

The outcomes of education and training

What the Australian research is telling us, 2011–14

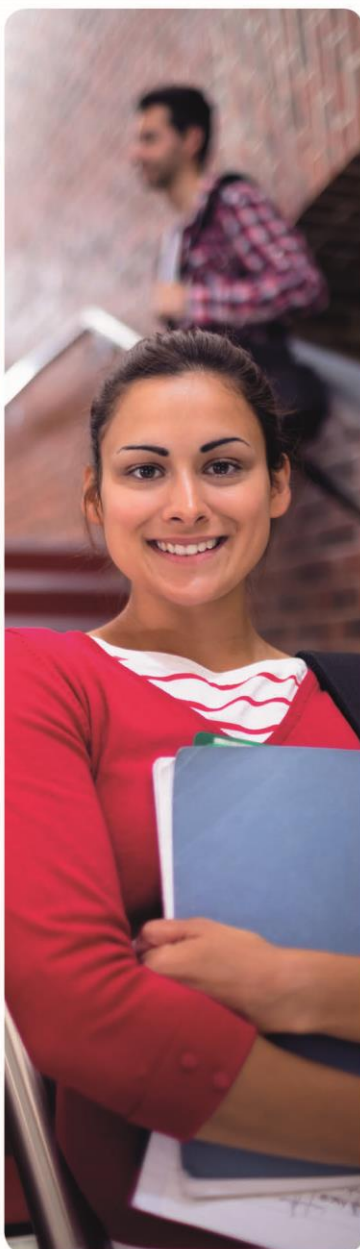
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About this summary

The outcomes of education and training: what the Australian research is telling us, 2011–14

Francesca Beddie, Francesca Beddie & Associates

From 2011 to 2014 a set of five national priorities directed research into selected aspects of Australia's tertiary education and training sector. The body of work published by the National Centre for Vocational Education Research (NCVER) over this period has explored many of the challenges facing the sector and pointed to some of the solutions.

This summary brings together a range of significant findings and identifies further lines of inquiry. A small but key selection is as follows:

- Employers and enterprises have a crucial role to play in matching skills to jobs, improving the image of vocational education and training (VET), and in workplace learning. The VET sector's role, in partnership with employers, is to re-imagine the nature of vocations and occupational groupings. That partnership should extend to improving the workplace as a site of learning.
- Skill definitions of competency-based training are valued but no longer sufficient in the contemporary VET system, suggesting that:
 - more emphasis should be placed on developing contextual and foundational knowledge as well as building the capacity to learn, analyse and apply critical thinking and analytical skills
 - boosting the literacy and numeracy, and science, technology, engineering and mathematics (STEM) skills of the entire population is an important priority.
- Investment in training can reduce disadvantage, with the biggest returns coming from completing Year 12 and/or certificate level III. However, disadvantage for individuals is complex and the familiar point about the requirement for joined-up solutions needs to be heeded, as does having reasonable expectations about the role of vocational education and its outcomes.
- There is an expectation for VET to meet a number of purposes: to prepare new workers; upskill the existing workforce; and offer alternative pathways for young people and second chances to disadvantaged adult learners. To enable VET to tackle this daunting list requires the deft coordination of policy settings, co-investment in services and a talented VET workforce.
- We still need to develop reliable and meaningful ways to measure the returns from investment in education and training for both employers and society, a complex task in a global economy.

Dr Craig Fowler
Managing Director, NCVER

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Introduction

We live in an era when for most people formal education does not stop at Year 12. The returns from tertiary education are tangible; hence the push towards increasing the qualifications of the Australian population. The challenge is how to fund this training and how to ensure its delivery meets the needs of those who are paying: individuals, governments and employers.

In 2009 Professor Gary Banks, then head of the Productivity Commission, explained the place of research in meeting such challenges: ‘Half the battle is understanding the problem’ (in NCVER 2010, p.8). The body of research produced by the National Centre for Vocational Education Research (NCVER) over the lifetime of the 2011–14 National Research Priorities (see figure 1) has exposed many of the problems facing tertiary education and training.¹ With the aim of ‘understanding the problem’, the research has further investigated the persistent obstacles that policy-makers and training professionals face, while also pointing to some of the solutions.

Figure 1 National Research Priorities for tertiary education and training, 2011–14



The research commissioned under the five priorities was conducted during a period of much reform. Nevertheless, this summary finds not only that the issues investigated remain pertinent to policy-makers, but also that research can throw light on the impact of policy on practice.

The consultations that helped shape the 2011–14 priorities revealed strong interest in building an evidence base to assist in policy-making and in measuring achievement. NCVER therefore set out to develop the capacity in the tertiary education sector to use existing data collections; it also strove to encourage fresh thinking and cross-disciplinary research

¹ The national research priorities for tertiary education and training 2011–13 were endorsed in June 2010, consistent with the advice of the NCVER Board, following an extensive consultation period with stakeholders. In April 2013 the National Senior Officials Committee (NSOC) endorsed carrying forward the national research priorities to the end of 2014.

and to ensure its work made an impact on its stakeholders, including policy-makers. In parallel, NCVET made significant progress in reaching the goal of reporting statistics on total VET activity in Australia, although more still needs to be done to use complementary datasets to investigate cross-sectoral issues.

NCVER was also conducting and commissioning research on youth transitions, having become responsible for the analytical and reporting services for the Longitudinal Surveys of Australian Youth (LSAY) in 2007. LSAY is one of the few longitudinal surveys in the world with multiple cohorts, thereby allowing comparisons to be made across different time periods and revealing the trends in the lives of 15 to 25-year-olds.

The research work conducted between 2011 and 2014 traversed the boundaries of VET, higher education and schools and in so doing identified a recurring theme: that the structures of our educational systems need to adapt more to the demands of current society and changing demographic trends, as does our ability to measure and evaluate the outcomes of education.

This summary outlines how the research addressed some of the key concepts identified in the five research priorities. It provides insights on key implications arising from the research and potential further lines of inquiry to advance progress on potential solutions², and does not seek to replicate the annual *Research messages* volumes (NCVER 2011, 2012, 2013, 2014a, 2015), to which readers can turn for each year's research output along with each publication's *About the research* page.

The chapters that follow align with each of the priorities. Each chapter starts with the concepts fundamental to the specific priority; these were identified in 2010 as a guide to researchers bidding for funds under the National VET Research Program. Interwoven with the discussion of that body of work are findings from the LSAY analytical program and research undertaken by NCVET (see <<http://www.ncver.edu.au/aboutresearch.html>> for further information on each of these programs). Each chapter concludes with a summary of the challenges identified in the research and the implications for policy and practice in Australia's training system. Some of these issues belong to the category of 'wicked problems' (Australian Public Service Commission 2007, p.4) – those issues that affect multiple stakeholders with different perspectives on both the issue and its potential resolution. They are neither straightforward to define nor to answer; instead they remain enduring issues for further lines of inquiry.

2 Appendix A in this summary lists the entire body of research under each of the five priority areas.



1 Skills and productivity

To investigate how skills contribute to economic growth

Fundamental concepts

- Skill utilisation, overskilling and mismatch
- Supply of skills – shortages and responsiveness of training
- Role of skill sets and qualifications
- Skills market
 - Match between education and training and occupational labour markets
 - Structure of the labour market and the role of education and training
 - Labour mobility
 - Generic vs technical skills
- Return to skills
- Attrition
- Workforce development and participation
- Types of skills
 - Foundation, technical, employability, 'green'
- Return on investment
- Role of enterprises in converting skills to productivity
- Employment patterns

The returns from more education to individuals are still healthy as we approach a mass tertiary education system.

Australians have always had a practical attitude to education and training: as primarily a vehicle for getting a job and staying attached to the labour market. It follows that NCVER's research focuses on the *outcomes* of training for the national economy, individuals and their communities. How to harness skills for productivity is of enduring interest to policy-makers, trainers and industry, with governments paying attention to areas of vulnerability, especially in times of economic restructuring. Hence the constant interest in disadvantage, addressed here and also under the third priority on social inclusion.

An investigation of how skills contribute to economic growth cannot take account only of tertiary training systems but also the changing patterns of work, skills requirements and employer attitudes to recruitment and training. These intersect with other public policy areas such as industrial relations, migration and, as became clear in various reports on labour mobility, housing prices and taxes. (See 'It's not just about the money when moving location for work', *Insight* issue #52, NCVER, 31 July 2014 for a summary of this body of research.) Non-economic issues like family make-up and cultural attachments are also influential. Moreover, the research points repeatedly to the necessity of including schools in the equation of preparing future workers (Clarke 2014). Has the increasing demand for more skills and higher qualifications led to credentialism – an over-emphasis on certificates and degrees as evidence of an individual's qualification to perform a certain job or attaining social status (Open Education Sociology Dictionary) – and thus to a wasted investment? This question has come under the scrutiny of labour market economists around the world, with several reports on this topic published by NCVER (Dockery & Miller 2012; Mavromaras et al. 2012; Ryan & Sinning 2011). Their answer is 'not yet'. Even though younger cohorts of workers may have higher-level qualifications or more education than their jobs require, the returns from that education are still healthy. That said, people who are overskilled may have lower job satisfaction (Mavromaras et al. 2011).

Work on skills mismatches also puts the spotlight on the status of VET qualifications in the labour market and teases out some differences between over-education and over-skilling. These are not merely semantic: they are important when we discover the penalty for over-education is less severe for highly educated workers than for workers with lower educational attainment. It is people with the lowest educational attainment who find themselves in jobs that do not require use of the skills they have acquired (Mavromaras et al. 2012).

This finding points to the big question of how the system prepares people for work, for both entry-level jobs and new jobs or career progression. The evidence from LSAY is compelling: young people need to complete Year 12 (Karmel & Lui 2011; Ryan 2011). But what about those who do not? Do lower-level VET certificates offer an alternative? This has proved a vexed question for researchers, given the tensions at play in decisions about public funding for lower-level certificates. Such decisions rest on how we value the returns from training to individuals – in either purely economic terms or also as worthwhile means of re-engagement – and on differing employer views about the usefulness of certificates I and II.

On balance, the research points to certificates I and II as best used as stepping stones to higher certificates. Without such progression, low-skilled workers are more likely to be employed on precarious terms (for example, in seasonal, casual or part-time work), thereby reducing the incentive for employers or individuals to invest in their skills and trapping people in a cycle of low-level qualifications and jobs (Oliver 2012; Webb et al. 2015).

Ensuring that the training incorporates literacy and numeracy is crucial to individuals and to productivity: 93 per cent of employers surveyed by the Australian Industry Group (AiG) in 2012 identified some impact on their business of poor literacy and numeracy (Australian Industry Group 2013). In AiG's 2014 Survey of Workforce Development Needs attention (Australian Industry Group 2015) was also drawn to the shortfall in science, technology, engineering and mathematics (STEM) skills, with almost 44 per cent of employers experiencing difficulties recruiting STEM-qualified technicians and trade workers.

We have known for years that many Australian adults do not have sufficient literacy and numeracy skills to enable them to operate well in our sophisticated society. This deficit has been tracked in the adult literacy surveys conducted by the Organisation for Economic Co-operation and Development (OECD), data from which were analysed in a program headed by Chris Ryan, *Securing their future: older workers and the role of VET*. His work confirms that qualifications which offer improvement in literacy skills, in addition to technical skills and knowledge, provide the best returns for workers (Chesters, Ryan & Sinning 2013).

To assist in improving the usefulness of the literacy data, NCVER investigated whether the levels in the Australian Core Skills Framework (ACSF), which is used to track individuals' progress, could be mapped to the OECD's Adult Literacy and Lifeskills Survey (ALLS) (Circelli et al. 2013). The exercise established equivalence at the lower of the two sets of five levels. The third level of the ALLS – the minimum aspirational target of the National Foundation Skills Strategy for Adults – was found to be similar in complexity to exit Level 4 of the Australian Core Skills Framework. Understanding this disparity should help efforts to lift the nation's literacy and numeracy achievement.

This task starts in the school system. It needs also to be tackled in the VET sector, which is contending with the consequences of an increase in the proportion of young people going to university. Karmel has shown that young people entering the apprenticeship system have lower academic achievement in mathematics and reading and lower socioeconomic status (Karmel, Roberts & Lim 2014). This is a contributing factor to low completion rates, but not the only one. Nor is the training wage the dominant influence on whether apprentices remain in their apprenticeship (around half do not); in fact, they seem prepared to put up with less money if they like the work and their boss (Bednarz 2014). This means choosing the right occupation. Career advice, pre-apprenticeships and a sound understanding of the

contract of training can be useful here (Smith, Walker & Brennan Kemmis 2011; Stromback 2013).

Success can also depend on how employers approach their obligations. For larger workplaces, those with dedicated human resource teams and a pool of apprentices, it is easier to create favourable learning conditions (Karmel & Roberts 2012). However, over half of all apprentices work in very small businesses, which are less able to cope with the paperwork and which need flexibility in the off-the-job training components. The latter become even more important if there is little or no in-house training expertise. Government initiatives to reduce red tape and provide mentoring and broker good relationships between enterprises and training providers may help these workplaces retain their apprentices (Bednarz 2014). Lifting the image of the trades is an unfinished task. It might be assisted by introducing positions akin to the master tradespeople in the German system – if such an initiative could be accommodated by the industrial relations system. But evidence from the construction industry, where the pathway from a building diploma to a construction degree is constrained by the low numbers of students, suggests there is a way to go in promoting higher-level qualifications in traditional trade areas (Mills, McLaughlin & Carnegie 2013).

Other factors at play in completions are the economic cycle and long-term prospects in the labour market. This pertains not only to trade apprentices but also to trainees in other occupations (Bednarz 2014). For all, having the fundamental literacy and numeracy skills is crucial, as are the employability skills that employers regard as essential in work-ready graduates. Some skills – good communication, for example – are generic; others depend on the nature of the industry or the maturity of a business. For example, a start-up biotech firm may have more need for postgraduate scientists than a more established company wishing to sell its inventions in Asia. The latter will be looking for people with marketing skills and Asia literacy (Beddie et al. 2014). These nuances mean that broad terms like ‘green’ or ‘innovation’ skills need to be clarified before they can usefully inform training responses to the changing patterns of industry.

In getting the skills match right, the role of enterprises is central. Yet engaging entrepreneurs and individual owners in the research process, either as subjects of the research or as audiences for its findings, is a tenacious challenge. Without lessons filtering through to workplaces, some of the familiar problems will remain unsolved; for example, employer engagement in career advice, meaningful work experience and on-the-job learning.

This is not to say the burden should fall only on the shoulders of employers; rather, the research suggests the desirability of better partnerships and networks between employers, training providers and researchers. This is particularly important in efforts to improve Australia’s innovation record. Understanding better the nature of future jobs and their skill requirements is one way to increase competitiveness. A thread across the research findings, one which is hardly new but merits further attention, is the need for stronger collaborations between training providers and their clients in industry.

One program of research suggested the usefulness a new conception of vocation, one that embraces groups of related occupations and emphasises capability rather than competence alone (see the forthcoming synthesis piece from this program of work: Wheelahan, Buchanan & Yu 2015). This new definition of vocation would be shaped by a better understanding of how employers recruit, develop and promote skills in their organisations

Lifting completions in the apprenticeship system is not just about increased wages. Apprentices and employers need to know what they are signing up for.

Employers and enterprises have a crucial role to play in matching skills to jobs, improving the image of VET, and in workplace learning.

Vocation in the twenty-first century means capability not competence. Training cannot be narrow; it has to equip people to work in many jobs, in shifting industry sectors and in volatile economic cycles.

and markets; it would also require research that drills down into industry sectors, as that program did, and examines not just educational matters but also microeconomic trends, industrial relations and other influences on labour market demand and supply.

We already know that economic conditions have a strong influence on labour mobility. In the good times, people in the trades and the professions are more likely to move, and those who do so successfully usually move within the same occupations. This can give rise to poaching, which in turn influences employer attitudes to training. The boom and bust cycle in the mining industry delivers a salutary lesson: those employers who use a combination of workforce planning for busy cycles (knowing what the critical roles will be and when they are needed) and apprentice and graduate intake programs to deepen their own experience are best able to ride the economic swings. Training local people rather than importing labour can address not only the poaching issue but also reduce the financial and social burdens of fly-in-fly-out solutions (Atkinson & Hargreaves 2014).

In good times, we hear a lot about skill shortages. NCVER has been consistent in its message that long-term predictions of skills shortages are bound to be imprecise. (For a recent report on this subject, see Healy, Mavromaras & Sloane 2012.) Furthermore, solutions to attrition and labour shortages can often be found beyond the training system, for example, by increasing workers' hours; employing other qualified people; or increasing the intensity and efficiency of work. Training more people may also be a remedy, but this is usually not a quick fix. For those preparing new workers, the task is to impart underpinning knowledge as well as technical skills and foster the capacity to adapt to diverse work situations.

The picture is somewhat different for existing workers, a crucial yet often less prominent group of students in vocational education. Despite the fact that the Australian VET system caters for all age groups, research and policy tend to concentrate on initial education for young people and on second-chance learning for disadvantaged groups (see chapter 3). Also deserving of attention is continuing education and training (CET), a topic addressed by Billett and his colleagues in their program of study (*Change, work and learning: aligning continuing tertiary education and training*). Not surprisingly, they find that existing workers want to learn in the workplace. They suggest therefore that training providers offer work-based learning opportunities; that they maintain their staff's industry currency (see chapter 5); and that employers incorporate the planning and financing of continuing education and training into their business plans to encourage a culture of learning (Billett, Henderson et al. 2012; Billet, Choy et al. 2014; Billet, Choy, Dymock et al. forthcoming).

The above body of research by Billett and his colleagues touches on the tension between training for skills and training for qualifications. That tension has given rise to greater consideration about how skill sets are incorporated into the system. In the agricultural sector, skill sets not only assist in upgrading workers' capabilities or changing job roles, but also in persuading them to return to formal learning and to complete a qualification (Mills et al. 2012). Skill sets can help training organisations to respond more nimbly to workforce development, although rigidities in the system of accreditation, coding and funding have restricted their efficacy. Addressing such issues was mooted in the federal government's October 2014 discussion paper on training packages and accredited courses (Australian Department of Industry 2014b).

Productivity is not all down to those categorised in the system as working age (15–64 years). The labour market is adjusting to young people taking more time to make the

transition from study to employment and older people remaining active for longer. At one end, there are fewer full-time jobs for youth; at the other, flexible workplaces and notions of 'encore careers' are gaining traction (Figgis 2012).

To balance the considerable coverage of initial vocational education, NCVET commissioned essays from a wide range of social scientists, and then brought them together with other researchers, community representatives and policy-makers to discuss the topic of older workers (Griffin & Beddie [eds] 2011a). The strong message to emerge was that this heterogeneous group should be seen as a resource and not merely a problem. As the population becomes more educated, people are choosing to work longer, albeit in arrangements that suit their other commitments. For those who, for financial reasons have to keep working or who are involuntarily displaced, age discrimination remains a barrier, as can impediments to reskilling, including poor literacy and numeracy. In summary, the challenge of improving the labour market participation of older workers calls for whole-of-government approaches and a continuing shift in attitudes. Superannuation and social security settings are one part of the story, as is the removal of obstacles to employment and education for those who want to upskill and continue working on their own terms (Griffin & Beddie [eds] 2011a). One such group is the self-employed (18 per cent of the workforce in 2013; ABS 2013). Those with vocational qualifications work mainly in the construction, retail, care and agricultural sectors. In a rare study of these workers, Daly (2011) found these self-employed workers tend to be older (like their professional counterparts), married and to have been born in a non-English speaking country. They tend to earn less than employees, preferring perhaps what they perceive to be the freedom of self-employment, or because their qualifications were not readily recognised by prospective employers. In the context of the provision of vocational training, it is important that preparation for running a business is incorporated into the curriculum. Indeed, entrepreneurship and management capabilities will be crucial to Australia's future competitiveness.

Existing workers prefer work-based learning. They want training that recognises their experience and adds to their skill sets. This approach can lead into acquiring further qualifications.

Skills and productivity 2011–14 in summary

► KEY IMPLICATIONS ARISING FROM THE RESEARCH



FOR POLICY

To enable positive and constructive pathways for all individuals, the research indicates the need to develop a ‘joined-up’ approach to policy in schools, tertiary education and industry.

Translating the information about training and productivity found in the research and in the data into coherent messages for employers, particularly small-to-medium enterprises, is important but requires support. Mechanisms for the reverse flow of information are also desirable for policy-makers and researchers.



FOR PRACTITIONERS

The body of research confirms that training practitioners are increasingly required to tailor their delivery to the needs of different cohorts of learners and to the workplace. They must identify and address literacy and numeracy deficits and find ways to impart knowledge about workplace contexts as well as to develop competence and creativity. Clarity of purpose would improve the quality and efficiency of delivery.

► FURTHER LINES OF INQUIRY



SOLVABLE CHALLENGES

The widespread take-up of tertiary education – in both the higher education and VET sectors – is a consequence of the recognition of its value to the individual. We are getting a grasp on how to measure the returns from education to individuals. This bodes well for the next task of demonstrating the return on the investment in education to employers and to society.



ENDURING ISSUES

The research points repeatedly to the necessity of including schools in the equation of preparing future workers and increasing productivity. We need to further explore alternative schooling for those who struggle with the largely academic orientation of the senior secondary school. Addressing literacy and numeracy achievement is already on the policy agenda. Different models of applied learning deserve more attention. This is easier said than done and requires the active engagement of employers, including smaller and medium enterprises, in school and training delivery.



2 Structures in the tertiary education and training system

Diversity in tertiary education is needed with strong pathways between VET and higher education.

To examine the impact of policy, funding and market frameworks on the provision of education and training

Fundamental concepts

- | | |
|--|--|
| <ul style="list-style-type: none"> ▪ Funding models <ul style="list-style-type: none"> – State vs private contributions and student entitlements ▪ Quality assurance ▪ Planning <ul style="list-style-type: none"> – Workforce planning and the role of industry – Training packages | <ul style="list-style-type: none"> ▪ Markets and market structures ▪ Governance and architecture <ul style="list-style-type: none"> – Regulation of registered training organisations – The cost of doing business ▪ Contractual training arrangements ▪ Provision of information |
|--|--|

This priority was established to encourage more attention on how policy settings, governance arrangements and institutional structures influence the way training is delivered, marketed and paid for. In 2010, this priority attracted little interest in NCVER's funding rounds, in part perhaps because competition in the training market was still a contested, and often poorly understood, notion. Instead researchers were keen to explore the implications of a more integrated tertiary sector for pathways between the various sectors and for VET institutions. These were covered under a separate priority, 'The place of VET'.

To ensure adequate coverage of this priority, NCVER commissioned essays by researchers already interested in vocational education and training and some from other disciplines (Beddie, O'Connor & Curtin [eds] 2013). The writers were asked to bring new perspectives to some fundamental questions in tertiary education. The aim was to encourage the cross-pollination of ideas. This occurred at an event where respondents critiqued the papers. The exercise revealed very different understandings of many of the concepts under examination and showed the importance of having a common language with which to discuss the reform of the sector. It also revealed, through the very process of bringing different players together in one room, that some of the obstacles to reform are not structural but cultural.

Strikingly, it became clear from this work that we were not all talking about the same thing when we referred to *tertiary* education. For those in universities, the term is often used interchangeably with higher education. Moreover, there was little appetite for a single *integrated* tertiary education sector. The consensus was that variety is a good thing, as long as there are strong links between the various elements (higher *and* vocational education) of the system.

One distinctive element of the Australian system is its federal structure. This topic was debated among the essayists (Beddie, O'Connor & Curtin [eds] 2013). It is now a live issue, with a white paper on Australia's federation underway. As part of the process, a discussion paper addressing VET and higher education was released in 2014. It points out that one of the most complicated policy areas for the federation is the intersection of educational sectors and their interaction with the economy:

These pressures are not homogenous across Australia. The economic drivers and labour market pressures, as well as demographic composition of local areas, differ markedly

both across and within jurisdictions. The VET market must therefore be flexible and tailored to local conditions, with delivery closely linked to particular geographies and economies ... (Australian Department of Prime Minister and Cabinet 2014, p.13)

While there is no unanimous view about how to achieve a coherent national system of training, there is agreement that the governance arrangements need to be streamlined and that institutions require sufficient autonomy to enable them to respond to local economic and social needs. Moreover, it is clear that funding regimes and regulation influence provider, employer and student behaviour (Beddie, O'Connor & Curtin [eds] 2013). The different funding rules and governance arrangements for universities and VET providers have thwarted parity of esteem for decades.

This leads to another fundamental issue raised by the essayists – that of the enduring importance of the public provider amid potential erosion of TAFE markets by universities, schools and private providers.

Weakening TAFE threatens a really significant part of the whole Australian education edifice. Not only is its sheer scale important, but as well it is the component primarily committed to extending opportunity to those less advantaged.

(Kwong Le Dow in Beddie, O'Connor & Curtin [eds] 2013, p.55)

While the language of markets has been adopted in the reform effort, we need to be clear we are talking about a very unusual market, both in terms of its 'product' and its 'customers'. To establish the value of each part of the system, we must have greater clarity about the purpose of public funding, as well as a clear alignment between funding regimes and policy objectives (Beddie, O'Connor & Curtin [eds] 2013). By way of example, the Victorian Training Guarantee was introduced in 2009. It entitled Victorian students under the age of 20 years to a government-subsidised training place in any accredited course, with those from the age of 20 years in any accredited course at a level higher than that which they already hold. TAFE institutes, private providers, and universities were able to compete for the VET dollar.

Researchers from the Melbourne Institute studied the first phase of the scheme (July 2009 and January 2011) to assess its short-run effects on student enrolments, their course choices and their outcomes. The researchers (Leung et al. 2014) found that the guarantee substantially increased new enrolments (including, to a lesser degree, of students with a disability and from non-English speaking backgrounds), with enrolments in private providers burgeoning. Outcomes for the group aged under 20 years were positive, but were less so for the older group, given the requirement to upskill.

This piece of research is interesting not only because of its findings but also because of its methodology. It had never been the intention of the National VET Research Program to fund specific program evaluation, but it did hope to encourage the assessment of the impact and outcomes of policies and programs. This is what the Melbourne Institute set out to do. Such work is rare, in part because of the absence of good data sources, an issue not often considered adequately in the initial design of programs. In this instance, the researchers were able to draw on detailed administrative data in the National VET Provider Collection and what was available from the Student Outcomes Survey. In addition they were able to construct a counterfactual from New South Wales data to isolate the effects of the training guarantee (Leung et al. 2014).

One of the suggestions the authors (Leung et al. 2014) make in terms of the data relates to the importance of good information in a market-like system. Acknowledging that MySkills is a first step, the researchers argue that students need more detailed information about the private benefits from particular VET courses. To provide this they recommend the Student Outcomes Survey of VET graduates, used in the construction of MySkills, be expanded and, ideally, contain longitudinal information on post-training outcomes, possibly by linking the survey to individual tax records or census information. Another investigation of how to get the best out of existing data (Gemici & Nguyen 2013, p.26) recommended it would be desirable to link the National Assessment Program – Literacy and Numeracy (NAPLAN) and Medicare data to LSAY to enable better exploration of the key drivers of young people's transitions.

Students need to make a decision about whether to study in a VET provider or a university. Their decisions are, of course, very likely to be determined by the costs of the various courses and the availability of financial assistance. This is at the heart of the current debate about the deregulation of the higher education funding regime, which includes a proposal to extend Commonwealth supported places (CSP) to sub-degree programs. This would be a step towards creating a more level playing field between VET and higher education. A case study conducted in 2011 (Karmel & Lu 2012), before the proposal to extend Commonwealth supported places, looked at engineering qualifications. It found that not only differences in fees and government funding affect student choice; academic credit arrangements and the current labour market conditions are also important and encourage a university pathway. For VET providers, it highlighted the need to find a differentiated product that could compete for students aiming to work at the paraprofessional level.

As the demand-driven system matures we are seeing innovation in how institutions position themselves in the market and an injection of the diversity required to meet the variety of purposes tertiary education strives to fulfil. Clarifying those purposes could assist in deciding the crucial question of who pays for what. While the VET system in Australia is characterised as industry-led, governments have significant leverage, given the investment they make. Moreover, the educators have a strong stake and one that can be influential in determining the system's offerings as well as the student experience. The taxpayer also expects publicly funded education to play a broader community role.

These matters point to other structural and cultural issues we need to take into account in analysing the sector(s). The teaching workforce is central (and addressed in chapter 4), especially when trying to construct seamless pathways between vocational and higher education. Institutional autonomy is key to creating responsiveness to local conditions, yet national coordination is vital for the portability of qualifications and to enable providers to work across state borders. This suggests that the governance goal in the tertiary education sector should be to achieve uniformity in overarching structures, guided by the principle of diversity in institutions and educational approaches.

Achieving diversity is not a new mantra. It underpinned the binary policy of higher education introduced in the late Menzies era. This resulted in the creation of colleges of advanced education, whose initial aim was to offer applied learning at a tertiary level to meet demand for paraprofessionals and to free up funds to support Australia's nascent research effort. A re-examination of that policy (Beddie 2014a) prompted suggestions about future structures in education, including the notion of alternative tiers of tertiary education. For example, the role of the first tier – Years 13 and 14 – might be to teach

Market-driven education systems rely on sound information to customers based on good data about training and careers.

Students respond to labour market trends, to price signals and to subsidies. The current system does not make paraprofessional qualifications attractive.

students to adapt to learning at the tertiary level or to cater to their strong vocational inclinations, thereby seeking to dilute the hierarchy of prestige between university and upper-level VET. The later years would train professionals or researchers, thus better targeting pure research. In addition, perhaps it is time to consider the creation of vertically integrated institutions offering broad occupational training and education in a certain field, for example, in health, teaching or engineering. Such institutions would offer qualifications ranging from the certificate to the doctorate and embrace both teaching and research relevant to their industries (Beddie 2014b).

Structures in the tertiary education and training system 2011–14 in summary

► KEY IMPLICATIONS ARISING FROM THE RESEARCH

FOR POLICY

In order to achieve the goal of diversity the research suggests that more targeted policies on regulation and funding are required. Funding allocations made on the basis of the outcomes of education and training (what the student is studying) rather than on the type of institution could help.

The era of big data requires coordination and support for interpretation of the information being gathered so that the clients of the system can make informed choices.



FOR PRACTITIONERS

The research reaffirms that partnerships between multiple stakeholders are essential to achieve the right balance of power in the system – between industry, educators and the community.



► FURTHER LINES OF INQUIRY

SOLVABLE CHALLENGES

The principles of earned autonomy and risk management, which underpinned the Review of Higher Education Regulation (Dow & Braithwaite 2013), are identified in the research as the desirable approach.

Developing funding mechanisms which support the goal of achieving diversity in the system while also achieving good student outcomes is necessary.



ENDURING ISSUES

A national and mobile labour force depends on more than the training system and is influenced by how coordination is managed across all levels of government and the state of local labour markets. A federated system should be able to foster such channels of communication. The challenge is to identify ways to remove complexity, inconsistency and duplication.

Entrenched institutional cultures and attitudes about hierarchy and prestige are obstacles to efforts to adapt education and training to the demands of contemporary Australia.





3 The contribution of education and training to social inclusion

To explore the reduction of disadvantage through education and training

Fundamental concepts

- Defining disadvantage and appropriate measures
 - Low socioeconomic status
 - Disengagement
 - Reconceptualising equity
- Individual motivations and nature of pathways
- Institutional capacity to respond
 - Accommodating disadvantage
 - Incentives to reach 'hard to reach' learners
- Role of different learning environments
- Learning communities
- Social mobility and the role of qualifications
- Youth at risk and scarring effects
- Language, literacy and numeracy skills
- Equity groups
 - For example, low socioeconomic status, youth, mature age, migrants, Indigenous, rural and remote, disability, gender

While the language in this area of public policy changes from time to time, the reliance on education and training in addressing disadvantage remains constant. When this research priority was formulated, the focus was on ways to define and measure disadvantage and how to better support 'equity' groups. The aim was to take the evidence base beyond a further reiteration of the problems to an identification of the solutions.

The research undertaken considered the benefits of education for a wide range of student groups but in particular focused on those who were:

- growing up or living in low socioeconomic status (SES) households or neighbourhoods
- of Indigenous or Torres Strait Islander descent
- limited by their English language ability and/or low levels of formal education
- older workers (re-)entering the workforce
- living in a remote area
- affected by disability.

As Professor Banks noted (in NCVER 2010, p.8), sometimes the usefulness of research lies in its ability to help us to see the problem more clearly or in more depth. This can include thinking about what data to collect or how to collate and analyse it.

It was on this premise that the body of work undertaken by the Melbourne Institute (*Promoting social inclusion for disadvantaged groups through education and training*) was pursued. The researchers used a multidimensional measure of social exclusion comprising: material resources (household income and expenditure); employment; education and skills (literacy and numeracy, educational attainment, work experience); health and disability; social interactions; community (neighbourhood quality, civic participation, volunteerism); and personal safety. Their work established clear links between education and social exclusion, although low incomes and financial stress were still the larger causes of exclusion. Their strong message was that education's biggest impact on social inclusion can come from increasing Year 12 completion rates and/or completing certificate level III qualifications. (For a synthesis of this consortia research program see Buddelmeyer & Polidano, forthcoming.)

One of the ways to achieve this relates to something intangible, and therefore confounding for policy-makers: aspiration. Various reports using the LSAY data (see Nguyen & Blomberg 2014 for a synthesis of the research) underline the need to harness aspirations early, something which is greatly dependent on parental influence and parents' own experience. This explains the persistence of intergenerational disadvantage, whereby parents with poor educational experience and no knowledge of post-school options are unable to guide their own children's pathways (Redmond et al. 2014). This is one reason why increasing the participation of low socioeconomic status individuals in higher education and in higher VET is a complex challenge. It also points to the desirability of better understanding the benefits for children, as well as their parents, arising from programs that support re-engagement with learning among disengaged adults. This could have implications for decisions about which level of qualification should attract public funding.

Location also matters: 'for many of these young people [in the regions and on the urban fringe], career aspirations and choices are determined by an invisible radius of one hour' (Webb et al. 2015). This is something governments can address by looking at transport options or fostering the conditions for local employment. These examples emphasise the interconnectedness of the policy arenas that affect social mobility.

Governments are interested in understanding how to locate those individuals who need assistance. One measure they use is the Australian Bureau of Statistics' Socio-Economic Indexes for Areas (SEIFA). An analysis of LSAY data (Lim & Gemici 2011) finds that SEIFA is a good measure for the aggregate relationship between SES and educational participation, but it cannot accurately identify individuals in those low-SES areas. The socioeconomic status of a neighbourhood is an important characteristic in explaining variations in student outcomes, residential turnover, the composition of households and the multicultural nature of the neighbourhood also play a role, as Johnson et al. (2014) found. Another study alerts us to one more private influence, marriage (and, to a lesser degree, de facto status), which can reduce the likelihood of financial disadvantage (Marks 2011, p.9). Taking family make-up into account is also important for accommodating the rising numbers of migrants moving to the regional areas of Australia. Often there are limited opportunities for spouses (mainly women), even if they, like the primary migrant, have skills and can speak English. Non-recognition of those skills, difficulties in finding housing or adequate family support for domestic responsibilities can work against their securing professional-level employment (Webb, Beale & Faine 2013).

Having a job is an important facilitator of social inclusion. It is therefore useful to have tools to identify regions of economic vulnerability, where training or other interventions might prevent or ameliorate unemployment. Researchers from NCVER (Circelli & Stanwick 2014) devised a set of indicators of economic vulnerability: the change in the average hours worked per region; the change in the total hours worked in each region; the extent of population change in a region; a simple index of structural or industry shift within a region across two time periods; and an index of turbulence within a region (that is, the extent to which people move from employment to unemployment, and from unemployment to employment). These proved to align well with the regions that governments have identified as in need of help. The project went on to examine how well assistance packages worked. It found an absence of strong evaluation frameworks for tracking individuals to see whether they had gained new skills or employment and if so in what industries (Circelli & Stanwick

People returning to education need leeway to address literacy problems or improve their English and develop their confidence as well as to retrain.

2014, p.18). Future decisions on assistance packages would be greatly enhanced if such data were collected in a systematic way.

Retraining for displaced workers, because of industry restructure or the onset of a disability, involves not only upgrading skills but also developing new skills and addressing problems of literacy and numeracy. Here, the research has detected a perverse result in the structure of entitlement schemes that only allow vertical progression through the qualifications system: some of those most in need have to start out over again. It is in this area that positive outcomes from doing certificate I and II courses can be seen – as a foundation for learning and an increase in self-esteem (Webb et al.2015).

For migrants who do not speak English, getting a foundation in the English language and, in some cases, in basic literacy, is a significant element in successful integration. Yet, many find themselves in jobs where literacy-related training is probably not needed or offered. This can make it difficult to escape low-skilled employment (Ryan & Sinning 2012).

While demand-driven systems can improve access, as we saw in chapter 1, successful engagement and completion, especially of disadvantaged learners, often requires further efforts. Leung et al. (2014) from the Melbourne Institute found a lower response rate from equity groups to their entitlements in the first phase of the Victorian Training Guarantee. They suggest the following reasons for this: new providers had not developed the capacity to cater for disadvantaged learners; the equity groups were slow to access information on the training guarantee; and there was a lack of clarity about who was paying the cost of student support services.

These support services are often the key to improving outcomes. The refrain is familiar: sound career guidance is essential; mentoring can have a real impact; additional services – beyond the educational realm – may be required and need to be considered in funding models as well as coordinated across sectoral boundaries; and changing attitudes matters (Griffin & Beddie [eds] 2011b). This last point emerges strongly in the research about catering to people with mental illness, one of the most profound challenges for both educators and employers (Venville & Street 2012).

While the number of students with a disability participating in the VET system has been increasing, the percentage of those who disclose their disability hovers around six per cent (Griffin & Beddie [eds] 2011b, p.2). One study of disclosure (Venville & Street 2012) found that students with mental illness had rational reasons for not disclosing; for example, because of potential discrimination or because they did not want to be defined by their ‘disability’. Moreover, while systems for disclosure are in place, these appear sometimes to be aligned to administrative reporting rather than to support services. This finding is a pointer to how VET providers should seek information from their students. The bigger issue remains: how study support or other adjustments are provided to any student who might need them and how these are funded.

What are the likely outcomes of providing additional support to students with a disability? VET completion at higher qualification levels increases the chances of a person with a disability getting and keeping a job. But the reality is that, for some, participation in VET is more likely to have benefits unrelated to employment. The recurring message in the literature is that such a ‘whole of life’ approach is the one that will deliver good results (Griffin 2014). For researchers this suggests that a fruitful avenue of enquiry will be multidisciplinary. Such cross-sectoral studies should strive to improve service delivery and

Success in engaging disadvantaged learners relies on factors beyond education. Tailored support services can make a difference to participation and completion.

reduce the anxiety that students, providers and employers all experience when working in this area.

‘Education begets education’ wrote Karmel in introducing a study on VET students and disability (Polidano & Vu 2011). The same adage is true for Indigenous people, many of whom at an early age face barriers to further study. If these obstacles are overcome and an Indigenous student receives a tertiary admission rank, they are as likely as non-Indigenous students to go to university. (They may still need support to complete their tertiary study.) This finding reinforces the message that school retention and completion is of primary importance to Indigenous students (Biddle & Cameron 2012). The research is also emphasising language as an issue, with participation in education and training being higher for those without English language difficulties and who do not speak Indigenous languages, while the lack of English language skills is a barrier to success in higher education (Bandias, Fuller & Larkin 2013).

In the previous chapter, we mentioned the need to consider new types of educational structures. It would be desirable for these to take into account the role of education in achieving social cohesion and wellbeing. An under-researched topic within the NCVER body of work is the different learning environments for various equity groups. This is in part explained by the existence of a parallel effort under the leadership of the Flexible Learning Advisory Group (FLAG) to investigate best approaches to learning in the information age. Nevertheless, as the next chapter shows, matters relating to learning and teaching were not ignored in the national priorities.

**Closing the gap
between Indigenous
and non-Indigenous
educational
achievement must
start at an early age.**

The contribution of education and training to social inclusion 2011–14 in summary

► KEY IMPLICATIONS ARISING FROM THE RESEARCH



FOR POLICY

Disadvantaged children can benefit from their parents being encouraged and supported to learn.

Greater refinement in ways to identify regional and socioeconomic disadvantage will help to target assistance.

Tackling disadvantage through training requires additional funding for support, not currently within the purview of education budgets. This requires joined-up solutions at all levels of government and service provision.



FOR PRACTITIONERS

Trainers and employers need to be aware of the unintended consequences of their organisation's equity policies, which may act against disclosure of disability or illness. Their staff members require the skills and support to deal with the challenges some students present.

► FURTHER LINES OF INQUIRY



SOLVABLE CHALLENGES

The factors that influence educational achievement and those that contribute to social inclusion are well understood. The research confirms that student needs should be addressed early, at school, where student aspirations as well as foundational skills are developed. Training is one ingredient in a multi-pronged approach that can help if the particular needs of a student are identified and addressed.



ENDURING ISSUES

Achieving tangible outcomes from training for people experiencing multiple disadvantage remains a challenge. Many learners with mental illness or with poor prior education or who experience intergenerational socioeconomic disadvantage find it difficult to conform to the usual trajectory of training. Adjusting the system to meet their needs can be expensive and stressful.



4 Learning and teaching

To understand how, why, where and when people learn

Fundamental concepts

- | | |
|---|---|
| <ul style="list-style-type: none"> ▪ Effective models of learning and impacts on the practitioner and the learner <ul style="list-style-type: none"> – Competency-based training – Knowledge acquisition – Mixed on-the-job, institutional trade training (apprenticeships and traineeships) – Work-based learning – Using technology in learning delivery (information and communication technology, e-learning) – Informal and non-formal learning – Non/un-accredited learning – Applied learning – VET in Schools, ACE and VET in higher education | <ul style="list-style-type: none"> ▪ Development of learning cultures ▪ Quality ▪ Outcomes <ul style="list-style-type: none"> – Assessment and recognition – Reporting – Completion and non-completion – Learner engagement and retention ▪ Characteristics and motivations of the learner ▪ Needs of specific learners <ul style="list-style-type: none"> – For example, youth, mature age, migrants, international students, Indigenous, rural and remote, disability |
|---|---|

Narrow definitions of 'competency-based' training are not adequate in the contemporary VET system. More emphasis on developing contextual knowledge is required.

One of the most misunderstood concepts in vocational education is competency-based training, along with the arrangements that outline its standards, the training packages.³

While employability is clearly predicated on competency, the research is suggesting that our definition of 'competent' has become too narrow. Hodge for one asserts that the Australian VET system, 'due to its focus on equipping for performance of current jobs, fails to be fully vocational' (in Beddie, O'Connor & Curtin [eds] 2013, p.32). He argues that an individual's pursuit of a vocation goes beyond training for a particular job. So what is needed is a curriculum that covers not only the tasks that make up an occupation but also the contexts, knowledge and values that pertain to occupational clusters. These ideas resonate with those put forward in another body of work, *Vocations: the link between post-compulsory education and the labour market*. Here Wheelahan, Healy and Simmons (2013) argue for a focus on capability rather than competencies.

In the more day-to-day understanding of vocational education, the spotlight is on work-integrated learning – learning that takes places in the workplace – whether this takes place under the auspices of VET providers or universities. This is essential in an effective continuing education and training system, especially given workers' preferences for learning in authentic work settings (Billett, Choy, et al. 2014).

Cost and compliance constraints in the system are reasons why the theory and practice of good teaching sometimes part company. Others are attitudinal. A case in point is competency-based progression in apprenticeships, supported in policy terms since 2006. A study by Clayton et al., (forthcoming) into the factors impeding this policy shows that teaching is only one element in its implementation, with the dynamics in the workplace also vital to any move away from time-based apprenticeships. Changing these views will depend greatly on increasing confidence in assessment practices in the VET system. Communication between teacher assessors and workplace supervisors needs improvement to enable trainees to practise skills and prepare for and undertake on-the-job assessment (Halliday Wynes &

3 The Government's Review of Training Packages and Accredited Courses – discussion paper, published in October 2014, asks 'Is the term "training packages" still relevant? Or would they be better called something like "occupational standards", "skills standards" – or something else that better describes what they are?' (Australian Department of Industry 2014b, p.11).

Quality assessment requires the involvement of trainers and workplace supervisors and regulation that acknowledges teachers' professionalism.

Misko 2013). Here, all parties can take advantage of new technologies to capture evidence of competency but may need training to do so (Collins 2013).

External involvement in assessment is another way of strengthening the system, with moderation and validation of assessments seen as highly desirable. Implementing these depends on improving both trainers' and employers' capacity (Misko et al. 2014). Also important is the correct calibration of the system's regulation. Licensing requirements drive the teaching and assessment process to a greater or lesser degree, depending on the nature of industries. Braithwaite and Fergusson (in Beddie, O'Connor & Curtin [eds] 2013) have argued for flexibility in the overall regulatory environment, which should also be able to depend on the professionalism of teachers and take account of the VET sector's remit to be responsive to industry. This leads us to the closely related priority of the place of VET, discussed in the next chapter.

The very nature of learning is changing. With content now available from a multiplicity of sources of variable reliability, we need to re-imagine the tertiary teacher, to see them as a person who can transmit a capability for using evidence and analysis, in contrast to an individual who functions as a one-way channel of information. The research has suggested the idea of removing the teaching–research divide by making scholarship an inherent part of all tertiary education, whose role is to cultivate the creative minds needed in the twenty-first-century workforce (Beddie 2014b).

Including scholarship as a core part of the tertiary educator's job is key to producing creative minds and improving Australia's innovation system.

Furthermore, the increasing prevalence of VET institutions delivering higher education qualifications has raised questions about the place for scholarship in these institutions (Williams, Golding & Seddon 2013). Research in this area tends to focus on scholarship in the teaching and learning domain. (This is seen in a number of issues investigated by members of the NCVET-funded community of practice for novice VET practitioner researchers.⁴) Future research on scholarship in VET should also embrace subject matter expertise and the applied research conducted in association with industry. Such work would assist in realising VET's potential to better engage in the innovation cycle at the research and development end, as well as in imparting the skills required to commercialise inventions.

Improved assessment of competency-based education and greater scholarly practice in non-university tertiary institutions should also build greater trust in their qualifications among university colleagues and employers. This is an essential element in a good transfer system, further discussed in chapter five.

Where learning takes place is also changing, with online delivery now a prominent element at all levels of the system. Many of the novice practitioner researchers funded by NCVET considered aspects of contemporary delivery. Their work touches on challenges such as the additional calls on teachers engaged in distance teaching to respond to their students; the continuing role of champions of e-learning in VET institutions; and the effectiveness of computer-based scenarios for teaching.⁵

4 See <http://www.voced.edu.au/search/apachesolr_search/?filters=sm_metadata.collection:CommunitiesOfPractice>.

5 For all of the papers by novice VET practitioner researchers see <http://www.voced.edu.au/search/apachesolr_search/?filters=sm_metadata.collection:CommunitiesOfPractice>.

Another topic investigated in the community of practice was how best to impart language, literacy and numeracy (LLN) skills to adults, with further evidence that an integrated approach to skills development and language learning can assist not only with improved LLN but also, in the case of refugees, for example, with more realistic expectations for future employment (Hauxwell 2013). Whether we have the workforce able to meet the demand for LLN training is addressed in the next chapter. Here it should be noted that learning without relevance to the participants, for example, because the training does not have any foreseeable benefit in terms of a job, promotion or pay rise, can be demotivating (see for example Pocock et al. 2011).

The importance of tailored teaching approaches is further underlined in case studies exploring the interrelationship between innovation and education and training in mining, the solar energy business, and computer gaming (Dalitz, Toner & Turpin 2011). Each of these industries has different drivers of innovation, meaning their interaction with the VET sector varies, with some placing greater store on learning in the workplace than others. The authors conclude that the system needs to accommodate the variety of learning modes appropriate to each vocation and business model. Nevertheless, foundational knowledge, which builds the capacity to learn in informal settings, was once again found to be crucial. To be able to train people to pick up future as well as current skills means ‘educators have to aim for a shifting target’ (Dalitz, Toner & Turpin 2011, p.34), one which hovers beyond the competencies set out for current jobs. Teaching underlying principles (the theory) is one way of providing people with the ability to learn from and adapt to innovations, as well as to innovate more effectively themselves.

Tailored teaching responses are essential to meeting the needs both of learners and industry.

Learning and teaching 2011–14 in summary

► KEY IMPLICATIONS ARISING FROM THE RESEARCH



FOR POLICY

Educational policies need to take into account the changing nature of learning as well as the flexible delivery available through new technologies. This is about more than online learning.

The research points to funding models that take into account the costs of flexible delivery and of good assessment (including recognition of prior learning), in terms of professional development for trainers and workplace assessors, moderation and validation.

The research also confirms that the regulatory system should focus on professional practice rather than on inflexible compliance requirements.



FOR PRACTITIONERS

The research suggests that occupational standards should articulate broader definitions of competency. It is crucial that VET practitioners upgrade their assessment capabilities. Practitioners have the potential to be part of the applied research and innovation cycle if they are able to embrace scholarly practice.

► FURTHER LINES OF INQUIRY



SOLVABLE CHALLENGES

The current emphasis in the VET system on improving assessment is welcome. Getting this right will be a key plank in maintaining its quality.



ENDURING ISSUES

The fundamental shift in the way knowledge is generated and acquired has profound implications for today's teaching workforce. Constantly emerging technologies and rapid shifts in the labour market mean that the twenty-first-century teacher has to navigate uncharted territory.



5 The place and role of VET

To consider VET's role in the tertiary education sector, world of work and community

One of the VET sector's main challenges derives from the multiplicity of purposes it is asked to meet.

Fundamental concepts

- Institutions
 - TAFE
 - Private registered training organisations
 - Enterprise registered training organisations
 - Adult and community education providers
 - Universities
 - Private higher education providers
 - Dual or multi-sector providers
- Pathways, cross-sectoral delivery and articulation
- Interface between sectors
 - Competition, collaboration and 'who delivers what'
- Thin markets and challenges in the regions
- Internationalisation (impacts on domestic operations and learnings from offshore delivery)
- Responsiveness of VET providers
 - Supporting innovation
 - Impacts of fluctuations in the business cycle (labour market/small business/industry considerations)
 - Environmental, technological and demographic challenges
- VET and ACE workforce
 - Recruitment and qualifications
 - Industry currency
 - Professional development in teaching, learning and assessment
 - Succession planning
 - Participation in research

How the VET sector fits into the world of work has always been the primary theme in NCVER's research. VET's role in serving the community has also been a regular topic of inquiry, although the linkages with adult and community education (ACE) have had only sporadic attention. The question of VET's place has been highlighted by the necessity to better define its role in the tertiary education context and to explore the different organisational attributes of public, private and enterprise providers.

One further question is how many purposes can VET meet? Emerging from the previous chapters is an expectation for VET to prepare new workers and upskill the existing workforce and offer alternative pathways for young people and second chances to disadvantaged adult learners. To enable VET to tackle this daunting list requires the complex coordination of policy settings and services, and a talented workforce. The research has revealed some of the gaps in these areas.

The complexity is obvious in VET in Schools programs. These differ across the country, making it hard to arrive at simple solutions. The research does, however, indicate a clash between the VET and academic curricula. For example, Polidano, Tabasso and Zhang (2014) considered the outcomes of the Victorian policy to allow scores from some VET subjects to count fully towards a national vocational qualification, the Victorian Certificate of Education, and a university entry score. The objective of the policy was to improve the status of vocational education in the secondary school curriculum and offer a different pathway into university. However, because of the adverse effect of down-scaling of scored VET subjects on university entry scores⁶, the chances of receiving a university offer were significantly reduced for those taking this very specific VET pathway. Clarke's work (2014) reinforces the finding that certificates I and II can be preparatory steps towards a vocational qualification. She suggests these are best suited to students in the junior and middle years of secondary school, who are beginning to explore career options. Moreover, if the VET curriculum is to offer successful pathways into full-time sustainable employment, it needs

⁶ To address this, the authors suggest an alternative scaling methodology.

greater alignment with the labour market. The curriculum also has to work against the tendency for VET in Schools to reinforce socioeconomic disadvantage because it does not have a solid enough pathway into mid-level occupations (Clarke 2014).

Improving pathways between vocational education and training and higher education has been a strong focus of government policy. Despite the introduction in 2009 of the Australian Qualifications Framework's *National policy and guidelines on credit arrangements*, credit transfer and articulation arrangements from VET remain 'a half-open door', mainly dependent on university policies and their target populations, rather than on the field of study. Expanding VET admissions becomes a decision based on the institution's mission or determined by the availability of funding. The conditions attached to credit transfer also play a part: despite the guidelines, credit transfer is often administered with an inadequate understanding or appreciation of the VET qualification or the VET student's ability to adjust to academic learning (Watson, Hagel & Chesters 2013).⁷

VET professionals are seeking to bridge this divide, by creating institutions or partnerships that offer their learners delineated and easy-to-navigate pathways and by ensuring their own capacity to do so. Aspects of this workforce development were explored in the research. One facet, scholarly practice, was mentioned in the previous chapter (Williams, Goulding & Seddon 2013). Another is industry currency.

The industry currency of the training workforce is an essential plank of the system. It is now enshrined in one of the standards for training organisation registration. With an ageing workforce and little funding for professional development, the challenge is how to maintain knowledge of the field of industry being taught. Clayton et al. (2013) looked at how people in the trades and professions keep up to date in their respective fields. They found a variety of ways, including: learning from peers and mentors at work; individual efforts to keep up to date by attending trade events, networking and undertaking online research; and participating in short courses. Industry placements were not popular with employers, who found these disruptive. Instead, maintaining good relationships with employers and drawing on the currency of sessional teachers were recommended as effective ways of keeping in touch. This research also revealed a lack of clarity about what is encompassed by the notion of industry currency in the VET environment. This is an issue which ought to be addressed before this standard is audited in the registration process (Clayton et al. 2013).

As the training market has opened up, the diversity of providers has burgeoned. Some TAFEs have moved into higher education, although with regulatory arrangements still onerous and funding rules uncertain, particularly for mixed-sector institutions, many are choosing only to operate across the divide in their niche areas or to enter into auspicing arrangements. This can have positive and negative results for the supply and demand of particular qualifications.

Across the 5000 (approximately) registered training organisations (RTOs) now operating, strong leadership is integral to their success. Harris and Simons (2012) studied leadership in three types of private provider:

7 In 2012 the then Department of Industry, Innovation, Science, Research and Tertiary Education sought to improve information flows by providing access to pathways-related material and setting up an online user. This initiative is housed on VOCED plus, the tertiary education research database run by NCVER: <<http://www.voced.edu.au/content/pathways>>.

- independent commercial providers who derive their income from private enterprise or contract work for government agencies
- enterprise-based organisations (ERTOs) working within enterprises whose prime business focus is an industry other than education and training
- industry organisations (includes industry associations, professional associations and group training companies that provide training to a particular industry sector).

Harris and Simons (2012) found that leaders across these providers juggle educational goals and business imperatives, although their client focus differs. The independent, usually small, providers concentrate on their individual learners; the enterprise-based organisations on their parent organisation; and the industry trainers on outcomes for the industry. All had to understand the regulation of the sector and their changing markets as well as keep up with training and industry developments.

A number of the concepts listed above to guide research on this topic, 'The place and role of VET', have been touched upon by research initiated under one of the other priorities. A recurring message from the research is that new opportunities are emerging for VET providers able to operate in niche markets. A very small project (Buoro 2014) suggests that, with the imperative to engage with Asia, the study of languages other than English could be a viable option for some providers. This would depend on developing a cost-effective model and generally increasing the sector's attention to Australia's Asian capabilities. The absence of larger studies about Australia and the world is notable across all the priorities.

No provider today would deny that responsiveness is another key attribute of success. For most this is now embedded in their business model. Nevertheless, the research is suggesting that VET providers must keep one eye firmly on the future and strive even harder to offer differentiated products, for example, in the sub-degree market, and to reach new customers, including those seeking to augment their skills with, for instance, management and marketing capabilities, in order to maintain an innovative edge (see, for example, various essays in Curtin, Stanwick, & Beddie [eds] 2011).

Cultivating these new avenues will be easier if the market has confidence in the quality of the VET workforce. This goes beyond industry currency to the initial qualifications of teachers and trainers. While the Certificate IV in Training and Assessment remains their minimum requirement, the delivery of this very qualification is under intense scrutiny (Ithaca Group 2014). Nor is it enough on its own: initial teachers also need support from more experienced mentors to underpin, increase and help to cement their foundational teaching skills (Guthrie, McNaughton & Gamlin 2011). In the crucial area of numeracy, a study of VET practitioners working in the process manufacturing industry found a mismatch between the skill required to address the industry's numeracy needs and the capacity of VET practitioners, in terms of their understanding of numeracy requirements, their qualifications, skills and experience (Berghella & Molenaar 2013). Increasing the VET workforce's science, technology, engineering and mathematics capability deserves greater attention at a time when this set of skills is in sharp focus.

The future of the VET sector, wedged between schools and universities, is uncertain. It does have a place but until this is better defined, with its various purposes clearly articulated, it will to continue to labour under the burden of trying to do too much with too little.

All registered training providers juggle educational goals and business imperatives. They need to understand their clients and their niche in the training market in Australia and beyond.

Greater support for the VET workforce is crucial to lifting quality. This means providing continuing professional development to ensure industry currency, creating opportunities for scholarship and addressing deficits in STEM capability.

The place and role of VET 2011–14 in summary

► KEY IMPLICATIONS ARISING FROM THE RESEARCH



FOR POLICY

The research demonstrates that funding models for VET providers need to make provision for maintaining the professionalism and currency of the workforce.



FOR PRACTITIONERS

Career advisors have a role to play in lifting the status of VET, as do employers and trade unions.

Further work on embedding transfer systems between VET and higher education is needed. These require the attention of senior managers within the institutions of both sectors.

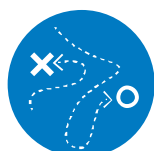
► FURTHER LINES OF INQUIRY



SOLVABLE CHALLENGES

Some of the strain on the VET sector could be alleviated by a clear articulation of the purpose of vocational education and training and a commitment to the professional development of its workforce.

Quality concerns can in part be addressed by having a greater empirical understanding of private provider behaviour, some of which will become clearer under Total VET Activity reporting in the future.



ENDURING ISSUES

The lack of parity of esteem between VET and higher education has been a perennial problem, fuelled by the nature of occupational hierarchies as well as those in tertiary education. Without a change in mindset that allows a debate about entirely new approaches to post-school education, it is likely these will persist.

Conclusion

What the research highlights

The body of work synthesised in this summary conveys some clear messages for policy-makers and practitioners. The analyses of different data and perspectives conducted under the 2011–14 National Research Priorities may not have found solutions to the ‘wicked problems’ that education and training policy confronts. They have, however, provided a basis on which the system’s multiple stakeholders can work to find those solutions.

- *Skills matter and so does gaining a qualification.* Education and training are pivotal to increased productivity and can enhance individual wellbeing.
 - Investment in increasing Year 12 or certificate III attainment will bring the greatest returns; certificates I and II are best used as stepping stones to further study.
 - Boosting the literacy, numeracy and STEM skills of the entire population is an important priority.
- *Educational structures need to adapt more to the demands of a post-industrial society and changing demographic trends.*
 - This adaptation will be strongly influenced by the way governments fund individuals and institutions, but attitudinal shifts are also required in terms of the prestige attached to occupations and the status of vocational education and training.
 - We cannot ignore the interconnectedness of the school, VET and higher education sectors.
 - Streamlined regulation should strive to achieve diversity and institutional autonomy.
- *Training can’t fix everything.*
 - The familiar point about the requirement for joined-up solutions needs to be heeded, as does having reasonable expectations about the role of vocational education and its outcomes.
 - Disadvantage is complex and, while education can help, poverty remains a primary cause of exclusion.
 - Training without relevance or that does not lead to tangible outcomes can be counterproductive.
- *The VET sector needs to look beyond the competencies currently required by industry. More emphasis should be placed on foundational knowledge and building the capacity to learn.*
 - The sector has a role to play, in partnership with employers, to re-imagine the nature of vocations/occupational groupings. That partnership should extend to improving the workplace as a site of learning – for school students, apprentices and trainees, and existing workers.

- *The VET workforce is under strain to meet the many and various requirements of the job.*
 - It must maintain industry currency. This is best achieved through effective partnerships with industry. Teachers and trainers must also have an eye to future skills demand by following occupational trends and innovation.
 - Improved assessment practices are crucial to the quality and reputation of the system.
 - Providers, in particular TAFEs, are being asked to impart foundational skills to learners with low prior achievement and to work with students with complex health problems. The costs of doing this must be acknowledged.
 - Working in the online environment is essential; teachers need the right skills and recognition of the time involved in good online pedagogy.
 - Understanding the regulatory and compliance regimes and providing educational leadership are integral to a professional workforce.
 - Engaging in scholarly practice should be recognised as part of any tertiary educator's role.

Included in the research priorities was the objective of increasing the use of existing data sources. This was achieved, with the following caveats:

- Administrative data on their own yield limited material for researchers. Greater data linkage of education statistics and surveys with data collected by other agencies is an important avenue to be explored in the future.
- Further work is needed to ensure that data sources are well used and disseminated, particularly within the practitioner community.

The way ahead

NCVER is working on a range of research topics under an organising framework of four areas of focus: productivity, participation, learning and teaching, and the place and role of VET. NCVER's aim is to undertake research that aids understanding of the system and its interactions, optimises practices to ensure best outcomes, and transforms the system through significant innovation to meet current and future skill needs. (For more information see <<http://www.ncver.edu.au/research/priorities.html>>.)

When the 2011 to 2014 research priorities were formulated, acceptance and understanding of the role of the market in tertiary education was immature. That has changed. Policy parameters were an important driver for this but so too were the demands of the labour market and the education business itself. It is too early to tease out the influence of researchers on these trends, although it can be said that the research effort to foster cross-disciplinary investigation of major policy questions, such as addressing disadvantage, did cast new light on the issues. Moreover, some reports have already been cited in government discussion papers, which is an indication of their relevance.

In the longer term NCVER will continue to apply the methodology it has developed to assess the impact of its research (Stanwick, Hargreaves & Beddie 2009). This methodology emphasises the importance of: establishing the priorities and purpose of the research; engaging with stakeholders throughout the research cycle; and adopting multiple

dissemination strategies. This approach over the period under review has succeeded in informing NCVER's audiences about structural issues in the training reform process. What is not yet clear is whether commissioning programs of work rather than individual projects will have greater impact. Applying multiple methodologies to fundamental questions, either within a project or program or through joint dissemination of separate work, does appear to be producing findings that can be used both in policy development and in the field.

While the subject areas identified in the priorities did capture the enduring issues facing tertiary education and training, not all received equal coverage. That education is a business was acknowledged in some work, but it remains under-researched. Better understanding the costs and value of that business and how registered training organisations operate would contribute to more effective policies and regulation. Also, we still need to calculate the returns from investment in education in ways that resonate with employers and those disengaged from learning. The research is pointing to dilemmas for governments when participation is defined only in terms of the labour market. Training may not produce the desired result, although it can still be beneficial to individuals and encourage social cohesion. Quantifying this proposition would assist in funds allocation. Such research should also include community education, which is absent in the 2011–14 body of work.

Some other matters were also largely ignored: international education and the global skills market; comparative work across countries; and new forms of learning in the digital age. Also important is achieving a balance of research: undertaking work that addresses the current preoccupations of stakeholders and work that produces new ideas and ways of approaching old problems, or, in the words of Geoff Mulgan, to 'go beyond describing the world as it is, but also to ... the systematic exploration of the world as it could be' (Mulgan 2014).

As the federal government's discussion paper, *Boosting the commercial returns from research* notes:

one reason Australia has difficulty capitalising on its public investment in research is the insufficient transfer of knowledge between researchers and business.

(Australian Department of Industry 2014a, p.3)

To meet the goals of optimising performance and of systemic transformation, there is merit in expanding the work NCVER undertakes in collating the evidence and synthesising research findings in ways to show what interventions are necessary and how these can be implemented in practice.⁸ This work might be enhanced by involving researchers in policy innovation and project implementation, so that the researchers can better appreciate the challenges of policy development – and officials the nature of the research process. Such partnerships could lead to workable solutions for the enduring problems confronting the education and training system.

In addition, the Total VET Activity (TVA) data collection is underway, which will result for the first time in a comprehensive picture of both publicly and privately funded training activity, the benefits of which will accumulate over time. There will therefore be an important focus on research around the potential of new data developments to assist

⁸ The UK Government's initiative, What works, operates in this way. See https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/136227/What_Works_publication.pdf.

consumers to make informed decisions, training providers to understand their business, and governments and regulators to monitor the extent and nature of training and to manage risk in the sector. When combined with another initiative, the Unique Student Identifier (USI), TVA data will enable a much more refined understanding of individual student pathways and choices.

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Appendix A: List of research projects against each priority area

Given the complexity and interrelatedness of some research projects a ‘best fit’ approach has been taken to mapping projects to the research priority areas.

* These publications are in progress or forthcoming as at April 2015.

Skills and productivity: to investigate how skills contribute to economic growth

**Adult trade apprentices: exploring the significance of RPL and skill sets for earlier completion* – Jo Hargreaves and Davinia Blomberg

An exploration of labour mobility in mining and construction: who moves and why – Jo Hargreaves and Georgina Atkinson

Annual transitions between labour market states for young Australians – Hielke Buddelmeyer and Gary Marks

Attrition in the trades – Tom Karmel, Patrick Lim and Josie Misko

Building innovation capacity: the role of human capital formation in enterprises: a review of the literature – Andrew Smith, Jerry Courvisanos, Jacqueline Tuck and Steven McEachern

**Creating vocational streams: what will it take?* – Serena Yu

**Cross-occupational skill transferability: challenges and opportunities in a changing economy* – Darryn Snell, Victor Gekara and Krystle Gatt

Defining vocational streams: insights from the engineering, finance, agriculture and care sectors – Serena Yu, Tanya Bretherton and John Buchanan

Developing the child care workforce: understanding ‘fight’ or ‘flight’ amongst workers – Tanya Bretherton

Does changing your job leave you better off? A study of labour mobility in Australia, 2002 to 2008 – Ian Watson

Does part-time work at school impact on going to university? – Xiaodong Gong, Rebecca Cassells and Alan Duncan

Dustman, milliner and watchcase maker: skilling Australia – Francesca Beddie

**Employer-supported training: prevalence, enablers and barriers* – Chandra Shah et al.

**Employer training in a changed environment* – Erica Smith et al.

**Employment outcomes in the trades* – Tham Lu

Entry to vocations: building the foundations for successful transitions – Kira Clarke

Entry to vocations: current policy trends, barriers and facilitators of quality in VET in Schools – Kira Clarke and Veronica Volkoff

Entry to vocations: strengthening VET in Schools – Kira Clarke

Entry to vocations: the efficacy of VET in Schools – Kira Clarke

Evolution of apprenticeships and traineeships in Australia: an unfinished history – Brian Knight

Fostering enterprise: the innovation and skills nexus – research readings – Penelope Curtin, John Stanwick and Francesca Beddie

How reasons for not completing apprenticeships and traineeships change with duration – Tom Karmel and Peter Mlotkowski

Identifying the causal effects of vocational education and training qualifications on student outcomes through matching – Thorsten Stromback

Incentives for relocating to regional Australia: estimates using a choice experiment – Aaron Nicholas and Chandra Shah

Individual-based completion rates for apprentices – Tom Karmel

Labour mobility and vocational education and training in Australia – Kostas Mavromaras, Stephane Mahuteau and Zhang Wei

**Linking qualifications and the labour market through capabilities and vocational streams* – Leesa Wheelahan, John Buchanan and Serena Yu

Missing links: the fragmented relationship between tertiary education and jobs – Leesa Wheelahan, Mary Leahy, Nick Fredman, Gavin Moodie, Sophie Arkoudis and Emmaline Bexley

**Novice workers: employer and employee experiences* – Bridget Wibrow and Laura O'Connor

Over-education, under-education and credentialism in the Australian labour market – Michael Dockery and Paul Miller

Over-skilling and job satisfaction in the Australian labour force – Kostas Mavromaras, Seamus McGuinness, Sue Richardson, Peter Sloane and Zhang Wei

Plumbing, sustainability and training – Sian Halliday-Wynes and John Stanwick

Post-school education and labour force participation in Canada and Australia – Siobhan Austen

Pre-apprenticeship training activity – Paul Foley and Davinia Blomberg

Pre-apprenticeships and their impact on apprenticeship completion and satisfaction – Tom Karmel and Damien Oliver

Pre-vocational programs and their impact on traineeship completion and satisfaction – Damian Oliver and Tom Karmel

Qualification utilisation: occupational outcomes – Bridget Wibrow

Readiness to meet demand for skills: a study of five growth industries – Francesca Beddie, Mette Creaser, Jo Hargreaves and Adrian Ong

Re-skilling for encore careers for (what were once) retirement years – Jane Figgis

Revitalising the 'vocational' in flows of learning and labour – Leesa Wheelahan, Gavin Moodie and John Buchanan

Skill matches to job requirements – Chris Ryan and Mathias Sinning

Skill (mis-)matches and over-education of younger workers – Chris Ryan and Mathias Sinning

Skill shortages in the trades during economic downturns – Damian Oliver

Skill shortages: prevalence, causes, remedies and consequences for Australian businesses – Josh Healy, Kostas Mavromaras and Peter Sloane

**Skills transfer, re-skilling and training of older workers in response to industry restructuring* – Victor Callan

Starting out in low-skill jobs – Tom Karmel, Tham Lu and Damian Oliver

Structural adjustment: synthesis piece – John Stanwick

Student load and employment outcomes attached to mid-level qualifications – Gavin Moodie and Nick Fredman

The challenge of measurement: statistics for planning human resource development – Tom Karmel

The contribution of education to economic growth in Australia, 1997–2009 – Tom Karmel

**The costs and benefits of vocational education and training* – Tabatha Griffin

The effect of a pre-apprenticeship on getting an apprenticeship – Thorsten Stromback

**The effects of the Victorian Training Guarantee on upskilling later in life* – Justin van de Ven

The impact of increasing university participation on the pool of apprentices – Tom Karmel, David Roberts and Patrick Lim

The impact of wages and the likelihood of employment on the probability of completing an apprenticeship or traineeship – Tom Karmel and Peter Mlotkowski

The incidence and wage effects of overskilling among employed VET graduates – Kostas Mavromaras, Seamus McGuinness and Yin King Fok

The labour force participation of Australian mature-aged men: the role of spousal participation – Rong Zhu

The mobile worker: concepts, issues, implications – Richard Sweet

The persistence of overskilling and its effects on wages – Kostas Mavromaras, Stephane Mahuteau, Peter Sloan and Zhang Wei

The role of 'culture' in apprenticeship completions – Tom Karmel and David Roberts

The role of educational institutions in fostering vocations – Gavin Moodie

The role of VET in workforce development: a story of conflicting expectations – Tanya Bretherton

**Towards a new approach to mid-level qualifications* – Gavin Moodie, Leesa Wheelahan, Nick Fredman and Emmaline Bexley

Understanding and improving labour mobility: a scoping paper – John Buchanan, Susanna Baldwin and Sally Wright

Understanding the nature of vocations today: exploring labour market pathways – Serena Yu, Tanya Bretherton, Johanna Schutz and John Buchanan

Understanding the non-completion of apprenticeships – Alice Bednarz

Understanding the psychological contract in apprenticeships and traineeships to improve retention – Erica Smith, Arlene Walker and Roslin Brennan Kemmis

Understanding the undertow: innovative responses to labour market disadvantage and VET – Tanya Bretherton

Understanding vocational education and training, productivity and workforce participation: an issues paper – Justine Evesson, Tanya Bretherton, John Buchanan, Mike Rafferty and Gillian Considine

VET and the diffusion and implementation of innovation in the mining, solar energy and computer games sectors – Robert Dalitz, Phillip Toner and Tim Turpin

Vocational education's variable links to vocations – Gavin Moodie, Nick Fredman, Emmaline Bexley and Leesa Wheelahan

Vocational qualifications, employment status and income: 2006 census analysis – Anne Daley

Vocational trajectories within the Australian labour market – Serena Yu, Tanya Bretherton and Hanna Schutz

Where tradies work: a regional analysis of the labour market for tradespeople – Phil Lewis and Michael Corliss

Who works beyond the 'standard' retirement age and why? – Chris Ryan and Mathias Sinning

Workforce skills development and engagement in training through skill sets – John Mills, David Crean, Danielle Ranshaw and Kaye Bowman

Workforce skills development and engagement in training through skill sets: literature review – John Mills, David Crean, Danielle Ranshaw and Kaye Bowman

Work, skills and training in the Australian red meat processing sector – Kent Norton and Mike Rafferty

Structures in the tertiary education and training system: to examine the impact of policy, funding and market frameworks on the provision of education and training

A differentiated model for tertiary education: past ideas, contemporary policy and future possibilities – Francesca Beddie

An investigation of TAFE efficiency – Peter Fieger, Tom Karmel and John Stanwick

Associate degree or advanced diploma? A case study – Tom Karmel and Tham Lu

**Consistency with flexibility in the Australian national training system* – Kaye Bowman et al.

Education and happiness in the school-to-work transition – Alfred M. Dockery

Effect of the downturn on apprentices and trainees – Tom Karmel and Damien Oliver

Expanding national vocational education and training statistical collections: private provider engagement – Andrew C. Smith, Rosemary Potter and Peter J. Smith

Structures in tertiary education and training: a kaleidoscope or merely fragments? Research readings – Editors: Francesca Beddie, Laura O'Connor and Penelope Curtin

The effectiveness of the traineeship model – Tom Karmel, Davinia Blomberg and Monika Vnuk

Two sides of the same coin: leaders in private providers juggling educational and business imperatives – Roger Harris and Michele Simons

What next for tertiary education? Some preliminary sketches – Francesca Beddie

The contribution of education and training to social inclusion: to explore the reduction of disadvantage through education and training

Against the odds: influences on the post-school success of 'low performers' – Sue Thomson and Kylie Hillman

Are neighbourhood characteristics important in predicting the post-school destinations of young Australians? Part 1 – David W. Johnston, Wang-Sheng Lee, Chandra Shah, Michael A. Shields and Jean Spinks

Barriers and facilitators affecting course completions by apprentices and trainees with disabilities – Errol Cocks and Stian H. Thoresen

Building the foundations: outcomes from the adult language, literacy and numeracy search conference – National Centre for Vocational Education and Training

Cultural dimensions of Indigenous participation in vocational education and training: new perspectives – Alfred M. Dockery

Differing skill requirements across countries and over time – Chris Ryan and Mathias Sinning

Disadvantaged learners and VET to higher education transitions – Tabatha Griffin

Does 1 = 1: mapping measures of adult literacy and numeracy – Michelle Circelli, Shelley Gillis, Mark Dulhunty, Margaret Wu and Leanne Calvito

Does financial stress impact on young people in tertiary study? – Sian Halliday-Wynes and Nhi Nguyen

Does scored VET in Schools help or hinder access to higher education in Victoria? – Cain Polidano, Domenico Tabasso and Rong Zhang

Early impacts of the Victorian VET reforms on enrolments and graduate outcomes – Felix Leung, Duncan McVicar, Cain Polidano and Rong Zhang

Economic vulnerability in Australia, 2002–12: an employment perspective – Michelle Circelli and John Stanwick

Educating oneself out of social exclusion – Hielke Buddelmeyer, Felix Leung and Rosanna Scutella

Education and training and the avoidance of financial disadvantage – Gary N. Marks

Educational outcomes: the impact of aspirations and the role of student background characteristics – Jacqueline Homel and Chris Ryan

From education to employment: how long does it take? – Darcy Fitzpatrick, Laurence Lester, Kostas Mavromaras, Sue Richardson and Yan Sun

Geographical and place dimensions of post-school participation in education and work – Sue Webb, Ros Black, Ruth Morton, Sue Plowright and Reshmi Roy

Intergenerational mobility: new evidence from LSAY and HILDA data – Gerry Redmond, Melissa Wong, Bruce Bradbury and Ilan Katz

Investigating the ‘crisis’: production workers’ literacy and numeracy practices – Stephen Black, Keiko Yasukawa and Tony Brown

**Is vocational education and training the panacea for a more inclusive society?* – Hielke Buddelmeyer and Cain Polidano

Job requirements and lifelong learning for older workers – Chris Ryan and Mathias Sinning

Juggling work, home and learning in low-paid occupations: a qualitative study – Barbara Pocock, Jude Elton, Deborah Green, Catherine McMahon and Suzanne Pritchard

Literacy and numeracy skills and their use by the Australian workforce – Chris Ryan

Lost talent? The occupational ambitions and attainments of young Australians – Joanna Sikora and Lawrence J. Saha

Lower-level qualifications as a stepping stone for young people – Damian Oliver

Mapping adult literacy performance – Michelle Circelli, David D. Curtis and Kate Perkins

Measuring the socioeconomic status of Australian youth – Patrick Lim and Sinan Gemici

Measuring VET participation by socioeconomic status: an examination of the robustness of ABS SEIFA measures over time – Patrick Lim and Tom Karmel

Older Australians and the take-up of new technologies – Jenny Chesters, Chris Ryan and Mathias Sinning

Older workers: research readings – Editors: Tabatha Griffin and Francesca Beddie

Peer-mentoring of students in rural and low socioeconomic status schools: increasing aspirations for higher education – David Curtis, Aaron Drummond, John Halsey and Michael Lawson

Potential factors influencing Indigenous education participation and achievement – Nicholas Biddle and Timothy Cameron

Returns from education: an occupational status approach – Jung-Sook Lee

School completion: what we learn from different measures of family background – Jacqueline Homel, Astghik Mavisakalyan, Ha Trong Nguyen and Chris Ryan

Seeking the N in LLN – Tina Berghella and John Molenaar

Skilled migrant women in regional Australia: promoting social inclusion through vocational education and training – Sue Webb, Denise Beale and Miriam Faine

Social capital and young people: do young people's networks improve their participation in education and training? – Ronnie Semo and Tom Karmel

Socioeconomic disadvantage and participation in tertiary education: preliminary thoughts – Tom Karmel and Patrick Lim

Student income support and education and training participation in Australia – Chris Ryan

Studying beyond age 25: who does it and what do they gain? – Michael Coelli, Domenico Tabasso and Rezida Zakirova

**Supporting students with disabilities: exploring individual and system-level approaches* – Ellie Fossey

The attitudes of people with a disability to undertaking VET training – Lisa Nechvoglod and Tabatha Griffin

The effect of VET completion on the wages of young people – Nicolas Hérault, Rezida Zakirova and Hielke Buddelmeyer

The factors affecting the educational and occupational aspirations of young Australians – Sinan Gemici, Alice Bednarz, Tom Karmel and Patrick Lim

**The impact of disadvantage on VET completion and employment gaps* – Duncan McVicar and Domenico Tabasso

The impact of school academic quality on low socioeconomic status students – Patrick Lim, Sinan Gemici and Tom Karmel

The returns to literacy skills in Australia – Jenny Chesters, Chris Ryan and Mathias Sinning

The role of VET in preventing the scarring effect of youth joblessness – Hielke Buddelmeyer and Nicolas Hérault

The role of vocational education and training in the labour market outcomes of people with disabilities – Cain Polidano and Kostas Mavromaras

The training requirements of foreign-born workers in different countries – Ryan and Sinning

To gain, retain and retrain: the role of post-school education for people with a disability – Cain Polidano and Ha Vu

Training and its impact on the casual employment experience – Hielke Buddelmeyer, Felix Leung, Duncan McVicar and Mark Wooden

What would it take? Employer perspectives on employing people with a disability – Peter Waterhouse, Helen Kimberley, Pam Jonas and John Glover

Which paths work for which young people? – Tom Karmel and Shu-Hui Lui

Work, life and VET participation amongst lower-paid workers – Barbara Pocock, Natalie Skinner, Catherine McMahon and Suzanne Pritchard

Work–life issues and participation in education and training – Natalie Skinner

Unfinished business: student perspectives on disclosure of mental illness and success in VET – Annie Venville and Annette Street

Vocational education, Indigenous students and the choice of pathways – Susan Bandias, Don Fuller and Steven Larkin

Year 12 completion and youth transitions – Chris Ryan

**Young Australian apprentices: structures of support and wellbeing* – John Buchanan et al.

Learning and teaching: to understand how, why, where and when people learn

A short history of initial VET teacher training – Hugh Guthrie

Analysis of private returns to vocational education and training – Wang-Sheng Lee and Michael Coelli

Assessment issues in VET: minimising the level of risk – Sian Halliday-Wynes and Josie Misko

Bridging the gap: who takes a gap year and why? – David D. Curtis, Peter Mlotkowski and Marilyn Lumsden

Change, work and learning: aligning continuing education and training – Stephen Billett, Amanda Henderson, Sarojni Choy, Darryl Dymock, Fred Beven, Ann Kelly, Ian James, Jason Lewis and Ray Smith

**Comparative study on workplace learning* – Georgina Atkinson

**Competency completion: impacts on assessment, assessors and workplace supervisors* – Berwyn Clayton et al.

Continuing education and training models and strategies: an initial appraisal – Stephen Billett, Amanda Henderson, Sarojni Choy, Darryl Dymock, Ann Kelly, Ray Smith, Ian James, Fred Beven and Jason Lewis

Does combining school and work affect school and post-school outcomes? – Alison Anelzark and Patrick Lim

Do schools influence student engagement in the high school years? – Sinan Gemici and Tham Lu

Employability skills: at a glance – Bridget Wibrow

Gendered pathways into post-secondary study of science – Joanna Sikora

Industry currency and professional obsolescence: what can industry tell us? – Berwyn Clayton, Pam Jonas, Regan Harding, Mark Harris and Melinda Toze

Initial training for VET teachers: a portrait within a larger canvas – Hugh Guthrie, Alicen McNaughton and Tracy Gamlin

Interpreting competencies in Australian vocational education and training: practices and issues – Steven Hodge

Lifting the lid on completion rates in the VET sector: how they are defined and derived – Alice Bednarz

Measuring the quality of VET using the Student Outcomes Survey – Wang-Sheng Lee and Cain Polidano

Outcomes from combining work and tertiary study – Cain Polidano and Rezida Zakirova

Practitioner expectations and experiences with the Certificate IV in Training and Assessment (TAA40104) – Berwyn Clayton, Dave Meyers, Andrea Bateman and Robert Bluer

Professional development in the vocational education and training workforce – Hugh Guthrie

Quality assessments: practice and perspectives – Josie Misko, Sian Halliday-Wynes, John Stanwick and Sinan Gemici

Refining models and approaches in continuing education and training – Stephen Billett, Sarojni Choy, Darryl Dymock, Ray Smith, Anne Kelly, Mark Tyler, Amanda Henderson, Jason Lewis and Fred Beven

Responding to changing skill demands: training packages and accredited courses – Josie Misko

**Shedding light: private RTOs training for young early school leavers* – Dr George Myconos

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Starting from scratch: teacher to researcher and back again – Berwyn Clayton

The vocational equivalent to Year 12 – Patrick Lim and Tom Karmel

**Towards more effective continuing education and training for Australian workers* – Stephen Billett, Sarojni Choy, Darryl Dymock, Ray Smith, Amanda Henderson, Mark Tyler and Ann Kelly

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Vocational education and training workforce data 2008: a compendium – Edited by Hugh Guthrie

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The place and role of VET: to consider VET's role in the tertiary education sector, world of work and community

A half-open door: pathways for VET award holders into Australian universities – Louise Watson, Pauline Hagel and Jenny Chesters

As clear as mud: defining vocational education and training – Tom Karmel

Building capability in vocational education and training providers: the TAFE cut – Hugh Guthrie and Berwyn Clayton

Crediting vocational education and training for learner mobility – Sandra Walls and John Pardy

**Historical trends in VET* – Phil Loveder

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How VET responds: a historical policy approach – Robin Ryan

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The impact of schools on young people's transition to university – Sinan Gemici, Patrick Lim and Tom Karmel

The role of VET in alcohol and other drugs workforce development – Ken Pidd, Ann Roche and Amanda Carne

The value of completing a VET qualification – Tom Karmel and Peter Fieger

Towards a culture of scholarly practice in mixed-sector institutions – Melanie Williams, Fleur Goulding and Terri Seddon

VET research for industry – Tom Karmel

Youth transitions in Australia: lessons for other countries? – Tom Karmel

Other

Assessing the impact of research: a case study of the LSAY Research Innovation and Expansion Fund – Jo Hargreaves

Getting tough on missing data: a boot camp for social science researchers – Sinan Gemici, Alice Bednarz and Patrick Lim

**Performance indicators: for vocational education and training providers* – Phil Loveder

The robustness of ABS SEIFA measures over time – Phil Loveder

Weighting the LSAY Programme of International Student Assessment cohorts – Patrick Lim



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