Apprenticeships and vocations: assessing the impact of research on policy and practice

Jo Hargreaves
National Centre for Vocational Education Research

Publisher's note

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. Any interpretation of data is the responsibility of the author/project team.

To find other material of interest, search VOCEDplus (the UNESCO/NCVER international database <http://www.voced.edu.au>) using the following keywords: Apprenticeship; Evaluation; Industry; Outcomes; Policy; Research; Vocational education and training.

About the research

Apprenticeships and vocations: assessing the impact of research on policy and practice

Jo Hargreaves, National Centre for Vocational Education Research

This report assesses the impact of NCVER's research against two themes: the role of apprenticeships in a modern economy (focusing on work relating to completions) and the nature of the vocations and competencies required by industry. The evaluation spans work published from 2005 to 2015 and examines the impact of 32 publications, complemented by input from a number of stakeholders who were asked to report on their use of NCVER's research outputs. The evaluation, based on a combination of quantitative metrics and qualitative methodology, shows how NCVER's publications are influencing policy and practice in the vocational education and training (VET) sector.

Key messages

- The analysis identified:
    - 42 553 downloads of the reports from NCVER's website/portal
    - 2952 full record visits on VOCEDplus
    - 632 citations across various sources, including policy and legislation
    - 217 references across an assortment of media outlets.

- While metrics alone do not directly signify impact, they do suggest NCVER has a sizeable knowledge footprint, with the publications in this study gaining widespread attention within Australia and internationally.

- In terms of policy:
    - Evidence was found of the research directly influencing six discrete policy documents or legislation and informing numerous submissions across 30 national or state/territory reviews. These submissions often led to an appearance by stakeholders or NCVER at parliamentary Senate House of Representative hearings.
    - Stakeholders also reported a research impact on polices designed to address apprentice completion and commencement rates, the way in which pre-apprenticeship programs are structured, industry training strategies and mentoring support for apprentices.

- With respect to practice: stakeholders suggested the research has informed better recruitment and pastoral care practices for apprentices. The vocations research has influenced several professional development programs for VET practitioners.

While the interplay between research output and policy and practice is never straightforward and there are many factors influencing policy decisions, connections do occur. This report in particular has highlighted the remarkable variety in which NCVER publications are used and valued, based on the views of responding stakeholders.

Dr Craig Fowler
Managing Director, NCVER

Acknowledgments

Contents

**Apprenticeships and vocations: assessing the impact
of research on policy and practice**

Tables and figures

Tables

Figures

ⓘ Introduction

This report presents the findings of a case study assessing the influence of a select number of research and statistical publications on policy and practice in the area of the following two important themes:

- the role of apprenticeships in a modern economy
- the nature of vocations and the competencies required by industry.

This is done using the framework for measuring research impact developed by NCVER several years ago (Stanwick, Hargreaves & Beddie 2009).

Mixed views exist, and persist, on definitions of impact and the purpose of assessing the impact of research. These are coupled with contested opinions on the ability to measure the impact of research effectively and efficiently. Nevertheless, NCVER and others continue to refine the task. Indeed, this is third occasion on which we have undertaken an impact evaluation, each time enhancing our approach.

Over many years, and since our original study, the impact agenda has received substantial attention. Of note is the Higher Education Funding Council for England, which undertook a sizeable initiative to assess the quality of research in higher education institutions under the [Research Excellence Framework](). In Australia a national commitment to the exercise received less support in the early days. This was followed by various attempts such as that undertaken by the Australian Technology Network, along with the Group of Eight universities, who led a [trial]() to assess the impact of research produced by the university sector. An impact model for universities is now receiving renewed attention as a result of the Australian Government's commitment to support both pure and applied research, outlined in the [National Innovation and Science Agenda](). In March 2016 an Australian-first panel of experts was announced. They will lead efforts to measure the value of research, working with a specialist group appointed to design the engagement and impact measures for the 2018 Excellence for Research in Australia exercise.

The approaches taken in the United Kingdom and Australian impact studies, as well as the continuing conversations among international experts published on the [London School of Economics and Political Science]() impact blog, suggest NCVER's framework and overall approach can be considered good practice because of the focus and combination of quantitative and qualitative indicators. We use metrics from a wide variety of sources and gather informed opinions and personal testimonies from end users. This results in a richer narrative about the impact of the research than the numbers alone can tell.

NCVER's mission is to inform and influence policy and practice in the Australian vocational education and training (VET) sector through credible, reliable and insightful information, coupled with balanced analysis and insights, to optimise the benefits arising from publicly funded research endeavours. Our philosophy is that for research to have impact it must be seen as relevant by its target audience, make a useful contribution to knowledge, be impartial, adopt rigorous methodologies and use reliable data, be conducted ethically, be above criticism of bias, be interesting and be read or at least become known through summary articles, conferences and the like.

NCVER's vision: to inform and influence vocational education and training in Australia through credible, reliable and responsive research and statistical services.

We are fortunate that the very nature of our work, which requires direct interaction with our stakeholders, puts us in a good position to explore and evaluate influence. Indeed, the critical role of intermediary and independent organisations to increase research translation and collaboration activities between researchers and end users was highlighted in a recent study examining, across fourteen countries, 'what works' in knowledge—translation policies and measures (Australian Council of Learned Academies 2015).

This does not mean the task is straightforward. Conceptual, practical and methodological obstacles complicate the job of assessing the diversity of outcomes from social science research. Furthermore, research findings come into use in complex ways (Davies, Nutley & Walter 2005).

Consequently our approach is realistic, recognising both the imperfect role of metrics in research assessment and the applied and social science focus of our research efforts. Yet our purpose for doing so remains clear. Observing and understanding the nature of our influence helps us to produce the evidence, in ways that best meet the needs of stakeholders in the training system.

Impact and engagement across NCVER

The analysis in this report is confined to a case study across two themes, a total of 32 publications and a 15-year time period. This represents only a glimpse of the total research and statistical output generated by NCVER.

While we recognise the importance of using a valid framework to assess impact on the scale contained in this report, we also regularly collect and monitor a range of other metrics within the company aimed at assessing use and engagement across the full breadth of our research and statistical outputs.

One such measure is keeping track of the H-index on all NCVER-authored publications. The H-index, named after the developer Hirsch, is a measure of academic impact that has generated widespread interest. It is an author-level metric that attempts to measure both the productivity and citation impact of the publications of a scholar. The advantage of the H-index is that it combines an assessment of both quantity (number of papers) and quality (impact, or citations to these papers). Hirsch calculated the H-index of Nobel prize winners and found 84% of them to have an H-index of at least 30. Newly elected members in the National Academy of Sciences in Physics and Astronomy in 2005 had a median H-index of 46.[1]

The H-index

The H-index has been found to have considerable face validity, although there are critics and no real agreed rating spectrum.

As at March 2016 NCVER's H-index is 47, which can be considered very good to outstanding.

---

1 <http://www.harzing.com/publications/white-papers/reflections-on-the-h-index>.

About the framework

Background

NCVER's approach is based on the Payback Framework, developed in the 1990s as a way of assessing the impact of health research (Buxton & Hanney 1996). In keeping with this model we define 'impact' broadly in terms of its direct, indirect or incremental use and influence. It may be *conceptual* in terms of affecting levels of knowledge or understanding, attitudes and beliefs, or *instrumental* in terms of changing policy or practice.

It is important within any research impact framework to recognise how knowledge is used. Establishing a connection between research findings and policy is particularly difficult because of the political context in which policy development occurs. Even where knowledge that stems from systematic research and analysis can be shown to contribute to policy change, the route may be gradual, subtle and diffuse. Knowledge 'provides a background of empirical generalisations and ideas that *creep* into policy deliberations' (Weiss 1980, p.381). Where this is the case, policy-makers will most likely be unaware of how concepts or insights from research have played a direct role in shifting their thinking; nor is there a strong culture of citing research in policy documents.

We are also interested in the extent to which non-government stakeholders use conceptual evidence from the research to challenge or support policy positions. This has implications for what should be assessed. In particular, a body of research associated with a specific topic potentially carries more influence compared with one research report, although this is not always the case.

With all this in mind our approach is pragmatic and modest. It was developed, and has evolved, amidst full recognition of the various challenges associated with how knowledge is used and how that use can be measured, especially in the social sciences. This is in comparison with the hard sciences, where concrete measures associated with observable change may result over time. In health, for example, reductions in disease occurrence may form part of a research impact model.

We recognise impact can be positive or negative, may or may not be recognised, can occur over short or long periods of time, and is highly dependent on context. Research that 'fails' to have impact at one point in time may be considered highly relevant at another point. Not every single independent research report will have direct and obvious benefits but an absence of indicators or citations does not mean an absence of activity or influence, while prolific output does not necessarily mean quality.

The framework

NCVER's framework measures impact against four categories:

- *producing knowledge*: using metrics associated with research outputs to determine the extent to which research is being accessed and knowledge dispersed

- *building capacity*: assessing the extent to which the research has improved the abilities of researchers and stakeholders to engage with the research

Only occasionally does research supply an answer that policy actors employ to solve a policy problem (Weiss 1980).

- *informing policy*: judging if and how research has been useful in informing or guiding policy, primarily through a bibliometric search and interviews or surveys with end-users

- *informing practice*: establishing how the research has informed or guided practice, again through a bibliometric search and interviews or surveys with end-users.

There are two components to the framework: a flowchart (or logic model) of the research process (figure 1); and a multi-dimensional categorisation of impacts, which offers a useful way of thinking about where impact can occur across the various research stages and as a guide for collecting evidence (table 1).

Figure 1 Logic model for assessing impact
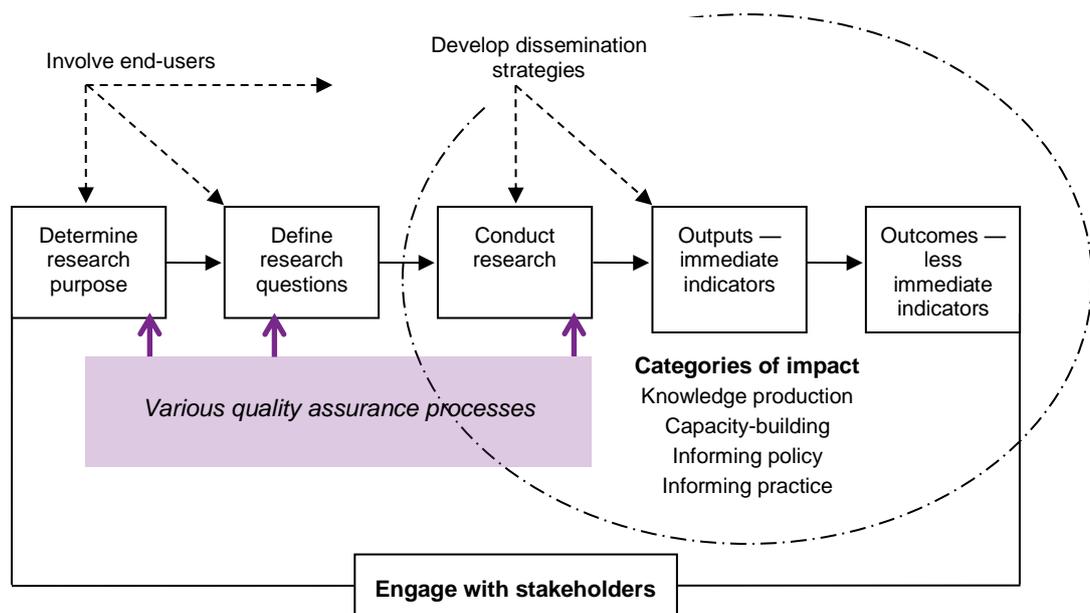
Source: Stanwick, Hargreaves and Beddie (2009).

The framework places a significant emphasis on embedding an impact strategy into the research cycle from the beginning. The conduct of research itself is not an isolated activity: it can be a stage when impact occurs; for example, by way of work-in-progress seminars or consultations with end-users who have a vested interest in the research findings. The key to this strategy is taking end-users on the research journey, without compromising the independence of the research effort.

Importantly, the approach acknowledges a number of key elements on which NCVER places very high importance. These include:

- establishing the priorities and purpose of the research with involvement from end-users

- engaging with stakeholders throughout the research cycle

- adopting multiple dissemination strategies when the research findings are known, acknowledging the diverse needs of the sector.

The framework distinguishes between two types of impact indicators: outputs, which include publications and the like, and outcomes, less immediate impacts. For each of the categories of impact, table 1 gives examples of types of impacts, outputs, outcomes and sources of information (evidence). It needs to be noted that the table describes possible indicators. This does not mean that they will all apply to all case studies; nor are they an

exhaustive list — there may be less generic indicators that are specific to one piece of research or to one field of study.

Sources of information and ways of capturing them are proxies for impact; they are not 'measures of impact'. This points to the difficulties in developing a suite of indicators for some categories of impact. While measuring citations can be a relatively straightforward exercise, identifying more amorphous elements of the research process, such as networks and collaborations, is more difficult, making accurate measurement of their impact less easy.

Validating the quality of research

While considerable attention is given to quality assurance across all research and statistical activities and publication processes at NCVER, one aspect missing from our original impact framework was an *independent validation* of the quality and potential impact of the research.

For this study we have trialled the use of NCVER's Editorial Board, esteemed Australian and international academics in the tertiary education sector, as an external assessment panel (see appendix B).

The approach was inspired to some extent by the way in which expert panels were used in the Research Excellence Framework across universities in the United Kingdom. The intention of our trial was to determine the extent to which our impact model could be enhanced, with the use of an *independent judgment* of the research, beyond metrics and the self-reported use of research by stakeholders in our case studies. The Editorial Board members were asked to rate a number of the reports under consideration according to quality, as defined by originality and rigour, potential impact in terms of reach and importance, as well as general accessibility.

… a mature research system needs a variable geometry of expert judgement, quantitative and qualitative indicators (Wilsdon et al. 2015).

Table 1 NCVER's research impact framework: categorisation of impact indicators

Categories (domains) of impact	Specific types of impact	Outputs: immediate indicators (push factors)	Outcomes: medium−long-term indicators (uptake factors)	Sources of information (evidence)
Knowledge production	Dissemination strategies Raising awareness of and engagement with the research Increasing knowledge and contributions to the literature Ability of research to inform future research	Publications of various types: reports, good practice guides, At a Glance publications, research overviews, fact sheets, infographics etc. Presentations to stakeholders Media (press releases) and social media (tweets, blogs) Data sharing	Citations Research used in vocational or higher education courses as readings/references	Broad bibliometric and citation analysis of various publications and articles using VOCEDplus, Publish or Perish, Google, Google Scholar My Citations tool and Hansard Google analytics (web data on number of downloads by stakeholder) AltMetrics* (Alternative Metrics) using BuzzNumbers (social media, blogs, twitter) if established in advance of an impact study H-index Media coverage (where, requests for interview) Numbers of subscribers (Insight, Twitter, Portal) Stakeholder self-reported use of research Quality validation of the research using NCVER Editorial Board assessments
Capacity-building (research-related impact)	Supporting the skills and abilities of researchers to undertake fit-for-purpose research from both the VET and higher education sectors Improving the skills of relevant stakeholders engaging with research and enhancing their decision-making abilities Mentoring and supporting early career researchers	Formation of partnerships and collaborations (academic, TAFE, industry etc) Presentations to stakeholders and peers Invited keynotes Professional development opportunities Technical/data specific publications	Ongoing or new collaborations and networks established Career development of researchers Leadership development Subsequent grants received Recognised as expert in field Improved quality of research funding submissions	Records of collaborations kept Evidence of new or follow-on research based on skills and previous research history Public recognition (awards, invited keynotes) Publication of reports by early-career researchers
Informing policy	Raising profile of research among decision-makers (government, industry, other stakeholders) Provides information base for decision makers to practically, critically and confidently debate an issue Influence and involvement in decision-making processes	Publications (see above) Presentations at policy roundtables, workshops and other policy-related events Submissions to parliamentary or other enquiries Policy briefing notes Research used or quoted in government reports or by ministers	Requests for information New or modified policies or plans that guide decisions or actions Active participation in policy networks (think tanks)	Citations: parliamentary submissions and Hansard references and other policy-related documents (Government white papers etc., noting research may be used but not always cited) Logs of information requests, records of presentations and meetings, memberships of groups maintained by researchers Qualitative case studies (direct contact with those who can validate use of research): interviews and/or surveys of key informants
Informing practice	Raising profile of research among practitioners (providers, industry, other stakeholders) New or modified practices broadly encompassing behaviour, actions and knowledge of how things are done	Good practice guides Fact sheets Research overviews Practitioner developed publications	Information requests by practitioners Use of good practice guides Adoption of new or changed practices Networks and collaborations References in curriculum, readings or teaching materials within education	Bibliometric analysis Logs of information requests maintained by researchers Qualitative case studies (direct contact with those who can validate use of research): interviews and/or surveys of key informants

First developed in Stanwick, Hargreaves and Beddie (2009; updated as at January 2015).
*AltMetrics are metrics and qualitative data that are complementary to traditional, citation-based metrics. They can include (but are not limited to) citations on the web and in public policy documents, discussions on research blogs, mainstream media coverage, and mentions on social networks such as Twitter.

Scope of this study

A total of 32 reports were included in this impact study (see tables 4 and 10) across two themes. A mix of NCVER researchers and researchers funded under the National Vocational Education and Training Research program are represented. An attempt has been made to include a wide-ranging depiction of the research available under each theme, noting however that this is by far not the complete collection of research available.

The two themes differ in specificity, in breadth and in timing of research output and measurable outcomes. This selection was deliberate, the aim being to test and evaluate different parts of an overall research portfolio. Theme 2 in particular is a more recent body of work.

Theme 1: The role of apprenticeships in a modern economy

Apprenticeships are the cornerstone of the vocational education and training system and form an enduring aspect of both the research and statistics divisions of NCVER. A particular focus and body of work exists around completion, which as a 'hot topic', engages all major stakeholders — industry, providers and government, as well as individual apprentices. This case study covers the period 2005 to 2014 with a mix of research and statistics, as well as a major consultancy project for the Commonwealth Government included for consideration.

Theme 2: The nature of vocations and the competencies required by industry

In 2010 NCVER funded several research consortia to conduct significant bodies of work under major themes of the national research priorities 2011—2014. One of those consortia comprised researchers from the LH Martin Institute, University of Melbourne, and the Workplace Research Centre, University of Sydney. Their research program 'Vocations: the link between post-compulsory education and the labour market' resulted in numerous research publications. This collection of theoretical work explores the notion of using vocations as a means of improving pathways within education, within work and between education and work. The publication dates are quite recent (in measuring impact terms) and many of the seminal dissemination activities likely to influence impact are still occurring (as at the time of this impact report). The purpose of including the work of the consortia is to set a benchmark which will feed into a longer-term impact study on this theme.

There are connections between the research undertaken by the consortium and other research in this broader theme, particularly around the way in which vocational educational institutions function and the relationship between qualifications and the labour market. This vocations work also touches on the implementation of competencies and training packages. Hence, the addition of some other NCVER publications under this broad theme, including work on defining and interpreting competencies in VET, responding to changing skill demands, pathways from education to work, the principles on which VET is based, and qualification utilisation.

Methodology

Citation analysis

The bibliometric analysis was conducted by specialist information services staff using Google, Google Scholar, Publish or Perish, parliamentary databases and VOCEDplus.[2] The time period was from each report publication date to 25 May 2015. While comprehensive, a citation analysis is a *point-in-time* activity; it is not a true reflection of the level of actual engagement and use of the research. Our previous work in this area suggests the peak time for academic citations is around five to six years following report publication. The complete results of the citation and media analysis are provided in the support document accompanying this report.

Google analytics

Included in the metrics is the collection and analysis of data from the NCVER website/portal and the VOCEDplus database, using Google analytics. It tracks how visitors interact with the websites, including how many visit, where they come from, who they are (in terms of NCVER-defined user groups), how long they spend on the website, what pages they visit and what publications they view or download. Detailed Google analytics and methodological caveats regarding the reporting period, sampling, member group scope and tracking code issues in relation to the transition from NCVER's website to the portal (which occurred on 3 February 2014) are included in the support document.

Editorial Board evaluations

For this study we trialled the use of NCVER's Editorial Board as an external assessment panel, adapting the case study evaluation questions and matrices from the United Kingdom Research Excellence Framework (REF) exercise. Each editorial board member was allocated between two and four reports to review. Evaluations were conducted over the period April to June 2015. A copy of the evaluation template is provided in the support document.

Stakeholder questionnaire

End-user stakeholders were randomly identified from a list of current subscribers to NCVER, from within categories of people potentially interested in the topics. This list was supplemented with individuals or organisations likely to have a general interest in the VET sector. The stakeholders invited to participate for each theme are identified in table 2, along with the responses received. In addition, ten authors of the reports under consideration were invited to participate and eight completed the questionnaire. A list of those who consented to have their name identified is provided in appendix A and the questionnaire instrument is provided in the support document.

---

[2] VOCEDplus is NCVER's free international research database for tertiary education. It is international in scope and contains over 65000 English language records, many with links to full text documents: <http://www.voced.edu.au/>.

Limitations in the sample

In terms of the scale of this study the response rates to the surveys for both themes are satisfactory and sufficient for meaningful analysis (table 2). However, the responses are not representative and do not reflect the broad range of NCVER's stakeholder base. Response bias is also evident in the over-representation of industry affiliation or peak bodies under the apprenticeships theme. In addition, there were only two responses from a state/territory government and no responses from the Commonwealth Government. As a result, the analysis should be interpreted with discretion.

Table 2   Stakeholders invited to participate and survey response rates

	Number of organisations contacted	Number of individuals contacted	Number of responses from individuals
Theme 1 Apprenticeships			
Policy			
Commonwealth Government	1	3	0
State/Territory government	5	8	2
Industry			
Skills councils, licensing authorities and employers	7	7	1
Affiliation or peak body	2	6	5
Training fund organisations	3	3	0
Chambers of commerce and industry	2	3	0
Group training/apprenticeship centre or broker	7	15	3
Education			
Affiliation or peak body	1	1	0
Training providers (including colleges for school based apprentices, and students)	4	6	3
Union	1	1	0
Other research or statistical organisation	1	1	0
Did not identify	n/a	n/a	1
Total theme 1	34	54	15
Response rate			27.8%
Theme 2 Vocational competencies			
Policy			
Commonwealth Government department	1	2	0
State/Territory government department	3	4	0
Other non-profit or independent association	8	8	1
Industry			
Skills councils and employers	8	8	0
Affiliation or peak body	8	8	2
Chambers of commerce and industry	4	4	0
Education			
Affiliation or peak body	5	5	2
Training providers (including VET in Schools)	4	4	0
Did not identify	n/a	n/a	2
Total theme 2	41	43	7
Response rate			16.3%

Findings: theme 1 – apprenticeships

Introduction

The analysis in this section is presented under the four main categories of the impact framework: knowledge production, capacity-building, informing policy and informing practice. The reporting period for this analysis was from the date of report publication to 25 May 2015. The discussion incorporates the results of the citation analysis as well as survey responses, noting again the sample is not representative of all of NCVER's stakeholders. Full results are provided in the support document.

Knowledge production

General engagement and use of the research

Understanding the various ways in which stakeholders engage with research is important. We therefore asked them to identify, in general and broadly, how or why they use research or data on apprenticeships. Their verbatim responses are shown in table 3. The individual replies clearly demonstrate the diverse range and contexts in which NCVER reports function as a key source of information and evidence. The responses were wide-ranging, so the overarching categories of 'understanding', 'developing' and 'communicating' are used as these appear to best capture the high-level functions of engagement.

Table 3   Stakeholder verbatim responses to the general capacity in which NCVER apprenticeships data and research are used

Understanding	Developing	Communicating
- analysing key industry trends - for better use and interpretation of learner data - expanding and applying knowledge to personal interests - maintaining currency of VET - comparing with other jurisdictions, previous years and industry sectors in terms of apprentice commencements and completions	- improving training programs and services offered - designing training packages - strategic planning and monitoring - preparing key papers, such as business plans, workforce development plans or environmental scans - writing ministerial submissions or briefings - apprenticeship development	- liaising with and informing stakeholders - informing and formulating policy positions - progressing, lobbying, supporting or advocating arguments (including in industrial tribunals) - informing students and parents, and assisting with decisions about future directions of the college

Table 4 Apprenticeships theme – report details and overall metrics, from publication date to May 2015

#	Report		Authors	Publication date	Research purpose	Stakeholder awareness of specific report (n = 15)	Media – NCVER metrics	Citations (including some media)	Downloads from NCVER website and portal (also see figure 2)	Full record visits on VOCEDplus	Australian Policy Online downloads	Australian Policy Online hits
1		Apprentice and trainee completion rates	Katrina Ball and David John	2005	This publication reports completion rates for apprentices and trainees who commenced their apprenticeship or traineeship between 1995 and 1999, and attrition rates for more recent commencements.	12	2	77	650	188	n/a	n/a
2		The impact of wages on the probability of completing an apprenticeship or traineeship	Tom Karmel and Peter Mlotkowski	2010	The primary focus of this research is to examine the impact of wages on the decision not to continue with an apprenticeship or traineeship. The approach taken is to model three wages relevant to apprentices and trainees: the wage during training; the expected wage in alternative employment; and the expected wage on completion.	9	31	25	1011	22	23	2653
3		How reasons for not completing apprenticeships and traineeships change with duration	Tom Karmel and Peter Mlotkowski	2010	This occasional paper adds to the considerable literature on low completion rates for apprenticeships and traineeships by looking at whether the reasons given for not completing vary by how far the individual is into their contract of training.	11	1	15	592	29	47	3544
4		Experimental completion and attrition rates for latest commencing apprentices and trainees	NCVER statistical report	2010	This paper presents experimental estimates of completion and attrition rates by selected occupations for apprentices and trainees commencing in the December quarters of 2007 to 2009. These estimates are supported by a technical paper which details the methodological approach taken to derive such up-do-date estimates.	5	1	11	443	45	n/a	n/a

5		Attrition in the trades	Tom Karmel, Patrick Lim and Josie Misko	2011	In this paper, using professional occupations as comparators, the authors investigate attrition in the trades and the extent to which this is affected by good or bad economic times. They also ponder the question of whether a trade is a good start to a career by tracking the occupational destination of those who exit their trades.	11	9	9	854	32	32	2144
6		Effect of the downturn on apprentices and trainees	Tom Karmel and Damian Oliver	2011	This paper looks at apprentice and trainee data and employment data back to 1995 and finds that declines in apprentice commencements lead to declines in total trades employment by four quarters, whereas declines in trainee commencements appear to lag declines in employment in non-trade occupations.	11	5	8	570	29	n/a	n/a
7		The impact of wages and the likelihood of employment on the probability of completing an apprenticeship or traineeship	Tom Karmel and Peter Mlotkowski	2011	This occasional paper looks at how the probability of getting a job, in addition to wages, impacts on completion rates.	9	8	15	699	77	30	2187
8		Pre-apprenticeship training activity	Paul Foley and Davinia Blomberg	2011	This research investigated pre-apprenticeship training in Australia through a variety of research methods: keyword searches, lists of prescribed pre-apprenticeship courses from state and territory contacts, and a unit record enrolment file.	5	3	7	678	42	n/a	n/a
9		Pre-apprenticeships and their impact on apprenticeship completion and satisfaction	Tom Karmel and Damian Oliver	2011	Pre-apprenticeship programs have attracted a great degree of interest from employers and training providers as one means of increasing apprentice satisfaction and completion rates, by providing an introduction to the trade. This proposition is tested using data from the 2010 Apprentice and Trainee Destination Survey.	8	15	22	2148	273	34	3945

#		Title	Author	Year	Description							
10		Individual-based completion rates for apprentices	Tom Karmel	2011	Low completion rates for apprentices and trainees have received considerable attention recently and it has been argued that NCVER seriously understates completion rates. In this paper, the author uses NCVER data on recommencements to estimate individual-based completion rates.	5	13	20	1763	47	25	2897
11		Completion and attrition rates for apprentices and trainees — annual statistical publications	NCVER standard statistical report	2011-14	11-1: 2010 11-2: 2011 11-3: 2012 11-4: 2013	10	50	53	927 2038 1879 913	195 210 58 30	n/a 28 68 n/a	2461 2266 2786 n/a
12		NCVER research reports for Apprenticeships for the 21st Century Expert Panel: Report 1: Overview of the Australian apprenticeship and traineeship system Report 2: Overview of apprenticeship and traineeship institutional structure Report 3: The apprenticeship and traineeship system's relationships with the regulatory environment Report 4: The economics of apprenticeships and traineeships	Various NCVER authors	2011 Consultancy project for the Common-wealth Government. Reports were published by the Common-wealth department linked to the final report of the expert panel.	Report 1 Report 2 Report 3 Report 4	10	n/a	53	n/a	91 55 34 131	n/a	n/a
13		Understanding the psychological contract in apprenticeships and traineeships to improve retention	Erica Smith, Arlene Walker and Ros Brennan Kemmis	2011	This paper compares the perceptions of Australian apprentices/trainees and employers of apprentices/trainees in relation to the psychological contract: the unwritten mutual expectations employers and employees have of each other.	8	5	13	1524	32	n/a	n/a

#		Title	Author	Year	Description							
14		Evolution of apprenticeships and traineeships in Australia: an unfinished history	Brian Knight	2012	This occasional paper traces the evolution of Australia's apprenticeship system from European settlement in 1788 to the present day, including the various policies, social changes, and skill needs that have influenced how the system developed into what is in place today.	7	1	18	1784	169	5371	3077
15		The role of 'culture' in apprenticeship completions	Tom Karmel and David Roberts	2012	This paper documents and finalises some work undertaken for the Apprenticeships for the 21st Century Expert Panel. It aims to explain the extent to which variation in apprenticeship completion rates can be attributed to factors relating to the 'culture' of the employer and apprentice. 'Culture', in this case, refers to employer size, type (government, private or group training) and intensity of trades workers in the apprentice's home suburb.	8	6	16	2087	199	n/a	n/a
16		Understanding the non-completion of apprentices	Alice Bednarz	2014	Approximately half of all apprenticeship contracts in the trades are not completed. This literature review draws together existing research and data to find out why apprentices do not complete their training.	9	17	11	1112	216	139	1593
Totals apprenticeships theme						**n/a**	**167**	**373**	**21 672**	**2 204**	**n/a**	**n/a**

Notes: Media coverage provides a general indication of a topic resonating across a broader audience, and there are a number of contributing factors that determine what may 'grab' attention at a particular time. There is minor duplication between some media counted in the citations column and NCVER media metrics.

Metrics for *Understanding the non-completion of apprentices* will not be a good indication as yet because of the publication date; it has been included as a benchmark for future impact studies.

The overall metrics on each report are provided in table 4. Of those who responded to the survey, all indicated they were familiar with the research and statistical reports published by NCVER, while the number of respondents familiar with one or more of the *specific reports* under consideration was relatively high. These results suggest consistently reasonable awareness amongst stakeholders of the specific publications available in the area of apprenticeships.

An attempt was made to determine if respondents typically use information from the specific reports listed or whether they rely on a combination of publications from NCVER and other resources. While most of those who responded will generally combine various NCVER publications with other resources, half indicated they do use the *specific findings* from a particular NCVER publication.

The report respondents were most familiar with was the oldest — *Apprentice and trainee completion rates* by Katrina Ball and David John, published in 2005. While now over ten years old, this remains one of the seminal reports on the topic.

In line with our impact philosophy we recognise the importance of disseminating knowledge via a range of media, including conferences and presentations. Half of the respondents recalled attending one of NCVER's presentations on research related to apprenticeships in general, supporting the broader transmission of knowledge in this area.

Some of NCVER's publications are available via the Australian Policy Online (APO) site. The metrics available on downloads and hits from the APO are included in table 4 as an indication of the research becoming more widely accessible and known beyond NCVER's usual stakeholder base: APO has a subscriber readership of 17 000, 46% of which is from the government sector.[3]

The citations found refer not only to the traditional research report, conference paper or journal article but also ministerial press releases, submissions to parliamentary inquiries and references as far-reaching as Adult Learning Inspectorate reports from the United Kingdom. More detail on the evidence from the citations about impact on policy and practice is explored below, while the full details from the citation analysis can be found in the support document.

Top downloads

Figure 2 indicates the total number of downloads by report. The report with the largest number of downloads was *Pre-apprenticeships and their impact on apprenticeship completion and satisfaction*.

---

3 <http://apo.org.au/about>.

Figure 2   Role of apprenticeships in a modern economy: total number of downloads (website and portal) by report from publish date
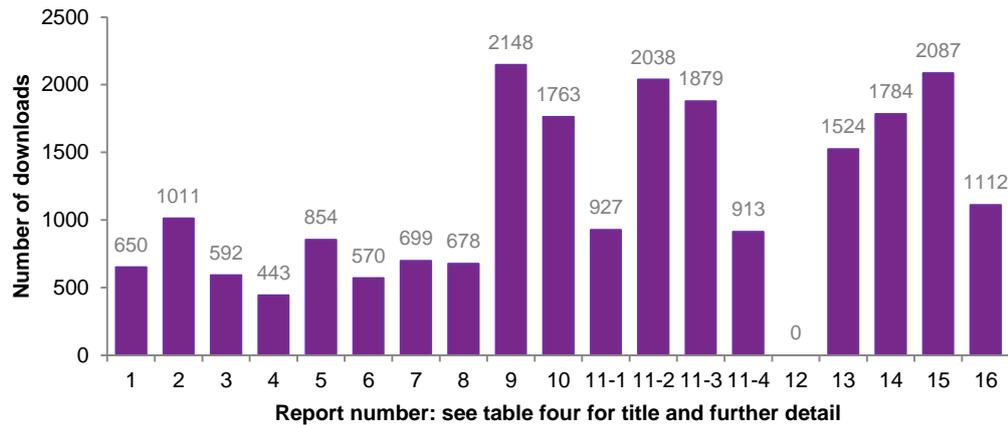
Notes: Some statistical reports have been archived from the NCVER website to VOCEDplus; therefore, the number of downloads for these are from publication date to archive date. Report 12 was not published by NCVER; it therefore has no metrics available.
Source: NCVER collated Google analytics data.

What reports are resonating with stakeholders

Figure 3 shows the extent to which the overall apprenticeships theme resonates with key member groups (as measured by downloads). Government is the highest user, followed by, in relatively equal proportions, research organisations or universities, TAFE (technical and further education) institutes or colleges, industry and private or other non-TAFE training providers. Schools, union and media outlets are relatively modest users.

Figure 3   Role of apprenticeships in a modern economy: member group downloads
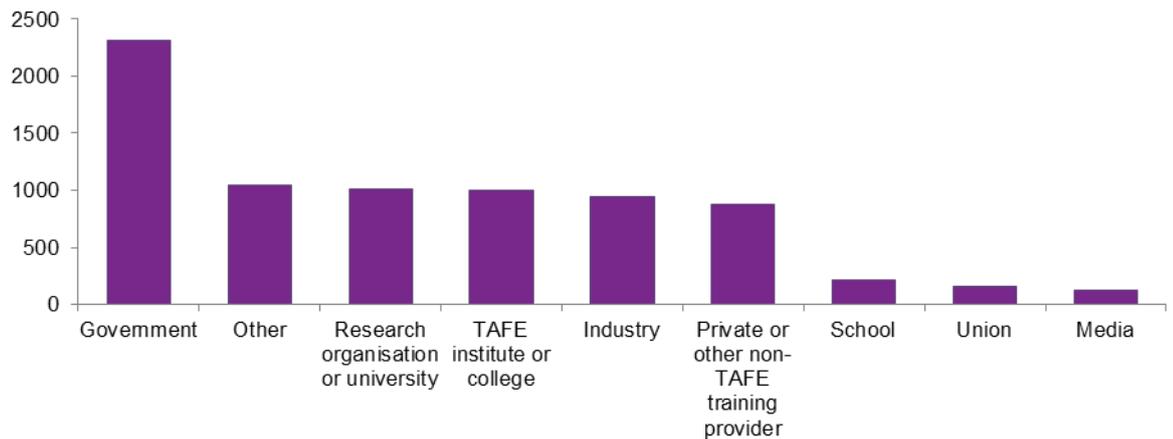
Notes: Data are from the website only on 14 reports. As the website was de-commissioned on 3 February 2014, reports 11−4 and 16 were published on the portal only.
Source: NCVER collated Google analytics data.

Table 5 identifies the reports that resonated most with a selection of key stakeholder groups.

Table 5   Top three reports that resonated (and were downloaded) by select key member groups: from the website or portal (theme 1)

Stakeholder	Report number	Report title	Total number of downloads
Government	10	Individual-based completion rates for apprentices	278
	14	Evolution of apprenticeships and traineeships in Australia: an unfinished history	240
	16	Understanding the non-completion of apprentices	215
Training organisation/provider	16	Understanding the non-completion of apprentices	273
	10	Individual-based completion rates for apprentices	229
	11-3	Completion and attrition rates for apprentices and trainees 2012	213
Industry	11-2	Completion and attrition rates for apprentices and trainees 2011	121
	10	Individual-based completion rates for apprentices	107
	11-3	Completion and attrition rates for apprentices and trainees 2012	101
Media	2	The impact of wages on the probability of completing an apprenticeship or traineeship	20
	11-3	Completion and attrition rates for apprentices and trainees 2012	18
	11-2	Completion and attrition rates for apprentices and trainees 2011	17

International profile

Across all of the reports there have been international downloads from the United Kingdom, United States, Canada, New Zealand, Switzerland, Kenya, Greece, South Korea, Thailand, Italy, Indonesia, Germany, Estonia, France, India, Austria and China. It is interesting to note the report that received the highest number of international downloads — from the United Kingdom — was *Understanding the psychological contract in apprenticeships and traineeships to improve retention*. This may be reflective of the high profile and networks generated by the lead author, Erica Smith, in that country.

Sharing research with others

Almost all of the respondents indicated they had shared NCVER's reports with others. The reasons provided for sharing reports were diverse:

- undertaking monthly reporting to demonstrate business performance
- providing information and advice to member associations and the business community generally, or as one respondent eloquently described as 'educating and illuminating'
- drawing attention to data and for comparing different datasets
- developing funding proposals
- supporting broader understanding of apprenticeships, with the aim of leading to improvements in apprentice support
- getting further advice about interpreting the research findings and the potential for influencing practice

- providing the opportunity for others who may have an interest in the research to read the full report

- informing industry bodies and business of the state of play in the industry.

Capacity-building

Most of the respondents said the research had a developmental or other educational benefit either for themselves, within their own organisation or for others. Just under half indicated their engagement with the research led them to make use of other NCVER research or data.

Various types of capacity-building arising from engagement with the research were reported:

- assisting in the development of specific programs and initiatives

- understanding market trends and conditions, for example, the problems associated with non-completion of apprenticeships, the downturn in apprentice commencements and general issues concerning apprentice and trainee outcomes

- the data providing an excellent benchmark to use for commencement, completion and in-training figures

- supporting a program for encouraging school-based apprentices

- assessing the trends in behaviours against the services and support provided to apprentices

- assisting in planning recruitment strategies and training delivery processes.

Informing policy

Evidence from stakeholders

All respondents indicated they thought research overall leads to better information by which to inform or influence policy in the VET sector. More specifically, stakeholders were also asked if they were aware of the research leading to any observable changes in policy or having influenced government programs or other initiatives. Nine of the 15 respondents indicated in the positive.

The following quotes give an indication of how research is used in the policy process by non-government stakeholders. The views highlight the role of independent research efforts. They also point to the degree to which conflicting knowledge can be used 'to construct claims that challenge established patterns of influence' (Daviter 2015, p.499).

> It can certainly influence the way that one presents one's arguments, particularly if research findings do not necessarily support a particular position for which one is arguing. It can also trigger thinking about further research topics or questions for investigation. (Industry affiliation or peak body)

> It makes it so much easier to develop policy when you can refer to relevant research to support a position. In addition if we need to talk to the Minister about an issue we can say 'but the research says …' (Industry affiliation or peak body)

Respondents were asked whether they have *used* the knowledge gained from the research *in any way* to inform policy. Six of the 15 respondents indicated possibly but they could not provide direct evidence. Eight could provide details (table 6).

Table 6   Stakeholder evidence of impact on policy: apprenticeships theme

Examples or quotes provided by stakeholders regarding the use of research in policy	Stakeholder	Specific reports mentioned (if applicable) *Refer to table 4 for referencing of report number*
Research has informed initiatives to improve completion rates. Specific example: research undertaken for the former NSW Board of Vocational Education and Training (BVET).	State/territory government department	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16
Funding rates for apprentices and trainees in remote locations of the Northern Territory were increased. Incentives for group training organisations were increased for remote Indigenous communities to assist with commencements, progressions and completions, which has helped to increase the numbers.	State/territory government department	1, 3, 5, 6, 12
Research has been used for expansion planning, and is regularly referred to in government and stakeholder engagement. Specific documentary evidence: Pricewaterhouse Coopers' review of the National Apprenticeships Program (NAP), using NCVER research.	Group training organisation	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 15, 16
Apprentice completion rates data influenced the implementation of a mentoring program.	Apprenticeship centre or broker	N/A
The research commissioned by the Apprenticeships for the 21st Century Panel led to the formulation of policy that had a disastrous impact on apprenticeship commencements in Australia. To some extent NCVER statistics and research underpinned the mentoring and support policies and programs and the new Apprenticeship Support Network. Specific documentary evidence within various Australian Chamber of Commerce and Industry publications: *A systematic approach to retaining apprentices*; *It's not about age …*; *Worth their weight in gold*; *From apprenticeship to a career*.	Industry affiliation or peak body	1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 14, 15, 16
Policy and programs associated with pre-apprenticeships. Initiatives associated with improving apprentice commencements and completions; work in partnership with the Queensland and Northern Territory governments.	Industry affiliation or peak body	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 16
We are always using the NCVER work on completion rates and reasons for non-completion to make certain points in the hope of influencing policy. I am not sure that there is a direct link but I think one could argue that NCVER's and other work has influenced the government decision to have Australian Apprenticeship Support Network providers focus more on activities designed to improve completion rates. I also think that a lot of the NCVER work on VET in Schools is providing momentum for governments to keep questioning the purpose and improving the quality of these programs. I think separate papers by Phil Toner and Mark Cully on traineeships over the years, commissioned by various parties, have influenced government thinking about the value of traineeships, the extent to which they should attract government subsidies and the contribution they make to national skills formation.	Industry affiliation or peak body	1, 2, 3, 5, 6, 7, 9, 11, 12, 13
Generally, about skill shortages, support services, funding allocation and the provision of training. Commencements and completions often influence the skills shortage data, in particular the funding of apprenticeship training and the skilled occupation list. This data influences at the state and federal level.	Industry affiliation or peak body	All
Development of an industry five-year training strategy.	Industry affiliation or peak body	1, 3, 11
Has led to greater support for apprentices, especially during their first year.	Secondary college	12

Informing practices associated with the employer management of apprentices and informing potential apprentices.	Apprentice	N/A

Even when respondents could not provide specific examples they made reference to links between the research and government policies or guidelines on the implementation of apprenticeships and traineeships. As one respondent cautioned however the data on apprenticeships alone do not reflect the complexity of the apprenticeships system.

> I suspect NCVER data collection for both group training organisations and VET in general has significantly influenced the 'bean counters' in Canberra. As I have often stated however NCVER statistics do not capture the *effort* involved in employing apprentices. (Industry affiliation or peak body)

Of note are the connections various stakeholders are making between research and subsequent new policy and funding related to apprenticeship mentoring and pastoral care (table 6).[4] While it is not possible to prove direct causation, the introduction of the Australian Apprenticeships Mentoring Package in 2011, which recognised the importance of pastoral care arrangements for apprentices to improve completion rates, came in the wake of research undertaken by NCVER and others.

Conflicting views exist regarding the use of research to inform policy, as reflected in the comments included in table 6. Depending on who the stakeholder is and their role within the sector they, as would be expected, will perceive connections between the research and the consequences of subsequent policy shifts differently. They may also be directly affected, either positively or adversely, through decisions arising from policy.

This is most evident in the research reports underpinning the review of Australian Apprenticeships for the 21st Century Expert Panel. As an example, the intention of NCVER's report *The economics of apprenticeships and traineeships* was to bring together some of the more important economic considerations such as evidence on costs and benefits, as well as sustainability issues that might impact on the long-term future of the apprenticeship and traineeship system. Four ideas were suggested for the deliberations of the expert panel:

- In occupations where the apprenticeship/traineeship model has a near monopoly in entry level training, reduce the risk of having an inadequate labour supply by supplementing the model with an institution-based one, perhaps with some sort of provisional qualification that is completed with work experience.

- Look at the possibility of abandoning the model in occupations where it is clearly not working. In these cases, an apprenticeship or traineeship would be replaced by an institutional path.

- Question the merits of having traineeships for existing workers and part-time workers. Many of these seem to be about reducing wage costs to employers and getting a government subsidy rather than skills acquisition. On-the-job training will provide the necessary skills for most of these workers.

---

[4] For a collated history of key policy shifts related to apprenticeships and traineeships from 1939 to 2015, see <http://www.voced.edu.au/content/timelines>.

- Being clear about which policies are concerned with skills acquisition and which are concerned with assisting entry into the labour market. Perhaps government incentives should go to individuals rather than occupations.

(Karmel & Rice 2011, p.7)

The expert panel subsequently recommended that the Australian Government 'redirect employer incentives to provide structured support services to eligible apprentices and trainees and their employers in occupations that are priorities for the Australian economy' (Apprenticeships for the 21st Century Expert Panel 2011, p.4). The government then undertook further analysis by commissioning an econometric review of the Australian Apprentices Incentives Program (Deloitte Access Economics, 2012). The various reviews and analyses provided evidence and argument that led to decisions regarding the redesign of the overarching policy related to incentives. From 2012 there have been reductions in the incentives paid to employers, which appear to have had a flow-on effect, mainly in reduced commencements of non-trade apprenticeships and traineeships (Atkinson & Stanwick forthcoming).

This example emphasises the complex interplay of evidence and subsequent modification to an existing policy or incremental change. Examining the outcomes of the review of the Australian Apprenticeships for the 21st Century Expert Panel also reveals that not all the research entered into the ensuing policy deliberations. This suggests that other considerations affect the policy-makers' decisions, including the views of stakeholders with a vested interest in the outcomes, as well as the capacity of the government to act. Overall, the recommendations that were acted upon were concerned with refinements to the existing system and many of the fundamental issues the evidence raised were not addressed.

Evidence from the citation analysis

A number of reports from this theme have been used in policy submissions and the formulation of legislation on apprenticeships in Australia and internationally, with key highlights from the citation analysis reported in table 7.

Table 7   Citation evidence of impact on policy: apprenticeships theme

Policy or submission reference	Source(s)	Reference date	Reports used
Policy/legislation			
Skills Account: no TAFE fees for traditional trades apprentices	Australian Labor Party, Parliament of Australia	2006	*Apprentice and trainee completion rates*
Support for trade apprentices	Julia Gillard and the Australian Labor Party	2010	*Experimental completion and attrition rates for latest commencing apprentices and trainees*
Democratic Alliance policy on labour (South Africa)	Democratic Alliance, Cape Town, South Africa	2013	*Report 4: The economics of apprenticeships and traineeships*
Senate Inquiry into the Trade Support Loans Bill 2014 and the Trade Support Loans (Consequential Amendments) Bill 2014	Australian Council of Trade Unions Champion, N Ey, C (personal submission)	2014	*Individual based completion rates for apprentices* *Understanding the non-completion of apprentices*
Industry innovation and competitiveness agenda: an	Department of the Prime	2014	*Australian vocational education and training statistics: completion and*

action plan for a stronger Australia	Minister and Cabinet		*attrition rates for apprentices and trainees 2012* (published 2013)

Victorian Government Inquiry into Vocational Education and Training	Australian Education Union Victorian Branch	2005	*Apprentice and trainee completion rates*
Independent Pricing and Regulatory Tribunal, NSW Review of the Skills Base in NSW and the Future Challenges for Vocational Education and Training	NCVER NSW Department of Education and Training	2006	*Apprentice and trainee completion rates*
Fair Work Australia (matter no.C2011/1)	Australian Business Industrial and NSW Business Chamber	2010	*The impact of wages on the probability of completing an apprenticeship or traineeship*
Skills Australia: Creating a future direction for Australian vocational education and training	Housing Industry Association NSW Business Chamber	2010	*The impact of wages on the probability of completing an apprenticeship or traineeship* *Experimental completion and attrition rates for latest commencing apprentices and trainees*
Smart and Skilled: making NSW number one	NSW State Training Services	2011	*Report 2: Overview of apprenticeship and traineeship institutional structures* *Report 3: The apprenticeship and traineeship system's relationships with the regulatory environment*
A shared responsibility: Apprenticeships for the 21st Century Expert Panel Report (stakeholder submissions)	Australian Chamber Alliance AVETRA ACPET Minerals Council of Australia Smith, E (personal submission) EE-OZ Training Standards	2011-2012	*The impact of wages on the probability of completing an apprenticeship or traineeship* *How reasons for not completing apprenticeships or traineeships change with duration* *Experimental completion and attrition rates for latest commencing apprentices and trainees* *Pre-apprenticeships and their impact on apprenticeship completion and satisfaction* *Understanding the psychological contract in apprenticeships and traineeships* *Report 1: Overview of the Australian apprenticeship and traineeship system* *Report 2: Overview of apprenticeship and traineeship institutional structures* *Report 4: The economics of apprenticeships and traineeships*
2012 Skilled Occupations List (AWPA)	Auto Skills Australia	2012	*Australian vocational education and training statistics: completion and attrition rates for apprentices and trainees 2010* (published 2011)
Modern Award Apprenticeship Wage Review 2012 – AM2012/18 and others, apprentice, trainees and juniors (Fair Work Commission)	Australian Federation of Employers and Industries Australian Council of Trade Unions Australian Chamber of Commerce and Industry Toner, P (personal submission) Australian Mines and Metals Association	2012-2013	*Apprentice and trainee completion rates* *How reasons for not completing apprenticeships or traineeships change with duration* *The impact of wages and the likelihood of employment on the probability of completing an apprenticeship or traineeship* *Individual based completion rates for apprentices* *Australian vocational education and training statistics: completion and attrition rates for apprentices and trainees 2011* (published 2012)

			Evolution of apprenticeships and traineeships in Australia: an unfinished history
			The role of 'culture' in apprenticeship completions
			Report 1: Overview of the Australian apprenticeship and traineeship system
			Report 2: Overview of apprenticeship and traineeship institutional structures
			Report 4: The economics of apprenticeships and traineeships
Changes to Indigenous Employment Program assessment and funding processes (discussion paper)	Complete Personnel Group	2013	*Australian vocational education and training statistics: completion and attrition rates for apprentices and trainees 2010* (published 2011)
Productivity Commission inquiry into geographic labour mobility	NCVER	2013	*Attrition in the trades*
House of Representatives Standing Committee on Education and Employment Inquiry into the Role of TAFE and its operation	Holmesglen Institute of TAFE	2014	*Evolution of apprenticeships and traineeships in Australia: an unfinished history*
Productivity Commission's Inquiry into Workplace Relations Framework (Case study: sham contracting in the construction industry)	Australian Council of Trade Unions	2015	*The role of 'culture' in apprenticeship completions*
Senate Standing Committees on Economics on the Privatisation of State and Territory Assets and New Infrastructure	The Australian Municipal, Administrative, Clerical and Services Union	2015	*Understanding the non-completion of apprentices*

Informing practice

Evidence from stakeholders

Most respondents thought the apprenticeships research had led to general improvements in practice, either for themselves, within their organisation or more broadly within the VET sector (figure 4).

Figure 4   Stakeholder awareness of impact on practice: apprenticeships theme

- No, not aware
- Yes, for myself
- Yes, within my organisation
- Yes, more broadly within the vocational education and training sector
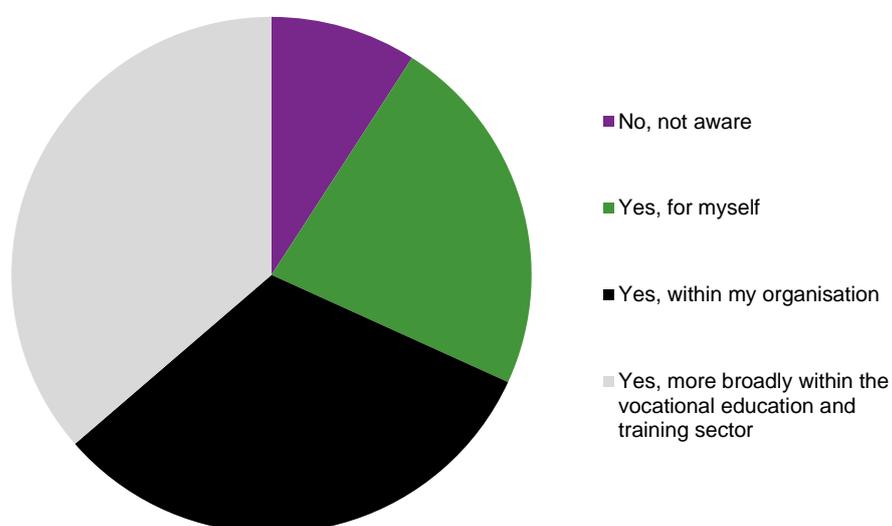
In terms of whether the research overall leads to *better information* by which to inform or influence practice in the VET sector, 13 of the 15 respondents said 'yes'. A reason given for why research may *not* lead to improvement in practice was that it is 'too time stale'.

The stakeholder evidence provided in table 8 tends to demonstrate more generic or anecdotal links and also that any change in practice related to apprenticeships, especially completions, occurs through wider support structures and systemic policy shifts.

Table 8   Stakeholder evidence of impact on practice: apprenticeships theme

Examples provided by stakeholders validating the use of research	Stakeholder	Specific reports mentioned (if applicable)
Improved planning and implementation (commissioned reviews).	Group training organisation	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 15, 16
Some research into completions has led to the adoption of better recruitment and pastoral care practices by employers, group training organisations and Australian Apprenticeship Centres.	Industry affiliation or peak body	1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 14, 15, 16
Research has provided the evidence to change policy and develop programs.	Industry affiliation or peak body	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 16
It is too soon to say whether the new service requirements imposed on Australian Apprenticeship Support Network contractors, which it is hoped will improve completion rates, have achieved anything because they did not come into effect until 1 July 2015. The fact they have been introduced though is something of a victory for research and advocacy. The work done by Rod McDonald and Mary Dickie for the former NSW Board of Vocational Education and Training encapsulated in the report *A fair deal* (and referencing several NCVER research reports) has provided some of the evidence for mismatching of prospective apprentices to employers and the need for recruiters to apply better matching techniques. This work has been operationalised in the development of a website <www.employingapprentices.com.au>, which it is hoped will prove to be a useful tool for various intermediaries recruiting people for apprenticeships or directing prospective apprentices towards apprenticeships such as career advisers and VET in Schools coordinators.	Industry affiliation or peak body	1, 2, 3, 5, 6, 7, 9, 11, 12, 13
Changes to training delivery and recruitment practices; trade journal stories and industry newsletters.	Industry affiliation or peak body	1, 3, 11
There were a number of guides, such as good practice in training and assessing, which are probably dated now but were extremely useful at the time of print.	Training provider	1, 2, 3, 5, 6, 7, 8, 9, 13, 14, 15, 16

Evidence from the citation analysis

There is also some evidence from the citation analysis of research from this theme informing practice, reported in table 9. This takes the form of new publications aimed at practitioners.

Table 9   Citation evidence of impact on practice: apprenticeships theme

Publication type	Source(s)	Reference date	Reports used
A guide to the employment of apprentices and trainees in the NSW public sector	NSW State Training Services/Public Sector Industry Training Advisory Body	2008	*Apprentice and trainee completion rates*
Hospitality management: strategy and operations	Book chapter in *Business relationships*	2012	*Experimental completion and attrition rates for latest commencing apprentices and trainees*

Findings: theme 2 – vocations

Introduction

The analysis in this section is presented under the four main categories of the impact framework: knowledge production, capacity-building, informing policy and informing practice. The reporting period for this analysis was the date of report publication to 25 May 2015. The discussion incorporates the results of the citation analysis as well as survey responses, noting again the sample is not representative of all of NCVER's stakeholders. Full results are provided in the support document.

Additional limitations for this theme

There were not as many respondents to this theme, despite the survey being distributed to a similar number of stakeholders as the apprenticeships theme (54 individuals for theme 1 and 43 individuals for theme 2). This may in part be attributed to timing: the first report was published in 2012. We are aware the citation rates will not yet paint a comprehensive picture. In addition, the fact sheets accompanying the research reports and a series of stakeholder events on this work occurring between 2014 to 2016 are not included in the metrics. Therefore, the consortia publications have been included as a benchmark for future impact studies, which will also take into account the feedback from attendees who attended presentations on this work.

Knowledge production

General engagement and use of the research

All respondents to the survey indicated they are familiar with NCVER's publications. The metrics on each report and the number of respondents familiar with specific reports under consideration are identified in table 10: they reveal a low level of awareness.

The majority of respondents indicated they turn to various NCVER publications, as well as resources outside NCVER, when seeking out information. A few respondents recalled attending a presentation on research related to this theme.

Table 10   Vocations theme – report details and overall metrics, from publication date to May 2015

#	Report	Authors	Publication date	Research purpose	Stakeholder awareness of specific report (n = 7)	Media – NCVER metrics	Citations (including some media)	Downloads from NCVER website and portal (also see figure 5)	Full record visits on VOCEDplus	Australian Policy Online downloads	Australian Policy Online hits
Research consortia publications from the three year (2011-14) consortia research program: Vocations: the link between post-compulsory education and the labour market
1	Entry to vocations: current policy trends, barriers and facilitators of quality in VET in Schools	Kira Clarke and Veronica Volkoff	2012	This working paper sets the policy context and direction of the entry to vocations research stream. After looking at the current 'in-school' element of VET in Schools programs and jurisdictional differences, the paper raises a set of questions for discussion. For example, are more advanced and intense programs of VET in Schools needed to deliver stronger labour market outcomes? Do VET in Schools programs need to be more directly connected with post-school VET programs?	2	0	7	625	80	n/a	n/a
2	Entry to vocations: the efficacy of VET in Schools	Kira Clarke	2012	This report explores the relationship between vocational education and training in VET in Schools and the labour market.	0	1	32	1998	72	n/a	n/a
3	Missing links: the fragmented relationship between tertiary education and jobs	Leesa Wheelahan, Mary Leahy, Nick Fredman, Gavin Moodie, Sophie Arkoudis and Emmaline Bexley	2012	This report explores the transitions students make in undertaking a second qualification (i.e. whether they change field of education and/or move between VET and higher education sectors). It also looks at the reasons why they decide to undertake another qualification.	0	5	17	1726	60	30	1866
4	Revitalising the 'vocational' in flows of learning and labour	Leesa Wheelahan, Gavin Moodie and John Buchanan	2012	This discussion paper introduces the overarching concepts for the three-year research program, 'Vocations: the link between post compulsory education and the labour market'. The paper also outlines the key findings from the initial investigations of each	2	0	24	598	49	n/a	n/a

#		Title	Authors	Year	Description							
					of the related research strands in the program. Overall, initial research has found that, due to the fragmentation of pathways within education and within the labour market, the relationship of pathways between education and the labour market are also fragmented. In order to understand this more clearly, the authors explore the concepts of transition systems, skill ecosystems and capabilities. A number of dilemmas for further research are also put forward.							
5		The role of educational institutions in fostering vocations	Gavin Moodie	2012	This working paper is an initial examination of what is known about pathways in tertiary education, as well as the loose associations between vocational qualifications and the jobs graduates do.	0	0	13	296	27	n/a	n/a
6		Understanding the nature of vocations today: exploring labour market pathways	Serena Yu, Tanya Bretherton, Johanna Schutz and John Buchanan	2012	Much research into the reasons students undertake tertiary study is at least implicitly based on rational choice theory: students calculate costs in order to maximize direct individual gain. The policy emphasis on pathways has somewhat broader bases including social inclusion as well as economic productivity, but narrowly focuses on institutional arrangements within education to facilitate upward transfer within fields of education. This paper critiques such assumptions.	0	0	12	551	35	n/a	n/a
7		Vocational trajectories within the Australian labour market	Serena Yu, Tanya Bretherton and Johanna Schutz	2012	This report explores the movements that workers make in the workforce and whether there are any commonalities. It also considers whether these movements can be characterised as vocational pathways. Workers within the finance, primary, health and electrical trades/engineering industries were interviewed about their employment and study history, career progression and reasons for any movements.	1	2	13	986	47	n/a	n/a

#		Title	Authors	Year	Description							
8		Defining vocational streams: insights from the engineering, finance, agriculture and care sectors	Serena Yu, Tanya Bretherton and John Buchanan	2013	The authors identify the potential for vocational streams — a set of linked occupations with related skills in a broad field of practice — in the areas of agriculture, financial services, engineering and healthcare/community services.	1	2	11	1249	32	n/a	n/a
9		Entry to vocations: strengthening VET in Schools	Kira Clarke	2013	How VET in Schools can be strengthened to provide stronger links to post-school pathways is explored in this report.	1	6	9	1488	61	n/a	n/a
10		Vocational education's variable links to vocations	Gavin Moodie, Nick Fredman, Emmaline Bexley and Leesa Wheelahan	2013	Using NCVER and Australian Bureau of Statistics data, as well as findings from four case studies, this report looks at how mid-level qualifications assist entry to and progression in the workforce.	1	2	17	970	41	n/a	n/a
11		Entry to vocations: building the foundations for successful transitions	Kira Clarke	2014	Improving the outcomes of students undertaking vocational education and training in schools is important to ensuring it is a viable post-school pathway for students. Investigating how to strengthen VET in Schools, this report suggests the following changes: defining its purpose as foundational preparation for mid-level qualifications or employment-based learning; better aligning the vocational curriculum with labour market opportunities; developing thematic packages of curriculum; and making explicit connections between VET undertaken at school and post-school VET.	0	1	14	591	26	n/a	n/a

Other NCVER publications of relevance

#		Title	Authors	Year	Description							
12		Responding to changing skill demands: training packages and accredited courses	Josie Misko	2010	This report looks at whether vocational education and training is equipped to meet the changing needs of the modern workplace.	1	12	22	2437	38	26	3108

#	Title	Author	Year	Description							
13	From education to employment: how long does it take?	Darcy Fitzpatrick, Laurence Lester, Kostas Mavroamaras, Sue Richardson and Yan Sun	2011	Using the 1995 cohort of the Longitudinal Surveys of Australian Youth (LSAY), this project examines how long it takes for young people to move from education to work, and identifies factors that distinguish people who are able to move quickly into employment from those who take many months to find work.	0	14	23	1579	41	n/a	n/a
14	VET research for industry	Tom Karmel (conference paper)	2012	This paper was a keynote address at the Australian Vocational Education and Training Research Association (AVETRA) conference held in 2012. The author notes that industry is arguably the key stakeholder in the Australian VET sector and discusses six areas of research which raise questions about VET and industry, either in terms of how public training funds are allocated or the educational principles on which VET is based.	4	1	11	2288	26	n/a	n/a
15	Interpreting competencies in Australian vocational education and training: practices and issues	Steven Hodge	2014	How VET practitioners understand and use competency standards is of fundamental importance to the quality and integrity of the Australian VET system. This small study seeks to address this question by gaining insights from 30 VET practitioners.	2	2	17	2886	89	n/a	n/a
16	Qualification utilisation: occupational outcomes – overview	Bridget Wibrow	2014	This overview uses information from the Student Outcomes Survey (SOS) to match the intended occupations of graduates with their destination occupation six months after training. The influence of qualification level, labour force status before training, age, completing only a module and industry area was also examined.	0	2	17	613	24	n/a	n/a
Total vocations theme					**n/a**	**50**	**259**	**20 881**	**748**	**n/a**	**n/a**

Top downloads

Figure 5 indicates the total number of downloads by report. The report with the largest number of downloads was *Interpreting competencies in Australian vocational education and training: practices and issues*. This may be a reflection of both the importance and appetite for research on this issue, as well as the title immediately making sense to stakeholders.

Figure 5   Theme 2: nature of vocations – total number of downloads (website and portal) by report from publish date
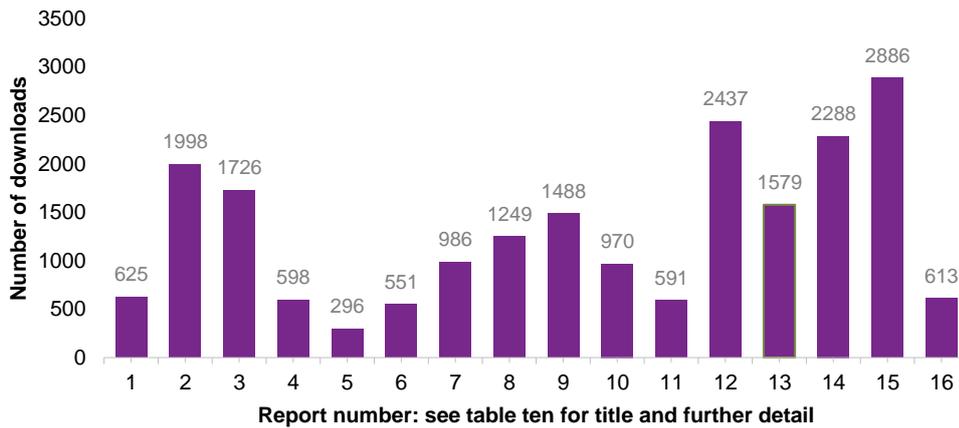
Source: NCVER-collated Google analytics data.

What reports are resonating with stakeholders

Figure 6 shows the extent to which the overall reports in this theme are being downloaded amongst key member groups. As with theme 1, government is the highest user.

Figure 6   Theme 2: nature vocations – member group downloads
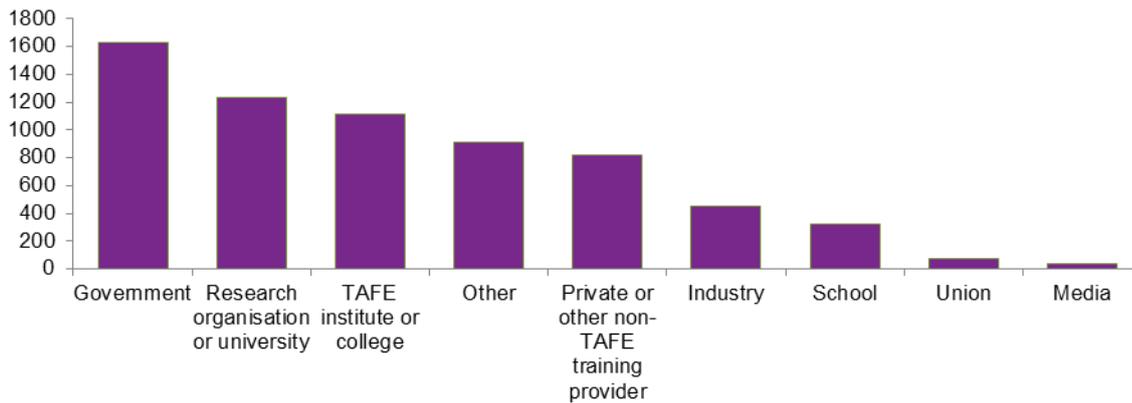
Source: NCVER-collated Google analytics data.

Table 11 identifies the reports that resonated most with a selection of key stakeholder groups.

Table 11   Top three reports that resonated (and were downloaded) by select key member groups: from the website or portal (theme 2)

Stakeholder	Report number	Report title	Total number of downloads
Government	12	*Responding to changing skill demand: training packages and accredited courses*	221
	2	*Entry to vocations: the efficacy of VET in Schools*	219
	16	*Qualification utilisation: occupational outcomes — overview*	189
Training organisation/provider	15	*Interpreting competencies in Australian vocational education and training: practices and issues*	356
	12	*Responding to changing skill demand: training packages and accredited courses*	330
	14	*VET research for industry*	257
Industry	12	*Responding to changing skill demand: training packages and accredited courses*	64
	15	*Interpreting competencies in Australian vocational education and training: practices and issues*	60
	2	*Entry to vocations: the efficacy of VET in Schools*	54
Media	13	*From education to employment: how long does it take?*	7
	14	*VET research for industry*	7
	8	*Defining vocational streams: insights from the engineering, finance, agriculture and aged care sectors*	6

International profile

Reports across this theme are being downloaded in the following countries: the United Kingdom, United States, Canada, New Zealand, Italy, Indonesia, Germany, China, South Africa, Trinidad and Tobago, Vietnam, Chile, Netherlands, Hong Kong and the Philippines.

The report with the highest download internationally was *Interpreting competencies in Australian vocational education and training: practices and issues*, from the Philippines. While *Missing links: the fragmented relationship between tertiary education and jobs* had particular interest from the United Kingdom.

Sharing research with others

Five of the seven respondents indicated they have shared NCVER's research with others, predominantly via social media or newsletters. The main purposes for sharing reports include:

- extending the knowledge base

- broadening understanding of the VET landscape

- sharing key findings with colleagues, consultants or networks.

Capacity-building

Almost half of the respondents were aware of the research having had a developmental or other educational benefit either for themselves, within their own organisation or for others. Various types of capacity-building arising from engagement with the research were reported, such as:

- informing the activities of the organisation

- increasing the knowledge of staff and colleagues

- applying it to practitioner research

- applying for and receiving a research grant.

Around half indicated their engagement with the research had or probably had led them to make use of other NCVER research or data.

Informing policy

All respondents indicated they thought research overall leads to better information to inform or influence policy in the VET sector. Stakeholders were also asked if they were aware of the research in this theme generally leading to any observable changes in policy or influencing government programs or other initiatives in any way, with half of respondents indicating 'yes', even though there was less awareness of the specific reports under consideration in this case study.

Respondents were also asked whether they had used the knowledge gained from the research in any way to inform policy. The responses were evenly spread, with two respondents indicating 'no', another two indicating 'possibly', but they are unable to provide direct evidence and two respondents indicating 'yes' with the ability to provide details (see table 12). In addition, the researchers involved in the consortia work reported follow-on policy-relevant research directly arising from the work undertaken for NCVER by the Board of Vocational Education and Training in NSW.

Table 12 Stakeholder evidence of impact on policy: vocations theme

Examples provided by stakeholders validating the use of research	Stakeholder	Specific reports mentioned (if applicable)
The research is used heavily in submissions to Commonwealth and state/territory government departments. Greater awareness of the role of VET and of the key workforce training issues facing Australia. We have been asked to present at Senate hearing and House of Representatives enquiries. In the community services and health industry our work has definitely informed policy. The Industry Skill Councils are mandated to provide analysis of key trends to policy, with NCVER research cited in most ISC environment scans.	Industry Skills Council	*Responding to changing skill demands: training packages and accredited courses* 'VET research for industry' (conference paper) *Entry to vocations: current policy trends, barriers and facilitators of quality in VET in Schools* *Revitalising the 'vocational' in flows of learning and labour* *Vocational trajectories within the Australian labour market* *Interpreting competencies in Australian vocational education and training: practices and issues*
We always try to ensure policy development is evidence-based. NCVER research was used in the development of the National Agriculture Workforce Development Plan. The adoption of skill sets as part of government-funded educational outcomes. We have	Industry peak body	N/A

pushed for skill set funding in a number of policy proposals; the research was able to provide an evidence base supporting this approach.[5] This is just one example of a suite of reforms affecting the VET funding model.

Evidence from the citation analysis

A number of reports from this theme have been used in various submissions and legislation relating to policy, identified in table 13. Of note is policy related to the review of training packages and accredited courses.

Table 13 Citation evidence of impact on policy: vocations theme

| Policy or submission reference	Source(s)	Reference date	Reports used
Policy/Legislation			
Social Security Legislation Amendment (Family Participation Measures) Bill 2011, Second Reading	House of Representatives, Hansard	2011	*From education to employment: how long does it take?*
Submissions			
Standing References Committee on Education, Employment and Workplace Relations – Inquiry into Industry Skills Councils	NCVER	2010	*Responding to changing skill demands: training packages and accredited courses*
Productivity Commission Study on the Schools Education and Training Workforce	Australian Education Union	2011	*From education to employment: how long does it take?*
Australia's skills and workforce development needs (discussion paper)	Australian Industry Group	2012	*Entry to vocations: strengthening VET in Schools*
Employment services – building on success	Butler, L (no other source identified)	2013	*Entry to vocations: current policy trends, barriers and facilitators of quality in VET in Schools*
House of Representatives Standing Committee on Education and Employment − Inquiry into the Role of TAFE and its Operation	AgriFood Skills Australia Manufacturing Skills Australia Unions WA	2013	*Entry to vocations: the efficacy of VET in Schools* *Entry to vocations: strengthening VET in Schools*
Inquiry into Vocational Education and Youth Training Programs in the ACT	NCVER	2013	*Entry to vocations: the efficacy of VET in Schools*
Making the Grade: Autonomy and Accountability in Victorian Schools: Inquiry into School Devolution and Accountability	VET Development Centre	2013	*Entry to vocations: the efficacy of VET in Schools*
Productivity Commission Inquiry into Geographic Labour Mobility	NCVER	2013	*Vocational trajectories within the Australian labour market*
Review of Australian Curriculum	Australian Industry Group	2013	*Entry to vocations: the efficacy of VET in Schools*

5 The research this refers to did not explicitly form part of this impact project; it is J Mills, D Crean, D Ranshaw & K Bowman, Workforce skills development and engagement in training through skill sets, NCVER, Adelaide 2012. Available at <http://www.ncver.edu.au/publications/2568.html>.

Review of the demand driven funding system	Monash University	2013	*Defining vocational streams: insights from the engineering, finance, agriculture and care sectors*
Submission to the Victorian Government for the 2014−15 budget	Australian Industry Group	2013	*Entry to vocations: strengthening VET in Schools*
Review of current HSC VET work placement arrangements in NSW	NSW Business Chamber	2014	*Entry to vocations: the efficacy of VET in Schools*
Review of training packages and accredited courses	Department of Industry	2014	*Responding to changing skill demands: training packages and accredited courses* *Qualification utilisation: occupational outcomes — overview*
The Forrest Review – Indigenous Jobs and Training (Employment Review Taskforce, Department of the Prime Minister and Cabinet)	NCVER	2014	*Qualification utilisation: occupational outcomes — overview*
Productivity Commission Inquiry into the Workplace Relations Framework	Buchanan, J (one of the authors of the research)	2015	*Revitalising the 'vocational' in flows of learning and labour* *Defining vocational streams: insights from the engineering, finance, agriculture and care sectors*
The operation, regulation and funding of private vocational education and training providers in Australia	Melbourne Graduate School of Education, University of Melbourne	2015	*Revitalising the 'vocational' in flows of learning and labour* *Entry to vocations: building the foundations for successful transitions*
Submission to the Victorian Government for the 2015−16 budget	Australian Industry Group	2015	*Entry to vocations: strengthening VET in Schools*

Informing practice

Most respondents thought the research had exerted some impact on practice within their organisation or more broadly within the VET sector. See figure 7 and table 14.

Figure 7   Stakeholder awareness of impact on practice – vocations theme
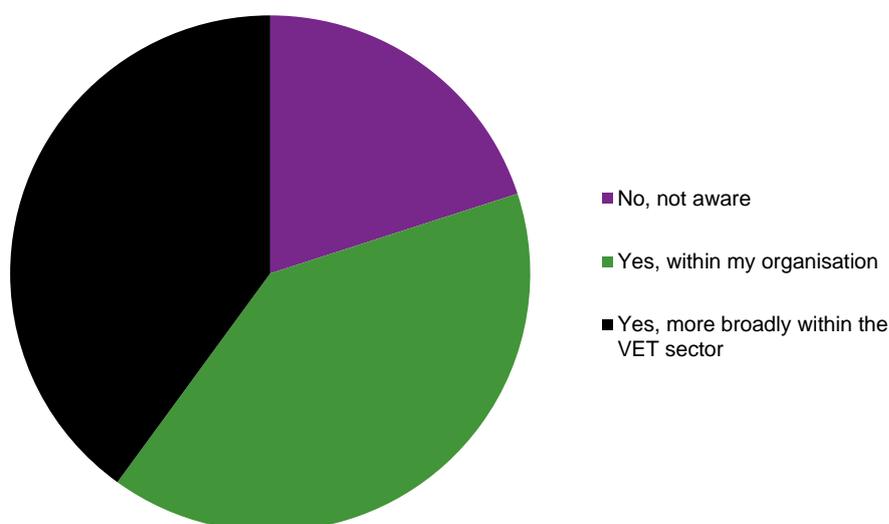
- No, not aware
- Yes, within my organisation
- Yes, more broadly within the VET sector

Even though the data come from a *very small* number of responses, to some extent the findings with respect to informing practice in this theme are surprising, given the largely theoretical nature of the research and especially given the early stages of this analysis following publication of the consortia work.

Stakeholders themselves recognised that this theme was not necessarily directed at practice or practical matters, as it 'concerns really large structural issues in VET'. Another respondent suggested that when talking about change in practice it was more about looking for research that *supported* a particular outcome and it was really only in government that this research could support *actual change*.

Herein lies a major issue with interpreting impact, which might be described as a 'gestation' factor. This is the weight of evidence and information assembled over a period of time that, only as a collective body of work, leads to potential or significant policy change, which typically is in the final hands of government. Theme 2 examines and in part challenges current policy in vocational training products and training pathways with a forward future perspective of skill needs in a changing labour market. Being a large 'structural issue', it is rightfully contested ground with differing views. Where policy or practice changes are deemed worthy, this will take time.

Table 14 Stakeholder evidence of impact on practice: vocations theme

Examples provided by stakeholders validating the use of research	Stakeholder	Specific reports mentioned (if applicable)
Research on efficacy of mentoring has influenced the development of mentoring support attached to a grants program	VET Development Centre	*VET research for industry (conference paper)*
Information regarding VET in Schools has influenced the professional development provided to VET in Schools teachers		*Revitalising the 'vocational' flows of learning and labour*
Research grants of $5000 each were provided to support VET practitioners to develop research capability		*Entry to vocations, strengthening VET in Schools*
The organisation more broadly is mindful of contemporary practice arising from the research; for example, with their work on behalf of the Victorian Government, support of AVETRA and management of a blog providing national and international information related to vocational education and training.		*Vocational education's variable links to vocations*
Professional program in work-integrated learning for TAFE Queensland, including learning guides, webinar series and supporting material	Education peak body	*VET research for industry*
Used NCVER research information in the design and development of a professional development program for TAFE teachers in work integrated learning		*Defining vocational streams: insights from the engineering, finance, agriculture and care sectors*
		Interpreting competencies in Australian vocational education and training: practices and issues

Evidence from the citation analysis

Keeping in mind the relatively recent publication dates and the overall purpose of developing theoretical frameworks and influencing policy thinking for most of the research considered in this theme, there is already evidence from the citation analysis of some research informing practice, as follows (table 15):

Table 15 Citation evidence of impact on practice: vocations theme

Publication type	Source(s)	Reference date	Reports used
Career education benchmarks – secondary: a set of quality benchmarks for career education programs and services in New Zealand secondary schools	Careers New Zealand	2014	*Entry to vocations: strengthening VET in Schools*
Train the Trainer – ASEAN national assessor trainee manual	William Angliss Institute of TAFE	2015	*Responding to changing skill demands: training packages and accredited courses*

💬 The views of researchers

The views of researchers are important, particularly in terms of the capacity-building domain. While professional or career development benefits may arise from the conduct of research, we are also interested in collaborations formed with end-users and the researchers' own perspective of the influence they are having on policy and practice. Another benefit of engagement, which NCVER plays a key role in facilitating, is a better appreciation of the policy environment and how researchers can best engage with it. Including the views of researchers is a useful exercise for uncovering how research can add value in ways other than usually conceived. Our findings are reported against the four domains of our framework.

Knowledge production

All researchers who responded to the survey reported they involved key stakeholders in the design and conduct of their research. In addition, most attended specific stakeholder meetings or presentations as well as participated in a wide range of other dissemination activities, such as media interviews, webinars and social media, and a variety of conferences.

While most researchers were aware of their research being publicised in some way, they were generally less aware of their research impacting on policy or practice. They acknowledged the challenge of capturing impact and recognised that once they moved on from the research project they were less likely to be aware of the impact of their research.

Many did say they spent a great deal of time talking to people in government about their work and this alone had increased awareness of the research. In addition, where possible, researchers were involved in the presentation of early research findings to key stakeholders and invited them to offer appraisals and suggestions for dealing with the issues raised.

> It is my experience as an author of NCVER reports that stakeholders follow what NCVER releases very closely and accord its findings a great deal of weight. Much more weight than, say, reports that stakeholders themselves may have commissioned from consultants. During conferences I would get very detailed questions from attendees about how the results related to their industry and whether or not they accorded with their own experiences.
>
> (Researcher)

Impact on policy

While some researchers were able to identify impacts on policy, many acknowledged they did not keep track of what happens to their research once published. One researcher commented on the limited scope for impact when the outcomes of one report alone do not yield meaningful results:

> Potentially, the research could have had a much greater impact but the results were a bit of a wash. If there had been an overwhelming finding one way or another, then I think there would have been much more of a reaction from policy-makers.
>
> (Researcher)

Others had a more positive story to tell. Some researchers from the vocations consortia had direct involvement in policy development and saw how their research was being used:

- by the South Australian Training Board to think about policy at the state level

- at a 'think session' in Tasmania with TAFE, the government department and key stakeholders

- as the basis for the Australian Curriculum, Assessment and Reporting Authority's (ACARA) National Trade Cadetships initiative, with the researchers being asked by ACARA to develop the curriculum framework.

Impact on practice

Researchers who have a teaching role in either a university or vocational provider indicated they often use the results from their research in their own teaching programs, and they encourage their colleagues to do the same.

Capacity-building

Most researchers were aware of their research generating subsequent research in the area, conducted either by themselves or by others. At least half benefited in terms of attracting further research funding. Only a small number of researchers were able to identify a promotion or secondment as a result of their research track record. However, for one researcher, a sequence of projects (both NCVER and other work) was instrumental in their being appointed as Personal Chair in VET within their university and had overall played a part in their recognition as a leading authority globally in apprenticeships research.

Two examples are worth noting with respect to capacity-building. They highlight the value of the consortia approach for bringing researchers together and opening up networks and opportunities to others on the team.

Understanding the psychological contract in apprenticeships and traineeships to improve retention

Researchers who worked on this project reported that it enabled them to participate in an international research project for the World Bank and the International Labour Organization's Indian offices. It also informed international work on apprenticeships, particularly with the International Network on Innovative Apprenticeship (INAP) network. As mentioned earlier, the lead researcher was able to promote and highlight this research in the United Kingdom via conference presentations and existing networks.

Vocations: the link between post-compulsory education and the labour market

The vocations research consortium established the foundation for further research proposals sent to various government departments and organisations interested in the capabilities approach to education and training. A lead researcher was successful in obtaining several further research grants, including two projects for the Board of Vocational Education and Training in NSW. In addition, most researchers indicated that their involvement in the consortium led to the development of new connections with other researchers, enabling a better understanding of issues pertaining to VET. Ongoing collaborations with the broader

VET community and other stakeholders, including those responsible for implementing policy, were also established. As one researcher stated: 'my network of expert colleagues has expanded meaningfully during the project'. The lead researcher and others in this consortium have presented the findings at many conferences, and continue to do so. On the basis of this work, the researchers were able to maintain research connections in Australia and build research connections in the United Kingdom and the United States through an international network of researchers working on 'higher vocational education' pathways.

The Editorial Board analysis

NCVER places top priority on producing high-quality research and statistical publications. An extensive range of quality assurance mechanisms guide the entire research process, from selection, with stakeholder input of research topics, the adoption of rigorous methodologies and data checking, to blind peer review and sign-off. We also require reports to be written in plain English, working directly with researchers and editors on this aspect.

For this project NCVER's Editorial Board has been asked to contribute to the impact assessment. The intention was to determine the extent to which our impact model could be enhanced, with the use of an *independent judgment* of the research, beyond metrics and the self-reported use of research by the stakeholders in our case studies. Members were asked to rate reports according to quality of output, potential impact and general assessment of accessibility.

Underpinning the Editorial Board assessments was NCVER's impact philosophy — and this philosophy perhaps also best defines our definition of quality: *Research to have impact must be seen as relevant by its target audiences, make a useful contribution to knowledge, be impartial, adopt rigorous methodologies and use reliable data, be conducted ethically, be above criticism of bias, be interesting, and be read or at least become known.*

Editorial Board members were each asked to review between two and four reports, with some reports assessed by two members. Editorial Board members were paid, in accordance with NCVER's standard peer review process.

Editorial Board members involved in the analysis

The following Editorial Board members were available to participate in the review process.[6] Their biographies are included at appendix B.

- Professor Gerald Burke, Adjunct Professor, Faculty of Education, Monash University

- Professor David Finegold, Chief Executive Officer, American Honors Organisation

- Dr Robin Ryan, Adjunct Lecturer, Graduate Program in Educational Leadership and Management, School of Education, Flinders University

- Professor Kwong Lee Dow, AO, Professor, University of Melbourne

- Dr Tom Karmel, Adjunct Professor, National Institute of Labour Studies, Flinders University.

Reports selected for Editorial Board analysis

The following 12 reports were included in the review, and those marked with an asterix received two reviews. Unfortunately, two other Editorial Board members were unable to complete the reviews of apprenticeship theme reports allocated to them; hence, the disparity in the number of reports reviewed across the two themes.

---

[6] To ensure anonymity and in accordance with privacy policies we will not divulge which Editorial Board member reviewed which report. Any conflicts of interest were declared.

Apprenticeships theme

- *Attrition in the trades**
- *Evolution of apprenticeships and traineeships in Australia: an unfinished history**
- *Understanding the non-completion of apprentices*
- *Understanding the psychological contract in apprenticeships and traineeships to improve retention**

Vocations theme

- *Entry to vocations: building the foundations for successful transitions*
- *From education to employment: how long does it take?*
- *Interpreting competencies in Australian vocational education and training: practices and issues**
- *Missing links: the fragmented relationship between tertiary education and jobs**
- *Qualification utilisation: occupational outcomes — overview**
- *Responding to changing skill demands: training packages and accredited courses*
- *Revitalising the 'vocational' in flows of learning and labour**
- *Vocational education's variable links to vocations**

Approach to analysis and feedback from the Editorial Board

The criteria and rating scales were adapted from the Research Excellence Framework impact exercise, undertaken in the United Kingdom[7], as follows.

Quality of output

Originality and rigour are the two criteria used for assessing quality of output. This takes into account the overall research design and methodology. Originality can be understood in terms of the innovative character of the research output. Research outputs that demonstrate originality may: engage with new and/or complex problems; develop innovative research methods, methodologies and analytical techniques; provide new empirical material; and/or advance theory or the analysis of doctrine, policy or practice. Rigour is understood in terms of the intellectual precision, robustness and appropriateness of the concepts, analyses, theories and methodologies deployed in the research output. Account will be taken of such qualities as the integrity, coherence and consistency of arguments and analyses, including the due consideration of ethical issues.

---

7 NCVER acknowledges the use of assessment criteria from the Research Excellence Framework 2014. The copyright for that work is held by the Higher Education Funding Council for England (HEFCE). All content is available under the terms of the Open Government Licence v3.0 <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/1/>.

Criteria	1 star	2 stars	3 stars	4 stars
	Quality that falls below the standard of nationally recognised work, or work that does not meet the definition of research.	*Quality that is good overall but falls short of highest standards.*	*Quality that is very good and recognised nationally.*	*Quality that is of the highest standard and internationally excellent.*

Potential impact

The criterion for assessing potential impact is 'reach and importance'. Reach can be understood in terms of a professional judgment on the extent and diversity to which others (individuals, organisations, and communities) may benefit from the research. Importance can be understood in terms of the development of the intellectual agenda of the field and may be theoretical, methodological and/or substantive. Due weight should be given to potential, as well as actual significance, especially where the output is recent. The degree to which the research has the potential to influence or inform policy and practice should be taken into account.

Criteria	1 star	2 stars	3 stars	4 stars
	Impact is of little or no reach or importance; or the potential impact is not underpinned by excellent research.	*Considerable impact.*	*Very considerable impact.*	*Outstanding impact in terms of potential reach or importance.*

General assessment of accessibility

NCVER's foremost interest is in applied research; that is, research aimed at informing policy development or practice. NCVER therefore strives to produce research reports that are accessible to a wide range of stakeholders. They should be easy to read and interesting.

Criteria	1 star	2 stars	3 stars	4 stars
	Does not satisfy the criteria: Not interesting, is disjointed and lacks coherency.	*Partially satisfies the criteria: Further work is required to add value and ensure coherency.*	*Satisfies the criteria: Supports and adds new information, as a whole is coherent and logical.*	*Satisfies the criteria to an exemplary level: Major contribution, provides fresh insights, explores issues from different angles, high degree of coherency.*

Feedback on the criteria and rating scales

Feedback from the Editorial Board suggested the rating process was mostly appropriate but there was room for improvement to suit NCVER's remit. Members viewed it as a relatively straightforward exercise, although there was substantial work in reading, and in some cases re-reading, the reports, as well as undertaking additional work to familiarise themselves with the topic and broader literature if required. It was felt that international significance was an unrealistic measure for research so focused on specific Australian issues. This was

therefore interpreted as the research looking respectable in terms of methodology and execution if presented at an international conference.

Some suggested there was a gap between three and four stars, especially in the first criterion for assessing the quality of output, so in some instances Editorial Board members used a 2.5 or 3.5 star rating. As one reviewer explained:

> The star system is well explained and should be useful for getting comparative impressions of component elements of the reports. I'd suggest care in not over interpreting the numbers which are provided. I tried to use the full scale for maximum differentiation, but with limited success. There wasn't much that warranted four stars, though there were sections in all the reports that could have been given that grading. Especially in my reports 3 and 4 I found it hard to give one score for the whole report (on each of the dimensions) because of the good and less good parts of those quite extended documents. In such cases one averages, so there are lots of three's. As one would expect, it would be misleading to give one star for any work at this level of sophistication with these chosen authors. So I reverted to invoking half stars, as they do in the hotel industry! This should help indicate some differentiation and seemed the best I could do.

Editorial Board member reviews

Table 16 combines all of the ratings allocated to provide, as an approximate guide, an overall average picture of quality, potential impact and accessibility. For reports that were reviewed by two members the average was used.

Table 16   Editorial Board average ratings in relation to quality, potential impact and accessibility on a selected number of research reports

Criteria	Average rating	Standard Deviation
Quality of output		
1a Originality	2.56	0.69
1b Rigour	2.79	0.62
Potential impact		
2a Reach	2.71	0.42
2b Importance	2.92	0.47
General assessment of accessibility		
3a Logical, well-structured and argued	3.19	0.53
3b Written in clear, direct and plain English	3.38	0.36

The general assessment of accessibility received the more consistent ratings from the Editorial Board overall and suggests that NCVER produces reports that are written in clear, direct and plain English. In terms of quality there is room for improvement in methodological rigour. There was also greater variance in the Editorial Board scores under the quality aspect but one reviewer also scored consistently lower than the others.

The most revealing aspect of this exercise was the comments that most Editorial Board members submitted along with their rankings. These offered both positive remarks and constructive criticisms. A selection of each is provided below.

Positive remarks

This report is an exemplary model of a clearly defined and well executed piece of educational research. It is modest in its ambit, and is careful in not over-claiming its importance or significance. The research question is elegantly presented, its relevance is explained with clarity and simplicity and its conclusion is authoritative and specific. So it won't get lost in the welter of reports and issues which crowd in and complicate interpretation of key questions and possible solutions but should stand the test of time in offering a reliable 'key message' as formulated in the report.

This is a very important study. It fills a gap in knowledge. The method of approach is innovative and the application excellent. As a 'one off' this can be regarded as an excellent study. I think the study needs to be seen as an element in an enormous body of work relating to apprentices and trainees much of it cited by the expert panel on apprentices and trainees. It is for this reason that I have ranked it at four stars on virtually all criteria.

Criticisms

With an array of knowledgeable and respected contributors this report could be expected to break new ground and make a substantial contribution to understanding in the field. It doesn't quite live up to that and may disappoint in terms of its impact and in terms of take home messages that point a way forward. It may be that it tries to encompass too much, and with many authors perhaps compromises have been made so the report lacks a sharp and clear argument. It gets lost in its own analyses, needs rigorous pruning in places to avoid repetition, especially of 'conclusions'.

This report is very difficult to assess as a stand-alone research paper. I had difficulty finding a clear line of argument … all in all the paper reads as a smorgasbord, with a great number of dishes. While some of the dishes are of interest there is no real feel of a well-structured dinner. The rigour of the report is hard to judge because it is a summary of other work. However, on the face of it the component pieces of research appear to be competently done. This report is unlikely to have a huge impact.

Many of the comments pointed to the following challenges. These will inform NCVER's efforts for continuous improvement in its management of research.

- being more critically aware of limitations in methodology and what could be done differently in research design at the beginning and early stages of the research cycle

- making sure there is balanced and wide consideration of the literature or data to back statements or findings, rather than relying on one or two sources to support a position

- ensuring reports have a clear line of argument, and ideas and results are well integrated

- checking and modifying titles of the research report as required to ensure they truly reflect the content (noting the metrics reported earlier reinforce the importance of titles)

And finally, as a couple of reviewers noted, there are other challenges affecting potential reach and impact:

> Impact affected by VET community's lack of interest in history, not any deficiency in the research.

> The collected work by this team is a very important contribution though it seems unlikely to get as much attention as it deserves in the current political and administrative climate.

Summing up the role of the Editorial Board

This aspect of the impact evaluation added a layer of complexity to the exercise and gave rise to the following considerations. The first are the implications for the quality assurance already embedded in NCVER's research and publication processes. The second relates to the extent to which we then explore, explicitly, aspects of quality post-publication as one element of our impact assessment. The exercise itself brings into question the appropriateness of rating individual reports as a short-cut to making an overall judgment about quality. After all, any impact exercise itself is implicitly judging quality; indeed, our impact philosophy, stated earlier, perhaps best defines what we mean by quality.

General observations about dissemination

Respondents to both themes were asked to rate how important, from least important to most important, particular types of research dissemination activities were in terms of facilitating engagement with the research.

Across both themes there were 19 responses to this question. The results are presented in table 17.

Research findings translated to fact sheets, research overviews or good practice guides rank as the most important for encouraging engagement and use of the research, followed by reading the research report itself. Several respondents requested the development of more good practice guides. All recognise the importance of the research report itself as the underpinning evidence base and wish they had more time to read the research in detail.

The findings regarding the importance of media and social media are interesting: almost all respondents indicated this approach to dissemination was not very important. This finding may be a reflection of a general misapprehension about the validity of the research messages reported via media and blogs for the purposes of developing policy and informing practice, and not a reflection of the importance of this type of approach for raising awareness. It may also be a reflection of demographics amongst the survey respondents. One respondent said: 'I am in the older generation so social media does not work well for me'.

> 'We would love to read the research in detail but in reality this does not happen. Of most value is the executive summary and snapshot of findings' (Industry affiliation or peak body).

Table 17   Importance of various types of dissemination products or activities for facilitating engagement with the research

Type of dissemination or product	Important	Neither	Not so important
Research findings translated to fact sheets or research overviews	17	2	0
Research findings translated to good practice guides	16	3	0
Reading research reports	14	4	1
Participating on working groups or steering committees	13	4	2
Distributing the findings via newsletters	11	7	1
Attending seminars or conferences	11	7	1
Discussions with the researchers	11	4	4
Including the research in educational materials	11	4	4
Reading briefing papers	10	9	0
Reading journal articles	9	7	3
Access to research in progress working papers	7	7	5
Seeing media coverage	6	8	5
Engaging in social media (blogs/twitter)	1	8	10

In order of most important, n = 19*: n = 14 apprenticeships theme, n = 5 vocations theme.

⚖️ Conclusion

This study has assessed the impact of NCVER's research against two themes: the role of apprenticeships in a modern economy; and the nature of vocations and the competencies required by industry. The evaluation spans 32 publications from 2005 to 2015. This is the third instance in which NCVER has undertaken an impact evaluation, on each occasion enhancing our approach.

Despite the general caveats associated with assessing impact and our case study approach, the results are encouraging in terms of the type of impact NCVER is striving for. Indeed, the extent of evidence gathered from a relatively small base is surprising.[8] We also know our publications are reaching a sizeable number of stakeholders, both in Australia and internationally. In addition, our H-index score, a measure of academic impact, is a respectable 47 across all NCVER-authored publications.

With respect to knowledge production across both themes in this particular study, we can identify:

- 42 553 downloads of the reports from NCVER's website/portal

- 2952 full record visits on VOCEDplus

- 632 citations across various sources, including policy and legislation

- 217 references across an assortment of media outlets.

The actual use of the research is diverse, ranging from maintaining currency of knowledge to writing ministerial briefings. There is self-reported evidence of the use of research in both policy and practice terms, as well as substantial evidence of the research being used in policy documents and submissions.

Within the apprenticeships theme, for example, there is evidence of the research influencing five official policy statements or legislation and numerous submissions across 13 national or state/territory reviews. Most of those are government-related and at high levels, including House of Representative and Senate standing committees.

There is stakeholder-reported evidence of the research being used to:

- influence initiatives to improve completion rates

- modify incentives for remote Indigenous communities to assist with commencement, progression and completion

- underpin mentoring and support policies and programs

- affect pre-apprenticeship and school-based apprenticeship arrangements

- inform the practices associated with employer recruitment, management and pastoral care of apprentices.

---

8 The number of reports under consideration for this study was 32, bearing in mind that NCVER has published on average 42 research reports per year over the last decade.

Research under the vocations theme also received attention in one piece of official policy legislation and a number of submissions across 17 varied but primarily government-related inquiries. The use of research as reported by stakeholders highlighted the extent to which industry engages with the research in their attempts to influence government policy, with some success reported. For example, one industry used research on skills sets to support its case for funding, which did become available. Research in this theme is also driving several important VET practitioner professional development activities. Given the unpredictable ways in which research can have an impact and over a longer time period, we now have baseline metrics on which to revisit the impact of this work in a few years' time.

Recognising what we refer to as a 'gestation' factor is important. It is the weight of evidence and information assembled over a period of time and only as a collective body of work that has the potential to influence significant policy change — which typically is in the final hands of government. This is evident across theme 2 in particular, which challenges current policy in vocational training products and training pathways. Being a large 'structural issue', it is rightfully contested ground characterised by differing views.

This study has revealed awareness of specific NCVER publications, as well as an appreciation that a body of work on key themes can have substantial influence. We believe there is evidence of both knowledge creep, which is the research over time causing incremental policy steps or change on practices via existing policy structures (for example, with apprenticeships commencements). There is also evidence of knowledge shifts, whereby the research is playing a more direct role in observable changes to policy, such as that related to a focus on mentoring in attempts to lift completion rates.

In many cases the researchers themselves are directly involved in publicising the findings, further extending awareness and knowledge, often directly with those involved in developing policy. The researchers in the vocations consortia in particular have played a central role in disseminating the findings and the results of this study recognise the importance of their continued efforts in this area. NCVER will continue to promote and support building the capacity of researchers to purposefully engage in the end use of their work.

The impact of research is not easily predictable. Some stakeholders reported adverse consequences arising from either the research itself or ensuing policy decisions. This naturally influences their perception of the ways in which research and statistics may be, or in some cases may not have been, used in the development of policy. This is especially pertinent in the topical area of apprenticeship commencements and completions. Undertaking an impact assessment highlights both the indirect influence of research in the policy process, as well as how those who use the research can skew the way it is received. Thus:

> Any definition of research impact must take the long view of research influence into account as well as the contradictory or inconsistent views of users and reviewers. But research that generates new knowledge both inside and outside universities, research that can improve subsequent research, as well as research that influences the decisions (regardless of outcome) that shape people's lives, communities, governance, the environment, and elsewhere can be defined as having impact.
>
> (Federation for the Humanities and Social Sciences 2014, p.9)

Regardless of the connections that end-users make, the stakeholders in this study revealed a high level of respect towards NCVER. They know they can turn to our publications as a trusted source of evidence to support or dismiss arguments. This in turn gives end-users the confidence to feed the information into policy deliberations. NCVER cannot influence *how* the evidence is used, although sophisticated stakeholder engagement and dissemination strategies can assist in knowledge transfer and uptake.

We can also continue to provide information to the sector that adheres to our underpinning rigorous quality assurance principles. The Editorial Board's assessment of the quality of some of the reports in this study was a sobering reminder that more can be done to improve rigour in research design and methodologies, as well as ensuring that arguments, ideas and findings are well integrated and flow logically in the write-up of the research.

As with previous impact studies, NCVER's flexible approach to dissemination of research and targeted communication strategies is affirmed as effective. While stakeholders recognise the importance of the research report itself, they have an appetite for shorter succinct products that offer the option of quick engagement with key findings from the research. This attests to the importance of our 'About the research' and key messages, as well as crisp executive summaries in reports. NCVER will continue to invest time and resources into those outputs, as well as into a variety of new products such as infographics and data visualisation.

With respect to the impact framework, more needs to be done to harness non-traditional metrics (AltMetrics), currently only available if we plan in advance the collection of data prior to report publication. While social media may not factor as a trusted source of engagement with research to influence policy or practice, it does play an ever-increasing role in our dissemination strategies. It will be important to map the conversations that follow, especially via blogs or forums, and which may potentially translate into indirect influence.

While the interplay between research and policy and practice is never straightforward, connections do occur. This report in particular has highlighted the remarkable variety in which NCVER publications are used, even amongst a small group of stakeholders.

Understanding the impact of NCVER's research is important not only to ensure we remain clearly focused on our remit to influence policy and practice in the training system, it also bolsters our collaboration with end-users of the research, helping us to produce the evidence in ways that best meet their needs.

References

Australian Council of Learned Academies, 2015, *Translating research for economic and social benefit: country comparisons*, ACOLA, viewed 15 February 2016,
<http://www.acola.org.au/index.php/projects/securing-australia-s-future/saf09>.

Apprenticeships for the 21st Century Expert Panel 2011, *A shared responsibility: apprenticeships for the 21st century*, DEEWR, Canberra.

Atkinson, G & Stanwick, J (forthcoming), *Trends in VET: policy and participation*, NCVER, Adelaide.

Buxton, M & Hanney, S 1996, 'How can payback from health services research be assessed?', *Journal of Health Services Research and Policy*, vol.1, no.1, pp.35—43.

Cameron, WB 1963, *Informal sociology: a casual introduction to sociological thinking*, Random House, New York.

Davies, H, Nutley, S & Walter, I 2005, *Assessing the impact of social science research: conceptual, methodological and practical issues*, ESRC Symposium on Assessing Non-Academic Impact of Research, University of St Andrews.

Daviter, F 2015, 'The political use of knowledge in the policy process', *Policy Sciences*, 2015, vol.48, issue 4, pp 491—505.

Deloitte Access Economics 2012, *Econometric analysis of the Australian Apprenticeships Incentives Program*, DEEWR, Canberra.

Federation for the Humanities and Social Sciences 2014, *The impacts of humanities and social science research*, working paper, Ottawa.

Jones, MM & Grant, J 2013, 'Making the grade: Methodologies for assessing and evidencing research impact' in Andrew Dean, Michael Wykes & Hilary Stevens (eds), *7 Essays on impact*, University of Exeter.

Karmel, T & Rice, J 2011, *The economics of apprenticeships and traineeships*, report 4 for the Australian Government Apprenticeships for the 21st Century Expert Panel, NCVER, Adelaide.

Stanwick, J, Hargreaves, J & Beddie, F 2009, *Assessing the impact of NCVER's research*, NCVER, Adelaide.

Weiss, CH 1980, 'Knowledge creep and decision accretion', *Knowledge: Creation, diffusion and utilization*, vol.1, no.3, March, pp.381—404.

Wilsdon, J et al. 2015, *The metric tide: report of the Independent Review of the Role of Metrics in Research Assessment and Management*, Higher Education Funding Council for England (HEFCE), United Kingdom, viewed 7 August 2015,
<http://www.hefce.ac.uk/pubs/rereports/Year/2015/metrictide/Title,104463,en.html>.

Appendix A – respondents

The following respondents to surveys consented to having their names identified in the report.

Theme 1

- Ms Marie Anderson, Training Manager, The Apprentice and Traineeship Company
- Mr James Barron, CEO, Group Training Australia Ltd
- Mr Stephen Bolton, Senior Advisor Employment, Education and Training, Australian Chamber of Commerce and Industry
- Mr Patrick Gavaghan, National Training Manager, Australian Glass and Glazing Association
- Mr Wayne Lee, Industry Skills Adviser, Australian Industry Group
- Mr David Mitchell, Executive Officer, Apprentice Employment Network
- Mr Jeff Priday, National Projects Manager, Group Training Australia Ltd
- Mr Alan Sparks, CEO/Director, East Coast Apprenticeships

Theme 2

- Dr Shayne Baker, OAM, President, Australian Institute of Work Based Learning
- Dr Brendan Goodger, National Manager Policy and Research, Community Services and Health Industry Skills Council
- Ms Sarah McKinnon, Manager Workplace Relations and Legal Affairs, National Farmers Federation
- Ms Denise Stevens, CEO, VET Development Centre

Researchers

- Dr Steven Hodge, Lecturer, Griffith University
- Dr Gavin Moodie, Adjunct Professor, RMIT and University of Toronto
- Dr Damian Oliver, Deputy Director (Business Development), Centre for Management and Organisation Studies, University of Technology Sydney
- Professor Erica Smith, Personal Chair in VET, Federation University Australia
- Dr Arlene Walker, Associate Head of School (Rural and Regional Development), Deakin University
- Associate Professor Leesa Wheelahan, Department of Leadership Higher and Adult Education, Ontario Institute for Studies in Education, University of Toronto

Appendix B – Editorial Board member biographies

- Professor Gerald Burke, Adjunct Professor, Faculty of Education, Monash University

  - From 2008 to 2013 Gerald Burke was a member of the board of Skills Australia and later the Australian Workforce and Productivity Agency. Other appointments include chair of the Victorian Qualifications Authority 2004 to 2007 and later a member of the Victorian Registration and Qualifications Authority. He was executive director of the Monash University-ACER Centre for the Economics of Education and Training (CEET) until 2008 and now has an adjunct appointment at Monash as a professor in education. His research interests are in financing, participation and quality in education and training, and education and employment.

- Professor David Finegold, Chief Executive Officer, American Honors Organisation

  - David Finegold is currently Chief Academic Officer for the recently established American Honors Organisation; taking two years leave from his role as Senior VP for Lifelong Learning and Strategic Growth at Rutgers, the State University of New Jersey. At Rutgers he was responsible for continuing and executive education, online learning, international and off-campus programs, and strengthening relationships with companies and other stakeholders. Dr. Finegold is a leading expert on skill development systems and their relationship to economic performance. His current work is focused on the evolving skill development systems in India and China. Since arriving at Rutgers in 2006, Dean Finegold has spearheaded efforts to build a workforce development system for New Jersey's bioscience sector. Prior to joining Rutgers he was a professor at the Keck Graduate Institute of Applied Life Sciences in Claremont, CA, where he helped to build the first college devoted specifically to creating a best-in-class professional science masters program. He is the author of more than 80 journal articles and book chapters and has written or edited seven books, including *Transforming the US Workforce Development System* and *Are Skills the Answer?* He graduated *summa cum laude* with a BA in Social Studies from Harvard University in 1985, and was a Rhodes Scholar at Oxford University, where he completed his DPhil in Politics in 1992. He was elected into the New Jersey High Tech Hall of Fame in 2008 for the leadership he provided in launching Bio-1Stop, which has evolved into the talent network for the state's bioscience industry, and creating the Master of Business and Science, the first common inter-disciplinary degree framework spanning schools on all three Rutgers campuses.

- Dr Robin Ryan, Adjunct Lecturer, Graduate Program in Educational Leadership and Management, School of Education, Flinders University

  - Robin Ryan is a consultant in vocational education policy and research and adjunct lecturer at Flinders University, Adelaide. A former Assistant Director for Policy in SA TAFE, where he was centrally involved in the national vocational education reform agenda, Robin is also active in the Australian College of Educators, especially as a member of the Archives Research Fellows Group.

- Professor Kwong Lee Dow, AO, Professor, University of Melbourne

  - Kwong Le Dow has worked at the University of Melbourne since 1966. His roles included Dean of Education, Deputy Vice-Chancellor and Vice-Chancellor. Additional appointments include Chair of the Victorian Curriculum and Assessment Authority, member of the national Higher Education Council, Chair of a national Review of Teaching and Teacher Education, Chair of a Review of Student Income Support Reforms (2011), and Chair of a Review of Higher Education Regulation (2013). Other work for the Victorian Government has focused on the connections between universities and TAFE institutes (2009—11), particularly in regional communities.

- Dr Tom Karmel, Adjunct Professor, National Institute of Labour Studies, Flinders University

  - Tom Karmel is a former Managing Director of the National Centre for Vocational Education Research, retiring in 2013 after being with the company since August 2002. Prior to this position he held senior appointments in the federal government areas of education, employment, labour market research and the Bureau of Statistics. His research interests have centred on the labour market and the economics of education, focusing on empirical modelling, and he has a particular interest in performance indicators, both in higher education and vocational education and training. He has an honours degree in mathematical statistics (Flinders), and a Masters of Economics and doctorate from the Australian National University (The impact of increasing education levels on the Australian workforce). Currently, Dr Karmel is President of the Economics Society of Australia, South Australian branch, and an adjunct professor at the National Institute of Labour Studies, Flinders University.

Previous impact studies by NCVER

Assessing the impact of NCVER's research

Good practice guide for measuring and maximising research impact in social science research settings

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