

Integrating vocational education and training for secondary school students

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Introduction

This paper is a research ‘backgrounder’ to support the 2018–19 review of the New South Wales (NSW) curriculum. It focuses on the topic of ‘integrating’ vocational education and training (VET) programs for secondary school students¹, which has been identified as an area of interest in the review.

The paper begins by detailing the context, in Australia and internationally, for the introduction and expansion of vocational offerings within secondary schooling (Section 1). It then reviews the available research literature and policy documents on VET programs for secondary school students in Australia, including a review of the benefits and challenges (Section 2).

The paper draws on a range of international models that have – with varying success – integrated ‘general’ and ‘vocational’ education within their secondary education systems and structures (Section 3). It concludes with a set of conclusions and proposals for consideration (Section 4).

Background

The introduction of VET in Australian secondary schools has been described as ‘one of the most significant reforms to the senior secondary curriculum in Australian schools over recent decades’ (Lamb & Vickers, 2006, p.vii), ‘...the most significant curricular and program innovation in Australian schools in the last quarter of the twentieth century’ (Barnett & Ryan, 2005b, p.89) and ‘a significant change to post-compulsory schooling’ (Anlezark et al., 2006, p.10). While the changes have been significant, upper-secondary education in Australia, like in many other English-speaking countries, remains for the most part ‘untracked and geared around preparation for university’ (Polidano & Tobasso, 2016, p.8). At the same time, while an increasing number of school leavers are now completing Year 12 and going on to university, there remains a significant proportion who do not, entering the labour market with no post-school qualifications (Lamb et al., 2015).

This section tracks the historical development of VET in Australian secondary schools - from its origins to the present day - to better understand when, how and why it came to be accommodated within secondary education systems and structures in Australia.

The policy rationale for introducing vocational education for secondary school students

In a report titled ‘The quest for a working blueprint: Vocational education and training in Australian secondary schools’, Malley et al. (2001, p.6) argues that ‘...the provision of vocational education is often used by education authorities to keep more young people attached to education systems for longer periods of time to acquire higher levels of useful skills and

¹ The author notes that the National VET Framework moves away from terms such as vocational education and VET in Schools or ‘VETiS’, replacing them with terms that clearly distinguish between two different areas: vocational learning and ‘VET’ (Education Council, 2014, p.6).

knowledge. For many education systems this means changing traditional curricula, structures and student flows to cater more equitably for the majority of 15–19-year-olds who do not proceed directly from secondary school to university’.

From the early 1990s, policy concerns emerged, Malley et al. (2001, p.33) argues, through a series of federal government-commissioned reviews that identified: (1) a lack of structured learning pathways for youth making the transition from education to work, an absence of national targets for youth participation in education, training, insufficient jobs with structured training pathways (Finn, 1991); and (2) the need for secondary schooling systems to address issues of key competencies which would better prepare youth with generic skills for life and work (Mayer, 1992). Of the former, Malley et al. (2001, p.4) contends that ‘...the origins of the current national vocational framework for secondary schools probably lie with...Finn 1991’. Similarly, Polesel & Clarke (2011, p.527) suggests that VET subjects were ‘...introduced partially to accommodate the growing diversity of young people staying at school and partially in response to landmark reviews’ such as the Finn and Mayer reviews.

OECD (1994) research published at the time identified that the most successful transition pathways were those that result in both a high level of general education and an occupational qualification. This principle, Porter (2006, p.9) argues, ‘...has been reflected in many aspects of policy development in Australia since the mid-1990s, with educators and policy-makers trying to develop bridges between vocational and general education’. These trends also meant that senior secondary or ‘post-compulsory’ education, once undertaken exclusively by those pursuing a university pathway, would be re-positioned as the minimum level of educational attainment. In doing so, it would serve the dual-purpose of providing entry into further education and training opportunities (including university), as well as preparing young people for entry into a labour market that was placing an increasing premium on higher level knowledge and skills. In a stocktake of issues and activities at this time, Barnett & Ryan (2005a, p.89) argues that:

‘...Initially a scattered initiative of individual schools to support students uninterested in higher education entry, Australia’s experience of difficult economic circumstances in the late 1980s, involving the substantial collapse of the full time youth labour market, led managers of education systems at state and federal levels, and even more enthusiastically political leaders, to adopt vocational learning as the principal policy instrument for facilitating the transfer of youth from schooling to adult economic and social roles.’

The introduction of a national VET in Schools Programme

In 1996, the Ministerial Council for Employment, Education, Training and Youth Affairs (MCEETYA) established a VET in Schools Taskforce which was seen as ‘instrumental in increasing the take-up of school VET programs throughout the public and private school sectors’ (Porter, 2006, p.9). The Council went on to issue a general statement of principles and objectives, including that students completing senior secondary school should be equipped with the full range of post-school opportunities in education, training and employment. New school-based apprenticeships were also introduced which involved students starting a part-time apprenticeship while still at school and receiving payment for time spent in the workplace (Misko et al., 2017).

This national VET in Schools programme, as adopted by the MCEETYA in the mid 1990s, was just one of many significant reforms to qualifications and assessment in Australia at the time. These included but were not limited to the implementation of an Australian Qualifications Framework (AQF) in 1995, competency-based training (CBT) and national industry-endorsed training packages in 1997, as well as measures to broaden school-based learning opportunities for an increasingly large and diverse cohort of young people not pursuing a pathway from school to university (e.g. Finn, 1991). As a result, it was possible to establish subjects that contributed to both the school leaving certificate (i.e. the HSC/VCE) and to a nationally accredited entry-level VET qualification (usually Certificate I or Certificate II) within the AQF

(Anlezark et al., 2006). The development of the AQF and changes to the senior secondary curriculum, Lamb & Vickers (2006, p.1) argues:

‘... have allowed schools across the country to offer units of study that can contribute both to Year 12 certificates and to accredited VET, that is, to vocational qualifications at Certificate levels I - IV. Thus, under this new set of arrangements, what is known as ‘VET in Schools’ subjects or ‘VETiS’ are subjects that are undertaken by students as part of their Year 12 certificate but which also provide credits towards nationally recognised vocational qualifications within the AQF.’

In 1998, the Australian Curriculum Assessment and Certification Authority (ACACA) commenced work to formalise a national approach. The National Framework was the eventual outcome, along with a range of support resources (Barnett & Ryan, 2005a). According to the Ministerial Council [MCEETYA] National Working Group (NWG) on the Recognition of VET in Schools at the time:

‘All states and territories would claim that at least some VET in Schools programs contribute, in one way or another, to [their] tertiary admissions index. Most commonly, however, this occurs when the competencies are embedded in senior secondary certificate subjects that, in turn, count towards the calculation of the index.’ (NWG, 2001 in Barnett & Ryan, 2005a, p.93)

The first national policy framework

Enrolments grew rapidly, trebling between the mid-1990s and mid-2000s (Lamb & Vickers, 2006). In response to this expanding role and prominence of VET within Australian schools, the Commonwealth and all States and Territories agreed to a set of principles and a new ‘Framework for Vocational Education in Schools’ in 2001 (MCEETYA, 2001a; 2001b) to better coordinate and integrate a range of related programs for young people. This vision for VET in Schools called for an approach which:

‘...assists all young people to secure their own futures by enhancing their transition to a broad range of post-school options and pathways. It engages students in work related learning built on strategic partnerships between schools, business, industry and the wider community.’ (MCEETYA, 2001, p.11)

Barnett & Ryan (2005a, p.90) states that the new Framework ‘...witnessed a new stage for the implementation and development of vocational education in Australian schools. The framework emphasised the acquisition of generic or key competencies, and overall, attempted to provide a seamless transition from school to work for the majority of young people’. The Framework also sought to bring greater uniformity and consistency by positioning VET in secondary schools as a ‘dual output’ that simultaneously contributes to both a nationally recognised VET qualification and a secondary school certificate. Black et al. (2011, p.11) reflects on the changes arising from the introduction of the 2001 Framework:

‘...reforms following the 2001 New Framework for Vocational Education in Schools, have increasingly made VET-in-schools a dual system —participating in a VET course in school counts towards both a nationally recognised qualification and a secondary school certificate. Prior to the New Framework, many VET-in-schools courses, either did not count towards a secondary school certificate because they did not meet academic criteria or did not count towards a national qualification because they were not compatible with the Australian Qualifications Framework (AQF).’

This national policy momentum appeared to surface inconsistent aims, purposes and intended outcomes of vocational programs in secondary schools. In the early 2000s, Malley et al. (2001, p.5) argues that vocational education was ‘...increasingly referred to within contemporary policy as an available tool serving multiple ends such as secondary school reform, labour market training reform, inculcating lifelong learning skills and improving youth transition from education to work’. Even as the national framework was being introduced, the Commonwealth Government-funded Enterprise and Career Foundation (ECEP, 2001, p.1) was arguing that

'...this increasingly complex set of objectives has led to confusion about the purposes of the different levels of vocational activity, the structural reforms that need to be implemented to integrate the traditional organisation of secondary education with post-school education and training, vocational and academic education and education and work'.

Clarke (2014, p.12) argues that '...one of the key ways by which the Australian senior secondary education landscape has adapted to the diverse needs of this cohort and to a complex labour market context is through the increasing provision of VET in Schools programs'. This need to balance multiple – and at times competing priorities – within the introduction and expansion of vocational offerings, is summarised by CIRES (2015, p.4):

'In addition to providing an expanded range of subjects, all countries seeking to expand the cohort of students retained in schools have had to deal with the need to provide effective learning opportunities and support for all students, including those who may have had lower levels of academic achievement in earlier school years, and/or come from disadvantaged backgrounds and, as a result, be less engaged in education...Education systems in these countries need to do this whilst ensuring the status of VET provided to school students has parity with other curriculum offerings.'

In a report published by NCVET titled 'Have school vocational education and training programs been successful?', Anlezark et al. (2006, p.7) observes that '...the introduction of vocational education and training (VET) programs into schools, integrated with both the Australian Qualifications Framework (AQF) and the senior secondary certificate, was seen as a means of providing more diverse pathways to work and further study for young people'. Anlezark et al. (2006, p.10) further explains that its introduction was:

'...aimed at expanding opportunities for senior secondary students, and to prepare young people for the workplace of the future. In allowing young people to combine vocational studies with their general education curriculum, school VET programs aim to provide young people with better links to industry, and more diverse pathways from school to work and further study.'

Of the development and expansion of VET programs, Lamb & Vickers (2006, p.41) argues that these tend to focus on several purposes, including: (1) to increase levels of engagement in school, especially among students who would rather look for a job than continue at school, by providing teaching and learning with a more applied focus based on industry skills and competencies; (2) to extend the range of subjects available beyond the standard offerings of the senior secondary curriculum, so that students interested in vocational studies will find something relevant for them at school; (3) to provide work experience and training so that students might be able to clarify their vocational orientations; and (4) to develop skills that enhance job prospects and to establish initial qualifications that can be built on through the continuing AQF-based vocational pathways.

Within this 'somewhat confused and contradictory policy context' (Polesel & Clarke, 2011, p.528), a number of state and national Frameworks, Principles and Statements have been introduced to set the broad parameters and directions for VET in Schools. However, its relationship with the general curriculum to which it was introduced has not been fully addressed. Early after its introduction, Malley et al. (2001, p.5) compellingly argued that '...these debates about vocational education provision [in schools] continue in large part because its form and placement within a general secondary education are not agreed', elaborating that this may be explained by their origins and interests:

'Since the mid-1990s there has been a renewed interest by Australian governments in school based technical and vocational education, but its shape and form has been initially determined by post-school interests. Given this dynamic environment the concept of technical or vocational education traditions therefore is difficult to define. If anything these traditions can only be described as tendencies and orientations which include industry, practical, work-oriented and non-abstract learning and as yet do not

reflect the more defined traditions of continental Europe and the USA.’ (Malley et al., 2001, p.14)

All of which provides a context for when, how and why vocational education and training – through a series of circuitous policy developments sparked in the mid-1990s – came to be positioned as a valued but contested tool which schools and schooling systems are using for a wide range of purposes and to perform many and varied functions. However, questions remain as to how well – if at all – vocational and general education have been sufficiently integrated and what the implications are if the status quo is maintained.

A brief review of policy and practice

This section reviews policy and practice in Australia with a particular focus on the current national and regulatory framework. It then describes the models and programs that are currently operating in Australia. It concludes with a discussion of the benefits and challenges faced by policy makers, practitioners and students.

Current policy and regulatory framework

In 2008, the Melbourne Declaration on Educational Goals for Young Australians (MCEETYA, 2008) set the overarching policy context for VET delivered to secondary students. This included a commitment by governments to work with all school sectors to support the senior years of schooling to cover a broad range of purposes and intended outcomes:

‘The senior years of schooling should provide all students with the high-quality education necessary to complete their secondary school education and make the transition to further education, training or employment. Schooling should offer a range of pathways to meet the diverse needs and aspirations of all young Australians, encouraging them to pursue university or postsecondary vocational qualifications that increase their opportunities for rewarding and productive employment.’ (MCEETYA, 2008, p.12-13)

In 2009, the Council of Australian Governments (COAG) released a communique: (1) raising the school leaving age to 17 years (introduced in New South Wales in January 2010); and (2) agreeing that by 2015, 90 per cent of young Australians should achieve a Year 12 or equivalent qualification, with the equivalent of Year 12 being a Certificate III or above after 2015 (COAG, 2009). These two shifts in government policy have had implications for the purposes and positioning of VET programs for secondary education structures and systems described below.

In 2014, the Education Council released ‘Preparing secondary students for work: a framework for vocational learning and VET delivered to secondary students’ (the National VET Framework²). The National VET Framework ‘moves away from terms such as vocational education and VET in Schools or ‘VETiS’, replacing them with terms that clearly distinguish between two different areas: vocational learning and ‘VET’ (Education Council, 2014, p.6). It defines the former as learning that ‘...helps secondary students explore the world of work, identify careers options and pathways, and build career skills. Vocational learning is delivered within the broader curriculum’ (in CIRES, 2015, p.1). For example, in addition to accredited VET courses, NSW has ‘work related’ curriculum available to students as electives in Years 7–10 and/or Years 11–12³. These are outside the scope of this paper.

² The Framework updates the New Framework for Vocational Education in Schools released in 2001 by the Ministerial Council on Education, Employment, Training and Youth Affairs.

³ Work Education (Years 7–10) provides students with the opportunity to develop knowledge and understanding of the world of work, the diverse sectors within the community, and the roles of education, employment and training systems.

Work Studies (Years 11–12) aims to enable students to develop the skills, knowledge, understanding and confidence to experience a successful transition from school to work and further education and training.

The definition of VET used in the Framework is:

‘VET which enables students to acquire workplace skills through nationally recognised training described within an industry-developed training package or an accredited course as part of a Senior Secondary Certificate’ (Education Council 2014, p.6).

The definition of vocational education and training (VET) endorsed by the Education Council when it released the updated National VET Framework states that:

‘Vocational Education and training (VET) enables students to acquire workplace skills through nationally recognised training described within an industry-developed training package or an accredited course. A VET qualification is issued by an RTO. The achievement of a VET qualification signifies that a student has demonstrated competency against the skills and knowledge required to perform effectively in the workplace.’ (Education Council, 2014, p.v).

The Framework articulates four fundamental components for successful VET delivery: clarity of purpose, collaboration between VET stakeholders, confidence in the quality of VET delivered to secondary students and the effective operation of the underpinning core systems (as depicted in Figure 1).

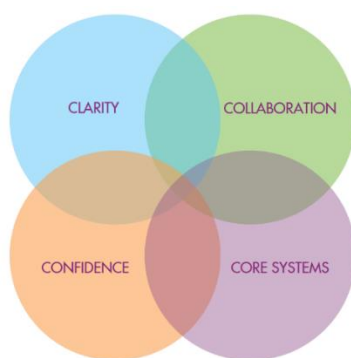


Figure 1: Education Council Framework for successful VET delivery

Education Council, 2014, p.5

The vision in this current framework for VET and vocational learning in secondary schooling is ‘All secondary students experience quality vocational learning and have access to quality VET courses. Both vocational learning and VET are seamlessly integrated into secondary schooling and valued by students, parents, teachers and employers’. Using the Framework to structure a review of VET in ACT Public Schools, CIRES (2015, p.3) observes that it ‘...argues for a greater integration of VET within schooling and a stronger recognition that VET be seen as an important part of the senior school curriculum and not simply ‘bolted on’ to earlier qualification structures and curriculum offerings that prioritised the pathway to university’.

To support the Framework’s introduction, the Commonwealth has released a VET self-assessment tool for schools (p.14). The tool includes a section on ‘Integrating VET’ (see Figure 2). The tool states that ‘the success of VET in your school will in part depend on how well it has been integrated with the rest of the school environment’. This integration needs to make VET more than just an ‘add-on’ to the curriculum and should support an understanding of VET as a quality pathway for students’. The three areas of self-assessment focus on having a ‘strategic approach’, ‘performance outcome information’, and ‘school events’.

Integrating VET

The success of VET in your school will in part depend on how well it has been integrated with the rest of the school environment. This integration needs to make VET more than just an ‘add-on’ to the curriculum and should support an understanding of VET as a quality pathway for students.

Integrating VET	Never	Rarely	Sometimes	Often	Always
A deliberate and strategic approach has been adopted to integrate VET with the general curriculum options	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
School planning and reporting frameworks capture performance and outcome information on VET programmes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The school integrates VET recognition into school events such as awards ceremonies, student prizes, school open evenings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 2: VET Self-assessment Tool for Schools

Source: Education Council, n.d., p.7

Regulatory framework

In Australia, the VET Quality Framework aims ‘...to achieve greater consistency in: the registration and monitoring of RTOs, and the enforcement of standards in the VET sector’ (ASQA, 2019). In 2014, the Council of Australian Governments (COAG) Industry and Skills Council agreed to new regulatory standards for training providers and regulators—the Standards for Registered Training Organisations (RTOs) 2015—which forms part of the quality framework. The national regulatory authority for VET, the Australian Skills Quality Authority⁴ (ASQA), uses the Standards ‘...to protect the interests of all students in Australia’s VET system. The Standards guide nationally consistent, high-quality training and assessment services in the vocational education and training system’ (ASQA, 2019). The 2015 Standards are ‘prescriptive’ and ‘require significant industry involvement in all RTO processes and VET qualifications and industry currency for trainers/teachers’ (CIRES, 2015, p.ix).

Importantly, school RTOs are required to meet the 2015 RTO Standards, like any other RTO. As the revised National VET Framework notes, ‘...the VET delivered to secondary students is the same as all other VET’ (Education Council, 2014, p.v). In terms of delivery and assessment - regardless of whether it is school-based or not - VET is delivered and assessed against nationally endorsed training packages and nationally accredited courses. VET offerings that lead to these qualifications are drawn from the same industry-developed, industry-endorsed and nationally accredited curriculum, recognised by employers and therefore are required to meet the same regulatory requirements.

Delivery and assessment

Delivery and assessment tends be classified against a consistent typology to describe the many ways in which school students access VET:

- **School RTO:** the school is registered to deliver a select number of qualifications ‘on scope’ and school staff are responsible for delivery and assessment.

⁴ ASQA regulates those RTOs Victoria and Western Australia that: offer courses to overseas students, and/or offer courses to students (including by offering courses online) in: the ACT, NSW, NT, SA, Qld and Tas. If an RTO does not fall within ASQA’s jurisdiction, they register with the Victorian Registration and Qualifications Authority (VRQA) or The Training Accreditation Council (TAC) in Western Australia

- **Non-School RTO:** delivery and assessment of VET in Schools programs for students enrolled at school is conducted by a VET provider (e.g. TAFE/private RTO) staff away from the school.
- **School—RTO partnership:** delivery and assessment of VET in Schools programs is conducted collaboratively and may include a combination of school and RTO staff at the school and away from the school (including auspicing arrangements and contexts where schools have scope for partial qualification delivery).
- **School cluster:** at least one school with RTO status delivers VET in Schools to its own students and students from other schools who travel to the school RTO campus for delivery and assessment (adapted from Clarke & Volkoff, 2012).

Students can undertake school-based apprenticeships and traineeships as a distinct pathway, which allows participation in paid work and on-the-job training with an employer as an apprentice or trainee, and structured off-the-job vocational training delivered by a RTO, as well as secondary school studies. When undertaking VET subjects or courses as part of the senior secondary certificate, the program may or may not include structured workplace learning (SWL).

Competency-based training (CBT) and assessment

In the Australian VET system, the vocational curriculum is framed in terms of the skills or competencies required in a particular occupation. The attainment of a VET qualification is based on the demonstration of minimum competency in carrying out job-specific and generic tasks, as stipulated in national training packages. This training is underpinned by a competency-based training (CBT) framework that specifies what a person must be able to do as a result of training. These accredited VET programs require the use of competency based-assessments. However, as Lamb & Vickers (2006, p.vii) argues ‘...it is difficult to integrate these into academic frameworks that were designed to deliver finely-graded assessments suited to the needs of tertiary entrance’. By using training packages as the foundation for VET in Schools, Clarke (2015, p.11) argues that ‘...the system relies on curriculum that is an occupational standard for entry to work. This is in direct contrast to an acknowledgment that so-called entry-level qualifications do not in fact enable entry to those occupations’.

Certification

Each state and territory issues a Senior Secondary Certificate of Education (SSCE) to signify completion of senior secondary education. All Australian states and territories have in place arrangements so that students undertaking VET can gain recognition in the form of credit towards the award requirement of the SSCE. At a national level, the Australasian Curriculum, Assessment and Certification Authorities (ACACA) publishes reports on VET in SSCEs to detail how VET is incorporated. These very useful – and extremely detailed – reports are evidence of the significant variability in how VET has come to be accommodated within SSCEs at the jurisdiction level.

Graded assessment and scoring of VET subjects

Since the mid-1990s, Australia has progressed down a path of ‘...integrating upper-secondary VET and academic courses in areas such as information technology, business, engineering, music and performing arts that count towards a national VET qualification (mainly at the ISCED 3 level) and entry to any university course. These courses are known as ‘scored VET’ courses because unlike other VET courses that are available in the curriculum, performance is assessed on an equal footing with academic courses’ (Polidano & Tobasso, 2016, p.5). In an attempt to improve their status, state governments in Australia introduced scored VET subjects in Year 12 from around the early 2000s. These subjects, as well as counting towards a national VET qualification, are also assessed in a similar way to subjects for the purpose of university entry.

Statistics

In 2018, there were 230, 700 VET in Schools students in Australia (NCVER, 2019). Of these, 18,200 were school-based apprentices and trainees, representing 7.9 per cent of all VET in Schools students. The six year trend by jurisdiction is shown in Figure 3 below.

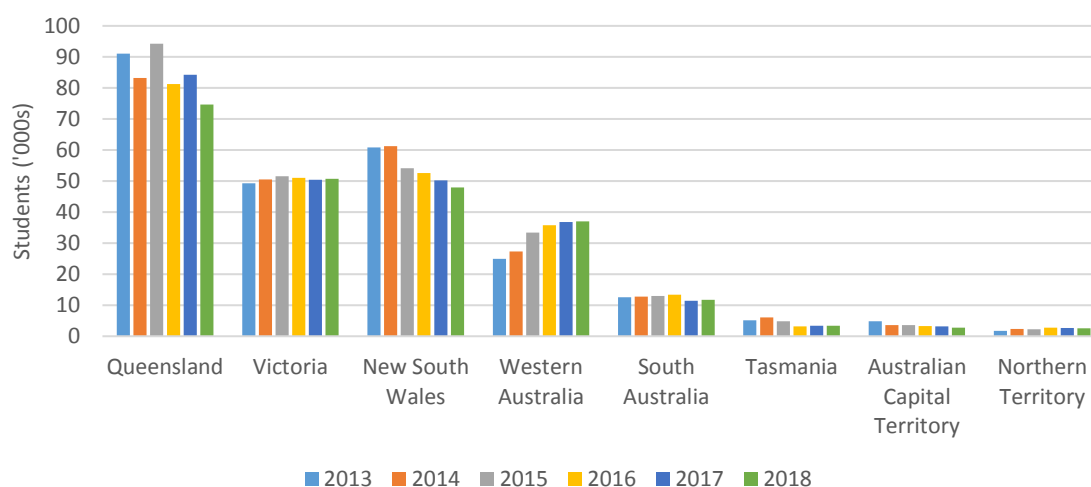


Figure 3: State and territory summaries of VET in Schools students, 2013–17 (NCVER, 2019)

Benefits of vocational programs in schools

Over two decades since their implementation, there now exists a good evidence base on the outcomes and efficacy of VET in Schools programs (see Box 1 for features of good practice). Research studies have highlighted the positive impact of VET in Schools on student retention, engagement and aspiration (Clarke, 2013; Nguyen 2010; Anlezark et al., 2006). Other studies have focused on estimating the impacts on school retention and labour market outcomes of school-based VET courses (Lamb & Vickers 2006; Polidano & Tabasso, 2014). Overall, these studies have reached broadly the same conclusions to report that VET in Schools can provide positive benefits to students and schools by offering:

- a 'practical' alternative to curriculum geared towards university entrance;
- opportunities for career exploration, part-time work and a 'smoother transition' to employment-based training;
- a pathway to further education and training;
- a dual-certification model to assist with gaining employment following school; and
- a foundation for entry to mid-level VET, apprenticeships and traineeships (Misko et al., 2017; Clarke, 2015; Clarke, 2013; Black et al., 2011).

In the recent 'Report of the Review to Achieve Educational Excellence in Australian Schools', Gonski et al. (2018, pp.49-50) observed that participation in VET while at school can '...help improve transitions to work or further study. It provides opportunities for students to apply their knowledge and skills in real-world situations. It also offers flexible 'stackable' modules that combine different skills to build a student's readiness for a particular job. Such flexibility is a powerful feature that can help students respond to rapidly changing workforce demands'. Similarly, Polesel (2001, p.338) argues that:

'...for students who have been ill-served by the narrowness of the university-focused curriculum of the past, for students who seek the job skills and training to make a successful transition to the labour market, and for students who require a broader

grounding of general and vocational skills to use as a springboard into tertiary education, VET in Schools has provided a genuine home within the senior secondary curriculum.’

From a government perspective, ACACA (2012, p.9) stated that schools have recognised that VET offered within the senior secondary environment can:

‘...act as a strong engagement catalyst for students, while also providing them with the knowledge, skills and career awareness to make more informed choices about their post-school pathways and to assist their satisfactory transition into further education, training and work...For young people themselves, access to VET while at school provides them with opportunities to gain an industry recognised vocational qualification, or gain substantial progress towards gaining one, while also achieving their senior secondary certificate of education. It keeps their options open while also strengthening their pathways into a range of post-school opportunities.’

Box 1: Features of effective VET in schools models

Evidence available from cross-country comparisons that have attempted to implement a vocational schooling system points to several systematic elements of success, including:

- To ensure **relevance of curricula**, all stakeholders (government, employers, social partners, educational institutions) are involved in its development, with a clear assignment of responsibilities. However, the weight of the respective voices might differ across countries.
- To maintain a **close contact to the labour market**, a system of continuous feedback from employers and private-sector institutions is required, which is particularly difficult to implement if employers have low levels of organization.
- To ensure **high-quality schooling, sufficient funding** is required to guarantee the appropriate teaching material and the availability of **well-trained teachers**.
- To **incentivize training providers and create competition amongst training providers**, a mix of public and private funding is required in addition to providing autonomy in teaching and staffing decisions.
- To maintain a high level of training quality, a **decentralised system of accreditation and quality assurance**, as well as competition between training centres (such as output-based funding) is deemed crucial.
- To limit the risk of establishing a dead-end vocational schooling track, the **competences and qualifications acquired should be made comparable to those acquired in the academic tracks** to promote possibilities of transfers between the two.

Source: Eichhorst *et al.* (2012, p.4)

In a review of VET in ACT public schools, CIRES (2015, p.xiv) argues that to achieve strong outcomes from VET requires breadth of course and qualification offerings to provide options of interest and relevance to all students. Additionally, VET needs to:

- be **aligned to skill priority areas** to optimise future employment opportunity;
- **include structured workplace learning** or integrated work opportunities to provide quality on the job learning in an authentic work environment;
- **provide transparent consumer information** for parents and students to make informed choices about the opportunities available;
- **be cognisant of industry specific industrial arrangements** and the relationship between qualifications and wages in ‘modern awards’ so that VET programs support future employment opportunities;
- **provide effective student pathways** to continuing and higher level education and training, through delivery of suitable Certificate II and III qualifications; and
- make effective use of **specialist VET infrastructure**.

Challenges for policy and programs

Introducing vocational education is ‘...not without its challenges and these are particularly pertinent where secondary schools are preparing students for direct entry into the labour market. Vocational education requires greater investment than general education due to the necessity of specialised facilities, equipment and materials for practical training’ (World Bank, 2015, p.2). While it is of obvious and distinctive benefit to students, Clarke (2014, p.27) observes that ‘...a key challenge for all stakeholders involved in senior secondary education is

how to develop and provide high-quality and authentic workplace and career exploration as an embedded and fundamental part of the secondary school curriculum’.

General observations

VET programs for secondary school students, as articulated in existing policy, are intended to enhance and strengthen transition outcomes for young Australians. Based on the findings of a multi-year study on VET in Schools in Australia, Clarke (2014, p.25) argues that ‘...in its current systemic forms VET in Schools is not fulfilling this purpose’. The expansion in vocational offerings in senior secondary schooling, Gonski (2018, p.49) argues, has led to:

‘... an increase in the range of needs of the expanding senior secondary cohort. In many schools, however, alternative vocational subjects were considered to be less prestigious than an academic pathway. Rather than being valued for creating opportunities to grow minds and stimulate imaginations and engagement through a quality vocational curriculum, vocationally-based education was, and often continues to be, focussed on training and consequently is perceived as narrow and limiting.’

Despite the structural differences across jurisdictions, common problems exist, including ‘vocational rigour, completion at low levels, and partial qualification completion’ (Clarke & Volkoff, 2012, p.17). These types of concerns have been raised at the highest levels of the system. For example, in the current ‘Preparing Secondary Students for Work’ Framework, the Education Council (2014, p.3) states that:

‘...stakeholders continue to raise concerns about quality, relevance and employer involvement. Some believe that VET in schools is different from, and somehow inferior to, other VET. Others are concerned that VET is less valued by students and parents than other options, or that VET courses do not deliver the outcomes that students or employers expect. Still others point to areas where policies and regulations exacerbate, or even create, some of these problems.’

In a paper titled ‘Vocational learning in schools – an international comparison’, O’Connell & Torii (2016, p.75) reflect on the Australian experience, arguing that ‘...in Australia vocational subjects are taken in a particular occupation rather than providing broad exposure to an industry, and there is little integration in learning between the academic and vocational pathways’. Clarke (2014) identifies fundamental issues with pedagogy, the tensions regarding the value of entry-level certificates, the role of VET in Schools in promoting retention, and the socially stratifying role of vocational programs in schools. Clarke (2014, p.6) also shows that ‘...many VET in Schools students participate in programs that do not deliver effective pathways into higher education, higher-level vocational education and training (VET), apprenticeships, traineeships or skilled work’. The weak relationship between education and work and the declining currency of entry-level AQF qualifications, Clarke (2013) argues, ‘contribute to the poor occupational outcomes for VET in Schools students’ (Clarke, 2013, p.26). Finally, in describing the unease that currently exists in the provision of low-level VET to support a direct employment pathway in a related occupational area, Clarke (2013, p.31) argues that:

‘It is inappropriate for VET in Schools to be viewed as a direct employment pathway for young people, when the majority of qualifications offered and attained through VET in Schools remains at the entry or foundational level (certificates I and II). As part of senior secondary schooling in Australia, VET in Schools should be more accurately branded and delivered to students as the foundational component of a post-school education and training pathway (for example, higher-level VET and apprenticeships). As it currently operates, VET in Schools is too often viewed by schools, students and parents as a ticket to full-time employment after school without any further investment or participation in education and training. This is incongruent with the reality faced by VET in Schools students entering an unforgiving labour market, where foundational VET in Schools certificates have little currency with employers.’

There exist a set of commonly held deficit views of, and cultural attitudes towards, VET in Schools as the 'poor cousin' (Barnett & Ryan, 2005a, 2005b; Dalley-Trim, Alloway & Waller, 2008). Dalley-Trim, Alloway & Waller (2008, p.67) argues that these issues of status and marginalisation have real implications for the standing of VET in Schools within secondary education systems:

'VETiS is evidently experiencing an image problem. It appears that VETiS subjects remain the poor cousin of real school subjects and are perceived of as such by students. They remain, within the minds of students, outside of, oppositional to, and marginalised from, mainstream academic curriculum offerings. In line with – and arguably underpinning – this image problem, are issues pertaining to curriculum design and delivery of vocational education and training in schools; issues which appear to perpetuate the low status currently afforded to VETiS. So, too, does engagement by students (and indeed school staff) with the binary logic of knowledge/work, knowing/doing, theoretical/practical and academic/non-academic – binaries that seem apparent in the present design and delivery of vocational education curricula – serve to reinforce this standing of VETiS.'

Clarke & Volkoff (2012, p.21) argues that '...the academic culture of secondary schools still leaves little room for the provision of intense and high-quality VET in Schools'. Studies have also identified a perception of VET in Schools as a second-rate, 'soft' option by both students and staff (Barnett & Ryan, 2005a, 2005b; Dalley-Trim, Alloway & Waller, 2008), which can often lead to its use in schools as '...a simplistic retention strategy, [which] has the potential to undermine its improvement and application as an effective education to work and further study pathway' (Clarke & Volkoff, 2012, p.21). Despite the significant changes to structures of senior school certificates in several Australian states and territories in the last decade to include a range of VET subjects in the calculation of tertiary entrance scores, VET is still:

'...historicised as second class in comparison to the traditional, academic curriculum. Moreover, access to most university courses, even those with a strongly vocational orientation, remains linked to academic achievement in the senior certificate, as measured by the student's Australian Tertiary Admission Rank (ATAR), a measure derived from performance in competitive examinations and assessment tasks' (Polesel & Clarke, 2011, p.528).

Other challenges reported by school RTOs include concern: (in)adequacy of the curriculum to deliver required VET competencies; (in)adequacy of assessment strategies to determine student competencies achieved; required relationships with industry across RTO operations; industry currency of teacher/trainers; suitable third party agreements between college RTOs and high schools for VET delivery; and issuance of VET qualifications within 30 days of student completion of relevant competencies (CIRES, 2015, p.15). These concerns seem to be persistent as similar issues have been identified in earlier research, including: perceptions of poor quality in training, difficulties in curriculum development, assessment and accreditation, lack of opportunities for workplace learning, inadequate delivery methodologies, sometimes profound cultural incompatibilities and resourcing issues as barriers to successful implementation (Barnett and Ryan, 2005b).

A lack of clarity and consistency

In a multi-year comprehensive study of VET in Schools in Australia, Clarke (2015, p.8) found that the VET in schools landscape is 'plagued by a lack of clarity' and 'despite forming part of a larger national VET sector, exhibits significant between-jurisdiction and within-jurisdiction variation in its delivery, uses and outcomes. There is no homogenous or uniform description of what constitutes VET in Schools' (Clarke & Volkoff, 2012, p.15). While they are based on a nationally accredited curriculum, there is evidence of considerable variation in the delivery of VET in Schools both between and within systems (Lamb & Vickers, 2006).

Curriculum authority arrangements are divergent in terms of: (1) the way VET at different Certificate levels counts towards the SSC; (2) the way in which the competencies resulting in Statements of Attainment (rather than a full VET qualifications) count towards the SSC; (3) the arrangements by which VET can count towards the calculation of the ATAR or other tertiary entrance system; and (4) the “fit” of competency based qualification inside the broader SSC architecture (CIRES, 2015, p.18). Within the current Framework, the Education Council (2014, p.3) states that:

‘Underlying many of these concerns is the fundamental question of definition. The terms ‘VET in Schools’ and ‘VETiS’ are widely used, but contribute to the misconception that VET delivered to secondary students is different from all other VET. The lack of clear terminology also contributes to the differing views among stakeholders about the purpose, expectations, outcomes and responsibility of ‘VETiS’, as they are often using the same term to talk about different activities that do have different purposes’.

‘Strong on retention, weak on outcomes’

Graduates of VET in Schools programs achieve similar labour market outcomes to those of other Year 12 graduates who go straight into the workplace, largely in jobs that are poorly paid, low-skilled, casual, part-time and without security or a career structure (Wheelahan et al., 2015; Clarke & Polesel, 2013). Perhaps most alarmingly, the research literature shows that VET for secondary school students in Australia does not support post-school pathways into VET or full-time employment (Clarke, 2015; Anlezark et al., 2006; Polesel & Volkoff, 2009).

Despite low achievers enrolled in post-school VET at Certificates I and II experiencing better employment outcomes than school leavers not in education or training (Curtis, 2008), low-level VET has been similarly problematic in its provision of successful pathways into full-time, sustainable employment (North, Ferrier & Long, 2010). For students with low prior educational attainment, VET in Schools often fails to deliver effective pathways into post-school VET or full-time employment and leads instead to casualised and low-skilled employment (Polesel & Volkoff, 2009; Anlezark et al., 2006).

The provider and practitioner perspective

Practitioner concerns identified in the research literature include: costs and resourcing (Misko et al., 2017; Lamb et al, 2015; Barnett & Ryan, 2005b; Polesel et al, 2004; Dalton et al., 2004; timetabling (Porter, 2006; Polesel et al, 2004; Malley et al., 2001); and poor information on courses and post-training pathways (Lamb et al, 2015; Clarke & Volkoff, 2012). From the practitioner’s perspective, Barnett & Ryan (2005b, p.90) argues that ‘...there seems to have been little awareness at central level of the problems caused to VET in School practitioners (teachers, school managers, work experience coordinators and employer liaison personnel) by the rapid expansion of programs, the shifting emphasis from utilitarian to broader educational objectives, the ever more complex assessment and certification criteria, or the deepening demands on school infrastructure and professional development’.

The system perspective

Clarke (2013) proposes three key challenges are constraining productive policy change: (1) discussions are often focused on curriculum alone, with little examination of the role of pedagogy; (2) there is an increasing focus on the attainment of entry-level certificates as the key policy measure of effective youth transitions, despite acknowledgment that these qualifications hold limited value in the labour market (‘problematic certificate paradigm’); and (3) policy discussions too often skirt the class-segmentation role that VET pathways can and do play. Clarke (2014, p.6) further identifies several key dilemmas for how VET in Schools supports entry to work including ‘the relationship between the VET curriculum (applied learning) and the academic (disciplinary) curriculum’. In an earlier study, Clarke (2013, p.8) describes challenges and constraints associated with the ‘architecture of VET in Schools’ and its convergence with secondary education and senior secondary certification:

'... current models of VET in Schools, which are tied to school completion in the latter years of secondary schooling, provide limited opportunity for students to 'taste' and then change their mind, or taste a range of options and then select one for their primary focus (p.21)... One of the great structural challenges in developing effective approaches to vocational learning earlier in secondary schooling is that the current provision ties vocational learning to Australian Qualifications Framework (AQF) qualifications and senior secondary units of study. This in turn ties participation in those qualifications to school completion' (ibid, p.8)

From this system level perspective, Clarke (2013) identifies a number of stakeholder concerns, including: ongoing tension between, firstly: (a) the opening-up of senior secondary certificates for maximising access and completion for a broader range of young people; and (b) the simultaneous provision of a core body of knowledge that all senior secondary students were expected to access and attain. Additionally, the opening-up of senior secondary education to greater levels of vocational learning meant a decrease in the focus on the disciplinary learning needed to support post-school education and training. Finally, the focus of VET in Schools policy on retention has undermined the purpose and effectiveness of increased school completion in providing a basis for a positive post-school outcome.

Integration of vocational education and training

During the early implementation of VET programs offered to secondary school students in Australia, an OECD report suggested that vocational education and training programmes in schools do not contribute to improved educational outcomes unless they show particular characteristics. These characteristics include: employer support, the integration of general and vocational programmes, facilitated movement between programmes, and close alignment between curriculum and certification and the structure of the labour market (OECD, 1996). The second characteristic is the focus of this section of the paper.

Types of integration

In a report published through the Centre for the Economics of Education and Training (CEET) at Monash University, Benson (1992) detailed a US-developed framework of integration that identified the complexity of purpose for vocational education in schools. Benson argued that sets of integration had to occur among currently separate activities. These were the integration of: (1) vocational and academic studies; (2) secondary and post-secondary education; and (3) education and work. A decade later, the Commonwealth Government funded ECEF drew a similar connection to three areas of 'integration', specifically:

1. **academic and vocational curriculum:** through models of general education that incorporate applied learning principles to traditional academic subjects and through the introduction of generic employment related skills and competencies to curriculum frameworks.
2. **secondary and post-secondary opportunities:** through the development of multiple pathways and the provision by schools of vocational courses and certificates delivered separately or in partnership between schools and traditional post-school training institutions.
3. **school based learning and work-based learning:** through a variety of mechanisms. (ECEF, 2001, p.1)

Raffe (2002, pp.3-4) introduced the concept of 'unification', defined as:

'...changes introduced within upper secondary or post-compulsory education, mainly by deliberate policy interventions. It refers to a range of measures, which may involve at one extreme the complete integration of academic and vocational learning, or at the other extreme modest curricular or organisational changes which bring them slightly closer together. These measures all aim to reduce the distance between academic (or

general) and vocational learning, but they vary with respect to the concept of distance which they are trying to reduce. Different unifying measures bring academic and vocational learning closer together in curricular terms, in organisational terms, and in longitudinal terms respectively.'

Raffe (2002, pp.3-4) identifies three unifying measures (curricula, organisation and longitudinal), arguing that '...in all three cases the distinction between academic and vocational depends on the institutional and cultural context – as do further distinctions such as that between academic and general, or (in English) between vocational education and vocational training.' Firstly, the curriculum unification approach draws a useful distinction between an 'additive' approach and an 'integrative approach'.

1. An additive approach may involve increasing the number of academic or general courses within vocational programmes. Or it may involve offering students '...a menu of options drawn from both academic and vocational programmes, and encouraging them to select mixed programmes'. An additive approach to curricular unification encourages greater mixing of academic and vocational components, but does not try to blur the differences between them.
2. In contrast, an integrative approach is described as '...aims to create a new kind of curriculum, rather than simply mix academic and vocational elements'. An integrative approach, Raffe contends, is the introduction of key qualifications or transferable skills as elements in both vocational and academic programmes.

Importantly, these approaches are not necessarily mutually exclusive and there is blurring between the two. Raffe (2002, p.3) went on to summarise the difference between 'additive' and 'integrative' approaches as:

'... often a matter of emphasis. Most additive measures aim at a degree of curricular integration: for example, the Finnish reforms aim for the 'mutual enrichment' of academic and vocational curricula. In most countries, curricular unification affects vocational tracks more than academic tracks, and when it does affect academic tracks this is often in the form of additional options rather than a change in the mandatory curriculum. The distinction is based on the content of learning and the extent to which this is designed specifically to prepare individuals for roles in the labour market. Curricular unification tends to be emphasised in countries with occupational labour markets, with large dual systems or well institutionalised vocational tracks, and with a tradition of 'general' education through vocational training.'

Raffe (2002, p.3) then describes a process of 'organisational unification'. This second type of unifying measure aims to reduce the organisational distance between academic/general and vocational learning. Most upper-secondary education systems are organised around tracks or pathways with labels such as vocational, technical, general or academic. Unification is the process of linking these tracks or reducing the differences between them. It may, for example, involve bringing them together within integrated upper-secondary schools, either on a system-wide basis such as in Norway and Sweden, or alongside existing track-based institutions. It may involve integrated arrangements for the training, socialisation and registration of academic and vocational teachers.

Patterns of integration

In a recent review of international models, Eichhorst et al. (2012, p.4) found that '...the lack of comparability across institutions makes it difficult to identify a "successful" system'. A near universal response, CIRES (2015, p.4) argues, to the challenges raised in the earlier sections has been to increase the range of learning opportunities available. Within the schooling sector, this has been done following two broad patterns:

Pattern 1: Accommodating **an expanded subject offering within existing school qualifications**. This approach is to integrate or incorporate VET options

within the general senior secondary curriculum. Australia appears to have progressively followed this pattern since its introduction of a national VET in Schools programme in the mid-1990s

Pattern 2: Offering an expanded range of subjects through alternate school qualifications. This approach is to provide stand-alone VET qualifications where there is little to no attempt at integration with the general senior school curriculum. Instead, the alternative pathways have much stronger connection to employment and enterprises and are offered as separate, structured, 'whole' programs (Lamb, 2008, p.118). The content (including identified occupational skills and competencies) and assessment of these programs are often designed by agencies involving employer and craft associations, usually accredited or administered by labour and commerce ministries rather than education departments, and often legally governed by vocational training or commerce acts rather than education statutes (Lamb, 2008, p.118).

In such systems, VET programs have close links with the labour market and weak links with higher education. It is therefore sharply differentiated from upper secondary education, whose dominant purpose is to prepare students for university. The study and qualifications are mainly provided in separate institutions in the upper secondary years. It is also a feature of such systems that separation or preferences tend to occur earlier in school, and students participate in schools and courses in the compulsory years that already orient them towards vocational programs in the upper secondary years (Lamb, 2008, p.118). In most continental European countries, for example, the separation between academic/general and vocational education at upper secondary level 'has become the norm, with vocational and technical schools located in separate settings' (Polesel et al., 2015, p.28). This well-established model is applied in various parts of Europe – in countries such as Switzerland, Germany, the Netherlands and Austria – involving streaming students into separate academic and vocational pathways from an early age (O'Connell & Torii, 2016, p.74).

Roughly 120 countries provide some form of technical or vocational secondary education, as distinct from a purely generalist curriculum (World Bank, 2015, p.1). Internationally, as well as in Australia, the provision of a broader school curriculum to include both vocational and academic subjects has been one strategy designed to meet the broader challenges and demands of schooling. This 'integration' or 'accommodation' vocational offerings has been implemented to achieve multiple purposes, including:

- reforming secondary school structures and content to improve retention;
- improving transition outcomes at a time of changing youth labour markets;
- improving exiting students' employment prospects and further education opportunities;
- improving the relevance of schooling outcomes to employers and employment;
- facilitating the transition between school and post-school options;
- increasing the number of qualified and skilled workers entering the workforce; and
- encouraging lifelong learning habits in all school leavers (Malley et al. 2001; Benson, 1992).

Issues arising

The World Bank (2015, p.1) states that '...introducing vocational education into the school curriculum is a major investment and its purpose needs to be clear from the outset'. As part of this work, the World Bank identified two main goals for school-based VET programs and the implications of following one over the other:

1. **Successful school-to-work transition** - If this is the primary goal, the World Bank argues that more intensive vocational education should be provided to a relatively

small number of students after a thorough analysis of labour market needs. Both the labour market situation and the level of skill required through vocational education need to be taken into account.

2. **Pre-vocational education** - If this is the primary goal, then close attention needs to be paid to restructuring the connection between secondary and higher education – if vocational subjects are included as electives, then they need to be acceptable for entry into advanced technical or higher education. This can mean including higher education institutions in the design of secondary school vocational curricula.

It is important to note that the Australian model exhibits certain idiosyncratic characteristics. For example, Misko et al., (2017, p.17) argues that ‘...although vocational studies are offered to secondary school students in Australia under VETiS programs, it is important to note that the focus of VET in Australia is on post-secondary education. In contrast, the focus of VET internationally is mainly on secondary education’. In a review of international models for the Government of India, the World Bank (2015, p.1) argues that:

‘...it is logical that any major reform of secondary school provision should give serious consideration to vocational education and its place in the curriculum. What that place is, and how it will be configured, depends on broader government policy on the timing and the extent of choice it wishes to grant to students, the level of influence of employers on the curriculum and the degree of articulation which is sought with post-secondary education and training. It will also depend on the need for compatibility with the broader educational infrastructure and prevailing economic conditions and societal aspirations. That being the case, issues such as the existence of a qualifications framework, share of educational financing, levels of youth unemployment and the demand for skilled workers, all require consideration’.

Additionally, in a recent review of international models, Eichhorst et al. (2012, p.2) described the ‘duality between general and vocational education’, wherein:

‘...the former aims to provide youths with general, often academically oriented, knowledge as the basis for further (higher) education and training, VET provides youths with practice-oriented knowledge and skills required in specific occupations. Most frequently, VET follows a formal curriculum that combines general and occupation-specific knowledge. Variation in types of school-based VET arise with respect to the academic level of vocational schooling—at the lower or upper secondary level; the places of learning—at general schools, and/or at specific training centers or colleges...Consequently, VET is integrated in compulsory schooling as alternative to an academically-oriented schooling track, or as part of several post-compulsory education options.’

This duality is evident in what Clarke & Volkoff (2012, p.9) describes as the structural barriers inhibiting better integration, stating that: ‘...being situated within the structure of senior secondary certificates, VET in Schools delivery is constrained in its mode and quality of delivery by the curriculum and assessment frameworks of the senior secondary certificates, which have evolved to support traditional academic curriculum delivery and provide a pathway to university’. Tracing their historical origins, Malley et al. (2001, p.29) argues that these ‘...are still evident in some of the structures and personnel engaged in the implementation and development of the post-1990s new vocationalism... Their presence partly explains the persistence of implicit values used to stream particular types of students into vocational studies and to maintain a separation of vocational studies within so called integrated curriculum and certification structures’. In a comprehensive review of VET in Schools ten years after its introduction, Porter (2006, p.8) found that these factors included:

1. the **traditional culture, structure and resourcing of schools** which affect the degree of flexibility needed for integrating the vocational and general education curriculum, potentially leading to an undervaluing of VET and reinforcing a parental preference for their children to be university-bound;

2. the **prerequisite subjects of tertiary institutions**, as well as other post-school career options, necessitating the maintenance of parallel timetabling (general education courses held at the same time as VET courses);
3. the need to provide more **individualised education and training programs** for VET students compared with general education students;
4. the **greater cost of VET courses**, compared with general education subjects, which can cause difficulties in the allocation of resources between programs; and
5. the **competing priorities** of the three delivery organisations for VET courses (schools, training organisations and employers).

The approach taken to schools-based VET in Australia is now incorporating study through 'integrating or embedding it in the senior school curriculum' (Lamb & Vickers, 2006, p.41). However, the extent to which these VET programs have genuinely become 'integrated' is highly contested. In a paper on 'Successful provision of VET in schools: Overseas approaches', Professor Stephen Lamb compared the Australian experience with those other countries:

'...we have tended to develop a system of VETiS provision that is similar to the United States, with students being offered a menu of VETiS subjects or units, even if leading to a dual qualification, which form part of a broader program of study. Students can select as little or as much as they want to do, opting for no VETiS subjects or for several subjects, depending on the school and the state.

Some other nations have approached VETiS provision differently, building far more structured models of program provision. In these systems, such as Sweden, Finland, Germany, Austria, Denmark and the Netherlands, VETiS is organised as a range of separate occupationally structured programs which students choose as a whole course of study rather than as a set of subject or unit options. Such systems tend to have high rates of participation in VETiS and have promoted high rates of school completion, as well as high standards of learning and achievement, at least based on PISA evidence. It may be time for a review of our approach to VETiS.' (Lamb, 2008, p.121)

An ongoing challenge for upper-secondary schooling around the world is how to ensure enough flexibility in the curriculum to cater for post-secondary pathways that require different learning approaches. A 2015 report by the World Bank (World Bank, 2015, p.2) of the secondary schooling in India the report found that:

'In the countries studied..., those which stream students are more focused on the first of these goals i.e. preparation for direct entry into the labour market immediately after graduation; while those countries which do not stream regard it as awareness-raising, aiding career choice and preparing students for intensified vocational education at a later stage. Decisions on curriculum design, teacher profile, employer engagement etc. are then all made according to which of these goals is compatible with government policy.'

In some OECD countries, VET programs for secondary students are designed as separate stand-alone programs that are run for two to four years alongside general programs. In such systems there are reported to be high levels of participation, strong retention and completion rates, good employment and further study outcomes, and high quality learning (Lamb, 2008, p.117). In a report titled 'A Roadmap to Vocational Education and Training Around the World', Eichhorst et al. (2012, p.1) argues that:

'As opposed to general education, VET is only a prominent part of secondary education in a number of mostly continental European and Scandinavian countries. VET around the world can be classified into three distinct systems: (i) school-based, (ii) a dual apprenticeship system combining school training with a firm-based approach, and (iii) informal-based'.

In a number of continental systems, (e.g. Germany, France, Italy), the '...fragmentation of the upper secondary curriculum into general and vocational tracks has been the means by which the

'integrity' of the academic stream has been maintained' (Polesel & Clarke, 2011, p.525). In Austria, young people choose between a general education and several vocational pathways at a relatively young age. Students can complete their ninth year of compulsory schooling at a one year prevocational school (polytechnische schule) which qualifies them for transition to apprenticeship training within the dual system. In general, there are two pathways, the first involving apprenticeships through the dual training system and the second involving study at a secondary technical or vocational school (berufsbildende mittlere schule) which provides intermediate vocational training, or at an advanced level secondary vocational school (berufsbildende höhere schule). After reaching the end of the compulsory years, students can enter a short or a long school-based vocational route, or apprenticeship. The Austrian vocational system is regarded as '...a high quality, rigorous pathway that is as, or more, prestigious than an academic pathway' (O'Connell & Torii (2016, p.75).

In Germany, at the upper secondary level, more vocationally-oriented subjects are offered. Berufsfachschulen are full-time vocational schools which offer training for occupations related to business, foreign languages, crafts, home economics and social work, the arts, and health sector occupations regulated by federal law. Another type of full-time vocational school, Fachoberschule, offers courses such as business and administration, technology, health and social work, design, nutrition and home economics, as well as agriculture. In Switzerland, young people entering vocational upper secondary undertake a three to four year apprenticeship program at a company and spend up to two days per week at a vocational school. At the end of their apprenticeship they can sit an exam for the Federal VET Diploma. Despite early streaming, one of the strengths of the Swiss system is '...the permeability of pathways which enables students to shift between vocational and academic systems' O'Connell & Torii (2016, p.74). At the end of their apprenticeship they can sit an exam for the Federal VET Diploma, O'Connell & Torii (2016, p.75) observed that '...despite early streaming, one of the strengths of the Swiss system is the permeability of pathways, which enables students to shift between vocational and academic systems, in contrast to the German model'.

In comparing international systems to that of Australia, O'Connell & Torii (2016, p.70) argues that:

'In Australian secondary schools, vocational education and training (VET) and academic learning are still conceptualised and taught as very separate streams – academic learning focuses on knowledge acquisition in traditional learning areas, and vocational learning through the VET in Schools (VETiS) program focuses on skills acquisition for a particular occupation or trade. This approach to education makes little sense given the range of capabilities that all people will need in the future workforce. There is a broader role for vocational learning in schools to begin cultivating these capabilities – many of which are best developed through applied learning and work-integrated learning.'

A criticism of streaming is that the curricula of the two tracks are incompatible, so that for students who are on the margin between the two streams, taking upper-secondary VET courses can potentially limit their access to university (Eichhorst, et al., 2012). In countries where there is strong emphasis on university study, the result is that upper-secondary VET courses are often stigmatised as a consequence as being a 'second-choice option' and the 'poor cousin'. There are several ways in which countries are attempting to deal with the stigmatisation of VET courses in upper-secondary school. For example, Polidano & Tobasso (2016) draw attention to Ireland and Finland where technical colleges (Institutes of Technology in the 1970s and Polytechnics in the 1990s respectively) were introduced to sit alongside universities and provide higher education pathways for upper-secondary VET students.

Proposals for consideration

The earlier sections have tracked the uneasy and circuitous development of VET programs through the 1990s to arrive at the current array of offerings available in secondary schools today – where around 90 per cent of secondary schools offer VET of some description (Nguyen, 2010). A number of benefits have been described that link directly to an increasing need among schools and school systems to cater to an increasingly diverse and growing student population by providing a ‘practical’ alternative to the traditional curriculum geared towards university entrance. These more strategic benefits are combined with opportunities for career exploration, part-time work and to construct a ‘smoother transition’ to employment and further education and training.

While the benefits are well-recognised, there remain a persistent set of issues in terms of low quality training, skewed participation levels, the onerous cost burden placed on schools and students, the industry currency of teachers and poor post-school employment outcomes of graduates. In the recent ‘Report of the Review to Achieve Educational Excellence in Australian Schools’, Gonski et al., (2018, p.50) called for a need to ensure:

‘VET in schools programs are coherent, robust, are not tokenistic, and deliver core competencies required by industry to help VET school leavers gain employment. There is also potential to consider a broader range of measures for VET programs beyond ‘satisfactory’ or ‘not completed’ that can assess learners’ achievements and capabilities, and that set higher benchmarks to increase a student’s sense of pride and ambition’.

In April 2019, the independent review of Australia’s VET sector was released. The report included the observation that:

‘An important way to improve vocational pathways in schools is to use straightforward tools to help contextualise the traditional school curriculum and make it more relevant to students interested in a vocational career. This needs to start in the early secondary school years to reduce the likelihood of disengagement for students who aren’t enthusiastic about a university pathway.

In particular, work can be done to help students understand how traditional secondary school subjects can form a pathway into different broad vocational fields. Clusters of subjects can be identified that can support students to build a coherent study-plan that prepares them for a range of related careers in a field.

For example, for a student interested in construction or engineering fields, the relevant pathway would guide them to selecting a range of mathematics subjects along with some vocational technology subjects. This vocational pathway would support them to build knowledge and skills that would be relevant to them, regardless of whether they choose to go on to enrol in a university engineering degree or take up an apprenticeship in carpentry.’ (Commonwealth of Australia, 2019, p.96)

There already exist a number of compelling proposals to improve the integration of VET within secondary education and senior secondary certificates of education in Australia. Two specific proposals are considered here in response to the issues identified throughout this paper.

The concept of ‘vocational streams’

A recent three-year research program, ‘Vocations: the link between post-compulsory education and the labour market’, investigated both the educational and occupational paths that people take and how their study relates to their work. The program comprised three strands: (1) Pathways from VET in Schools; (2) Pathways within and between VET and higher education; and (3) Pathways in the labour market.

Across all three strands, the work has shone new light on the long-held and conventionally accepted link between qualifications and jobs that has developed from the notion that vocations

are based on specific skill sets – as manifested in competency-based training and assessment. This tends to prepare students, the research argues, for ‘...a narrowly defined occupation or a particular job. A modern concept of vocations, called ‘vocational streams’, provides a framework for creating better connections between qualifications and jobs’ (Moodie et al., 2013, p. 31). Introducing the concept, the research states that:

‘Vocational streams consist of linked occupations that relate to the core underpinning concept and set of practices; for example, care and care work. Preparation for a vocational stream implies that education will have a broader focus because it is preparation for a number of linked occupations rather than being specific preparation for specific jobs. In preparing students for vocational streams the focus will need to move beyond specific tasks and roles within jobs, to broad fields of practice, where the focus is on the development of the person, the attributes they need and the knowledge and skills they require to work within a broadly defined field of practice, in which educational and occupational progression is combined...

Preparation for vocational streams fosters identification with the field of practice rather than with a specific employer, enterprise, job or occupation. Preparation for vocational streams requires education in related clusters of knowledge and skills, which allows individuals to progress and/or specialise within a field of practice, or to move laterally into related occupations. Preparation for work would need to be based on a continuum of knowledge and skill that links work, vocational and higher education and include the capacity to accrue skills coherently and cumulatively.’ (Moodie et al. 2013, p. 31).

The research program explored the proposal that a new conceptualisation of ‘vocation’ would be useful in improving the way the links between education and the labour market operate, using the capabilities approach. Such an approach to VET, it is argued in Buchanan et al. (2015, p.138) ‘...starts with the person and not specific skills, tasks or roles and asks about the capabilities that people need to achieve a range of outcomes’. Education and training based on capabilities would focus on developing individuals in three domains:

- **The knowledge base of practice.** This includes the theoretical knowledge needed for the field of practice and for higher level study within the occupation. It also includes debates and controversies concerning the relevant domain so that people can be citizens in their occupations.
- **The technical base of practice.** This includes industry skills that transcend particular workplaces.
- **The attributes the person needs for that occupation or profession.** This includes such attributes as ethical practice but also effective communication skills, the capacity to work autonomously and in teams, creativity, information management and so forth. While these are sometimes described as generic, they are understood differently in different fields of practice and need to be developed within the context of specific disciplines and vocations (ibid, p.138).

Within this approach, Buchanan et al. (2015, p.138) qualifications would ‘...prepare students for a range of occupations within loosely defined vocational streams, support students to engage in an occupational progression through a career, link occupational and educational progression and adapt to meet new and emerging needs’. This represents a conceptual – and many would say significant - shift away from the task-based and task-driven focus of competency-based assessment that has come to characterise training and assessment in Australia since the mid-1990s. In its place, it is proposed that if we were to consider the development of knowledge and skills from a position of building and developing capabilities (not competences), such an approach would:

‘...help individuals to be more adaptable by instilling the basic knowledge required for a number of jobs within a broad vocational field of practice, rather than for a specific occupation. This research suggests that vocational streams would prepare individuals for potentially rewarding working lives, while improving their options for

career advancement through specialisation and the flexibility to move sideways into related occupations.’ Wheelahan et al. (2015)

This approach highlights that a broader range of factors shape the nature of the productive potential that individuals bring to the labour market than is commonly considered in most labour market analyses. For example, Wheelahan et al. (2015, p.28) argues that:

‘Vocational streams would provide a useful framework for structuring programs of study to prepare graduates for a broad range of related occupations in which common practices, and knowledge, skills and attributes are shared. As with the discussion in the previous section on VET in Schools, the curriculum would support students to learn about their industry, for their occupational field and in their industry, which would entail a move away from competency-based training models of curriculum, which focus on specific workplace tasks and roles rather than on broad occupational fields, towards a broader, more developmental approach such as the capabilities approach.’

A foundational and thematically-linked approach to VET in Schools

More specifically related to VET in Schools, in Strand 1 Clarke (2014b) argues that ‘...a meaningful discussion of the purpose of vocational education in schools and subsequent changes to its architecture and curriculum are equally important to any effort to strengthen the role of VET in Schools’. Clark identified a set of key implications for government and policy-makers from the research, specifically to recognise a need for:

- **redeveloping VET qualifications**, along with industry and educational institutions, to produce ‘adaptive capacities’, which are the capacities individuals need to respond to changes in work and in society
- **mandating English and mathematics** in the school curriculum as foundational knowledge that students will need in their post-school studies
- building sustainable models of VET in Schools by **identifying and incorporating vocational streams in the senior school curriculum** to enable students to study subjects related to their proposed vocational field of practice
- **refocusing VET in Schools as a pathway to post-school VET or apprenticeships in skilled occupations** rather than as a pathway to a job, as it is increasingly difficult to move directly into a meaningful job from a VET in Schools outcome alone
- **differentiating the approach to tertiary education pathways** to take account of the different ways by which they are used in the labour market. This approach will go beyond linear pathways in the various fields of education to one that supports the way in which graduates use qualifications to build their careers. All qualifications would share the same three purposes: labour market entry or progression; access to higher-level studies; and widened participation for disadvantaged students. These will vary in their emphasis and the way in which they are implemented
- **exploring and developing ‘middle-level’ occupations** that link lower- and higher-skilled occupations in vocational streams, drawing on the combined experience of higher education, vocational and industry expertise.

The research ‘...proposed that vocational education be more firmly embedded in the school curriculum more generally and incorporate meaningful workplace learning opportunities for all students’ (Wheelahan et al., 2015, p.8). Within the main research report, Wheelahan et al. (2015, p.34) argues that:

‘An effective model of VET in Schools would reorient existing practices to focus on pathways to post-school VET or apprenticeships in skilled occupations. This would entail revising the model of curriculum used in certificates I and II so that these levels become industry/occupation exploration or ‘career start’ qualifications for predominant use by young people in schools. Such an approach would recognise the limited currency for these certificates for entry to the labour market, while confirming the desire for models

of VET in Schools to be 'certified'. This approach would also entail 'programmatic' or themed approaches to the senior school certificate such that students were given explicit advice on how to 'package' their senior school subjects to ensure that they studied allied subjects to deepen their knowledge and skills in their prospective field of practice...

In rethinking VET in Schools, the aim is to ensure that students have well-rounded educational programs that encourage them to learn about their career options (career exploration); for their industry (through thematic programs of study); and in their industry (through workplace learning). As part of a broader approach to VET in Schools, the two key challenges will be to develop and provide high-quality and authentic workplace learning experiences and enable access to accurate, relevant and timely vocational career guidance. Developing a new model of VET in Schools requires cross-sectoral collaboration in the design, development and delivery of VET in Schools, strong partnerships with employers and industry bodies, and strong system-level leadership.'

The research strand framed the proposals against a set of practical 'core concepts', specifically:

- A critical approach to vocational education in secondary schools **cannot be focused on curriculum alone**: pedagogy is a crucial piece of the solution.
- The relationship between the VET in Schools curriculum and pedagogical innovation is needed to **promote integration across traditional disciplinary and occupational silos**.
- There is a simultaneous acknowledgment of:
 - the **limited value of both entry-level VET certificates** and senior secondary certificates in the labour market; and
 - an **increasing focus on the attainment of these certificates** as the key policy measure of effective youth transition.
- Despite a strong emphasis on the role of VET in Schools in promoting retention, there are still **large numbers of young Australians opting out of senior secondary education**, suggesting that current models of provision are not working for all students.
- It is important to acknowledge the role that VET in Schools plays in **reproducing existing socioeconomic inequalities** (Clarke 2015/2014/2013).

Strand 1 identified a number of areas for consideration including: (1) thematically linked subjects; (2) industry-broad rather than occupationally specific knowledge-based curriculum; (3) compulsory industry/workplace learning integrated with theoretical learning; and (4) explicit links between VET in Schools curriculum and post-school VET Clarke (2013). The resulting set of proposals for improvement included a need to '...better align the school vocational curriculum with labour market opportunities so that vocational qualifications reflect the skills and knowledge needed to enter and move through an industry'. Clarke (2014b) further identified a need for:

'...greater alignment of the school vocational curriculum with labour market opportunities. The vocational curriculum should reflect the broader range of skills and knowledge needed to enter and move up and through an industry. The current narrowly defined occupational focus of VET in Schools qualifications does not achieve this. A new approach to address this must recognise both the limited currency of the entry-level VET in Schools certificates and the need for the models of vocational education in schools to be 'certified' or distinguished from the 'mainstream' pathway to university.'

Clarke (2013) raises the potential of a programmatic approach to VET in schools as one where there are closer links between the academic (disciplinary) and vocational (applied) curriculums in senior secondary education and a focus on the pathways from vocational learning in senior secondary school to vocational learning in apprenticeships for post-school VET providers. The term is defined further in Box 2 below. The approach, Clarke (2013, p.9) involves:

'...emphasising the foundational nature of VET in Schools as a pathway to higher-level vocational studies to support participation in and completion of post-school vocational qualifications. While system-level stakeholders indicated that VET in Schools was conceptualised in this foundational way in policy, school-level stakeholders suggested

that this message was still missing in schools' approaches to and promotion of vocational programs.'

It was argued that VET in Schools 'could be strengthened through a stronger focus (at a policy and practice level) on its role as a foundational pathway to further training' not to gain entry-level employment' (Clarke, 2013, p.10). This could be achieved, it was proposed, through a 'a conceptual shift away from what appear to be utilitarian or instrumentalist approaches', which see VET in Schools as providing a direct pathway to work, towards an approach that builds the skills and theoretical knowledge needed for entry to further higher-level vocational education and training and employment-based training (Clarke, 2013). In the main research report, Wheelahan et al. 2015 (pp.26-27) argues that:

'Strand 1 suggested vocational streams be identified and incorporated in the senior school curriculum, so that students are encouraged and advised to study combinations of 'themed' subjects that are related to their proposed vocational field of practice (one jurisdiction is developing guidelines that specify themed programs of study). They also suggest that English and mathematics be mandated within the curriculum as foundation knowledge which students will need in their post-school studies. This ensures a coherent and structured curriculum, designed with clear pathways in mind.

Such an approach, if adopted in Australian systems, would result in more explicit links between senior secondary school certificates and higher-level vocational education. Finally, Strand 1 also highlighted the need for opportunities for younger students, those in Years 9 and 10, to engage in vocational learning, thereby enabling coherent career exploration and career education. This will provide them with the knowledge they need to make meaningful choices when choosing their senior school subjects.'

The five proposals arising from Stream 1 were:

1. Define the purpose of vocational education and training in secondary education as **foundational preparation for access to mid-level qualifications** and entry to employment-based learning such as apprenticeships.
2. **Better align the school vocational curriculum with labour market opportunities** so that vocational qualifications reflect the skills and knowledge needed to enter and move through an industry.
3. **Develop thematic packages of curriculum**, whereby vocational and school subjects are connected, to create a stronger articulation pathway.
4. **Make explicit connections between VET undertaken at school and post-school VET** study to strengthen the pathways to post-school vocational courses.
5. **Use units of competency within Certificates I and II for the exploration of occupations and industries** in the junior and middle years of schooling.

Box 2: A Programmatic approach to VET in Schools

In response to the question 'What do we mean by programmatic?', Clarke (2013, p.23) elaborates on the proposed model:

'This model or approach is centred on a conceptual shift away from a utilitarian or instrumentalist approach, which sees VET in Schools as providing a direct pathway to work, towards an approach that builds the skills and theoretical knowledge needed for entry to further higher-level VET and employment-based training. A programmatic approach to VET in Schools could be one in which the vocational learning was integrated with general and thematically relevant theoretical and academic study. For example, a student pursuing a pathway to an allied health occupation could embark on a senior secondary program of related academic and vocational subjects in health sciences. Similarly, a student aspiring to a post-school commercial cookery apprenticeship could undertake academic and vocational learning that builds the skills and theoretical knowledge needed for entry to and successful completion of the required employment-based training...'

This approach differs from previous models of 'embedded' VET used in some jurisdictions. Embedded models of VET used in the past have largely been replaced due to a lack of utility either in providing access to occupations or further and higher education. The approach proposed by the researchers here provides an alternative to the current model, which has been criticised by participants throughout the two years of this research as being restricted to a focus on skills preparation for a narrow occupational outcome. The approach proposed here is built around subjects that have status within the senior secondary certificates of education and form part of a broader package of themed or programmatic studies, but may use different or additional pedagogical approaches to the disciplinary curriculum.'

Closing remarks

Labour markets into which young Australians make their transition from education have become increasingly demanding in terms of the skills, knowledge, experience (and level of qualifications) required for entry-level work. In response to these challenges, all states and territories have introduced reforms and measures to increase the number of VET options. Though specific arrangements differ, VET can be counted towards senior secondary certificates of education in all states and territories (Education Council, 2014). This has led to several of the senior secondary certificates of education in Australia to undergo '...a process of review and redevelopment, resulting in the incorporation of broader ranges of vocational, employment-based and community learning options' (Clarke, 2015, p.10). CIRES (2015, pp.v-vi) argues that:

'VET has emerged as a powerful element within senior school programs to provide a curriculum of relevance and interest to the expanded cohort of students now being retained within schools, particularly since the raising of the school leaving age to 17 years in 2010. However the incorporation of VET into Senior Secondary Certificates (SSC) remains a work in progress in all Australian jurisdictions.'

Having adopted an approach that favours accommodating an expanded subject offering within existing school qualifications, Australian secondary education systems now offer an abundance of vocational options to students completing a senior secondary certificate of education. The key question for the coming decades is to how best ensure their relevance, quality and outcomes are designed and implemented in a way that does not further perpetuate the dichotomies of a two-tiered approach – a problem that may persist with a system that simply 'accommodates' but does not genuinely 'integrate' vocational and general education into one coherent and high-quality senior secondary education.

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