17 years, school VET	16–17 years, non-school VET	18–19 years, post-school VET
Total students	60 095	73 110	109 954	59 559	58 975	85 625
	%	%	%	%	%	%
Field of education						
Natural and physical sciences	0.0	0.2	0.4	0.0	0.3	0.8
Information technology	22.9	6.6	6.5	9.9	2.5	1.7
Engineering & related technologies	17.2	31.0	32.8	1.9	2.4	2.9
Architecture & building	11.2	15.2	15.0	0.3	0.4	1.3
Agriculture, environmental & related studies	4.1	6.0	5.0	3.0	3.2	2.0
Health	0.0	1.7	1.7	0.5	1.8	4.2
Education	5.5	0.9	0.2	4.8	2.1	0.7
Management and commerce	13.6	10.1	13.5	29.7	29.8	37.0
Society and culture	3.7	3.7	4.1	6.5	10.8	15.5
Creative arts	3.7	2.3	3.4	4.8	4.0	5.2
Food, hospitality & personal services	12.6	9.8	10.2	32.1	26.2	18.8
Mixed field programs	5.3	11.4	6.5	6.7	14.8	8.6
Subject only – no field of education	0.0	1.1	0.8	0.0	1.6	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Qualification level						
Diploma or higher	0.0	2.3	14.7	0.1	3.1	20.6
Certificate IV	0.3	2.6	9.1	0.3	3.3	12.1
Certificate III	10.5	33.2	45.6	9.9	27.1	33.0
Certificate II	58.2	32.8	13.8	70.4	44.9	17.7
Certificate I	20.4	13.2	4.0	9.9	5.6	2.4
Secondary education	0.0	1.3	1.0	0.0	1.9	1.6
Non-award courses	0.4	3.0	2.7	0.1	2.3	2.2
Other education	10.1	10.4	8.2	9.3	10.2	8.9
Subject only – no qualification	0.0	1.1	0.8	0.0	1.6	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: National VET Provider Collection 2004 (unpublished), in publication scope and at school (VET in Schools) scope, quoted in Karmel (2007).

Not all VET is as vocational as you might think

My point here is that VET tends to have a tight focus on skills as specified by industry. Apart from most of the trades, however, the majority of VET graduates work in an occupation other than the one for which the course is designed. Some of these occupations make no use of the skills learnt in the course (the physicists driving taxis story) but most of them do. Figure 2 lists courses by their vocational–generic mix, based on the occupations entered and graduates' views on the relevance of their training. As can be seen, many VET courses are generic in the sense that they provide skills useful to a wide range of occupations.

Figure 2 Courses ranked from most specific to most generic, by selected ANZSCO, 2007



Note: The figure presents, for each intended occupation, the number of graduates in the intended occupation relative to the number of graduates in other jobs who report that the training is relevant.
ANZSCO = Australian and New Zealand Standard Classification of Occupations

Source: Karmel, Mlotkowski and Awodeyi (forthcoming)

Don't forget apprenticeships and traineeships

It seems to me that the treatment of apprentices and trainees in the Tasmanian model may be a point of tension. As can be seen from table 11, apprenticeships and traineeships are a very important element of young people's education and training opportunities. Most of these have been outside school, although school-based apprentices and trainees have been promoted in recent years (though the numbers are very low in Tasmania—around 100 commencements a year). But in the Tasmanian model, apprenticeships and traineeships are part of Training Tasmania, not the Polytechnic.[7] Thus, the polytechnic is offering a real alternative to young people outside the academic stream, but it is not a comprehensive alternative.

Table 11 Commencements of school-based and other apprentices and trainees by sex and age, 2006

	School-based	Others at school	Others aged 19 years and under	All apprentices and trainees aged 19 years and under
Male				
Age 15 & under	3 700	770	3 450	7 920
Age 16	3 430	530	10 380	14 340
Age 17	950	350	14 800	16 100
Age 18	110	110	17 320	17 530
Age 19	10	10	11 160	11 180
Total	8 200	1 770	57 110	67 080
Female				
Age 15 & under	4 130	1 150	1 170	6 450
Age 16	3 410	720	3 430	7 550
Age 17	1 020	520	7 200	8 740
Age 18	100	160	11 210	11 460
Age 19	10	10	8 190	8 220
Total	8 670	2 560	31 190	42 420

Source: NCVER, National Apprentice and Trainee Collection, September, December, March and June estimates (using the first revision).

There are risks associated with streaming

Data from the PISA (Programme for International Student Assessment) survey show that there is considerable variation in school performance across countries (McGaw 2006). This variation can be seen in both averages and in the strength of the relationship between the achievement score and socioeconomic status. An observation made on these patterns is that those countries which stream their students (by academic achievement) early into those destined for university and those destined for other areas tend to be the countries with poorest overall performance and the greatest variation in performance (that is, students at the bottom do particularly badly). McGaw (1996, p.53) also points to the risks associated with providing alternative curricula: 'Curriculum diversification in the name of equity may not have been in the best interests of our students. Curriculum differentiation reinforces inequity. What is needed is teaching, or pedagogy, that seeks to challenge it.'

[7] I understand that school-based apprenticeships and traineeships will be allowed in the polytechnic, but the details of how have not been worked out yet.

The Tasmanian model is one which provides a clear alternative at Year 11. The challenge is to ensure that this model provides choice but not at the expense of performance for the lower-achieving students.

Three issues for discussion

The conference organisers asked all presenters to end their presentations with two or three issues for discussion in subsequent workshops. So I end with three such issues.

How do you ensure that 'people are challenged to do their best'?

I observed that the polytechnic had multiple exit points, including at the certificate I and II levels. I argued that these have little value as an endpoint qualification. So the challenge is to ensure that these are not endpoint qualifications and that all students exit with at least a certificate III.

How do you ensure that the polytechnic offers an alternative that does not cut off pathways?

One of the features of the model is that students do not exit with a TER (tertiary education rank) score. Essentially this means that students can proceed to university only if they complete a diploma-level qualification, unless they can enter as mature students without any reliance on early academic performance. Thus, there is the potential for the polytechnic model to cut off choices for students who might have aspired to university.

How do you integrate 'school VET' with 'industry VET'?

VET as we know it in Australia is based on industry-led certification. Does this sit well in an institution with an important educational dimension to it, particularly for younger people? Is there a place for vocational education subjects that focus on broad vocational skills rather than on VET certification?

Final comments

The Tasmanian Polytechnic will be a fascinating experiment. It provides a great opportunity for the provision of a rich vocational education for Tasmanians, but there are many challenges to be met. Its success needs to be measured on a range of indicators. The bottom line, however, is the extent to which it equips Tasmanians with the skills they need for a modern economy. While generalisations are always dangerous, the possession of at least a certificate III or a diploma is a good benchmark to aspire to.

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