

# Research messages 2011



NATIONAL CENTRE FOR VOCATIONAL EDUCATION RESEARCH



**Australian Government**  
**Department of Education, Employment  
and Workplace Relations**





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National Centre for Vocational Education Research

The views and opinions expressed in this document are those of the author / project team and do not necessarily reflect the views of the Australian Government or state and territory governments.

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# Highlights for 2011

## Georgina Atkinson

The year 2011 marked a turning point for many of the projects the National Centre for Vocational Education Research (NCVER) has been managing as part of its research program. We published much of the research that was conducted under the priorities established in 2007 and commissioned work against the five new priorities that will direct our research effort until 2013. These national research priorities focus on skills and productivity, learning and teaching, tertiary education structures, the place and role of vocational education and training (VET), and VET's contribution to social inclusion. We also published the first group of reports to be conducted under the Longitudinal Surveys of Australian Youth (LSAY) analytical program. The priorities for LSAY research are to better understand the factors influencing education outcomes, how to facilitate good transitions into the labour market, and how the role of wellbeing affects young people's transitions (NCVER, *Outcomes of stakeholder consultations to identify the LSAY analytical program for 2011–13*).

The themes emerging from the research span both sets of priorities and reflect some of the major preoccupations of policy-makers and practitioners in tertiary education and training. They include:

- the initial education and training of young people and their pathways to employment
- apprenticeships and traineeships, with a particular focus on completions
- the ongoing education and training of disadvantaged learner groups, namely older workers, people with a disability, low-paid workers and the unemployed
- trends in the labour market, including labour mobility, skills mismatch and skills shortages
- the role of VET in innovation and workforce development
- methodological and measurement issues.

The changing shape of the tertiary sector, and VET's role within it, is fertile ground for researchers. In a conference paper, *As clear as mud: defining vocational education and training*, Tom Karmel argues that VET's defining feature is not its occupation-specific training, nor its qualifications levels, but its different funding and regulatory arrangements, and teaching and learning styles. Mixed-sector institutions are a conundrum in the sector as they straddle the two different but merging sectors. Leesa Wheelahan et al. (*Shaken not stirred? The development of one tertiary education sector in Australia*, published in 2012) look at mixed-sector institutions and their role in the emerging tertiary sector more closely and show that, while these types of institutions are growing in number, they face challenges associated with regulatory and accreditation overload. Like those TAFE (technical and further education) institutes wanting to enter the higher education market, they also need to develop a strong academic culture and governance. Looking beyond the recent transformations within the sector, Robin Ryan in his essay, *How VET responds: a historical policy perspective*, considers the evolution of the VET sector since European settlement, with a particular focus on the reforms that have occurred over the past three decades. Ryan argues that the VET system is often neglected and overlooked in favour of school and university education, but despite this, it has shown resilience when it receives resources and policy attention.

A dominant theme in 2011 was the role and impact of education and training on young people. This is due in part to a large amount of research published using the LSAY datasets, but it also reflects a bias



in educational research towards examining institutional learning and a focus on entry-level rather than continuing professional education.

Work published under the LSAY program is concerned with transitions from school to work and to education and adult life. This research not only tackles educational questions but also broader social ones. In *Social capital and young people: do young people's networks improve their participation in education and training?*, Ronnie Semo and Tom Karmel find that students who are involved in sport and other activities have a stronger link with education participation than those who don't. This suggests that engagement in extracurricular school activities can help redress economic and social disadvantage. Two pieces of research, *Does combining school and work affect school and post-school outcomes?* by Alison Anlezark and Patrick Lim, and *Outcomes from combining work and tertiary study* by Cain Polidano and Rezida Zakirova, show that working a moderate number of hours a week while studying – whether in school or tertiary study – can benefit future job prospects. However, working too much can have a negative effect on whether a student completes their studies. According to *Lost talent? The occupational ambitions and attainments of young Australians* by Joanna Sikora and Lawrence Saha, having a good career plan is important to prevent high-achieving youth from dropping out.

Social activities, career plans and part-time work aside, research by Chris Ryan in *Year 12 completion and youth transitions* shows that completing Year 12 facilitates a better transition for young people compared with other pathways. Going further in *Which paths work for which young people?*, Tom Karmel and Shu-Hui Liu claim that, generally, completing Year 12 is no longer enough for most young people: the path to success involves completing post-school qualifications. As other research indicates, there are many benefits to completing Year 12 and undertaking post-compulsory education or training of some sort. In *From education to employment: how long does it take?*, Darcy Fitzpatrick et al. find that young people who are better educated find work faster than those who leave school early. Nicolas Hérault, Rezida Zakirova and Hielke Buddelmeyer in *The effect of VET completion on the wages of young people* show that participation in tertiary education has wage advantages for young people, and completing a post-compulsory qualification, particularly a bachelor degree, has even greater advantages (*Education and training and the avoidance of financial disadvantage* by Gary Marks).

Most of the authors acknowledge that not everyone should be forced to complete Year 12 and then go on to further study. For some, other pathways are more suitable. But as Patrick Lim and Tom Karmel explain in *The vocational equivalent to Year 12*, it is difficult to identify a vocational equivalent to Year 12. Chris Ryan suggests that schools may need to devise methods of learning for students who are more attuned to applied learning to ensure that students who are not academically inclined are not left behind (*Year 12 completion and youth transitions*).

Pre-vocational programs such as pre-apprenticeships and VET in Schools have been promoted as a means of engaging students who are interested in a vocational pathway. NCVET published a number of studies in 2011 that look at participation in such programs and their impact on apprenticeship and traineeship completion. In *Pre-apprenticeship training activity*, Paul Foley and Davinia Blomberg show that pre-apprenticeships are an important, and growing, component of the VET sector. They also appear to be an important pathway for disadvantaged students such as Indigenous people, early school leavers and those without qualifications. In *Pre-apprenticeships and their impact on apprenticeship completion and satisfaction*, Tom Karmel and Damian Oliver find that, in general, apprentices who have undertaken a pre-apprenticeship are less likely to discontinue their training because they did not like the type of work or training – but the extent of this varies between trades and does not necessarily translate into higher chances of completing an apprenticeship. In a related

piece, *Pre-vocational programs and their impact on traineeship completion and satisfaction*, Oliver and Karmel explain that pre-vocational programs appear to be more beneficial for early school leavers and the lower-skilled section of the labour market. They suggest that these programs should focus on general employment and educational skills rather than on developing advanced occupational skills. *Understanding the psychological contract in apprenticeships and traineeships to improve retention*, by Erica Smith, Arlene Walker and Ros Brennan Kemmis, reports that apprentices who have completed a pre-apprenticeship are more satisfied with their training and work.

*The impact of wages and the likelihood of employment on the probability of completing an apprenticeship or traineeship* by Tom Karmel and Peter Mlotkowski and *Effect of the downturn on apprentices and trainees* by Tom Karmel and Damian Oliver, also look at factors affecting apprenticeship and traineeship commencements and completions. Karmel and Mlotkowski find that, for trade apprentices, becoming a tradesperson is the main factor associated with completion, not the training wage. But the training wage is more important for non-trade trainees, especially if wages in alternative employment are higher than the training wage. Karmel and Oliver find that apprenticeship and traineeship commencements were lower during the economic downturn, but that apprentices and trainees were more likely to complete their training. Those who did not complete were more likely to have lost their job rather than have left it. Looking at completion rates more closely, Tom Karmel (*Individual-based completions rates for apprentices*) observes that individual completion rates are higher than contract completions rates because around a quarter of trade apprentices swap employers during their apprenticeship.

For many people, their vocational education and training persists well into adult life, either via formal training programs or on-the-job learning. In *The shifting demographics and lifelong learning*, Tom Karmel suggests that investing in the education and training of the middle-aged is now more attractive, due to increasing life expectancy and expectations of working longer. *Older workers: research readings* is a book of essays (edited by Tabatha Griffin and Francesca Beddie) which looks at some of the challenges of Australia's ageing population and the implications these demographics have for the labour market and education and training. The essayists convey a message to policy-makers that programs aimed at retaining older workers must take account of the diversity of this group in terms of both of their skill levels and their preparedness to keep working.

Investing in ongoing education and training is also worthwhile for people with a disability. In *To gain, retain and retrain: the role of post-school education for people with a disability*, Cain Polidano and Ha Vu show that completing a VET qualification significantly improves the chances of getting a full-time job. This leads to greater financial independence, but it does not necessarily lead to greater job satisfaction, job security or better pay. And in a survey looking at the attitudes of people with a disability towards education and training, Lisa Nechvoglod and Tabatha Griffin (*The attitudes of people with a disability to undertaking VET training*) find that, generally, participants are happy with their training and that the three most important reasons for training were to help get a job, to gain work skills and to help increase confidence.

But VET is not a panacea for all people who experience some form of disadvantage. Two reports by the Centre for Work + Life (*Juggling work, home and learning in low-paid occupations: a qualitative study* by Barbara Pocock et al. and *Work, life and VET participation amongst lower-paid workers* by Barbara Pocock et al.) discover that, when training increases the time and money demands on workers but doesn't generate new skills or better prospects for them, things can be made worse by falsely raising expectations and adding training insult to poor job quality injury. In regard to job seekers, Tanya Bretherton, in *Understanding the undertow: innovative responses to labour market*

*disadvantage and VET*, argues that disadvantaged job seekers need economic and social support to help them get the most out of their training. Drawing together other aspects of her work with colleagues at the Workplace Research Centre, Bretherton shows that in entry-level jobs, where labour turnover is high, people need to have well-qualified supervisors who can teach them skills on the job (*The role of VET in workforce development: a story of conflicting expectations*). Work commissioned in 2011 is examining various aspects of social inclusion, as well as productivity, thereby putting the lens on other learner groups, including refugees, those with low literacy and numeracy skills, people from regional areas, and Indigenous people.

In *Vocational qualifications, employment status and income: 2006 census analysis*, Anne Daly puts the spotlight on a group that doesn't often get much attention in NCVER's program – the self-employed with vocational qualifications – and compares them with employees with similar qualifications. She finds that the self-employed tend to earn less than their employee counterparts, perhaps indicating that they are willing to sacrifice money for other benefits of self-employment. She also finds that people are more likely to choose self-employment in a buoyant economy, which suggests that the self-employed choose this form of employment rather than being forced into it because of the lack of jobs.

Labour mobility, attrition in the trades, skills mismatch and skill shortages are often portrayed as a problem. However, research is giving us a clearer picture of the dynamics of the labour market and shows us that these issues might not be as dire as employers often think. Damian Oliver, in *Skill shortages in the trades during economic downturns*, claims that there is little or no evidence of skills shortages in the trades during periods of downturn. Instead, other factors, such as declining apprenticeship completions and high job churn, create the illusion of skill shortages. *Attrition in the trades* by Tom Karmel, Patrick Lim and Josie Misko looks at the movement of tradespeople within and between occupations. They find that job and occupational mobility in the trades is not very different from that of the professions. Job churn is higher in economic good times, again giving the impression that attrition is high. Predictably, the people who are most mobile are the young. Others who move within and between jobs are casual workers, those without post-school qualifications and people working in small businesses with limited career prospects (*The mobile worker: concepts, issues, implications* by Richard Sweet). In *Does changing your job leave you better off? A study of labour mobility in Australia, 2002 to 2008*, Ian Watson draws on data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey and finds that less than one-fifth of workers changed their jobs in 2008 and most did so within local labour markets. Workers who changed their job weren't necessarily better off financially but were happier and had better job quality. John Buchanan, Susanna Baldwin and Sally Wright, in *Understanding and improving labour mobility: a scoping paper*, argue that this issue is not just about flows of labour; industry structure, occupational profiles, wages and other conditions also contribute to greater or lesser rates of mobility.

Several pieces of work examine various forms of skills mismatch and their impacts on workers. *Over-skilling and job satisfaction in the Australian labour force* by Kostas Mavromaras et al. found that being in a mismatched job, where workers don't make use of their education and training, often leads to lower wages and job satisfaction. Mismatch is more detrimental for certificate III and IV holders, but is less common. Chris Ryan and Mathias Sinning, in *Skill (mis-)matches and over-education of younger workers*, find that, while younger workers are more educated than ever before, the cost of over-education and skills mismatch is high for workers with vocational qualifications, and that some VET graduates are entrenched in low-level jobs. In *Differing skill requirements across countries and over time*, Ryan and Sinning also examine the relationship between skills and skills use in four Organisation for Economic Co-operation and Development (OECD) countries: Australia, New Zealand, the United

States and Canada. Despite differences in economic growth, technological innovation and structural change in the labour markets, the broad match of workers to jobs that make use of their skills is similar in all countries.

The role of VET and skills development in innovation and industry was another strong theme in the research published in 2011. *Fostering enterprise: the innovation and skills nexus – research readings*, edited by Penelope Curtin, John Stanwick and Francesca Beddie, is a book of essays that explores the relationship between skills, innovation and industry. *Building innovation capacity: the role of human capital formation in enterprises – a review of the literature* by Andrew Smith et al. looks at the role of innovation in the development of human capital. The authors find it is a complex process that requires a balanced human resources management approach which draws on employee teamwork and individual self-expression. *VET and the diffusion and implementation of innovation in the mining, solar energy and computer games sectors* by Robert Dalitz, Phillip Toner and Tim Turpin discusses the interrelationship between innovation and education and training in the three industries. While each sector has different drivers of innovation, processes of diffusion and relationships with VET, the authors find that creative and skilled people are at the heart of innovation. VET can contribute to this process by ensuring it establishes foundational knowledge and builds the capacity to learn. As Sian Halliday-Wynes and John Stanwick explain in *Plumbing, sustainability and training*, VET's ability to provide foundation skills and a strong basis for professional development is important in domestic plumbing at a time when it faces the 'greening' of its industry. Dealing effectively with increasing consumer awareness about environmental matters and with the vendors of new technology requires communication and entrepreneurial ability, as well as technical expertise.

The VET workforce itself is not immune from the challenges of skills development. In *Initial training for VET teachers: a portrait within a larger canvas*, Hugh Guthrie, Alicen McNaughton and Tracy Gamlin argue the need for more stringent regulation of the Certificate IV in Training and Assessment – the main qualification for providing initial teacher training in the VET sector – and an increased focus on high-quality ongoing professional development.

Building the research capacity of the VET sector is, as ever, a key concern for NCVET. The NCVET community of practice program plays an important role in providing VET practitioners with an opportunity to undertake research in the workplace. The community of practice papers published during 2011 primarily focus on topics relating to teaching and learning practices. In *Moving the fence posts: learning preferences of part-time agriculture students*, Alan Woods presents the views of agriculture students on teaching and delivery of an agricultural program. *Embedding learning from formal training into sustained behavioural change in the workplace* by Cheryl Barker considers various workplace practices and how they help individuals embed their learning from training programs into their workplace. Coralie Daniels, in *What is a practical, effective and sustainable approach to leadership development at the Canberra Institute of Technology?*, looks at leadership development in VET. *Enabling the effective take-up of e-learning by custodial officers* by Malcolm Reason assesses the role of e-learning in the delivery of development programs for custodial officers. *Musing budding musos: the role of peer mentoring in learning to be a contemporary musician* by Ross Stagg looks at how peer mentoring can help teach music students to be musicians. *The master artisan: a framework for a master tradespeople in Australia* by Karen O'Reilly-Briggs discusses the introduction of a master-level qualification for tradespeople. An exception to the focus on teaching and learning is *E-waste management in the VET environment* by Virginia Waite, which examines some of the issues surrounding the storing and disposing of e-waste within a VET provider.

The other prominent research theme this year is the way data are measured and analysed. This has in part been sparked by debate over completion rates. A paper by Alice Bednarz (*Lifting the lid on completion rates in the VET sector: how they are defined and derived*, published in 2012) explains how NCVER defines and calculates completion rates. While much of the attention has been on measuring apprentice and trainee completion rates, other aspects of data collection and measurement were also explored in the research of 2011. In the conference paper, *The challenge of measurement: statistics for planning human resource development*, Tom Karmel concludes that, overall, data are not too bad in Australia, although there are deficiencies, the foremost being the lack of a complete collection; that is, one that covers both public and private VET providers, and the lack of data on the VET workforce. In *Pathways: developing the skills of the Australian workforce*, Hugh Guthrie, John Stanwick and Tom Karmel highlight the difficulties involved in analysing pathways, due to the lack of precise data, and suggest that a unique student identifier would go some way to remedying this. Wang-Sheng Lee and Cain Polidano, in *Measuring the quality of VET using the Student Outcomes Survey*, look at the Student Outcomes Survey and the information it collects to determine whether it could act as a means of determining training quality. They find that information from the survey could act as a 'scoreboard', but that the sample would need to be larger if estimates are to be robust. They also recommend publishing individual provider information, which is something NCVER has begun doing, collecting more information on students and their labour market outcomes, collecting longitudinal data, and extending the survey to include information on private fee-for-service courses and all adult and community education courses. A finding from *Building the foundations: outcomes from the adult language, literacy and numeracy search conference* by NCVER also recommends that more data need to be captured to better understand what is currently being done to address adult literacy and numeracy problems and where the gaps are. In an attempt to build on the adult literacy and numeracy knowledge bank, NCVER is undertaking a study to map the Adult Literacy and Life Skills performance levels with those of the Australian Core Skills Framework. Michelle Circelli, David Curtis and Kate Perkins provide an outline of the study in *Mapping adult literacy performance*. NCVER is also undertaking a review of the Survey of Employer Use and Views (*Review of the Survey of Employer Use and Views of the VET System: outcomes from the discussion paper*) to identify how the survey can continue to meet the needs of the users.

Other papers that look at various aspects of methodology and measurement include *Measuring the socioeconomic status of Australian youth* by Patrick Lim and Sinan Gemici, which concludes that, when compared with a characteristics-based measure of socioeconomic status (SES) using LSAY data, the Socio-Economic Indexes for Areas (SEIFA, an area-based measure of SES) misclassifies SES at the individual level but performs well at the aggregate level. *Weighting the LSAY Programme of International Student Assessment cohorts* by Patrick Lim provides guidance to researchers on applying weights to analysis of LSAY data, while *Getting tough on missing data: a boot camp for social science researchers* by Sinan Gemici, Alice Bednarz and Patrick Lim looks at ways to handle missing data. These papers contribute to and emphasise a commitment to robust methodology and high-quality research, the principles by which all NCVER publications are judged.

The body of research published in 2011 can be found in the pages ahead, with the publications listed in alphabetical order.

# As clear as mud: defining vocational education and training

Tom Karmel

In this short presentation Tom Karmel discusses what constitutes vocational education and training in Australia. He argues that a simple definition – that it is occupation-specific training – is not helpful in explaining vocational education and training. Qualification levels are also not helpful. Rather, vocational education and training is distinguished from higher education by different funding and regulatory arrangements, and different teaching and learning styles. What really confuses the issue is that many providers are delivering both higher education and vocational education and training.

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Note: This publication was produced through the NCVET Core Research Program; see page 70 for details.

*As clear as mud: defining vocational education and training* can be found on NCVET's website <<http://www.ncver.edu.au/publications/2356.html>>.

# The attitudes of people with a disability to undertaking VET training

Lisa Nechvoglod and Tabatha Griffin

This paper used a small survey to investigate the attitudes of people with a disability towards undertaking training. Such insights are helpful when there are clear policy imperatives to assist more people with a disability into the workforce. The recognition that working supports the resilience and builds the social capital of both the individual and community underlies these policies.

## Key messages

- The attitudes of participants in the study towards training are overall very positive.
- Characteristics such as prior education level and having a single disability or multiple disabilities did not seem to significantly affect the attitude of the survey participants towards undertaking training, but it was difficult to explore this adequately, given the limitations of the data.
- For all qualification levels the three most important reasons people gave for undertaking training were to help them get a job, to gain work skills and to help increase confidence.
- Two-thirds of participants indicated they would need support, or would 'maybe' need support, to undertake training and of those the majority thought it would be available.

The ability to generalise these findings to the wider population is limited due to the small size of the survey, but one thing is clear – generally people with a disability consider VET a good option to assist them in finding employment and they are willing to undertake VET.

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Note: This publication was produced through the NCVER Core Research Program; see page 70 for details.

*The attitudes of people with a disability to undertaking VET training* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2449.html>>.

# Attrition in the trades

Tom Karmel, Patrick Lim and Josie Misko

Shortages in the trades are again becoming a prominent issue as Australia emerges from the Global Financial Crisis. The existence of shortages puts the immediate focus on the apparent inability of the training system to supply sufficient skilled tradespersons, but shortages in an occupation are as much related to the rate at which individuals leave the occupation as the rate at which the occupation attracts new entrants. Hence, this paper which focuses on attrition in the trades, using professional occupations as comparators. The analysis is restricted to males in order to abstract from the impact that family responsibilities have on women's labour mobility, noting that the trades are dominated by men, apart from hairdressing and, to a lesser extent, the food trades.

While attrition has a negative connotation, it may be positive for the individuals leaving a trade if they are moving to something better. Thus, by looking at the occupations ex-tradespersons move to, the paper also examines whether a trade offers a good start to a career.

## Key messages

- Job and occupational mobility in the trades is not particularly different from that experienced in the professions, although there is considerable variation across the trades (and across the professions).
- The rate of attrition in the trades is remarkably similar in good times and in bad times, although the balance between job losers and job leavers is affected by economic conditions. However, job churn within a trade is higher in good times, and this gives the impression to employers that attrition is higher.
- The one trade occupation that stands out as a good foundation for a future career is electrotechnology and communications.

The results of the paper bring us full circle. It seems that we should not be overly concerned about attrition in the trades when addressing skills shortages. Thus it is the output of the training system that should be the immediate focus and this puts the spotlight back on the commencement and completion rates of apprenticeships.

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Note: NCVET consultancy work funded through the Department of Education, Employment and Workplace Relations; see page 70 for details.

*Attrition in the trades* can be found on NCVET's website <<http://www.ncver.edu.au/publications/2420.html>>.



# 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

This paper explores the wide range of literature that links innovation with human capital development. From this review, the authors develop a model of the principal factors contributing to human capital. The model will form the basis of an empirical investigation into developing innovation capacity in medium-to-large Australian enterprises in the next phase of the research project.

## Key messages

- Innovation performance at the enterprise level depends on the ability to acquire, develop and exploit new knowledge. Human capital and technology are the principal factors driving innovation capacity.
- Human capital development is stimulated by appropriate human resource management practices and two ancillary services: the learning and development system, which must go beyond training and create learning cultures in enterprises; and the tertiary education system, which is playing an increasingly important role in the new learning and development systems of enterprises.
- The bundling of human resource practices is important in all three of the key factors involved in developing human capital for enterprise innovation: people management, knowledge management and creativity management.
- Developing innovative capacity in the context of human capital formation is a complex process and requires a balanced human resource management approach utilising cooperative employee team involvement and individual self-expression to achieve ‘creative ecologies’.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Building innovation capacity: the role of human capital formation in enterprises — a review of the literature* can be found on NCVET's website <<http://www.ncver.edu.au/publications/2341.html>>.

# Building the foundations: outcomes from the adult language, literacy and numeracy search conference

National Centre for Vocational Education Research

Adult language, literacy and numeracy are essential ingredients for greater workforce participation, productivity and social inclusion. Both national and international research demonstrate the relationship between increasing levels of language, literacy and numeracy proficiency and positive outcomes for individuals, as well as for communities and the economy.

Yet, even with this knowledge, there is still much that is unknown or requires broader debate. For example, what is the extent of adult language, literacy and numeracy provision in Australia? Whose responsibility is it to provide language, literacy and numeracy training in the workplace? Is there a need for targeted funding? What are the longer-term outcomes of literacy and numeracy programs? What programs work best for different types of learners? How can we quantify the civic and social benefits of improved literacy and numeracy?

Following on from the May 2010 announcement of a \$120 million investment by the Australian Government in adult literacy and numeracy activities, the National Centre for Vocational Education Research hosted a forum on behalf of the Department of Education, Employment and Workplace Relations on 13 September 2010 to explore these questions and to determine what needs to be done to find the answers.

This paper presents a summary of those discussions and recommendations for future action. Background papers prepared for the forum are also provided in chapters 1–6. Forum participants emphasised that, while literacy should be everyone's business, for those concerned with public policy the focus should be on:

- targeting those most in need
- finding sustainable funding models
- measuring success.

To do this will require further effort to better understand what is currently being done to address literacy and numeracy problems across the country and how to make adult literacy and numeracy a more prominent issue in the community and, in response, to devise sound strategies to implement and measure the impact of new activities.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Building the foundations: outcomes from the adult language, literacy and numeracy search conference* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2345.html>>.

# The challenge of measurement: statistics for planning human resource development

Tom Karmel

This presentation was made to a breakout session at the 2011 Skills Australia and Industry Skills Councils' joint conference, *Putting skills at the heart of economy*. The paper addresses the challenge of measurement in workforce development planning and discusses the role of the various players in the labour and training markets – individuals, employers, providers, regulators, governments and industry bodies – and the information they need to make optimal decisions. One issue is the extent to which markets should be left to operate freely, noting that the data required by central planners to second-guess the market are particularly onerous. It is emphasised, however, that markets need ample information to function effectively.

The presentation's overall assessment is that data in Australia are not too bad, although the lack of a complete collection (covering both private and public) of vocational education and training (VET) activity is an obvious deficiency. There is also lack of data about the VET workforce (which regulators have a particular interest in), and data on job vacancies are limited. Provider-level performance data have also not been published to date.

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Note: This publication was produced through the NCVER Core Research Program; see page 70 for details.

*The challenge of measurement: statistics for planning human resource development* can be found on NCVER's website  
<<http://www.ncver.edu.au/publications/2418.html>>.

# Differing skill requirements across countries and over time

Chris Ryan and Mathias Sinning

This report comes from a three-year program of research, *Securing their future: older workers and the role of VET*. Previous work from the program looked at how well workers were matched to their jobs, based on their literacy and numeracy skills and the use of these skills in the workplace. In a continuation of that work, the research reported here investigates the relationship between skills and skills use at work in four Organisation for Economic Co-operation and Development countries: Australia, New Zealand, the United States and Canada.

This research takes advantage of two international surveys coordinated by Statistics Canada and the OECD: the International Adult Literacy Survey (IALS) and the Adult Literacy and Life Skills (ALLS) survey. These two surveys, conducted ten years apart, contain unique information about the literacy skills of workers and the frequency with which they undertake a range of literacy- and numeracy-related tasks. These data allow the authors to investigate skill matches to job requirements for workers in the four countries noted above.

## Key findings

- While it might be expected that factors such as economic growth, technological innovation and structural change in the labour markets of these different countries have led to differences in the use of skills over time, the broad match of workers to jobs that use their skills was quite similar across the four countries.
- The relationship between individual skills and skill requirements at work was positive for all four countries. High-skilled workers indicated that they use their skills more often at work than less skilled workers.
- Despite the fact that these countries have probably experienced similar developments and adoption of new technology, they do not exhibit the same patterns of change in skill use over time.
  - The use of literacy skills at work increased more in Australia than in the other countries, although the starting levels were substantially lower in Australia to begin with. While the authors do not speculate on the reason for this, it is possibly due to structural changes in the economy and the labour market specific to Australia over that time period.
  - The use of numeracy skills also increased substantially in Australia, while it decreased in the other countries over the same time period. The authors speculate that this might be due to the introduction of the goods and services tax in Australia and the associated additional record-keeping requirements for businesses.

Earlier reports coming from this three-year program of research are available from the NCVER website.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Differing skill requirements across countries and over time* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2428.html>>.

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

Ian Watson

The dynamics of labour mobility have been a matter of long-standing interest to researchers and policy-makers. It is a tricky subject, one that is afflicted by limitations in the information available and which can also pose dilemmas for social policy-makers, who are concerned both to ensure a well-functioning labour market and people's welfare.

This paper is one of three commissioned by the National Centre for Vocational Education Research (NCVER) at the request of the Department of Education, Employment and Workplace Relations to tease out some of the issues connected to mobility in the Australian workforce. The related papers are:

- *The mobile worker: concepts, issues, implications* by Richard Sweet
- *Understanding and improving labour mobility* by John Buchanan, Susanna Baldwin and Sally Wright.

In this paper, using data from the Household, Income and Labour Dynamics in Australia Survey, Ian Watson explores the extent and consequences of labour market movement and the characteristics of people who change jobs. The analysis concentrates on adult employees who change their employer in the course of a year.

While around 17% of workers changed their jobs in 2008, most of those movements were within local labour markets. Interestingly, on average, workers who changed jobs were not better off financially, although they were better off in terms of happiness and job quality. Both the opportunity to acquire new skills and the use of existing skills are enhanced by changing jobs.

Watson argues that, on the basis that wages are not a major element of labour mobility, the labour market needs to be treated differently from simple commodity markets.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Does changing your job leave you better off? A study of labour mobility in Australia, 2002 to 2008* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2344.html>>.

# Does combining school and work affect school and post-school outcomes?

Alison Anlezark and Patrick Lim

One of the distinctive characteristics of Australia's secondary schooling system is the sizable proportion of students working part-time. This phenomenon raises important policy issues: does working part-time assist or hinder academic performance? Does it assist the transition to the labour market? This report uses data from the Longitudinal Surveys of Australian Youth of students who were aged 15 in 2003 to look at these questions.

## Key messages

- Students who are combining work and school, on average, work 11–12 hours a week, with more females working than males; however, on average, males who are combining work and school work longer hours.
- Combining school and work has a modest negative impact on school and post-school study outcomes when hours are long (in excess of 15–20 hours a week). Females are better able to balance school and work, with the magnitude of these negative effects generally being less than for males.
- Working for relatively few hours a week (around five hours per week) has a positive impact on post-school full-time employment, compared with not working at all. Females have to work slightly longer hours to realise the maximum benefits from working (15–20 hours per week) than males (10–15 hours per week), but the magnitude of the effect is comparable with males.
- While one has to be cautious in attributing causation, it does appear that students who are working lengthy hours in part-time employment are signalling an orientation towards employment and away from formal education.

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Note: This publication was produced through the NCVER Longitudinal Surveys of Australian Youth Program; see page 70 for details.

*Does combining school and work affect school and post-school outcomes?* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2398.html>>.

# Education and training and the avoidance of financial disadvantage

Gary N Marks

There is a very large body of literature on the returns from education, which typically focuses on narrow outcomes such as employment, occupational status and wages. Gary Mark's paper extends this work by examining the relationship between educational attainment and a number of dimensions of financial disadvantage. The study uses four measures, namely, income poverty; financial stress, which refers to cash-flow problems; not being in employment; and low wealth.

He takes a systematic approach, using the longitudinal data from the Household, Income and Labour Dynamics in Australia Survey. He runs a series of multiple regressions, beginning with demographic variables and then sequentially adds educational attainment and a series of labour market outcome variables. As expected, educational attainment assists in preventing financial disadvantage, but to a large degree this occurs through the impact of educational attainment on labour market outcomes. University qualifications have more of an impact on reducing financial disadvantage than vocational qualifications – not surprisingly, given that on average those with degrees earn more than those with vocational certificates.

While the work is useful in extending the conventional focus on employment and wages, it leaves a number of issues unanswered. The first obvious extension is to analyse how educational qualifications impact on financial disadvantage over and above the direct effect on employment and earnings. Do better qualified individuals learn how to manage their financial affairs more successfully, or is a practical qualification more useful than a theoretical one? The second challenge thrown up is the role of marriage. A variable that is consistently important in the models is marital status, with those who are married suffering less financial disadvantage than those who are single, divorced, separated or in a de facto relationship. This in itself is interesting, but the research challenge is to understand the relationship between education and marriage. It could be hypothesised that those with very poor qualifications suffer the double disadvantage of having a low skills base and being less marriageable than their more qualified peers. However, this is work for the future.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Education and training and the avoidance of financial disadvantage* can be found on NCVET's website <<http://www.ncver.edu.au/publications/2375.html>>.

# Effect of the downturn on apprentices and trainees

Tom Karmel and Damian Oliver

At the onset of the Global Financial Crisis in 2008–09, the Australian training system experienced a sharp decline in the number of apprentice commencements. Ultimately, the impact of the economic downturn on employment levels in Australia was much more muted, and both employment and apprentice and trainee numbers have returned to the pre-downturn level. This report examines the effect of the downturn on apprentices and trainees as well as investigating the relationship between apprentice and trainee numbers and the level of employment.

## Key messages

- At the broad level, apprentice and trainee commencements are sensitive to changes in total employment.
- Changes to apprentice and trainee commencements precede changes in total trades employment by four quarters. Changes to trainee commencements appear to lag behind changes in employment in non-trade occupations but the relationship is not nearly as strong as for the trade occupations.
- When examined at the two-digit occupational level, the relationship between apprentice and trainee commencements and occupational employment is strong in trade occupations but not apparent in non-trade occupations.
- During the downturn, cross-sectional completion rates increased and cancellations and withdrawals from apprenticeships and traineeships decreased, although the size of the decrease was larger in the non-trade occupations.
- Of those apprentices and trainees who do not complete, a much higher proportion discontinued their training because they lost their job or were made redundant. This was especially so in the trades occupations. Even so, the impact of the increase in redundancies is offset by a decline in apprentices and trainees leaving their job.
- Consequently, the short-lived downturn had only a very small impact on the supply of tradespeople.

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Note: This publication was produced through the NCVER Core Research Program; see page 70 for details.

*Effect of the downturn on apprentices and trainees* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2419.html>>.



# The effect of VET completion on the wages of young people

Nicolas Hérault, Rezida Zakirova and Hielke Buddelmeyer

As part of the drive to lift Australia's productivity, there has been a push for an increase in the number of course completions in both the vocational education and training and higher education sectors. While it is generally assumed that completing a course is the desired outcome, it is also expected that individuals will acquire skills even if they do not complete the course.

Using the 1995 and 1998 cohorts of the Longitudinal Surveys of Australian Youth, this study looked at both the effects of participation in and completion of post-secondary educational qualifications on wages.

## Key messages

- Participation in tertiary education brings wage advantages for young people, even if the course is not completed. This presumably reflects the skills acquired, although it could also reflect the personal characteristics that have led to participation in the first place.
- As expected, completion of a qualification in general brings a further wage advantage.
- On average, the largest wage benefits come from participating and then completing a bachelor's degree.

One of the difficulties of this type of study is that the relatively small sample sizes impact on the statistical significance of some of the results. They also limit the degree to which the variation in outcomes can be captured. This particularly affects the analysis of vocational qualifications because of the very large variation in wage outcomes; for example, courses such as electrotechnology lead to relatively high wages, which are not shared by courses such as those in the food trades. We need to keep in mind that some individuals will fare much better than the average, while others do less well.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*The effect of VET completion on the wages of young people* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2379.html>>.

# Embedding learning from formal training into sustained behavioural change in the workplace

Cheryle Barker

Building the research capacity of the vocational education and training sector is a key concern for the National Centre for Vocational Education Research. To assist with this objective, NCVER supports a community of practice scholarship program, whereby VET practitioners without research experience are given the opportunity to undertake their own research to address a workplace problem. Scholarship recipients are supported by a mentor, and NCVER publishes their research results.

Cheryle Barker participated in the 2009 community of practice program. Cheryle is an Education Research Officer at Bendigo Regional Institute of TAFE. With a focus on the health industry, Cheryle's research explores which workplace practices help individuals to embed learning from training programs into their work practice.

Through a literature review and interviews with industry and trainers, the study identified a range of potential strategies to assist learners to integrate learning into the workplace. A pilot training program was conducted to test the effectiveness of these strategies. Learners' pre-training benchmarks were established and feedback was sought immediately after the conclusion of training and again two months later.

## Key messages

- The delivery model, including the use of practical and interactive workshops, maximised students' capacity to transfer their learning into their workplace.
- Transference could be enhanced by focusing attention on self-directed learning for students and ensuring that adequate support was provided to their trainers and workplace supervisors/coaches to carry out their roles in supporting sustained behavioural change.
- A clear understanding of the purpose, outcomes and model of delivery was vital for students. Understanding the purpose of the training program prior to beginning influenced learner motivation to participate and their openness to the learning experience.
- Coaching and mentoring have been strongly promoted as useful adjuncts to training but this research shows more work is needed to get people to engage in these activities.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Embedding learning from formal training into sustained behavioural change in the workplace* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2405.html>>.

# Enabling the effective take-up of e-learning by custodial officers

Malcolm Reason

The use of e-learning is dramatically increasing, due to its cost effectiveness, flexibility and appeal to the younger tech-savvy generation now entering the workforce. In line with this trend, e-learning is being introduced into development programs for custodial officers working in Corrections NSW.

Malcolm Reason used an NCVET scholarship to uncover how and whether e-learning works in the corrections environment. Malcolm's scholarship was awarded through the community of practice program, whereby VET practitioners without research experience are given the opportunity to undertake their own research to address a workplace problem. Scholarship recipients are supported by a mentor, and NCVET publishes their research results.

Malcolm Reason, who is the Director of Non-Custodial Training at the Brush Farm Corrective Services Academy in New South Wales, drew on relevant literature and combined survey data with information drawn from semi-structured interviews to investigate e-learning in Corrections NSW.

## Key messages

- Face-to-face learning is still highly valued by learners. E-learning should be used in conjunction with, not as a substitute for, face-to-face learning.
- A number of factors can combine to block effective engagement with e-learning:
  - Internal factors can include attitudes and self-efficacy, the skills of the learner and their learning style.
  - External factors can include e-learning design, computer access and the provision of support to learners, as well as a corrections-specific issue associated with the security of personal information entered into e-learning programs.
- The need for good information and communications technology (ICT) infrastructure is one of the most important enabling factors, with over 98% of those interviewed suggesting that a lack of suitable computers was a 'deal breaker'.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Enabling the effective take-up of e-learning by custodial officers* can be found on NCVET's website <<http://www.ncver.edu.au/publications/2427.html>>.

# E-waste management in the VET environment

Virginia Waite

Building the research capacity of the vocational education and training sector is a key concern for the National Centre for Vocational Education Research. To assist with this objective, NCVER supports a community of practice scholarship program, whereby VET practitioners without research experience are given the opportunity to undertake their own research to address a workplace problem. Scholarship recipients are supported by a mentor, and NCVER publishes their research results.

Virginia Waite participated in the 2009 community of practice. Virginia is an information technology teacher at the Kempsey campus of the North Coast TAFE. Her research draws on the Australian literature on the management of e-waste and then examines the results of a survey, distributed to campus managers and project coordinators throughout the North Coast TAFE, to uncover what practices they currently have in place to deal with e-waste.

Virginia finds that, at the local level, there is a willingness to sort, store and dispose of e-waste in a more sustainable way rather than disposal via landfill. However, TAFE employees face issues with storage and transport of e-waste.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*E-waste management in the VET environment* can be found on NCVER's website  
<<http://www.ncver.edu.au/publications/2437.html>>.

# Fostering enterprise: the innovation and skills nexus – research readings

Editors: Penelope Curtin, John Stanwick and Francesca Beddie

The main interest in ‘innovation’ is in terms of what it is seen to contribute to productivity at the enterprise level, and to economic prosperity at the national level. Innovation, as we think about it now, is much more than activities related to research and development. Indeed, much of innovation can be thought of as being incremental in nature, and includes improvements to processes.

This book of readings on innovation was commissioned by the Department of Education, Employment and Workplace Relations (DEEWR) and looks at the relationship between skills, innovation and industry. In November 2010, NCVER held a forum in Sydney on the relationship between innovation and skills which explored many of the concepts addressed in this book of readings. Other researchers in the area have also contributed chapters to this book.

The authors offer a variety of views on innovation and its relevance. While the authors view innovation from differing perspectives, they all implicitly acknowledge the importance of innovation to productivity. We hope that the chapters will stimulate debate about the role of education and skills in innovation, particularly those emerging from vocational education and training.

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Note: This publication was produced through NCVER’s consultancy work; see page 70 for details.

*Fostering enterprise: the innovation and skills nexus – research readings* can be found on NCVER’s website <<http://www.ncver.edu.au/publications/2367.html>>.

# From education to employment: how long does it take?

Darcy Fitzpatrick, Laurence Lester, Kostas Mavromaras, Sue Richardson and Yan Sun

This report examines the experiences of young Australians during the transition from full-time student to worker, using data from the 1995 cohort of the Longitudinal Surveys of Australian Youth. The authors focus on two aspects of the transition to employment: the time taken to find any job and the time taken to find a full-time permanent job. The type of job obtained is not the focus.

While the authors are specifically interested in the time taken to obtain a job, they also find that a substantial proportion (around 25%) of those who have not completed school or obtained a certificate III or higher qualification do not get a job at all. This group fails to make the transition from student to worker.

## Key messages

- Young people who are better educated find work faster: those who complete Year 12 or post-school qualifications will find employment more quickly than young people who leave school early. But Year 12 completion itself does not give the same advantage as completion of a post-school qualification when it comes to finding full-time permanent employment.
- The type of post-school qualification does not change the speed of finding any job; university and VET graduates have similar experiences.
- Importantly, gender matters. Better educated women attain employment faster than their less educated counterparts. This difference is not as apparent for men.

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Note: This publication was produced through the Longitudinal Surveys of Australian Youth Research and Innovation Expansion Fund Program; see page 70 for details.

*From education to employment: how long does it take?* can be found on NCVET's website  
<<http://www.ncver.edu.au/publications/2373.html>>.

# Getting tough on missing data: a boot camp for social science researchers

Sinan Gemici, Alice Bednarz and Patrick Lim

Research in the social sciences is routinely affected by missing or incomplete information. Ignoring missing data may yield research findings that are either ‘slightly off’ or ‘plain wrong’. However, there is often confusion over how best to handle missing data.

In this paper, the authors repackage the highly technical missing data literature into a more accessible format. They illustrate why and how simple approaches to handling missing data fail. Here, simple approaches are those that delete records with missing data or which replace missing observations with crude estimates of their hypothesised ‘true’ value. They then discuss several common methods for addressing missing data and conduct a simulation study with real-life data to assess the performance of these methods. They conclude with a step-by-step guide on how to implement multiple imputations as one of two current ‘gold standard’ missing data methods.

The key message of this paper is that modern software packages make it relatively easy to implement methods that handle missing values properly.

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Note: This publication was produced through the NCVER Core Research Program; see page 70 for details.

*Getting tough on missing data: a boot camp for social science researchers* can be found on NCVER’s website <<http://www.ncver.edu.au/publications/2421.html>>.

# How VET responds: a historical policy perspective

Robin Ryan

This essay considers the evolution of the vocational education and training system since European settlement but focuses mainly on changes that have occurred over the last three decades. It discusses the underlying influences of key reforms, including the training reform agenda, which had as its main aim, the establishment of a national system. Also discussed are the programs and policy milestones that have shaped the VET landscape.

The essay drew on work that compiled major policy developments since the 1980s, now converted into a timeline identifying significant documents published since 1969 (with links to those reports available online). The timeline can be found at <http://www.ncver.edu.au/resources/timeline/overview.html>.

## Key messages

- The VET system has generally been able to meet the training needs of the nation. Its deep-seated roots in Australian society have allowed it to continue, whatever the political climate, to serve both individuals and industry.
- VET has experienced periods of intense policy and product innovation, especially since 1975. However, not all reforms have managed to equally support the three main broad streams of VET: apprenticeship and traineeship training, general education and advanced education. The lesson here is that VET policy and innovation needs clear aims.
- The VET system has historically been neglected in favour of schools and university education but has shown remarkable resilience once resources and policy attention have been directed to it, especially considering how embedded it is in Australia's federal system.

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Note: This publication was produced through NCVER's consultancy work; see page 70 for details.

*How VET responds: a historical policy perspective* can be found on NCVER's website <http://www.ncver.edu.au/publications/2338.html>.



# The impact of wages and the likelihood of employment on the probability of completing an apprenticeship or traineeship

Tom Karmel and Peter Mlotkowski

This paper updates an earlier paper by Karmel and Mlotkowski, *The impact of wages on the probability of completing an apprenticeship or traineeship*. The major change is that this new paper looks at whether the probability of getting a job either in alternative employment or at the completion of an apprenticeship or traineeship, in addition to wages, impacts on completion rates. This issue was not considered in the earlier paper because the first Apprentice and Trainee Destinations Survey was run in 2008 when the labour market was particularly buoyant. The situation for the second survey, conducted in 2010, was very different, with unemployment in general and youth unemployment in particular increasing sharply.

## Key messages

- For trade apprentices, the premium attached to becoming a tradesperson is a significant factor to completion, not the training wage. This confirms the earlier finding.
- By contrast, in the non-trades the training wage matters more. For both male and female trainees, completion rates decrease with increases in the difference between wages in alternative employment and training wages.
- Typically, the probability of employment on completion of an apprenticeship or traineeship exceeds that of the apprentice or trainee who drops out. For trades and females in non-trade occupations this difference significantly affects completion rates.
- The economic downturn significantly increased the attractiveness of undertaking an apprenticeship or traineeship. Alternative employment became less attractive compared with being an apprentice or a trainee, and in general the pay-off to completion increased.

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Note: This publication was produced through NCVER's consultancy work; see page 70 for details.

*The impact of wages and the likelihood of employment on the probability of completing an apprenticeship or traineeship* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2364.html>>.

# Individual-based completion rates for apprentices

Tom Karmel

Low completion rates for apprenticeships and traineeships have been receiving considerable attention in recent times. The rates published by the National Centre for Vocational Education Research relate to contracts of training and do not take into account the fact that some individuals who fail to complete their apprenticeship or traineeship with one employer may continue their training with another employer. Therefore it has been argued that NCVER seriously understates the completion rates.

NCVER's approach is driven by the structure of the administrative data it collects. However, in recent times NCVER has collected some data on recommencements; that is, when an individual recommences his or her apprenticeship/traineeship with a new employer. These data have been used by Tom Karmel to estimate completion rates for individuals who commence and subsequently complete in the same occupation (as distinct from contract completion rates).

## Key messages

- Around one-quarter of trade apprentices swap employers during their apprenticeship.
- Individual completion rates relating to individuals for the commencing cohort in 2005 are around 56.6% (on Karmel's estimate) compared with 45.6% on a contract-of-training basis. The completion rates for individuals range from 39.2% for the food trades, to 64.2% for electrotechnology and telecommunications trades workers.

While these new estimates show that completion rates for individuals are considerably higher than the rates calculated for contracts, they also show that employer churn is an issue, with the worst occupations being hairdressing and the food trades.

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Note: This publication was produced through the NCVER Core Research Program; see page 70 for details.

*Individual-based completion rates for apprentices* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2357.html>>.

# Initial training for VET teachers: a portrait within a larger canvas

Hugh Guthrie, Alicen McNaughton and Tracy Gamlin

This study focuses on a critical aspect of the vocational education and training workforce: initial VET teacher training. It has identified the generic teacher education courses offered both by the VET and higher education sectors, ranging from the Certificate IV in Training and Assessment (now the Certificate IV in Training and Education) to graduate diplomas. The certificate IV is not only the most significant in student number terms, but it is also the one true initial qualification. All the others are post-initial and targeted at teachers with some experience.

Key messages include:

- Student numbers are very high for the certificate IV. Numbers are modest for the VET diploma programs, and the total numbers in higher education courses are declining.
- The certificate IV is delivered well by some providers. However, more stringent regulation of this qualification is required, given its current pivotal role in providing initial teaching skills.
- Initial teachers also need access to a sound induction process and support from more experienced mentors to underpin, increase and help cement their foundational teaching skills.
- There needs to be an increased emphasis on high-quality continuing professional development. This should come in a variety of forms: formal courses at diploma level and above; effective non-formal learning; and a supportive and challenging learning culture and practices within the providers themselves.

Universities are losing their importance in VET teacher development, and this is having undesirable consequences on the depth of VET teacher professionalism. However, to strengthen their role, they need to offer flexible programs, given the competing priorities on time-poor VET teachers. Specifically, they need to develop strong connections with the VET sector and build partnerships with those providing teacher preparation programs in the VET sector itself.

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Note: This publication was produced through the NCVET Core Research Program; see page 70 for details.

*Initial training for VET teachers: a portrait within a larger canvas* can be found on NCVET's website <<http://www.ncver.edu.au/publications/2390.html>>.

# Juggling work, home and learning in low-paid occupations: a qualitative study

Barbara Pocock, Jude Elton, Deborah Green, Catherine McMahon and Suzanne Pritchard

The factors that influence the participation of low-skilled and low-paid workers in vocational education and training is the focus of a major research project being undertaken by the Centre for Work + Life at the University of South Australia.

This report is the culmination of the qualitative component of the larger study and comprises interviews and focus groups with students, employees, employers, training providers and other key stakeholders in the retail, food processing and non-residential aged care sectors across four Australian states.

The study explores a diversity of training needs, time demands, preferences and available support for training from employers, training providers and families. It considers those who spend more time with their families rather than undertake training, as well as those who try to integrate training into their busy lives. It reports on those who prefer jobs which underutilise their skills as much as it does on those who find themselves caught in such situations. It comments on those who are able to cope with training demands as well as those who face increased challenges because of their literacy skills. It also provides information on employers who are committed to training and, for a variety of reasons, those who do not offer supportive environments for learning.

## Key messages

- While the lack of time to study and costs emerged as the key barriers to training, many of the challenges described by workers and students related to ‘fitting together’ their work, home life, community interests and studying.
- The financial, time and effort costs of participation in training are high. For low-paid workers in particular, any incremental pay or other rewards for extra skills or qualifications gained can be measured in cents rather than dollars – the need to gain or retain a job is the main driver of training.

The authors argue that training models and policies that provide skill-development opportunities over the life course are vital to enable low-paid workers to have multiple opportunities to improve their working lives.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Juggling work, home and learning in low-paid occupations: a qualitative study* can be found on NCVET's website  
<<http://www.ncver.edu.au/publications/2369.html>>.

# Lost talent? The occupational ambitions and attainments of young Australians

Joanna Sikora and Lawrence J Saha

Given ongoing interest in increasing productivity and participation in the workforce, understanding when talent is lost is a useful exercise. The term ‘lost talent’ describes the underutilisation or wastage of human potential. Focusing on young people, Sikora and Saha define lost talent as occurring when students in the top 50% of academic achievement lower their educational or occupational expectations or fail to achieve their educational or occupational plans.

Using data spanning a ten-year period from the 1998 cohort of the Longitudinal Surveys of Australian Youth (LSAY98), the authors examine academic achievement in Year 9, educational and occupational expectations while at school, and educational and occupational attainment by age 25 years to determine the extent to which talent loss is occurring. The general relationships between occupational expectations and attainment are also examined to see whether ambitious career plans lead to higher-status employment.

## Key messages

- The proportion of high-achieving individuals who represent talent loss is low but not negligible, with approximately 15% lowering their educational and occupational expectations. Factors associated with decreasing expectations include low socioeconomic status, being male, having low personal assessment of academic ability and low satisfaction with school.
- Having ambitious occupational plans is important, with a strong relationship found between holding these plans and having a professional or managerial job by the age of 25 years. Not having a career plan can be detrimental to later occupational attainment – more so for young women.
- Students’ occupational expectations are significantly less gender-segregated than the labour market they eventually enter.

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Note: This publication was produced through the Longitudinal Surveys of Australian Youth Research and Innovation Expansion Fund Program; see page 70 for details.

*Lost talent? The occupational ambitions and attainments of young Australians* can be found on NCVER’s website  
<<http://www.ncver.edu.au/publications/2313.html>>.

# Mapping adult literacy performance

Michelle Circelli, David D Curtis and Kate Perkins

Both national and international research demonstrates the relationship between increasing levels of language, literacy and numeracy proficiency and positive outcomes, such as improved economic performance and social cohesion. Being able to measure the level of proficiency in these skills and any changes in their levels is important for getting a sense of how well language, literacy and numeracy programs are working.

In Australia there are a number of tools used to measure language, literacy and numeracy proficiency. Among these are the Adult Literacy and Life Skills Survey conducted by the Australian Bureau of Statistics and the Australian Core Skills Framework.

The primary purpose of the Adult Literacy and Life Skills Survey is to identify and measure the literacy and numeracy skills of adult populations within and across a number of participating Organisation for Economic Co-operation and Development countries. However, it has two drawbacks. First, it is relatively coarse and is designed to provide a summary of literacy and numeracy rather than act as an assessment tool. Second, it is only administered every ten years.

By contrast, the Australian Core Skills Framework was designed to be used as an assessment tool at the student level. It makes learning relevant to the individual and provides evidence of progress, so that a learner's performance in a core skill can be assessed and their strengths and weaknesses identified. The framework is used in two key federal government programs – the Language, Literacy and Numeracy Program and the Workplace English Language and Literacy program – and in a variety of other settings, including the South Australian Certificate of Education.

This paper outlines a study the National Centre for Vocational Education Research is undertaking to determine whether performance levels on the literacy and numeracy scales of the Adult Literacy and Life Skills Survey can be reliably mapped to the performance levels of the Australian Core Skills Framework. The initial stage is promising, with an expert panel concluding that it is feasible to map Adult Literacy and Life Skills Survey items to Australian Core Skills Framework levels. The second stage will involve a larger-scale study to empirically align the two frameworks. If this stage is successful, then various possibilities arise for monitoring the language, literacy and numeracy skills of various groups against the Adult Literacy and Life Skills Survey scale.

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Note: This publication was produced through the NCVET Core Research Program; see page 70 for details.

*Mapping adult literacy performance* can be found on NCVET's website  
<<http://www.ncver.edu.au/publications/2463.html>>.

# The master artisan: a framework for master tradespeople in Australia

Karen O'Reilly-Briggs

Building the research capacity of the vocational education and training sector is a key concern for the National Centre for Vocational Education Research. To assist with this objective, NCVER supports a community of practice scholarship program, whereby VET practitioners without research experience are given the opportunity to undertake their own research to address a workplace problem. Scholarship recipients are supported by a mentor, and NCVER publishes their research results.

Karen O'Reilly-Briggs participated in the 2010 community of practice program. Karen is a metal fabrication, welding and engineering teacher at Swinburne School of Engineering, Technology and Trades. Karen's research explores the views and opinions of senior industry and education professionals on the introduction of a 'master' level program for tradespeople into the Australian curriculum.

The impetus for the research is the assumption that the introduction of a master-level qualification would improve pathways and opportunities for tradespeople in Australia by opening up advanced levels of learning and attainment for the highly experienced. The author argues that formal recognition of experience and expertise will lead to increased esteem for trade vocations, which is important if trades are to improve their standing in the community.

The trade industry representatives and education professionals in the focus groups were generally supportive of the introduction of a master-level qualification.

One question which is beyond the scope of Ms O'Reilly-Briggs's project is whether there would be sufficient demand for such a qualification to make it viable. While the concept of a master artisan is well established in a number of European countries, it is not one that has ready currency in Australia. The question that needs to be asked is whether employers will pay the premium that would need to be attached to the qualification to make it worth doing – and will providers be brave enough to offer such a qualification?

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*The master artisan: a framework for master tradespeople in Australia* can be found on NCVER's website  
<<http://www.ncver.edu.au/publications/2452.html>>.

# Measuring the quality of VET using the Student Outcomes Survey

Wang-Sheng Lee and Cain Polidano

Currently, as noted in the review on the Australian vocational education and training system undertaken by the Organisation for Economic Co-operation and Development, there is a dearth of information available to students to help them make decisions about which course and provider will best meet their needs.

This report by Lee and Polidano examined the potential use of information from the Student Outcomes Survey, including the use of student course satisfaction information and post-study outcomes, as a means of determining markers of training quality. This project was undertaken independent of the work of the National Centre for Vocational Education Research in this area and is a welcome complement to it.

The main recommendation is that a 'scoreboard' approach of post-study outcomes is adopted as a means of measuring quality. The scoreboard would provide average outcomes by provider and field of education for a number of variables related to employment and training. While this approach has merit, it would necessitate a larger sample than that currently obtained for the Student Outcomes Survey in order for robust estimates to be provided.

In addition to the scoreboard approach, the authors recommend other changes to the Student Outcomes Survey to ensure the data are better used. Coincidentally, NCVER has a number of projects currently underway that align with these recommendations:

- *Publish individual provider information:* NCVER is reviewing the data protocols which currently proscribe the release of identified provider information.
- *Collect more information on students and their labour market outcomes:* NCVER reviews the survey instrument regularly and welcomes Lee and Polidano's suggestions.
- *Expand the survey to include information on private fee-for-service courses and all ACE (adult and community education) courses:* NCVER has commenced a three-year project to address this data gap.
- *Add a panel dimension to the survey:* others have also identified the need for longitudinal data that allow for the pathways of students to be tracked. The main issues with this proposal are the cost and the likely response rate in subsequent waves.

In addition to the recommendations listed above, a further challenge now in the quest for greater transparency is to design a survey framework that applies across the entire tertiary sector.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Measuring the quality of VET using the Student Outcomes Survey* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2327.html>>.



# Measuring the socioeconomic status of Australian youth

Patrick Lim and Sinan Gemici

Developing an accurate measurement of individual socioeconomic status (SES) is important, particularly because of current policy interest in increasing educational participation among those from a low SES background. Typically, we do not have data on all the underlying characteristics that make up the concept of SES. Consequently, SES is usually measured indirectly, such as through the Socio-Economic Indexes for Areas (SEIFA) or through parental occupation or education. The issue is how satisfactory these proxies are in measuring 'true' SES.

Using the 2003 cohort of the Longitudinal Surveys of Australian Youth, Lim and Gemici focus on measuring the SES of young people aged 15 to 25 years. The authors create a measure of individual SES that captures the impact of cultural and educational resources, as well as parental education and occupation.

The authors find:

- SEIFA greatly misclassifies SES at the individual level (almost 40% of individuals are wrongly classified as high or low SES).
- SEIFA composites result in only a marginal improvement in classification accuracy.
- SEIFA and SEIFA composites perform reasonably well when reporting participation in higher education at aggregate levels.
- SEIFA and SEIFA composites perform reasonably well in multivariate modelling, although the relationship between participation and socioeconomic disadvantage is underestimated using SEIFA measures.

The implications are that SEIFA is satisfactory when determining aggregate relationships, but performs very poorly when classifying individuals. This is problematic for programs which direct resources to individuals: use of an area-based measure of SES will result in the misallocation of resources.

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Note: This publication was produced through the NCVER Core Research Program; see page 70 for details.

*Measuring the socioeconomic status of Australian youth* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2355.html>>.

# The mobile worker: concepts, issues, implications

Richard Sweet

The dynamics of labour mobility have been a matter of long-standing interest to researchers and policy-makers. It is a tricky subject, one that is afflicted by limitations in the information available, and one which can also pose dilemmas for social policy-makers, who are concerned both to ensure a well-functioning labour market and people's welfare.

This paper is one of three commissioned by the National Centre for Vocational Education Research (NCVER) at the request of the Department of Education, Employment and Workplace Relations to tease out some of the issues connected to mobility in the Australian workforce. The related papers are:

- *Does changing your job leave you better off? A study of labour mobility in Australia, 2002 to 2008* by Ian Watson
- *Understanding and improving labour mobility* by John Buchanan, Susanna Baldwin and Sally Wright.

In this paper Richard Sweet provides an overview of the implications and causes of labour mobility and job tenure using data from major statistical sources and the research literature. He finds that Australia's labour force is more mobile than almost all other Organisation for Economic Co-operation and Development countries. Each year, around 10% change their industry, occupation, or both, and geographic labour mobility appears to be around 3% to 5% of the Australian labour force, although the data here are not good.

People with post-school qualifications are less likely to be mobile than those without. The people most likely to be mobile are young. This is neither surprising nor necessarily a problem. Young people tend to have few commitments and often desire the flexibility that will allow them to decide on their career path. People working in casual jobs or in small enterprises with limited career prospects experience greater mobility, while those with post-school qualifications are more likely to change jobs but not occupations. Most people change jobs because they dislike the one they have.

Sweet suggests that Australian public policy has mixed effects on labour mobility. Because policies designed to influence labour mobility or tenure are difficult to design and are likely to have unintended consequences, this is an area where market forces should be allowed to operate. One area where interventions can be helpful is career development for people already in the workforce. Such services are less developed in Australia than in other OECD countries.

The net effect of labour mobility on employers, including employers who invest in training, is uncertain. Some will gain, some will lose, but studies at firm level are needed to understand the impacts better. Sweet also challenges the view that 'jobs for life' are in decline. There is evidence from studies in a number of OECD countries that average tenure in jobs over the last few decades has not changed much.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*The mobile worker: concepts, issues, implications* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2343.html>>.

# Moving the fence posts: learning preferences of part-time agriculture students

Alan Woods

Building the research capacity of the vocational education and training sector is a key concern for the National Centre for Vocational Education Research. To assist with this objective, NCVER supports a community of practice scholarship program, whereby VET practitioners without research experience are given the opportunity to undertake their own research to address a workplace problem. Scholarship recipients are supported by a mentor, and NCVER publishes their research results.

Alan Woods participated in the 2009 community of practice program. Alan is a teacher in agriculture at a college in TAFE NSW – Western Sydney Institute. In recent years this college has seen a decline in the number of part-time agriculture students. To attempt to halt this decline, Alan's research seeks to understand the learning preferences of part-time agriculture students at this TAFE (technical and further education) campus, to enable course delivery to be better tailored to their needs.

The study comprised a focus group with current part-time students, which was followed by a survey of current and immediate past students to elicit their views on the teaching and delivery of the agriculture program.

## Key messages

- Hands-on practical training is highly valued. Students in this study emphasised a preference for this to be maintained or increased, but a lack of access to on-site livestock and regular industry-supported field days impacts on their experiences and outcomes.
- Alternative course delivery options such as online support materials and the use of videos may increase access and flexibility but should not replace practical training opportunities.
- The ability for providers and part-time students to negotiate customised attendance patterns may support increased enrolments.

The author notes that the challenge will be for the agriculture section at this college to respond to these findings and implement teaching and learning strategies which cater to the needs of the part-time student group.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Moving the fence posts: learning preferences of part-time agriculture students* can be found on NCVER's website  
<<http://www.ncver.edu.au/publications/2361.html>>.

# Musing budding musos: the role of peer mentoring in learning to be a contemporary musician

Ross Stagg

Building the research capacity of the vocational education and training sector is a key concern for the National Centre for Vocational Education Research. To assist with this objective, NCVER supports a community of practice scholarship program, whereby VET practitioners without research experience are given the opportunity to undertake their own research to address a workplace problem. Scholarship recipients are supported by a mentor, and NCVER publishes their research results.

Ross Stagg participated in the 2010 community of practice program. Ross is a music teacher at Nirimba College, which is part of TAFE NSW's Western Sydney Institute. Ross's research seeks to determine whether peer-to-peer mentoring is a popular and viable way of transferring skills and knowledge between music students at Nirimba College.

The study comprised an eight-week mentoring trial, an initial survey and final interviews with the group of current music students who participated in the mentoring program. The study aimed to elicit the students' perspectives on TAFE music teaching and learning, their attitudes towards music and their own career goals, as well as their thoughts on the mentoring trial.

Many of the students who participated in the study recognised the value of the broader and more generic music training offered by TAFE institutes and the author argues that peer-to-peer mentoring fits this context. Most students preferred peer-to-peer mentoring to teacher or staff mentoring because they felt a better understanding existed between students.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Musing budding musos: the role of peer mentoring in learning to be a contemporary musician* can be found on NCVER's website  
<<http://www.ncver.edu.au/publications/2436.html>>.

# Older workers: research readings

Editors: Tabatha Griffin and Francesca Beddie

One of the challenges facing Australia is the ageing of the population. Of major concern, especially to government, is that the dependency ratio – a measure of the burden that economically active persons carry by supporting dependent persons – will increase significantly unless older people keep working or immigration is used to change the demographic profile of the population.

In the latest intergenerational report, the Australian Government identifies a number of education, employment service, and income support initiatives designed to increase participation of older workers. The Consultative Forum on Mature Age Participation, launched as part of the Productive Ageing Package in 2010, will assist in identifying opportunities for the government to further support employment for mature-aged workers.

To help inform the consultative forum, and to generate discussion on older workers more broadly, NCVER commissioned six researchers to draft essays on various issues around keeping older Australians engaged. Topic areas the authors touched on included: international trends in ‘active ageing’; age discrimination; determinants of labour force participation; the economics of population ageing and the effects of superannuation reform; the nature of workforce participation and under-participation; and employability and training. Discussants were invited to present and respond to these essays at a policy roundtable held in May 2011. The essays and the discussants’ responses are contained in this volume, which also includes an introduction that distils the major themes.

The major themes were:

- the need to recognise the diversity of older workers
- the challenge of low literacy and numeracy skills for some groups of older workers
- issues around discrimination and stereotypes
- lifelong learning as a core concept in modern careers, aligned with the notion of active ageing
- that it should not be assumed that all older workers want to keep working.

Readers may also be interested in the reports coming out of a three-year program of research, *Securing their future: older workers and the role of VET*, funded through the National VET Research and Evaluation Program. The research, conducted by Chris Ryan and Mathias Sinning at the Australian National University, investigates issues such as the literacy and numeracy skill use of older workers in the workplace and the characteristics of people who work beyond standard retirement age. These reports are available from the NCVER website.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Older workers: research readings* can be found on NCVER’s website  
<<http://www.ncver.edu.au/publications/2422.html>>.

# Outcomes from combining work and tertiary study

Cain Polidano and Rezida Zakirova

Working in some capacity is almost considered de rigueur for tertiary students. The reasons for working and the impact this has on both an individual's ability to complete their studies and on their post-study labour market outcomes are only now receiving attention.

Using the 1995 and 1998 cohorts of the Longitudinal Surveys of Australian Youth, this study investigates the motivations for and the education and employment outcomes from working while studying, for both vocational education and training and higher education students. The authors find that income is an important motivating factor: those in receipt of income support are less likely to work while studying, although this is dependent on whether the student is still living at home.

## Key messages

- For those studying full-time, working impacts on completion – the more hours worked, the greater the effect. For example, working 16–24 hours a week reduces the completion rate by eight percentage points, while more than 24 hours reduces it by 14 percentage points.
- Finding work in a job considered a 'career' job while studying has a significant and positive impact on course completion for both VET and higher education students.
- For all tertiary students, being employed in the final year of study improves the chances of finding full-time employment, even three years after completing the course.
- Interestingly, for both full- and part-time students, the longer they have been employed in a job, the greater the likelihood of course completion, while past work experience also increases the likelihood of completion for full-time students (2.5 percentage points per year of employment). Perhaps this reflects that these students have better time management skills.

Thus it is clear that combining study and work does have significant effects on completion and future employment prospects. Too much work negatively impacts on study completion, but on the other hand work experience does benefit future job prospects. The ideal combination would be modest hours of work in a job relevant to a future career – but this will be difficult to achieve for many students.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Outcomes from combining work and tertiary study* can be found on NCVET's website <<http://www.ncver.edu.au/publications/2320.html>>.

# Outcomes of stakeholder consultations to identify the LSAY analytical program for 2011–13

## National Centre for Vocational Education Research

In November and early December 2010, the National Centre for Vocational Education Research conducted consultations to identify research topics using the Longitudinal Surveys of Australian Youth. LSAY tracks young people from the age of 15 to 25 as they move from school into further study, work and other destinations. It uses large, nationally representative samples of young people to collect information about education and training, work, and social outcomes.

From the consultations emerged a consensus that the three research priorities which have shaped the research effort in the last couple of years have retained their currency. Those with an interest in youth transitions remain primarily concerned with:

- better understanding the factors influencing education outcomes
- how to facilitate good transitions into the labour market
- how the role of wellbeing affects young people's transitions.

Those consulted also expressed a clear view on the importance of ensuring that this rich dataset is well used by researchers, policy-makers and others involved in youth transitions. They were also interested in seeing how the LSAY data can help inform broader attempts to devise measures of complex phenomena such as social capital and wellbeing.

The results of the consultations are presented in this paper and will help to determine the research topics best suited to the LSAY data. These will be used to shape the 2011–13 LSAY analytical program of research that NCVER conducts on behalf of the Department of Education, Employment and Workplace Relations.

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Note: This publication was produced through the NCVER Longitudinal Surveys of Australian Youth Program; see page 70 for details.

*Outcomes of stakeholder consultations to identify the LSAY analytical program for 2011–13* can be found on NCVER's website  
<<http://www.ncver.edu.au/publications/2351.html>>.

# Over-skilling and job satisfaction in the Australian labour force

Kostas Mavromaras, Seamus McGuinness, Sue Richardson, Peter Sloane and Zhang Wei

In a not-too-uncommon scenario individuals may find themselves in a job where they feel their qualifications (over-educated) or skills (over-skilled) or both are greater than are required to do the work. Previous research has found that people who work in jobs which do not make full use of their education and training earn lower wages than those in jobs that provide a good match to the education and training.

Using data from the Household Income and Labour Dynamics in Australia Survey, the work of Mavromaras and colleagues extends previous research on the effect of over-skilling on wages in two ways: by expanding the categories of mismatch to also include over-education; and by looking at the effect of mismatch on job satisfaction as well as wages. Further, this study distinguishes between ‘genuine’ mismatch – where wages and job satisfaction are both low – and ‘apparent’ mismatch – where a job may pay less but is accepted because it has some other redeeming attribute, such as greater flexibility in work hours.

## Key messages

- Irrespective of the type of post-school qualification, becoming mismatched in a job almost always results in lower job satisfaction, especially with the actual work that is done. This is particularly the case for those with vocational qualifications.
- Mismatch is more detrimental for those with intermediate vocational qualifications (certificate III/IV). However, over-skilling is less likely to occur amongst this group and, if it does, will not last long. The same does not hold true for university graduates.
- Being over-skilled as opposed to over-educated is the greater driver of the adverse consequences of lower wages and job satisfaction.
- Gender matters when it comes to experiencing mismatch – compared with their well-matched peers, women who are either over-skilled or over-educated suffer wage penalties and lower job satisfaction. Such differences between well-matched and mismatched males are not as apparent.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Over-skilling and job satisfaction in the Australian labour force* can be found on NCVET's website <<http://www.ncver.edu.au/publications/2365.html>>.



# Pathways: developing the skills of the Australian workforce

Hugh Guthrie, John Stanwick and Tom Karmel

This paper was originally developed in April 2010 to help the Training and Skills Commission in South Australia consider the mechanisms used to promote pathways between elements of the education and training system, how well they are working and what improvements could be made. We have since developed the paper to make it national in scope.

We found that quite substantial numbers of vocational education and training graduates go on to university-level study or further study within VET itself. Of the latter, many undertake additional VET courses at the same or a lower level. Significant numbers of university graduates also go on to study in VET, with management and commerce, and society and culture being the most popular fields. We suggest that entitlement models need to consider horizontal (skills broadening) as well as vertical (only qualifications at a higher level) progression. The caveat is that outcomes need to be worthwhile and that qualifications churning is avoided.

One of the difficulties in analysing pathways is the lack of precise data. A unique student identifier across tertiary education would directly remedy this.

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Note: This publication was produced through the NCVER Core Research Program; see page 70 for details.

*Pathways: developing the skills of the Australian workforce* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2376.html>>.

# Plumbing, sustainability and training

Sian Halliday-Wynes and John Stanwick

There is currently widespread interest in sustainable environmental solutions, including ‘greening’. In light of this, it is timely to look at how skills in occupations are evolving and responding to this trend. This paper examines the situation in one occupation – domestic plumbing. What is meant by sustainability and greening and what the appropriate response to skills development should be are the two areas of interest addressed in this paper.

## Key messages

- The concept of environmental sustainability is slippery. In the context of domestic plumbing, reference to ‘sustainability’ encompasses concerns about water usage and energy consumption.
- The major drivers to changes in plumbing are regulation and new products, mediated by consumer demand, which is primarily driven by price.
- Modern plumbing – for large companies and sole traders alike – demands that workers have both technical and soft or generic skills, such as the ability to communicate and adapt, a finding that resonates with work on so-called innovation skills (Curtin, Stanwick & Beddie [eds] 2011).
- Plumbers need to understand the relevant legislation and regulation (and government incentives) to be aware of product design, and to be able to negotiate with customers and vendors. The training needs to reflect this.
- Entry-level training undertaken in TAFE institutes needs to emphasise the basic principles of plumbing, since even with the greater focus on environmental sustainability, the fundamentals of plumbing remain the same. This training also needs to establish the foundation for continuing professional development.

That leaves the challenge of upskilling qualified plumbers, many of whom may resist further training. One option is vendor training, although the ‘selling’ aspect needs to be recognised; another might be greater regulatory requirement for continuous professional development, as exists in New Zealand.

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Note: This publication was produced through NCVER’s consultancy work; see page 70 for details.

*Plumbing, sustainability and training* can be found on NCVER’s website  
<<http://www.ncver.edu.au/publications/2451.html>>.

# Pre-apprenticeship training activity

Paul Foley and Davinia Blomberg

Pre-apprenticeships are becoming an increasingly important component of the Australian vocational education and training system. The purpose of this report is to investigate the level of pre-apprenticeship activity occurring in Australia and to examine the characteristics of pre-apprenticeship courses and the students undertaking those courses.

With the absence of a pre-apprenticeship identifier in the National VET Provider Collection, our approach was to compile a list of possible pre-apprenticeship courses and to examine the associated activity from the National VET Provider Collection. The pre-apprenticeship courses were identified through a keyword search of course names and responses to requests to state and territory contacts to provide lists of pre-apprenticeship courses. A Western Australian dataset with a pre-apprenticeship identifier was also available.

## Key findings

- Pre-apprenticeship training in Australia is an important – and growing – component of the Australian VET sector, with an estimated 64 800 course enrolments in 2009.
- Enrolments in pre-apprenticeship courses are within two main fields of education – engineering and related technologies, and architecture and building.
- Pre-apprenticeship courses are providing an important pathway for disadvantaged students, such as Indigenous students, early school leavers and those without non-school qualifications.
- Pre-apprenticeship courses are providing good further study outcomes, with 43.5% of graduates going on to further study, compared with 32.1% of all VET graduates.

The estimate of 64 800 course enrolments provided in this report should be treated with some caution. This is because we may not have identified all courses that lead to apprenticeships, and some students in an identified pre-apprenticeship course may have no interest in a subsequent apprenticeship or are undertaking an apprenticeship already.

One of the difficulties of defining pre-apprenticeship courses is that the definition is inherently problematic. It presumes a particular motivation (that is, to obtain an apprenticeship), but an individual's motivation may well change in undertaking any course.

One way around this quandary would be to consider all certificate I and II courses as potentially 'pre-apprenticeships', but this has not been done in this report.

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Note: This publication was produced through the National Vocational Education and Training Statistical Program; see page 70 for details.

*Pre-apprenticeship training activity* can be found on NCVER's website  
<<http://www.ncver.edu.au/publications/2352.html>>.

# Pre-apprenticeships and their impact on apprenticeship completion and satisfaction

Tom Karmel and Damian Oliver

Pre-apprenticeship programs have generated interest recently from government, employers and other stakeholders in the training system as one means of improving apprenticeship completion rates and thereby ameliorating skill shortages. However, there has not yet been any research which establishes that pre-apprenticeship programs actually increase apprentice satisfaction and completion rates. This report uses data from the 2010 National Centre for Vocational Education Research Apprentice and Trainee Destination Survey and finds that there is no universal benefit attached to undertaking a pre-apprenticeship. Instead, the impact of pre-apprenticeships varies with occupation and prior education level.

## Key messages

- Pre-apprenticeships lead to only a modest increase in satisfaction with job-related aspects of apprenticeships (but not off-the-job training aspects).
- Pre-apprenticeships increase the likelihood of completion for apprentices in the construction, food and electro-technology trades and those with a Year 10 or Year 12 level of education.
- Pre-apprenticeships reduce the likelihood of completing an apprenticeship for hairdressers and apprentices in the automotive and engineering trades and for those people who already have a certificate III or higher qualification. This suggests that the design of pre-apprenticeships is important.
- In general, apprentices who have undertaken a pre-apprenticeship are less likely to discontinue their training because they did not like the type of work or training, but this does not translate into a higher likelihood of completion.

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Note: This publication was produced through NCVER's consultancy work; see page 70 for details.

*Pre-apprenticeships and their impact on apprenticeship completion and satisfaction* can be found on NCVER's website  
<<http://www.ncver.edu.au/publications/2353.html>>.

# Pre-vocational programs and their impact on traineeship completion and satisfaction

Damian Oliver and Tom Karmel

Pre-vocational programs, including VET in Schools, are providing a pathway into traineeships in the same way that pre-apprenticeships are an established route into apprenticeships in the traditional trades. This report is a parallel piece to an earlier report on the effect of pre-apprenticeships on apprentice satisfaction and completion rates.

## Key messages

- Early school leavers, especially those who leave school after Year 11, are more likely to complete a traineeship if they have completed a pre-vocational course beforehand.
- Trainees in lower skilled occupational categories such as sales workers, labourers, and machinery operators and drivers are more likely to complete their training if they have completed a pre-vocational course beforehand. Pre-vocational programs also increase the likelihood of completing a clerical and administrative traineeship.
- Pre-vocational courses reduce the likelihood of trainees in higher skilled occupational categories (such as managers and professionals) completing their training. Pre-vocational programs also reduce the likelihood of completing a traineeship in community and personal services.
- The findings suggest that pre-vocational programs should focus on general employment and educational skills and give less emphasis to developing advanced occupational skills. They appear to be more relevant to the lower skilled section of the labour market, and it could be concluded that traditional Year 12 is a better preparation for trainees in the more skilled occupations.

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Note: This publication was produced through the National Vocational Education and Training Statistical Program; see page 70 for details.

*Pre-vocational programs and their impact on traineeship completion and satisfaction* can be found on NCVET's website  
<<http://www.ncver.edu.au/publications/2434.html>>.

# Review of the Survey of Employer Use and Views of the VET System: outcomes from the discussion paper

## National Centre for Vocational Education Research

Earlier this year, the National Centre for Vocational Education Research distributed a discussion paper on the Survey of Employer Use and Views of the VET System, asking users of the survey to comment on the survey's content and methodology.

The survey has been in its current form since 2005 and, with the introduction of the new National Agreement for Skills and Workforce Development, NCVER considered it timely to review the survey to ensure that it would continue to meet future user needs.

This report discusses the feedback received and our suggested approach for future iterations of the survey.

## Key messages

- Feedback from the review indicated that users can be grouped into two categories. The first comprises those who require the survey for performance reporting, where the accuracy and reliability of the survey are crucial. The second category of users is interested in not only how much training is being provided, but also why employers made the training decisions they do.
- NCVER considered a number of options to meet needs from users in both categories for the revised survey. The approach NCVER will adopt seeks to provide improved estimates on core data items, while supplementing these data with qualitative information (with current accuracy levels for these items). The aim is to maintain the current level of respondent burden.
- Users are satisfied with the current survey methodology. NCVER will explore the feasibility of introducing an online option to the survey.

NCVER will commence work on developing and testing the new questionnaire and revised methodology in late 2011. The next survey is due to be conducted in early 2013, with results available late in 2013.

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Note: This publication was produced through the National Vocational Education and Training Statistical Program; see page 70 for details.

*Review of the Survey of Employer Use and Views of the VET System: outcomes from the discussion paper* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2430.html>>.

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# The role of VET in workforce development: a story of conflicting expectations

Tanya Bretherton

This is the final report from a three-year program of research investigating the role of vocational education and training in workforce development. The research focuses on meat processing and child care, both of which are characterised by low-skill entry points to the labour market. The author pulls together the key themes emerging from the research and puts the focus firmly on the ability of VET to respond to the workforce development challenges within those industries.

The researchers have developed a four-domain model, which they use to understand the skills development of workers in each sector. The four domains are: the product or service (for example, child care or meat processing); the industrial organisation structure (for example, the role of internal labour markets); labour supply; and VET.

The VET system faces conflicting expectations and it is often criticised by industry for not being responsive to industry needs. However, rapidly changing conditions in the relevant industry and variation in the demands of individual employers make this a difficult task. Providing high-quality training is also made difficult by the high degree of casualisation in the workforce of those sectors and the lack of reward for upgrading qualifications. In the child-care sector, there is little in the form of increased pay for upgraded qualifications. In meat processing, training is typically focused on single tasks and the status of qualifications remains low – investing in high-level training is not worthwhile when labour turnover is high.

Thus, in both industries, we have an equilibrium characterised by low pay and relatively low levels of training. Bretherton argues that the way to move away from low levels of training is to improve the status of VET qualifications in these industries by creating the notion of ‘vocation’ based on the idea of groups of skills, thus playing down skill development alone as a means for upward mobility.

This is a provocative suggestion and emerges from the idea that we can compensate for low status and low wages by promoting child care and meat processing as ‘noble callings’. A more conventional economic view would be that the only way of moving away from a low-skills equilibrium would be to provide greater rewards for higher skill levels. However, this will not happen in the child-care industry unless governments or parents are prepared to pay a lot more for child care and, in the meat-processing industry, consumers a lot more for their meat. This is unlikely to occur for the simple reason that both industries, while complaining about the extent of labour turnover, have not had any real difficulty in recruiting workers prepared to work at current wage levels. Some low-skill and low-paid jobs are inevitable and individuals typically undertake education and training to move on from them.

Irrespective of whether we agree with Bretherton’s viewpoint, she and her colleagues have made us think about the complex relationships between industry structure and levels of training.

Readers are directed to the NCVET website for the previous reports from this program of research.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*The role of VET in workforce development: a story of conflicting expectations* can be found on NCVET’s website <<http://www.ncver.edu.au/publications/2406.html>>.

# The shifting demographics and lifelong learning

Tom Karmel

Demographic change in the modern world is synonymous with an ageing population. Karmel suggests that there are four implications of an ageing population for lifelong learning that are worth exploring. The first is the need to improve labour force participation and productivity, and education is a key driver of this. The second is that the ageing population will provide a 'demographic dividend' because there will be fewer young people who need to be schooled (relative to the working population). The third is that increasing life expectancy changes the arithmetic of the return to investments in human capital, and makes investment in the education and training of the middle-aged more attractive. The final implication is that the ageing of populations in developed countries provides a golden opportunity for developing countries through the export of labour services.

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Note: This publication was produced through the NCVET Core Research Program; see page 70 for details.

*The shifting demographics and lifelong learning* can be found on NCVET's website  
<<http://www.ncvet.edu.au/publications/2358.html>>.



# Skill (mis-)matches and over-education of younger workers

Chris Ryan and Mathias Sinning

Younger workers, particularly those entering the workforce at ages 25–34 years, are more educated than ever before. The potential for these workers to be over-educated in their jobs might therefore be high. But does it follow that they are mismatched to the skill requirements of their jobs?

This study examines the link between over-education and skill mismatches for Australian workers aged 25–34 and 35–44 years of age, based on an analysis of data from the 1996 Survey of Aspects of Literacy and the 2006 Adult Literacy and Life Skills Survey. In addition, the wage returns from over-education and over-skilling are investigated.

This research provides an interesting comparison with work done by Mavromaras, McGuinness and King (<<http://www.ncver.edu.au/publications/2231.html>>), which also looked at job mismatch in workers, using data from the Household Income and Labour Dynamics in Australia Survey.

## Key messages

- This research confirms that there are substantial differences between the two concepts of over-education and over-skilling. Most over-skilled workers have low levels of education and require fewer skills at work than they actually have. The majority of under-skilled workers hold a university degree, suggesting that many highly educated workers find themselves in challenging jobs.
- However, over-education is associated with skills' underutilisation.
- The effects of over-education on wages differ substantially across education levels, with the penalty from over-education less severe for highly educated workers than for workers with lower educational attainment.
- Ryan and Sinning find that it is the level of education more than the skill level of workers that determines their remuneration, with over-skilling having no additional effect on wages beyond that accounted for by over-education.

The cost of younger workers with vocational education and training (VET) qualifications being over-educated and in low-skill jobs is of concern. That this effect is also observed in slightly older workers suggests that some VET graduates find themselves entrenched in low-level jobs.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Skill (mis-)matches and over-education of younger workers* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2330.html>>.

# Skill shortages in the trades during economic downturns

Damian Oliver

During the recent economic downturn, media and industry reports of skill shortages in the trades continued to appear. The intent of this paper is to examine the evidence for skill shortages in the trades persisting during the economic downturns over the last 20 years, using various indicators. These include employment growth, vacancy rates, unemployment rates, apprentice completions and occupational mobility.

## Key messages

- There is no evidence of persistent skill shortages during downturns in the construction, automotive and engineering trades, and unconvincing evidence of persistent shortages in the electrotechnology and telecommunications trades, the food trades and hairdressing.
- Declining numbers of apprenticeship completions account for much of the persistent shortage in the electrotechnology and telecommunications trades during the 1990s and 2000s, but apprenticeship completions (expressed as a proportion of employment) for this trade have now recovered to pre-1992 levels. If recent completion numbers are maintained, it should be possible to avoid future skill shortages.
- Very high job churn creates the perception of persistent skill shortages in the food trades and in hairdressing. Many food tradespersons and hairdressers swap employers but remain in their occupation.

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Note: This publication was produced through the NCVET Core Research Program; see page 70 for details.

*Skill shortages in the trades during economic downturns* can be found on NCVET's website <<http://www.ncver.edu.au/publications/2333.html>>.

# Social capital and young people: do young people's networks improve their participation in education and training?

Ronnie Semo and Tom Karmel

In recent times social capital has received considerable attention because it is seen as having the potential to address many of the problems facing modern society, including the poor educational outcomes of considerable numbers of young people.

This paper uses data from the Longitudinal Surveys of Australian Youth to explore the relationship between social capital at age 15 and participation in education and training at age 17. The issue is whether social capital is yet another factor which advantages the already advantaged, or whether social capital operates separately from family background.

## Key messages

- Social capital influences educational participation *over and above* the effects of background characteristics such as parents' education levels, parental occupation, geographic location, cultural background, school sector and academic achievement.
- For both males and females, participation in a diverse range of activities has the greatest influence on participation in education and training, followed by the strength of the relationship students have with their teachers. Increasing rates of participation in sport also increase educational participation for females.
- The authors note that, if anything, the findings underestimate the net effects of social capital because the results cannot fully account for the accumulation of social capital prior to the age of 15.

The finding that social capital matters for school education is a very positive one. It implies that activities that promote and encourage engagement at school can go some way to redressing economic and social disadvantage.

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Note: This publication was produced through the NCVET Core Research Program; see page 70 for details.

*Social capital and young people: do young people's networks improve their participation in education and training?* can be found on NCVET's website <<http://www.ncver.edu.au/publications/2408.html>>.

# To gain, retain and retrain: the role of post-school education for people with a disability

Cain Polidano and Ha Vu

This study extends previous work of Cain Polidano and Kostas Mavromaras (2010) which showed that VET qualifications had a positive effect on the chances of finding work for people with a disability. It teases out this earlier result by looking at whether, for those who already have a disability, completing a VET qualification improves conditions of employment – wage rates, the probability of being in full-time employment, job satisfaction – and benefits of employment, including household income and welfare dependence in comparison to those with no post-school qualification. Higher education qualifications are not considered because they are rarer for people with a disability to attain.

Polidano and Vu extend their thinking about the relationship between education, disability and labour market outcomes by also considering what happens in situations in which the disability occurs after an individual is in the labour market. Their focus is the extent to which VET and higher education qualifications may reduce the disruptive effects of disability onset.

One of the difficulties in undertaking this analysis is that an individual's qualifications impact on choice of occupation and people in some occupations are more likely to be affected by a disability than in others – perhaps because of the level of physical requirements inherent in different jobs. (This study reports that physical disabilities are the most common type of disability, irrespective of qualification level). In this respect, Polidano and Vu find that rates of employment in the first year of disability onset decline by nine percentage points for those with no post-school qualification and by 11 percentage points for those with a VET qualification compared with only five percentage points for those with a higher education qualification. One would suggest this says more about the occupation than the possession of a qualification as such.

## Key messages

A new finding is that, for people with disability who are out of work or in a part-time job, completing a VET qualification significantly improves the chances of getting a *full-time* job, compared with those with no post-school qualifications. With this comes greater financial independence.

- Completion of a VET qualification however does not necessarily lead to greater job satisfaction, job security or hourly wage rates.
- The impact of the onset of a disability changes little between one and three years after onset, irrespective of the level of qualification.
- Education begets education. People with a long-term disability (onset of a three-year disability spell) who have higher education qualifications are more likely to retrain relative to those with a VET qualification, who in turn are more likely to retrain than those with no post-school qualification.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*To gain, retain and retrain: the role of post-school education for people with a disability* can be found on NCVER's website  
<<http://www.ncver.edu.au/publications/2407.html>>.

# Understanding and improving labour mobility: a scoping paper

John Buchanan, Susanna Baldwin and Sally Wright

The dynamics of labour mobility is a tricky subject, one that is afflicted by limitations in the information available and one which can also pose dilemmas for social policy-makers, who are concerned to ensure both a well-functioning labour market and people's welfare.

This paper is one of three commissioned by the National Centre for Vocational Education Research, at the request of the Department of Education, Employment and Workplace Relations, to tease out some of the issues connected to mobility in the Australian workforce. The related papers are:

- *The mobile worker: concepts, issues, implications* by Richard Sweet
- *Does changing your job leave you better off? A study of labour mobility in Australia, 2002 to 2008* by Ian Watson.

Amongst some employers, especially those in the Australian mining industry, there is concern that mobility in the labour market is a problem. It is commonly asserted by leaders in this sector that their demand for labour is often unmatched by a suitable number of applicants. They argue that this is a market failure that requires government intervention. The unstated assumption is: improve the flow of labour, and orderly, sustainable growth will follow.

In this paper, researchers from the Workplace Research Centre, University of Sydney Business School, paint a more complex picture. They argue that the structure of industries, their occupational profiles, wages and other conditions contribute to greater or lesser mobility. This paper provides a preliminary assessment of the key issues relating to labour mobility and identifies ways to best generate new knowledge to inform the development of more effective public policy in this area.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Understanding and improving labour mobility: a scoping paper* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2399.html>>.

# Understanding the psychological contract in apprenticeships and traineeships to improve retention

Erica Smith, Arlene Walker and Ros Brennan Kemmis

Attrition in apprenticeships and traineeships is an ongoing concern for employers and government alike, with completion standing at around 50%, on average. One possible explanation for this high attrition rate is that there is a mismatch between the respective expectations of apprentices/trainees and employers. This research uses the concept of the psychological contract, that is, the perceived mutual obligations between employers and employees of themselves and each other, to test this explanation.

## Key messages

- Expectations in apprentice and trainee employment arrangements are similar in most respects to that of other employment relationships.
- Mismatched perceptions of the other parties' obligations are not a major issue, but there are differences in the perceptions of the extent to which obligations are being met.
- Both parties consider the provision of training as the employers' most important obligation, but apprentices and trainees perceive that employers do not always deliver on their training obligations. Specific discrepancies were noted in relation to apprentices and trainees wanting a specific time for training and a wider range of training methods.
- Apprentices who have completed pre-apprenticeships and apprentices and trainees employed by group training organisations have lower expectations and are relatively more satisfied.
- While a mismatch of expectations is not a key factor behind high attrition, the study suggests employers should ensure they have appropriate systems for managing apprentices and trainees across all age ranges and for communicating mutual expectations to all parties.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Understanding the psychological contract in apprenticeships and traineeships to improve retention* can be found on NCVET's website <<http://www.ncver.edu.au/publications/2432.html>>.

# Understanding the undertow: innovative responses to labour market disadvantage and VET

Tanya Bretherton

An Australian Government priority is to increase productivity by moving people from welfare into employment. Policy on this issue is difficult to develop because of the complexities surrounding both under- and unemployment.

This report considers underutilisation from two different perspectives. Not only does it contemplate the issue from the supply side – getting individuals ready to enter the labour market – it considers the readiness of the labour market itself to absorb labour.

## Key messages

In the author's consideration of the role of intermediaries and vocational education and training in supporting workforce participation for underutilised groups, the following key findings emerge:

- Barriers to labour market participation can be categorised in two ways:
  - a state of information asymmetry, whereby those not in the labour force lack information about employment and options for accessing employment
  - a compromised state of labour market readiness, whereby those job seekers who are marginalised by the labour market are less ready to undertake employment. This paper argues that labour market readiness also incorporates the labour market itself, which may not be ready to absorb labour from these marginalised groups.
- Successful intermediaries illustrate that both demand and supply factors must feature in order to provide successful assistance to disadvantaged job seekers. They network, they adapt, and they even reinvent themselves to fill gaps in the support networks for their clients.
- Intermediaries suggest that VET by itself is not necessarily enough to enable transitions to employment for marginalised groups. For disadvantaged groups, social and economic supports are needed for them to be able to make the most of VET.

This report is the fourth from a three-year program of research investigating the relationship between VET, productivity and workforce participation. Readers are directed to the NCVET website for the earlier reports.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Understanding the undertow: innovative responses to labour market disadvantage and VET* can be found on NCVET's website  
<<http://www.ncver.edu.au/publications/2377.html>>.

# VET and the diffusion and implementation of innovation in the mining, solar energy and computer games sectors

Robert Dalitz, Phillip Toner and Tim Turpin

Innovation is thought to improve productivity at the firm level and economic prosperity at the national level. This would seem to have implications for the skills and skills development of employees. However, little is known about the relationship between skills development and innovation.

This report is the culmination of case studies exploring the interrelationship between innovation and education and training in three industry sectors – mining, solar energy, and computer gaming.

## Key messages

- Each sector experiences differing drivers of innovation and different processes of diffusion, with consequential differences in how the sector relates to the vocational education and training sector.
- Creative and skilled people are at the heart of the innovation process, so the greatest contribution that formal VET can make is in establishing foundational knowledge and understanding, which build the capacity to learn.
- Informal skills development plays a crucial role in providing the actual skills for innovation (such as using new equipment or processes), although theory learnt in formal education is also important.
- The present model of training packages and the model of competency-based training which underpins it, have advantages in providing a common skills language but may hinder effective innovation because of the focus on current competencies rather than future innovation.
- VET providers are seen as slow to pick up on innovation.

The messages are a fundamental challenge to the VET sector. They suggest that the focus on the competencies currently required by industry is misplaced – if we think innovation is critical. Rather, more emphasis should be placed on foundational knowledge, theory and building the capacity to learn.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*VET and the diffusion and implementation of innovation in the mining, solar energy and computer games sectors* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2392.html>>.

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# The vocational equivalent to Year 12

Patrick Lim and Tom Karmel

Government policies that promote Year 12 completion are based on a recognition that, on average, the completion of senior secondary schooling leads to better labour market outcomes. Completing senior secondary schooling is not, however, for everyone, particularly not for those who are less academically inclined or who are unsuited to the institutionalised nature of schools. Given this, it makes sense to talk about a vocational equivalent to senior secondary schooling.

In this paper, Lim and Karmel investigate the notion of a vocational equivalent to Year 12 completion in terms of the volume of learning, the educational complexity of courses, and ultimately labour market and other outcomes (various aspects of employment, satisfaction with aspects of life and further study). In relation to the last of these, their idea is that qualifications are equivalent if they have similar outcomes.

In determining the equivalence of outcomes, Lim and Karmel use the Longitudinal Surveys of Australian Youth to compare the outcomes, by age 25, of alternative educational pathways with those of completion of senior secondary schooling. Rather than compare the outcomes of vocational alternatives with all those completing Year 12, they restrict their comparison to those completing Year 12 with either no tertiary education rank (TER) or in the lower half of the TER distribution. This acknowledges that alternative pathways are typically suggested for the less academically inclined.

## Key messages

- In terms of volume of learning, certificate IIs are not equivalent to Year 12; certificate IIIs remain in contention.
- In relation to educational outcomes, the language of the qualifications frameworks points to vocational qualifications being different from the senior secondary certificate. This difference is also highlighted by the competency-based assessment used in the vocational sector.
- For males, all pathways (including early school leaving with no further VET study) are equivalent to Year 12 completion vis-a-vis labour market outcomes. Thus in this context the notion of equivalence has no meaning.
- For females, certificate IIIs – but not certificate IIs – are equivalent to Year 12 completion in terms of full-time employment or being in full-time employment or study.
- In terms of further study outcomes, it is clear that there is no vocational equivalent to completing senior secondary schooling.

These findings challenge the notion of a vocational equivalent for Year 12 completion. Vocational pathways must be considered an alternative rather than a literal equivalent. If a ‘vocational equivalent’ is required for rhetorical purposes, it should be at least at certificate III level.

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Note: This publication was produced through NCVET's Longitudinal Surveys of Australian Youth Program; see page 70 for details.

*The vocational equivalent to Year 12* can be found on NCVET's website <<http://www.ncver.edu.au/publications/2416.html>>.

# Vocational qualifications, employment status and income: 2006 census analysis

Anne Daly

Using a 5% sample taken from the 2006 Census of Population and Housing and released by the Australian Bureau of Statistics, this paper explores two aspects of people's employment relating to vocational qualifications: the choice of self-employment compared with waged employment, and the income of the self-employed relative to employees.

## Key messages

- Over a quarter of males with vocational qualifications were self-employed. By contrast, the rate for females was around 14%.
- The likelihood of self-employment varies according to demographic characteristics and occupation. Self-employed people with vocational qualifications are more likely to be older, married and to have been born in a non-English speaking country.
- The characteristics of the local labour market also influence the likelihood of self-employment. Higher unemployment rates in an area discourage vocationally qualified people from becoming self-employed. The local industry mix also influences the probability of self-employment.
- Many of the factors that influence the decision on self-employment are also relevant to the incomes of full-time workers, such as being born in a non-English speaking country, occupation and local unemployment rates.
- Employees generally earn more than self-employed workers. This, together with the finding that self-employment is more likely in a buoyant labour market, suggests that the self-employed are willing to sacrifice monetary income for other perceived benefits of self-employment.

This paper is the second publication to come out of a research project investigating the labour market dynamics of workers with vocational qualifications. The first report, *Where tradies work: a regional analysis of the labour market for tradespeople* by Phil Lewis and Michael Corliss, is available from <http://www.ncver.edu.au/publications/2273.html>.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Vocational qualifications, employment status and income: 2006 census analysis* can be found on NCVET's website <http://www.ncver.edu.au/publications/2459.html>.

# Weighting the LSAY Programme of International Student Assessment cohorts

Patrick Lim

The 2003 and 2006 cohorts of the Longitudinal Surveys of Australian Youth are derived from the 2003 and 2006 Programme of International Student Assessment (PISA). LSAY continues to survey these individuals for approximately ten years after their participation in PISA.

The Programme of International Student Assessment uses a stratified sample scheme to sample individuals, with sample weights created in PISA to ensure that the resultant sample represents the underlying population of interest. The longitudinal nature of LSAY means that over time individuals drop out of the sample. The original sample weights must therefore be adjusted to account for differential attrition to ensure that the LSAY sample in each wave continues to represent the underlying population.

This technical note outlines the methodology used to adjust the original weights to ensure that this occurs. It also provides guidance to researchers for applying the weights to their analysis of LSAY data.

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Note: This publication was produced through NCVER's Longitudinal Surveys of Australian Youth Program; see page 70 for details.

*Weighting the LSAY Programme of International Student Assessment cohorts* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2429.html>>.

# What is a practical, effective and sustainable approach to leadership development at the Canberra Institute of Technology?

Coralie Daniels

Building the research capacity of the vocational education and training sector is a key concern for the National Centre for Vocational Education Research. To assist with this objective, NCVER supports a community of practice scholarship program, whereby VET practitioners without research experience are given the opportunity to undertake their own research to address a workplace problem. Scholarship recipients are supported by a mentor, and NCVER publishes their research results.

Coralie Daniels participated in the 2009 community of practice. She is a leadership and organisational development manager at the Canberra Institute of Technology. Using the institute as a case study, her research explores leadership development in a vocational education and training setting.

The study comprised three surveys: past participants in the institute's existing leadership development program were asked to comment on their experience of the program; current education managers were surveyed on their leadership development needs; and emerging leaders gave their views on what they felt the organisation wanted their leaders to do and what approach to leadership development they felt the organisation should take in the future.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*What is a practical, effective and sustainable approach to leadership development at the Canberra Institute of Technology?* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2417.html>>.

# Which paths work for which young people?

Tom Karmel and Shu-Hui Liu

In this paper the researchers ask how completing Year 12 and undertaking vocational education and training (VET) and university studies assist young people to make a successful transition from school. As part of their research they analyse whether those who are less academically inclined benefit from completing Year 12 and post-school education and training options to the same extent as the more academically inclined. Unlike other studies addressing the issue of successful youth transition, this research looks at the education path chosen (or not), rather than an individual's return from the completion of a particular path (qualification); not all those who embark on a path complete it. The researchers are interested in finding out how the route an individual chooses affects the later employment, wages, job status, financial wellbeing and happiness of young people. They do this by analysing data from the 1995 cohort of the Longitudinal Surveys of Australian Youth.

The analysis suggests that, on average, completing Year 12 is no longer sufficient; rather, young people today need to have Year 12 plus further study to get them on a path to success. For males an apprenticeship after Year 12 is an attractive route, as is university study; for females the best choice is university, even for those with lower levels of academic orientation.

The researchers are not suggesting that everyone should be forced to complete Year 12 and to go on to further study. While the best paths involve Year 12 and certain types of post-school study, it is also the case that paths that include Year 12 do not necessarily lead to superior outcomes, relative to those involving leaving school before Year 12. In addition, Karmel and Liu find that the choice of path is not always of consequence. For males, paths only have salience for satisfaction with life, the occupational status of full-time workers and the pay of full-time workers. For the other variables they investigate – engagement with full-time work or study, full-time employment, financial wellbeing, satisfaction with work – the paths do not really matter. That is, the transition from school to adulthood can work well – in relation to these outcome measures – for young men following any of the paths. For females, educational paths matter for attaining full-time engagement and pay for full-time workers and occupational status for full-time workers, but do not matter for financial wellbeing, satisfaction with life and job status for part-time workers.

Finally, Karmel and Liu note that the analysis relates to people who did Year 12 in 1998, during a buoyant economic period, which, they point out, is also an important factor in contributing to good transitions for young people.

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Note: This publication was produced through NCVER's Longitudinal Surveys of Australian Youth Program; see page 70 for details.

*Which paths work for which young people?* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2397.html>>.

# Work, life and VET participation amongst lower-paid workers

Barbara Pocock, Natalie Skinner, Catherine McMahon and Suzanne Pritchard

The factors that influence the participation in vocational education and training of low-skilled and low-paid workers were the focus of substantial research undertaken by the Centre for Work + Life at the University of South Australia from 2008 to 2010. This report is the culmination of that program.

While education and training are viewed positively by many low-paid workers, their aspirations are diverse and vary by gender, life stage and educational and work histories. They often face constrained opportunities for improving their circumstances, and VET is not a panacea for the many issues they face.

## Key messages

- Training for low-paid workers needs to be of high quality, genuinely relevant and essential to the job, and deliver real and up-to-date outcomes. Insufficient time can compromise the quality of training.
- Setting targets for qualification levels across the population will add to the pressures facing low-paid workers without necessarily improving their circumstances or productivity.
- Lower-paid workers are more likely to be in small firms with flat employment structures. They have fewer resources to cushion work–life pressures. Positive rates of return on qualifications are often small or non-existent. Low-paid workers are often undertaking training to retain their job, not for career progression or higher pay.
- Institutional settings matter a great deal to the realisation of aspirations and the opportunity for second, third and even fourth chances at education. These institutions include labour market structures, workplaces, VET organisations, unions, the family and the welfare system.
- The issues of enough time, enough money and appropriate teaching and learning emerge as vital to successful VET engagement and outcomes for those in low-paid occupations. Problems with literacy are widespread. Good pastoral support is of crucial importance.
- The overall message is that training can lead to the acquisition of new skills that are rewarded in the labour market, but not necessarily so. When training increases the time and money demands on workers but without generating genuine new skills or better prospects for them, then it can make things worse for low-paid workers by falsely raising expectations.

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Note: This publication was produced through the National Vocational Education and Training Research and Evaluation Program; see page 70 for details.

*Work, life and VET participation amongst lower-paid workers* can be found on NCVER's website <<http://www.ncver.edu.au/publications/2378.html>>.

# Year 12 completion and youth transitions

Chris Ryan

On average, young people who complete Year 12 tend to have more successful transitions from education to work than those who do not. Hence we have seen numerous governments introduce policies that promote Year 12 completion. However, in recent years there has been a realisation that it does not make much sense to promote Year 12 retention for its own sake. No longer are targets expressed in terms of the numbers completing Year 12; now the targets are in terms of Year 12 or its equivalent.

While this policy trend makes good sense, is it going to have the desired outcomes? The aim of Ryan's study is to answer this question by looking at data from the Longitudinal Surveys of Australian Youth. This is not a straightforward task. The fact that some students benefit from doing Year 12 does not prove that all students would benefit from undertaking Year 12. In addition there is the problem of sample attrition, with the less successful individuals more inclined to drop out of the survey.

Ryan employs a range of econometric techniques to account for these difficulties, focusing on those who do not complete Year 12 and continue on to further full-time tertiary education study. He defines a set of education pathways according to whether the individual is an early school leaver or not and whether the individual undertakes further education and training (including apprenticeships and traineeships). He also rates success through a number of outcomes; these include a number of labour market and study variables over the transition years.

## Key messages

- For males, Year 12 completion provides a better transition relative to other pathways, the exception being an apprenticeship. However, the superiority of an apprenticeship is conditional on obtaining one. Obtaining the type of certificate II or III available to young people in these data was not as effective on average as completing Year 12.
- For females, completing Year 12 clearly provides the best outcomes, followed by the completion of a traineeship and the completion of an apprenticeship (female apprentices tend to be either hairdressers or cooks). Of the other pathways, completing a certificate III is the best and completing a certificate II the worst.
- Sample attrition does not materially affect the analysis.

On the whole Ryan's study supports the push toward Year 12 completion, even for those not following a path into full-time tertiary study. This suggests that we need to devote further effort to devising and building on new models of schooling that engage young people, especially those more attuned to applied than to academic learning.

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Note: This publication was produced through NCVER's Longitudinal Surveys of Australian Youth Program; see page 70 for details.

*Year 12 completion and youth transitions* can be found on NCVER's website  
<<http://www.ncver.edu.au/publications/2370.html>>.

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NCVER acknowledges the programs for the various reports as listed below.

- **Longitudinal Surveys of Australian Youth Program**

The Longitudinal Surveys of Australian Youth is a research program that tracks young people as they move from school to post-school destinations. This work has been produced by NCVER on behalf of the Australian Government and state and territory governments, with funding provided through the Australian Department of Education, Employment and Workplace Relations.

- **LSAY Research Innovation and Expansion Fund Program**

The Longitudinal Surveys of Australian Youth Research Innovation and Expansion Fund (RIEF) has been established by the Department of Education, Employment and Workplace Relations to provide researchers with the opportunity to undertake projects using LSAY data and also serves to widen the community of LSAY data users. The work undertaken through RIEF complements the broader LSAY analytical program.

- **National Vocational Education and Training Research and Evaluation Program**

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- **NCVER Core Research Program**

NCVER's in-house research and evaluation program undertakes projects which are strategic to the vocational education and training sector. These projects are developed and conducted by NCVER's research staff and are funded by NCVER.

- **NCVER consultancy work**

Through its commercial arm, NCVER provides professional research, development and implementation services to Australian and international clients. These projects are funded by the client and some of these are made publicly available with client approval.



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