



SKILLING AUSTRALIA'S CURRENT AND FUTURE WORKFORCE

DISCUSSION PAPER

Daniella Trimboli

National Centre for Vocational Education Research

INTRODUCTION

Meeting current skill needs and preparing the workforce for ongoing change and frequent disruption is an ever-present tension in the Australian vocational education and training (VET) sector. This tension, and the persistent calls for VET to grapple with it, is not surprising given these are turbulent times, framed by rapidly shifting socioeconomic, demographic and technological contexts. This contemporary scenario requires individuals, communities and governments to operate in new ways to deal with day-to-day conditions while keeping a keen eye on the future to prepare for unanticipated change. There is, in other words, an ongoing requirement to become more adaptable and resilient.

This year's conference, *Skilling Australia's current and future workforce*, provides an opportunity to reflect more deeply on the resilience of the Australian VET sector in light of one of the most significant disruptions of the twenty-first century: COVID-19. Despite the arrival of the pandemic being unexpected, the VET sector responded quickly and adapted to student and employer needs, although this response was stronger in some areas than others. What does this response tell us about the resilience of VET, and how might the sector continue to foster an environment of adaptability in the face of ongoing change?

Resilience is generally defined as 'the capacity of a system to absorb disturbance and reorganise while undergoing change to still retain essentially the same function, structure, identity and feedbacks' (Forbes et al. 2009, cited in Wilson 2015).

In 2016, Melbourne was one of 100 world cities selected to participate in the 100 Resilient Cities program, a project notable for its extension of the concept of resilience beyond merely adaptation and survival to include the goals of 'thrive' and 'embed'. Resilience is thereby framed as being able to build greater, more equitable social and economic prosperity than previously existed. This approach positions resilience as the capacity to 'adapt, survive and thrive no matter what kind of chronic stresses and acute shocks they [systems] experience' (Resilient Melbourne 2016, p.11).



Figure 1 Resilience model (Resilient Melbourne 2016).

Using this extended model of resilience to underpin the discussion, this paper considers some of the key adaptations to VET since the onset of the pandemic. Where have VET's earlier adaptations paid off, and where might more work be needed to ensure we can skill a resilient workforce into the future? As a starting point, this paper focuses on digital transformation, agile skill development, and efforts to draw upon diverse workers and equity groups with renewed determination. These discussion topics serve as prompts for us to consider the conference themes in more depth during proceedings.

ADAPT AND SURVIVE

**How has VET demonstrated resilience and where will it need to become more resilient?
What does this mean for the skilling of the workforce?**

Jobs and skills shortages and reorganisation of labour

In the short term, the Australian VET sector demonstrated a robust resilience in the face of the pandemic. This resilience is now being tested in new ways as Australia grapples with longer-term economic recovery and problematic gaps in the jobs and skills market. There is an increasing demand for skilled workers in many occupations, for example, among health and education professionals, including medical practitioners, nurses and teachers, where the tightening in the labour market has been dramatic (National Skills Commission 2022, p.8). Additionally, the altered economic circumstances for individual workers caused by the pandemic, along with the burnout experienced by workers in some industries (most notably, healthcare and community services), have led people to select new jobs or employment pathways (National Skills Commission 2022, p.35).

An important backdrop to these changes is the socio-cultural shift in the way people think about work. Add to this the demographic shift created by the progressive retirement of baby boomers and a generation of youth with different attitudes and expectations about work. People are reconsidering their working lives, driven not only by economic needs and their perceptions of secure future work, but also by an existential examination of the meaning of work.

Australia did not experience 'the great resignation' to the same extent as the United States of America, but Australian workers have undertaken a 'great contemplation'. Employment relations expert Rae Cooper explained: 'people are having a really good think about the place of work in their lives. The 'great contemplation' is about people saying: what is my work, do I enjoy it, what can I do to make it better?' (Cooper, cited in Gill 2023).

Job mobility was low in 2021, but it reached 9.5% in 2022, the highest since 2012 (Sutton 2022; ABS 2022a). The high rate of job mobility in 2012 is linked to the economic upturn that followed the sharp declines caused by the Global Financial Crisis (GFC; 2007–09), suggesting that future shocks might provoke similar changes in job mobility (Black & Chow 2022). The labour market rebound following COVID-19 has, however, been more rapid and stronger than the GFC recovery, due in part to lockdown measures and their



subsequent easing, beginning in late 2021 (Black & Chow 2022). Data released by the Australian Bureau of Statistics (ABS) indicated a notable increase in the number of people who left their jobs for ‘a better job’ or because they ‘wanted a change’ in the Nov. 2022 – Feb. 2023 period (by about 14 200 to a total of 343 200 people; ABS 2023). This trend is reinforced in the *State of the future of work* report (Ruppanner et al. 2023), which found that one in three prime-aged workers was considering quitting their current job. Furthermore, the pandemic, and the lockdown conditions in particular, contributed to workers moving to regional areas, such that regional populations grew more than capital cities for the first time since 1981 (ABS 2022b).¹ The closure of state and international borders in 2020–21 also meant that jobs usually reliant on international and interstate workers were difficult to fill (National Skills Commission 2022, pp.8, 35).

In total, these circumstances led to a reorganisation of labour and difficulties recruiting people to fulfil job roles.² Demand for new workers remains high, but employers are also attempting to upskill or reskill their existing workforces. The report from the former National Skills Commission (NSC), *Australia's current, emerging and future workforce skills needs*, noted that occupations in shortage rose from 19% in 2021 to 31% in 2022 (2022, p.34). Although the shortages existed in various occupations and industries, two clear patterns in which VET has an important role to play in addressing were apparent:

- Shortages remained ‘acute’ for Technicians and trades workers, ‘with nearly half of these occupations assessed as in shortage in 2022’ (National Skills Commission 2022, p.34).
- The shortages in key human services jobs experienced significant increases.

1 In 2020–21, regional Australia’s population grew by 70 900, whereas capital cities declined by 26 000 (ABS 2022b).

2 Recent data from Jobs and Skills Australia (JSA) highlight a four-percentage point increase in the percentage of advertised job vacancies filled (referred to as the ‘fill rate’) between the December 2022 quarter and the March 2023 quarter, from 59% to 63%. While this could suggest positive signs for the labour market, the JSA notes that the total number of qualified and suitable candidates per vacancy remained relatively the same between these quarters, suggesting instead that perhaps employers were lowering their requirements to get positions filled (2023, p.3).

Skilling the workforce for rapid digitalisation and the need for agile, multi-layered skills

Both UNESCO (2023) and the Organisation for Co-operation and Development (OECD; 2020) commended the work of the various international TVET³ sectors for their responses to the pandemic, outlining the range and variety of global responses; for example, with the provision of online delivery; the development of new training programs; the management of training extensions or breaks; wage-support programs for apprenticeship retention; and flexible, virtual skills assessment (OECD 2020, pp.2–6). These adaptive responses were all seen in Australia. Training providers effectively developed and/or reorganised delivery and adjusted their broader operational practices in order to continue training students and remain financially viable (Trimboli, Lees & Zhang 2023). Quick, strategic policy interventions by the Commonwealth and state and territory governments undoubtedly supported these adaptations.

The immediate and most remarkable response by VET to COVID-19 was the rapid workforce upskilling in digital and remote working modalities. This response encompassed workplaces, as well as training providers and VET trainers, who introduced new delivery methods (Hume & Griffin 2021, 2022). While student enrolments initially declined, they bounced back significantly, and remained relatively strong in the first years of the pandemic (Trimboli, Lees & Zhang 2023). This was no small feat, given that workplace-based training is integral to VET. UNESCO applauded TVET institutions for swiftly developing digital capacity and innovative approaches to collaboration, arguing that these new features will ‘help them to become more resilient institutions – ones which are better prepared to deal with future shocks and crises’ (2023, p.3).

This demonstrated capacity-building is crucial given the shift to blended delivery is only one aspect of a much larger digital transition. The NSC (2022, p.47) predicted that an additional 2.4 million hours per week will be spent on ‘digital technology and electronics skills’ between November 2022 and 2026, forming one of the highest growing skills clusters. Digitalisation is set to impact on all occupations in the future labour market, ‘through task change or the addition of new tasks in the daily routine of workers’ (NSC 2022, p.80). A key dimension of this digitalisation is that it is occurring in combination with other skill developments; that is, digital skills are being integrated with other (previously discrete) skills. For example, health skills and digital skills are increasingly crossing over, as are clean energy and digital skills (NSC 2022; AiGroup 2022). The rapid uptake of generative AI applications⁴ (for example, ChatGPT) in a range of white collar occupations in the first months of 2023 illustrates how rapidly digital technology can transform business and work, changing the skill sets needed to carry out certain jobs (Field 2023a; Matchett 2023).

Indeed, the arrival of ChatGPT in particular reignited debates about the training package model and how best to deliver what the AiGroup (2022) recently termed ‘multi-layered skills’. Gone are the days where workers could comfortably stick to a lane: practical skills or theoretical skills; hard skills or soft skills. As AI develops, workers will need to have the ability to direct and organise the data generated by AI, which means possessing a combination of technical skills and the ‘creative, future-looking’ skills ‘that only humans can do’ (Cahill, cited in Matchett 2023) – although many would argue this is already required of workers, even without the layer of AI. Workers who can combine technical skills with more person-oriented or ‘soft’ skills, such as communication, customer service, collaboration – and even empathy – are highly sought after (European Commission 2020; World Economic Forum 2023). The importance of these combinations

3 TVET is used by UNESCO to describe technical and vocational education and training.

4 Generative AI and Natural Language Processing tools are used to create data and content that resemble human-generated content. These tools are trained on large datasets.



of skills was reaffirmed by the pandemic. UNESCO-ICTVET (2021) found that TVET sector resilience was not just about skills adaptability but about psycho-social adaptability and the capacity for a *mindset of transformation*.

Debates on how to develop, deliver and assess this necessary combination of technical and non-technical, person-oriented skills are ongoing (Misko & Circelli 2022; NCVER 2023a). There does, however, appear to be a consensus that delivering them is important (NCVER 2023a; NSC 2022). Given that ‘disruption’ is an overarching theme identified in the latest World Economic Forum’s *Future of jobs* (2023), perhaps it is timely to change the approach to updating training packages. The one-size-fits-all CBT model may be constraining in a world where jobs are being rapidly transformed. Writing in the *Australian Financial Review*, Claire Field (2023a) urged the VET sector to have ‘an honest debate about whether the mechanisms designed 30 years ago are still fit for purpose in some industries and occupations’.

Such a debate and its outcomes have implications for registered training organisations (RTOs) and trainers, not only in terms of their role in delivery, but also in recruiting – and training – trainers. One aspect of the current jobs and skills reform that is frequently overlooked is the question of *who* will teach the skills identified as being in demand and/or of importance for the future? The World Economic Forum (2023, pp.6, 31) has emphasised the ‘large-scale job growth’ that will occur in education over the next five years, projecting that VET teachers will have the third highest job growth. Where will these teachers come from? Who makes up the VET workforce? How might they be best trained and continually updated to keep pace with rapidly changing workforce skills?

Short courses and microcredentials are often highlighted as useful for upskilling the Australian workforce and for developing workers with well-rounded, comprehensive skill sets. The use of such approaches might also play a role in addressing the growing need for a larger, more agile VET workforce, providing pathways for people to build their skills while they are working – but requiring less long-term commitment and upfront financial outlay (AiGroup 2022; European Commission 2020; Palmer 2021). Such considerations are important for Australian workers experiencing tenuous market conditions and the high cost of living exacerbated by the pandemic. The use of short courses and microcredentials might also allow trainers to upskill more readily.

Microcredentials have additional appeal, given recurring discussions about the inflexibility of VET training packages and lags in developing and updating them in accordance with industry needs. UNESCO described how the pandemic enabled TVET institutions to become better equipped to assess their community’s skill

needs and address them with 'short, targeted training programmes' (2023, p.4). This was certainly the case in Australia, where VET was able to roll out pandemic-related courses and microcredentials efficiently.⁵ But microcredentials are not only useful for quick response needs; they also help to develop the kinds of multi-layered skills needed for a resilient workforce, providing 'adaptability and flexibility', and allowing individuals to 'accumulate learning outcomes over time and across institutions, sectors and borders' (European Commission 2020, p.16).

An example of this approach to microcredentials as a more comprehensive learning qualification is the new dual-training model in NSW, in the form of the two Institutes of Applied Technology – Digital and Construction, respectively. The institutes are partnerships between Australian universities, TAFE (technical and further education) institutes, and industry, and they offer a range of microskills and microcredentials. Their aim is to enable a rapid response to industry needs. At the same time, the ability to 'stack' microcredentials allows learners to upskill and build transferable skills over an extended period. Importantly, the university–VET combination means graduates possess both technical and theoretical outcomes, a feature industry reports as increasingly necessary (AiGroup 2022). From a resilience perspective, a model such as this might also help workers to develop individual resilience in the workforce; that is, relying less on market conditions and instead improving their mobility both upwards and across the labour market (European Commission 2020).

It takes a village: tackling entrenched disadvantage to skill Australia's workforce

Employment is currently high, and its aggregate growth since the onset of the pandemic has been strong (NSC 2022). That said, uneven patterns of employment growth have emerged, including patterns of entrenched unemployment (NSC 2022). Ongoing non-participation in the labour market by large portions of the population, in particular those from disadvantaged or equity groups, represents one of the reasons for this imbalance (NSC 2022; Business Skills Australia 2022; Macklin 2020).

VET is an important employment pathway for disadvantaged and marginalised Australians, including women and people from equity groups.⁶ VET is frequently the entry point into tertiary education for the disadvantaged and plays a particularly important role in lifelong learning for Aboriginal and Torres Strait Islander peoples, those from low socio economic status backgrounds, and women and girls (Karmel & Woods 2008; Lamb et al. 2018; Youth Action et al. 2018). Nonetheless, disadvantaged learners have typically been under-represented, especially in higher-level VET, with lower take-up and completion rates (Gale et al. 2013; Webb et al. 2017; Youth Action et al. 2018). McVicar and Tabasso (2016) also found that the transition into employment is more challenging for equity groups. VET research has long pointed to the net loss these issues have on society, 'with costs to social progress, growth, productivity and creativity for Australia' (Lamb et al. 2018, p.52). From a productivity standpoint, the need to engage more workers is pressing. The Grattan Institute's report, *No one left behind*, argued that full employment across population groups is crucial for Australia's economic recovery (Coats & Ballantyne 2022).

5 For example, the suite of courses offered by TAFEs and other RTOs on contagion prevention, enabling workers to appropriately upskill and safely manage their worksites (Trimboli, Lees & Zhang 2023).

6 The Australian National Training Authority first identified 'particular groups of people to improve access and outcomes for disadvantaged persons' (1994, pp.18–19). These categories were: women, Aboriginal and Torres Strait Islander peoples; people without adequate social, literacy, and numeracy skills; people with disabilities; rural and isolated people; unemployed people; and young people. Today, these categories have shifted slightly. Equity groups reported by NCVET currently are: People with a disability; Aboriginal and Torres Strait Islander peoples; Non-English speaking background; Low socioeconomic status; Remote; and Not Employed. It should be noted, however, that women and youth are also frequently reported on as part of, or at least adjacent to, equity research in Australian VET.

Ultimately, there is an opportunity for the VET sector to support a more diverse range of participants through training and into jobs, and not merely because of the gaps in the market that need filling. There's also an untapped productivity potential, while embracing diversity is an adaptive strength, especially in times of uncertainty (European Commission 2020; Victorian Skills Authority 2022; Zhao 2023; Yu, Trimboli & Di Biase 2017). This is a key lesson arising from the Australian VET response to COVID-19: the most positive stories have been about collaborative problem-solving, community networks and resourcing (Trimboli, Lees & Zhang 2023; NCVET 2022).

The policy paper *Expanding job opportunities for all Australians including the most disadvantaged*, presented to the Australian Government's Jobs and Skill Summit in 2022, proposed a range of aims for ensuring that 'all Australians have the same opportunities to engage in education, skills, training and participate in employment' (Business Council of Australia 2022, p.2). These aims included empowering Aboriginal and Torres Strait Islander peoples, removing barriers for people with disabilities, and bridging the regional divide (Business Council of Australia 2022).⁷ State and territory governments have developed similar policy approaches. For example, the Victorian Skills Authority's *Skills plan* aims to 'widen the pool of skilled workers', noting a 'need to bring more people from under-represented groups into vocational education' (2022, p.2). We know, however, that previous efforts to increase participation of equity groups in VET and related employment have not been as successful as hoped (Lamb et al. 2018; see also Gore et al. 2023). As Zoellner's recent review of VET research into disadvantage observed: 'Over the past five decades, the same seven groups of Australian residents have retained their label of disadvantage despite much research and many public programs being conducted to ameliorate their socio-economic position on the edges of society' (2022, p.2).

The pandemic also illustrated how disadvantage tends to be exacerbated in times of crisis,⁸ with 'digital poverty, financial precarity and mental wellbeing ... particularly highlighted' (Kift, Zacharias & Brett 2021, p.28). In VET, the pandemic laid bare the digital divide in the learner population and the challenges inherent in upskilling people who struggle to access appropriate technology. Similar access issues have re-presented themselves with the arrival of chatbots such as ChatGPT. Reflecting on these concerns, TAFE CEO Jenny Dodd noted: 'when sudden shifts like this occur, including technological ones, it is always the equity groups or disadvantaged learners who suffer the most' (2023). Dodd's comment ultimately points to systemic issues within the sector pertaining to access and participation.

7 Specific actions to meet such aims were identified in the Jobs and Skills Summit's Outcomes paper, under the 'Promoting equal opportunities and reducing barriers to employment' section (Australian Treasury 2022, pp. 9-11).

8 See, for example, Peddone (2021); Butler & Ferrier (2023)

Addressing equity issues to skill Australia's workforce

With support from Commonwealth and state and territory governments, many VET stakeholders are advocating that 2023 might present a timely opportunity to begin dealing with equity issues more thoroughly (Field 2023b; VET Development Centre 2023). What steps can we take to ensure that government programs aimed at increasing the participation of equity groups in VET go beyond the superficial and address systemic constraints that prevent progress from VET to long-term employment?

Research has shown that simply enrolling disadvantaged learners in the VET sector is not enough to improve their outcomes. Lamb et al.'s (2018) research argued that supporting disadvantaged learners throughout their VET training continuously and systematically correlated to more affirmative outcomes, including completion rates. Is it possible that the sector has focused too much on the initial take-up of equity groups in training, with insufficient attention to the longer-term facilitation of training over time, including into and within the workforce?

In the last few years, a myriad of reports describing the barriers faced by disadvantaged people attempting to enter the workforce have emerged, as well as the barriers they encounter once they are there. A recent report on women and gender-diverse people in STEM found, for example, that 'unsupportive or hostile culture' was a common barrier in the workplace and often caused them to leave the job (Devis et al. 2023, p.15). This is concerning, considering that only one in 10 women with STEM qualifications are employed in STEM-related fields (Devis et al. 2023), and, furthermore, that there is a high demand for workers in these fields (Australian Academy of Technological Sciences and Engineering 2022; Productivity Commission 2022).

Perhaps the most telling of the research describing barriers to workforce participation is that of Mellifont, Smith-Merry and Bulkeley (2023) on the employment of people with disability in disability services. A great deal of research has demonstrated the significant gap in employment levels between people with disability and people without,⁹ but Mellifont, Smith-Merry and Bulkeley's research went further to show that even in disability service organisations, the gap is significant. 'To have almost a quarter of survey respondents (24%) advise that they do not employ any people with lived experience in their disability service is a troubling statistic' (Mellifont, Smith-Merry & Bulkeley 2023, p.7). In their *State of the future of work report*, Ruppanner et al. (2023, p.18) summarised some of these issues, finding that while Australia's workforce is diverse, 'discrimination remains "pervasive" in workplaces',¹⁰ a finding that adds weight to the 'red flag' the AiGroup (2022, p.38) raised in its 2022 Skills Survey; namely, that many workers felt their managers were ill-equipped to build an 'agile, inclusive workforce'.

Findings such as these indicate that strategies to engage or recruit diverse or under-represented members of the population into VET and related employment is not an adequate solution on its own. Efforts to widen VET participation to help in meeting current and future skill needs have to occur in conjunction with changes to workplace and community culture. How can the VET sector ensure it trains people with the right skills to build inclusive workplaces and attend to what the NSC (2022, p.48) has identified as a growing skills cluster, specifically, 'support diversity and inclusion'?

Research into workplace barriers for equity groups frequently argues that, for the barriers to be overcome, access must be embedded into learning environments and workplaces (Devis et al. 2023; Mellifont, Smith-Merry & Bulkeley 2023; Dinku & Hunt 2019). To achieve this might mean a reframing of how equity is approached. Despite efforts to move away from the deficit model of equity, it appears that this concept still informs some of the initiatives established to alleviate disadvantage in education and employment (Gore et al. 2023; Zoellner 2023). Additionally, the intersecting or overlapping nature of equity categories needs to be recognised. As illustrated by NCVER (2023b), many students in VET identify with more than one equity category and some equity students move from one training program to another without a job outcome. Ultimately, equity is complex, and embedding inclusive practices into Australia's workforce will require targeted, collaborative efforts between policymakers, trainers and employers (Devis et al. 2023; Mellifont, Smith-Merry & Bulkeley 2023; Dinku & Hunt 2019; Gore et al. 2023).

9 The Australian Institute of Health and Welfare (2022) reported that of working age adults (15–64 years old) 48% of people with disability are employed compared with 80% without disability.

10 18% of Australians reported they experienced discrimination on the grounds of skin colour, ethnic origin, or religion; and these rates were higher again for Aboriginal and Torres Strait Islander people, with 27% reporting they experienced discrimination; 60% of women reported discrimination in the workplace.

CONCLUSION: NAVIGATING ONGOING DISRUPTION AND CHANGE AND THE IMPACT FOR SKILLING THE WORKFORCE

COVID-19 was an acute shock and its ongoing impacts have placed persistent stress on individuals, institutions and businesses globally. But COVID-19 is not the only change the Australian VET sector is navigating. High employment, in tandem with jobs and skills shortages, has also changed the landscape of VET in the past 12 months. At the macro level, this change is evident in the gaps in the skills market that require urgent filling, as well as in the new policy initiatives designed to attract different kinds of learners into the VET system – including the long-term unemployed, women, and people with disabilities. A further sign of substantial change in VET is the rethinking of industry and provider engagement through the newly formed Jobs and Skills Councils. We also have a new legislated entity representing the sector, in the form of Jobs and Skills Australia, whose role is in part to advise on the performance of the VET sector in meeting skill needs.

At the micro level, existing businesses now need the capacity to rapidly upskill staff to meet different demands and fulfil the new roles created by the pandemic environment. Similarly, training providers have had to swiftly redesign their modes of delivery and reorganise their operational practices to address the ongoing impacts of the pandemic. At both macro and micro levels, rapid technological shifts and disruptions in the form of unpredictable occurrences, such as climate events or supply shortages, present ongoing challenges and obstacles.

The futurist Bernard Marr (2023) recently predicted the five biggest education trends in 2023 and beyond to be:

- artificial intelligence (AI)
- remote, online and hybrid learning
- a shift from colleges/universities towards VET
- virtual and augmented reality
- soft skills and STEM.

This prediction accords with what we have already seen in 2023, which began with an AI bang in the form of ChatGPT. The stir surrounding ChatGPT and similar chatbots and the implications of AI for training and assessment feel like one of those moments that might force a paradigm shift within VET, in the same way that moving to online training did in 2020 in response to COVID-19. What we learnt from that shift is that the VET sector is capable – perhaps more than previously recognised – of adapting to sudden impacts relatively quickly and effectively.

The 2023 No Frills Conference provides us with an opportunity to consider these adaptive capabilities and the ways by which we might build on them, with presentations that cover topics such as Workforce Development, Teaching and Learning, Youth, Pathways, and Policy, among others. Beginning with the keynote addresses and conference panel, and continuing throughout the concurrent sessions, conference delegates will contemplate not only how the VET sector will continue to adapt to ongoing change, but how it can embed policies and practices that enable the sector to thrive.

REFERENCES

- ABS (Australian Bureau of Statistics) 2022a, Job mobility: key statistics, viewed 28 March 2023, <abs.gov.au/statistics/labour/jobs/job-mobility/latest-release>.
- 2022b, 'More growth in the regions during the pandemic', Media release, 29 March 2022, viewed 28 March 2023, <<https://www.abs.gov.au/media-centre/media-releases/more-growth-regions-during-pandemic>>.
- 2023, 'Charts on casual employment, occupation, industry and job mobility, February 2023', viewed 28 March, <<https://www.abs.gov.au/articles/charts-casual-employment-occupation-industry-and-job-mobility-february-2023>>.
- AiGroup 2022, 2022 skills survey: listening to Australian businesses on skills and workforce needs, November 2022, Australian Industry Group Centre for Education & Training, Melbourne, viewed 21 March 2023, <<https://www.aigroup.com.au/news/reports/2022/2022-skills-survey-listening-to-australian-businesses-on-skills-and-workforce-needs/>>.
- Australia Treasury 2022, Jobs and Skills Summit outcomes, Treasury, Canberra, viewed 11 May 2023, <<https://treasury.gov.au/employment-whitepaper/jobs-summit/>>.
- Australian National Training Authority 1994, Towards a skilled Australia: a national strategy for vocational education and training, ANTA, Brisbane.
- Australian Academy of Technological Sciences and Engineering (ATSE) 2022, Our STEM skilled future: an education roadmap for an innovative workforce, viewed 23 February 2022, <<https://www.atse.org.au/research-and-policy/publications/publication/our-stem-skilled-future-an-education-roadmap-for-an-innovative-workforce>>.
- Australian Institute of Health and Welfare 2022, People with a disability in Australia 2022, catalogue number DIS 72, AIHW, Australian Government, Canberra, viewed 11 May 2023, <<https://www.aihw.gov.au/reports/disability/people-with-disability-in-australia/contents/about>>.
- Black, S & Chow, E 2022, Job mobility in Australia during the COVID-19 Pandemic, Bulletin – June 2022, Reserve Bank of Australia, Canberra, viewed 15 May 2023, <<https://flosse.dss.gov.au/flossejspui/bitstream/10620/18592/1/job-mobility-in-australia-during-the-covid-19-pandemic.pdf>>.
- Business Council of Australia 2022, Jobs and Skills Summit: policy paper: expanding job opportunities for all Australians including the most disadvantaged, Business Council of Australia, Melbourne, viewed 22 March 2023, <https://www.bca.com.au/jobs_and_skills_summit_policy_paper_-_expanding_job_opportunities_for_all_australians_including_the_most_disadvantaged>.
- Butler, E & Ferrier, F 2023, A fair go for all? Equity frameworks and landmark documents in Australian vocational education and training (condensed review), VET Knowledge Bank, NCVET, viewed 22 March 2023, <<https://www.voced.edu.au/vet-knowledge-bank-landmark-documents-equity-access-historical-overview>>.
- Coats, B & Ballantyne, A 2022, No one left behind: why Australia should lock in full employment, Grattan Institute, report no.2022-07, May 2022, viewed 6 April 2023, <<https://grattan.edu.au/wp-content/uploads/2022/05/No-one-left-behind-Why-Australia-should-lock-in-full-employment.pdf>>.
- Cooper, R 2023, cited in Gill, T 2023, 'The late resignation? One third of Australian workers are considering quitting their jobs', The Guardian, 3 April 2023, viewed 24 April 2023, <<https://www.theguardian.com/money/2023/apr/03/the-late-resignation-one-third-of-australian-workers-are-considering-quitting-their-jobs>>.
- Devis, D, Fowler, D, Vieira, M, Giannoni, K., Gabriel, F, Kennedy, JP, Leonard, SN, 2023. From insight to action: strategies for cultivating equity and empowering women in industry, Catalyst reports, issue 11, University of South Australia, Adelaide.

- Dinku, Y & Hunt, J 2019, Factors associated with the labour force participation of prime-age Indigenous Australians, Working paper no.131, Centre for Aboriginal Economic Policy Research, ANU College of Arts and Social Sciences, viewed 22 March 2023, <<https://caepr.cass.anu.edu.au/research/publications/factors-associated-labour-force-participation-prime-age-indigenous-australians>>
- Dodd, J 2023, TAFETalks: the future of learning: ChatGPT, Edtech, and the impact on academic integrity, webinar, 8 February 2023, <<https://tda.edu.au/tafetalks-the-future-of-learning-chatgpt-edtech-and-the-impact-on-academic-integrity/>>.
- European Commission 2020, European Skills Agenda for sustainable competitiveness, social fairness and resilience, viewed 4 April 2023, <https://ec.europa.eu/commission/presscorner/detail/en/ip_20_>.
- Field, C 2023a, 'Old-fashioned training under threat from AI', Australian Financial Review, 10 February 2023, <<https://www.afr.com/work-and-careers/education/old-fashioned-training-under-threat-from-ai-20230209-p5cj9j>>
- 2023b, 'VET must match higher ed focus on equity groups', Campus Morning Mail, 19 April 2023, <<https://campusmorningmail.com.au/news/vet-must-match-higher-ed-focus-on-equity-groups/>>.
- Gale, T, Hodge, S, Parker, S, Rawolle, S, Charlton, E, Rodd, P, Skourdombis, A & Molla, T 2013, VET providers, associate and bachelor degrees, and disadvantaged learners, report to the National VET Equity Advisory Council (NVEAC), Australia, Centre for Research in Education Futures and Innovation (CREFI), Deakin University, Melbourne.
- Gill, T 2023, 'The late resignation? One third of Australian workers are considering quitting their jobs', The Guardian, 3 April 2023, viewed 24 April 2023, <<https://www.theguardian.com/money/2023/apr/03/the-late-resignation-one-third-of-australian-workers-are-considering-quitting-their-jobs>>.
- Gore, J, Patfield, S, Fray, L & Harris, J 2023, Community matters: the complex links between community and young people's aspirations for higher education, Routledge, Oxford, New York.
- Griffin, T & Mihelic, M 2019, Online delivery of VET qualifications: current use and outcomes, NCVER, Adelaide, viewed 6 April 2023, <<https://www.ncver.edu.au/research-and-statistics/publications/all-publications/online-delivery-of-vet-qualifications-current-use-and-outcomes>>.
- Hume, S & Griffin, T 2021, The online delivery of VET during COVID-19: part 1, NCVER, Adelaide, viewed 6 June 2022, <<https://www.ncver.edu.au/research-and-statistics/publications/all-publications/the-online-delivery-of-vet-during-covid-19-part-1>>.
- 2022, The online delivery of VET during the COVID-19 pandemic: part 2, NCVER, Adelaide, viewed 6 June 2022, <<https://www.ncver.edu.au/research-and-statistics/publications/all-publications/the-online-delivery-of-vet-during-the-covid-19-pandemic-part-2>>.
- Jobs and Skills Australia (JSA) 2023, Skills Shortage Quarterly (March 2023), viewed 10 May 2023, <<https://www.jobsandskills.gov.au/reports/skills-shortage-quarterly-march-2023>>.
- Karmel, T & Woods, D 2008, Second-chance vocational education and training, NCVER, Adelaide, viewed 21 May 2023, <https://www.ncver.edu.au/_data/assets/file/0017/5840/cp0508.pdf>.
- Kift, S, Zacharias, N & Brett, M 2021, 'The best chance for all: a policy roadmap for post-pandemic panic', Student Success, vol.12, no.3, pp. 26–36.
- Lamb, S, Maire, Q, Walstab, A, Newman, G, Doecke, E & Davies, M 2018, Improving participation and success in VET for disadvantaged learners, NCVER, Adelaide, viewed 22 March 2023, <<https://www.ncver.edu.au/research-and-statistics/publications/all-publications/improving-participation-and-success-in-vet-for-disadvantaged-learners>>.
- Macklin, J 2020, Future skills for Victoria: driving collaboration and innovation in post-secondary education and training, Macklin review, Victorian Government, Melbourne. <<https://www.voced.edu.au/content/ngv%3A89422>>.
- McVicar, D & Tabasso, D 2016, The impact of disadvantage on VET completion and employment gaps, NCVER, Adelaide.

- Matchett, S 2023, Expert opinion: episode 26 with Dr Tim Cahill & Stephen Matchett, 10 February 2023, <<https://www.futurehe.com.au/expert-opinion/?playlist=11c8b61&video=cf0ef52>>.
- Marr, B 2023, 'The top 5 education trends in 2023', Forbes Magazine, 17 February 2023, viewed 21 May 2023, <<https://www.forbes.com/sites/bernardmarr/2023/02/17/the-top-5-education-trends-in-2023/?sh=303c20a44d39>>.
- Mellifont, D, Smith-Merry, J & Bulkeley, K 2023, 'The employment of people with lived experience of disability in Australian disability services', Social Policy & Administration, pp.1–14, DOI: 10.1111/spol.12898
- Misko, J & Circelli, M 2022, Adding value to competency-based training, NCVET, Adelaide, viewed 10 May 2023, <<https://www.ncver.edu.au/research-and-statistics/publications/all-publications/adding-value-to-competency-based-training>>
- NCVER (National Centre for Vocational Education Research) 2022, 'Impact of the COVID-19 pandemic on VET', Vocational Voices, season 7, episode 4, podcast, transcript viewed 15 December 2022, <<https://www.ncver.edu.au/news-and-events/podcasts/vocational-voices-podcast/transcripts/transcript-of-impact-of-the-covid-19-pandemic-on-vet>>.
- 2023a, Adding value to competency-based training, Webinar with M. Circelli, G. Nair, H. Guthrie & I Curry, 29 March 2023, recording viewed 21 May 2023, <<https://www.ncver.edu.au/news-and-events/events/webinar-series/webinar-adding-value-to-competency-based-training>>.
- 2023b, Student equity in VET 2021: participation, achievement and outcomes, viewed 20 March 2023, NCVET, Adelaide, <<https://www.ncver.edu.au/research-and-statistics/publications/all-publications/student-equity-in-vet-2021-participation,-achievement-and-outcomes>>.
- National Skills Commission (NSC) 2022, Australia's current, emerging and future workforce skills needs, Department of Employment and Workplace Relations, Canberra, viewed 3 March 2023, <<https://www.dewr.gov.au/nsc/resources/australias-current-emerging-and-future-workforce-skills-needs>>.
- OECD (Organisation for Economic Co-operation and Development) 2020, VET in a time of crisis: building foundations for resilient vocational education and training systems, OECD, Paris, viewed 4 April 2023, <https://read.oecd-ilibrary.org/view/?ref=132_132718-fdwmrqsgmy&title=VET-in-a-time-of-crisis-Building-foundations-for-resilient-vocational-education-and-training-systems->.
- Palmer, B 2021, An analysis of 'micro-credentials' in VET, viewed 12 April 2023, <<https://www.ncver.edu.au/research-and-statistics/publications/all-publications/an-analysis-of-micro-credentials-in-vet>>.
- Peddone, A 2021, 'The key role of vocational education and training systems in the digital transition', paper to Recovery of Resilience of VET Post COVID-19 conference.
- Productivity Commission 2022, 5-year Productivity Inquiry: Australia's data and digital dividend: interim report, viewed 28 March 2023, <<https://www.pc.gov.au/inquiries/completed/productivity/interim2-data-digital>>.
- Resilient Melbourne 2016, Resilient Melbourne: Viable sustainable liveable prosperous, The Rockefeller Foundation, New York & City of Melbourne, Melbourne.
- Ruppanner, L, Churchill, B, Bissell, D, Ghin, P, Hydellund, C, Ainsworth, S, Blackhman, A, Borland, J, Cheong, M, Evans, M, Fremann, L, King, T & Vetere, F 2023, State of the future of work report 2023, Work Futures Hallmark Research Initiative, University of Melbourne, Melbourne.
- Sutton, J 2022, 'Understanding the Great Resignation in Australia 2022', The Access Group, viewed 20 March 2023, <<https://www.theaccessgroup.com/en-au/blog/hcm-the-great-resignation-australia/>>.
- Trimboli, D, Lees, M & Zhang, Z 2023, Impact of the COVID-19 pandemic on VET, NCVET, Adelaide.
- UNESCO-ICTVET 2021, Strengthening the responsiveness, agility and resilience of TVET for the post-COVID-19 era, viewed 4 April 2023, <https://unevoc.unesco.org/pub/covid-19_response_project_final_report.pdf>.
- UNESCO 2023, Building TVET resilience for a just and sustainable transition, viewed 4 April 2023, <<https://unevoc.unesco.org/home/Building+TVET+resilience+for+a+just+and+sustainable+transition>>.

- Victorian Skills Authority 2022, Victorian skills plan for 2022 into 2023: a shared vision for skills-led solutions, Department of Education & Training, Victorian Government, viewed 4 April 2023, <<https://www.vic.gov.au/victorian-skills-plan-2022>>.
- VET Development Centre (VDC), 'Getting a picture of student equity in VET', VDC News, 26 April 2023, <<https://vdc.edu.au/vdc-news/getting-a-picture-of-student-equity-in-vet/>>.
- Webb, S, Faine, M, Pardy, J & Roy, R 2017, 'The role of VET in the (dis)placing of migrants' skills in Australia', Journal of Vocational Education & Training, vol.69, no.3, pp.351–70.
- Wilson, GA 2015, 'Community resilience and social memory', Environmental Values, vol.24, pp.227–57, DOI: 10.3197/096327114X13947900182157.
- World Economic Forum 2023, Future of jobs report 2023, Insight report, May 2023, viewed 4 May 2023, <<https://www.weforum.org/reports/the-future-of-jobs-report-2023/>>.
- Youth Action, Uniting & Mission Australia 2018, Vocational education and training in NSW: report into access and outcomes for young people experiencing disadvantage, accessed 6 April 2023, <<https://www.missionaustralia.com.au/publications/research/employment-and-training/762-vet-report-2018>>.
- Yu, A, Trimboli, D & Di Biase, T 2017, Refuge 2016 evaluation report, Research Unit in Public Cultures, University of Melbourne in associated with Arts House, Melbourne.
- Zhao, Y 2023, 'In Conversation with Professor Yong Zhao', Asia Education Foundation, University of Melbourne, webinar, 22 March 2023.
- Zoellner, D 2022, 'Fashioning groups that inhabit society's fringes: the work of Australian VET research into disadvantage', Journal of Education Policy, DOI: 10.1080/02680939.2022.2156621.



© National Centre for Vocational Education Research, 2023



With the exception of cover design, artwork, photographs, all logos, and any other material where copyright is owned by a third party, all material presented in this document is provided under a Creative Commons Attribution 3.0 Australia <<http://creativecommons.org/licenses/by/3.0/au>>.

This document should be attributed as Trimboli, D 2023, *Skilling Australia's current and future workforce*, NCVET, Adelaide.

Stock images sourced from Getty Images.

ISBN 978-1-922801-15-9

TD/TNC 152.04

Published by NCVET, ABN 87 007 967 311
Level 5, 60 Light Square, Adelaide SA 5000
PO Box 8288 Station Arcade, Adelaide SA 5000, Australia
Phone +61 8 8230 8400 Email ncver@ncver.edu.au
Web <<https://www.ncver.edu.au>>

Follow us:  <<https://twitter.com/ncver>>

 <<https://www.linkedin.com/company/ncver>>