



## Basing policy and practice on sound evidence

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The aim of the National Vocational Education and Training Research and Evaluation (NVETRE) program is to improve policy and practice through the creation of a credible body of research and active communication strategies. All work done under this program goes into the public domain. The NVETRE program has recently been reviewed. This paper will discuss the findings and, in particular, it will focus on the positive contribution to policy and planning made by the program and the success of the dissemination processes that have been implemented thus far. It will also consider the review recommendation that a stronger focus on evaluation would be desirable in the future, and will comment on how the National Centre for Vocational Education Research (NCVER), contracted with the management of the program, plans to go about this.

With the discussion paper by Rod McDonald titled 'Towards evidence-based vocational education and training' (NCVER 1999) as a starting point, this paper will discuss what has been evaluated, what could be evaluated in the future and how NCVER might ensure that use is made of these evaluations within the sector.

## Introduction

In 2002, the Australian National Training Authority (ANTA) contracted independent consultants, KPA Consulting and Phillips Curran, to undertake a review of the National Vocational Education and Training Research and Evaluation (NVETRE) Program and its management. The review found that the NVETRE program has made a positive contribution to policy and planning in the VET sector and the dissemination processes that have been implemented thus far have been successful. This paper explains how these findings were achieved and focuses on the associated recommendation for a stronger focus on evaluation in the future. In particular, it will attempt to answer the following questions:

- ♣ What has been evaluated in the VET sector through the NVETRE program?
- ♣ What could be evaluated in the future under the NVETRE Program?
- ♣ How might the best use of these evaluations in the sector be ensured?

## Background

The NVETRE program and its related dissemination activities are the main components of the overall national program of VET research in Australia. It was established in 1993 in response to the pivotal report, 'No small change' (McDonald et al. 1993), which recommended the development of a research and dissemination strategy for greater quality, quantity and use of VET research. The report also recommended the establishment of a national body to oversee the setting of priorities, greater coordination of research efforts and open competition for government funding of VET research to bring a body of new researchers into the field.

The Australian National Training Authority - ANTA - is a Commonwealth statutory authority established in 1992 to provide a national focus for vocational education and training. ANTA reports to an industry-based Board and advises the ANTA Ministerial Council (MINCO) of Commonwealth, State and Territory Government Ministers responsible for vocational education and training on:

- ♣ VET policy, strategy, priorities, goals and objectives nationally; and
- ♣ VET plans which States and Territories develop each year. These plans detail how States and Territories propose to meet national priorities, goals and objectives.

Since 1997, the National Centre for Vocational Education and Research Ltd (NCVER) has managed NVETRE on behalf of ANTA under the guidance of the National Research and Evaluation Committee (NREC), a sub-committee of the NCVER Board, comprising representatives of VET policy, practice and research communities.

NCVER is a registered company, limited by guarantee, owned by the Commonwealth, State and Territory Government Ministers responsible for vocational education and training and established in 1981. As well as managing the NVETRE program and undertaking research in its own right, the NCVER also manages the national VET statistics collections.

## National VET Research and Evaluation (NVETRE) Program

The NVETRE program has four core strands of activity:

- ♣ the research projects managed by NCVER under the auspices of NVETRE
- ♣ the development and maintenance of VOCED—a bibliographic international database of VET research

- ♣ research dissemination and knowledge exchange activities
- ♣ the management of these activities

The management of the NVETRE program involves:

1. identification of research themes and priorities
2. selection of projects
3. overseeing conduct of research through active project management
4. communication/publication of research
5. contact with and feedback from the research community

Consultations with key stakeholders occur to develop research priorities which are included in the 'National Research and Evaluation Strategy for VET in Australia': first developed in 1997 and revised in 2000 (NCVER 2001a). The strategy brings together all elements of VET research into a single coherent framework which emphasises three things:

- ♣ VET research has to be stakeholder-driven, reflecting the concerns and priorities of key groups in the VET sector.
- ♣ The research effort in vocational education and training should be co-ordinated through an agreed set of priority research areas which define the overall scope and direction of research and evaluation.
- ♣ Effective communication of the findings of the research and statistical analysis to stakeholders is as important a component of the national research strategy as doing the research.

The aim of research and evaluation within the VET sector is 'to improve decision-making and practice in vocational education and training' (NCVER 2001a). In particular, the National Research and Evaluation Strategy is designed to contribute to national efforts to achieve the goals outlined in Australia's National VET Strategy 1998-2003: 'A bridge to the future' (ANTA 1998).

In practice, NCVER advertises a main round of NVETRE funding annually, while smaller rounds are conducted for specific themes or 'specific initiative' research. Teleconference and face to face meetings of researchers investigating issues relating to common themes are organised. Researchers are contracted to produce two interim and a draft final report which are subject to peer review. Researchers must use NCVER's author's kit to guide report writing and NCVER publishes reports in hardcopy and/or on its web site.

Doing the research is only half the job. Dissemination of the research findings and knowledge exchange activities are just as important. A feature of NCVER's dissemination strategies is the provision of a clearinghouse function for the International Technical and Vocational Education and Training Research Database (VOCED). NCVER has also developed a number of new ways to disseminate research findings including the conduct of research forums, enhanced use of the world wide web and short, synthesis publications on which more details will be given later.

## Defining research and evaluation in VET

### NVETRE research

For NVETRE research a broad definition of research is used: 'systematic and organised way of findings answers to questions' (DEST 2001 p.5). As noted in 'The changing face of VET research' in Australia (Gibb & Curyer 2003), this would include the national VET surveys program and statistical collections at NCVER as research. Research usually comprises one or a combination of the following activities:

- ♣ literature review
- ♣ survey of current practices or problems
- ♣ establishing reference points for designing the research project
- ♣ methods design
- ♣ collection and collation of key data
- ♣ evaluation
- ♣ case studies
- ♣ analysis, evaluation and interpretation of information
- ♣ drawing conclusions and making recommendations
- ♣ recommendations for future work (Source: DEST 2001 p.5)

As a result of a significant boost to funding for VET research since 1997, a large and vibrant VET research community has developed in Australia. The significant expansion of VET research has also been accompanied by the development of different approaches to research. Collaborative research involving multiple partners has now become more of the norm. Teams of researchers that combine the professional researcher's methodological expertise with the VET practitioner's knowledge and understanding of the VET system are often particularly successful at producing reliable and influential research, especially related to teaching and learning or other topics with a provider focus (Gibb & Curyer 2003).

The specification of priority areas for research has led to the development of highly relevant research projects focussed on the needs of the users of research in the sector. As a result the quality of the research has been improving at the same time as its quantity has been increasing. It is through taking an active approach to the NVETRE program management, as just described, that the NCVET has been able to strengthen both the capacity of the researchers and the capacity of the users to make use of research outcomes, as reflected in the findings of the recent Review.

## What has been evaluated in the NVETRE program?

To date, the NVETRE program has funded few true evaluation projects: for example 'Evaluating the frontline management initiative: the impact at individual, organisation, business and strategic levels' (Barratt-Pugh & Soutar 2002) and the 'National Evaluation of Adult Learners Week' (AC Neilson Research 2003).

However, many NVETRE projects have strong evaluative elements such as those studies related to specific aspects of competency-based training and assessment. Examples of these projects include 'Evaluating the contribution of competency-based training and assessment to Australian VET' (Billet et al. 1999) and 'Evaluation of the effects that competency-based approaches have had on the role of instructors' (Lowrie, Smith & Hill 1999).

While evaluations have covered a number of research areas including competency-based training, on-line learning, learning in the workplace, VET in schools, the changing nature of work, return on investment in training, apprentices and trainees, generic skills and assessment, the evaluative elements have been narrowly focussed: for example, 'evaluating on and off-job approaches to learning and assessment in apprenticeships and traineeships' (Strickland et al. 2001).

## What could be evaluated in the future?

McDonald (1999) suggests that the National VET Research and Evaluation Strategy could be extended to achieve additional outcomes in a 'useful level of evaluative activities', 'a capacity to evaluate' and 'an informed and robust critique' of national training policy and program initiatives. While McDonald does not define evaluation, he states that 'more or better evaluations will not necessarily improve the quality of education and training that people receive: it is the way evaluative information is used that is the key' (see also Patton 1996).

Similarly, the recent review of the NVE'TRE program recommends a stronger focus on evaluation in the future without being specific about what this would encompass.

### What is evaluation?

The simple definition of evaluation is the 'collection and analysis of information to make decisions' (Owen & Rogers 1999). We are all familiar with evaluative action or evaluative inquiry; for example, deciding which film to see at the cinema or which car to buy. Evaluations are regularly carried out, not just by specialist evaluators, but by people whose normal work involves other activities besides evaluation, in particular, policy analysts, researchers, managers and auditors.

The important features of evaluation are that the process is systematic, and that it leads to action which is based on evidence (Elvins 2002). It is also noted that evaluation is an important element in the management cycle as it is both a performance reporting tool and a planning tool. It can be applied at the different stages of the program life cycle for program planning, process improvement and impact. Evaluation is distinguished from monitoring and performance information in that it involves analysing information with a view to reaching a decision or judgment, rather than simply collecting or recording data.

An evaluation can be a single, focussed study or alternatively, a series of evaluative activities (possibly including devolved evaluation or self-evaluation) undertaken in a coordinated and planned manner over the lifecycle of a project or program and leading to one or more summative reports.

The Australasian Evaluation Society in its 'Guidelines for the ethical conduct of evaluations' (AES 2002) notes that 'Evaluation encompasses the systematic collection and analysis of data to make judgements, usually about effectiveness, efficiency and/or appropriateness of an activity'.

The American Evaluation Association (AEA) states: 'Evaluation involves assessing the strengths and weaknesses of programs, policies, personnel, products, and organizations to improve their effectiveness' (AEA web site).

This view of evaluation encompasses the disciplines of program evaluation, management review, performance auditing, policy analysis, output reviews and relevant investigations, which all seek to evaluate the appropriateness, economy, efficiency, effectiveness and equity of government or other agency programs and activities (Elvins 2002).

In the Australian VET Glossary (NCVER 2001b) evaluation is defined as 'the process or results of an assessment or appraisal in relation to stated objectives, standards or criteria in vocational education and training which may be applied to organisations, programs, courses, etc'.

In this paper, therefore, evaluation is defined as:

the process or results of a systematic collection and analysis of data or information used to make an assessment or appraisal in relation to stated objectives, standards or criteria in vocational education and training which may be applied to policies, organisations, organisational functions, programs, projects, courses or other activities.

## Understanding the purpose of an evaluation

Evaluators, and those using the information from an evaluation report, need to understand the specific purpose of the evaluation before considering the conclusions (McDonald 1999).

McDonald notes five possible purposes of evaluation:

- ♣ improving processes
- ♣ learning in the development process
- ♣ demonstrating the result of some education or training activity
- ♣ controlling to ensure standards are met
- ♣ meeting expectations or requirements (usually of the funding agency).

Scriven coined the terms formative and summative evaluation in 1967 (Scriven 1991). They have come to mean different things to different people but for VET purposes, evaluative activities may be described as either 'formative' (whereby the primary intent is to improve) or 'summative' (where the primary intent is to make a judgement on results).

## Evaluation fields

The evaluation specialist, Michael Scriven (1999a), notes that evaluation is divided into fields according to the type of entity evaluated—for example, program evaluation, or personnel evaluation—and there are more than twenty of these recognized fields of evaluation. He highlights eight main fields of evaluation including the 'Big Six': 'program, personnel, performance, policy, proposal, and product evaluation (the latter including technology assessment)'. In addition, he notes the 'Super Two': intradisciplinary evaluation, which makes it a discipline, and meta-evaluation, or the evaluation of evaluations themselves, which makes it consistent with its own ideals.

- i. intradisciplinary evaluation--the evaluation of the entities that are the currency of a discipline's economy such as theories, hypotheses, classifications, data, research designs and results, practitioners, contributions, and journals--and of the discipline itself: and
- ii. meta-evaluation, the evaluation of evaluations themselves, a practice that demonstrates the reflexive nature of evaluation and the reflective integrity of its practitioners. (Scriven 1999a)

Scriven (1999b) states that 'in order to practice the art and science of evaluation', basic methodological skills are needed. These skills include:

- ♣ general methodology—from applied social science and other education courses
- ♣ basic logic—shared across many fields (e.g. techniques of measurement, causality determination, applying the requirement of informed consent)
- ♣ logic-of-evaluation—developed for and applies only to evaluation (e.g. dealing with the highly specific phenomena of reactions to evaluation by those being evaluated and those for whom the evaluation is done)
- ♣ field-specific methodologies which have been developed to solve problems of evaluation in only one or a few of these fields (e.g. bias control in panel selection, systematic side-effect identification in program evaluation, road-testing techniques in product evaluation)

## Proposal for expanding the focus on evaluation in two main areas

The definition of evaluation for this paper notes that it may be applied to policies, organisations, organisational functions, programs, projects, courses or other activities. A broad view of programs is also taken where programs are a series of activities designed to achieve explicit objectives. Evaluations can be cross-departmental and cross-sectoral. They can also be scaled so that the evaluation is manageable, the results are meaningful and implementation of the results is practicable (Elvins 2002).

While researchers and others note that an individual research study rarely has direct impact on policy or planning decisions, an accumulation of research evidence does indirectly increase knowledge and understanding of issues by decision-makers and informs views about policy priorities, options and preferred approaches (Nutley 2003). In the United Kingdom, Nutley notes that initiatives have been aimed at improving the evidence base for policy and practice decisions. These include 'exercises to: identify and plug key gaps in research knowledge; agree and develop appropriate research and evaluation methods; increase the use of systematic review methods to assist the process of knowledge synthesis and accumulation' (Nutley 2003 p.5).

Policy development for the national VET sector in Australia is the role of the Australian National Training Authority (ANTA) in collaboration with Commonwealth, State and Territory government departments. ANTA directly commissions reviews such as the 'National Review of Group Training' (ANTA 2002a) and more recently reviewed the national strategies: 'Australian Flexible Learning Framework' and 'Partners for a learning culture'. ANTA has also established systematic evaluation to ensure industry training requirements are met through a consultative process of development and review of National Industry Training Packages over a three-year cycle.

While NCVER believes that evaluation of national policies in the VET sector is the role ANTA, there are two main areas in which the NVETRE program can expand its focus on evaluation in the future: expanding the evaluation of VET programs and activities, and meta-evaluations of the research and evaluations already conducted in areas of interest to the VET sector.

### 1. Program and activity evaluations

The NVETRE program may increase the focus on evaluation of the impact of VET programs, cross-sector programs and activities in VET on students, workers and organisations. The VET research community is well positioned to undertake cross-sectorial evaluations and establish the gaps in research between the education sectors: schools, higher education, adult and community education (ACE) and VET. NVETRE may also focus on inter-sectorial issues and evaluations of pathways of individuals' learning and uptake of lifelong learning in the workforce.

### 2. Evaluation of research and evaluation already conducted

Over the last 10 years the body of research for the VET sector has accumulated sufficiently to evaluate or review. These reviews would greatly assist those who wish to use the research findings for policy and practice. This has already been illustrated by the meta-analyses of the research on 12 different VET topics (e.g. 'Indigenous Australians' and 'New approaches to identifying the training needs of new and emerging industries and occupations') which ANTA commissioned from NCVER in 2002. While these were very quick summaries of what research and findings were available on each topic, they were found to be very useful and timely reviews for policy-makers and researchers (ANTA 2002b). Thus, the second area which NCVER proposes for expanding the focus on evaluation in NVETRE is that of systematic research syntheses or Systematic Reviews.

For many years systematic reviews have been available in the health sector where there is an established hierarchy of evidence for assessing what works (Nutley et al. 2002). At the top of the hierarchy are randomised experiments, for example supervised drug trials where those patients given the drug and those given a placebo (control group) are chosen at random. However, systematic reviews of what works are considered even better (see Cochrane Collaboration).

Compared to the health sector, in education, Nutley et al. consider that there are still different views on the best methodologies for assessing what works (e.g. divisions between supporters of qualitative and quantitative research and evaluation). However, one model for Systematic Reviews in education is that of the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) established in 1993 in the Institute of Education, University of London. The EPPI-Centre is involved in writing and supporting other people to write systematic reviews of research evidence across a range of different topics.

NCVER has a vision of establishing a centralised resource for people wishing to undertake systematic reviews of research in vocational education and training and those wishing to use reviews to inform policy and practice. Through NVETRE, research review capacity, on-line tools and databases would be expanded, reviewer groups established, and systematic reviews published and made available on the world wide web to research users and researchers.

### What is a systematic review?

Systematic reviews are now a key decision-making tool in many areas of evidence-based policy and practice (Nutley 2003 and EPPI-Centre). The EPPI-Centre notes that:

A systematic review is a piece of research. Like any piece of research, it uses research methods that aim to make it produce valid and reliable results. For example, systematic reviews include efforts to find as much as possible of the research which addresses the review's research question. This is important if the review's conclusions are not to be over-influenced by studies which are simply the easiest to find (usually published research). Another example of the methodological approach of a systematic review is the use of a set of explicit statements, called inclusion criteria, to assess each study found to see if it actually does address a review's research question.

As is the case for any good research, the methods for a systematic review are made explicit in a 'protocol' before it starts. This helps to reduce bias in the review process, for example, by ensuring that reviewers' procedures are not overly influenced by the results of studies they find. If changes are needed to the protocol as the review progresses these needed to be noted in the review's final report and the rationale for making changes made clear.

A systematic review is also explicit in reporting its methods so that these can be appraised. For example, the methods used to find studies (database searches, searches of specialist bibliographies, hand-searching of likely journals, attempts to track down unpublished research) will be reported in some detail. This allows readers to decide for themselves whether the reviewers have looked carefully enough to be able to say they have identified as many as possible of the studies that could help answer the review's research question. It is now standard practice for reports of systematic reviews to have clearly defined methods and results sections.

An important characteristic of a systematic review is that it includes a synthesis of its results, which in this case are results from previous research. As a very important part of the synthesis process, systematic reviewers assess the quality of the studies they have found. They can then use this assessment to assign different weights to study findings. Poor quality studies are sometimes downgraded in importance or excluded from the review. The ultimate effect of this is that research can influence a review's conclusions only when that research is sound.

The synthesis is usually presented in the form of a structured narrative, summary tables or a statistical combination (meta-analysis). This synthesis is then used to formulate conclusions and recommendations. The aim is to make the links between the detail of the studies found and the reviewers' conclusions clear. (see EPPI-Centre)

## How might the best use of these evaluations in the sector be ensured?

### Effective report writing

In 2003, NCVER is introducing a new approach to publishing research reports. The new NCVER standard research report is based on the Canadian Health Reporting 1:3:25 model (CHSRF 2001). This follows a more journalistic style of reporting with the key points up-front in the one page report, a succinct three-page Executive Summary and a 25 page analytic report of the findings from the research. NCVER will publish in hard copy only the short, analytical research reports from NVETRE projects. The technical reports and detailed research material also prepared by researchers will be published as support documents on the NCVER web site. Through this approach we are expecting to make research and future evaluations more readable and accessible to users.

### Effective dissemination

A central feature of the NVETRE program is the effective dissemination of research. NCVER has developed a number of new ways to disseminate research findings including intensive face-to-face workshops on key topics, enhanced use of the world wide web, short, synthesis publications such as *Research At a Glance and Book of Readings* series, and feature articles written for our quarterly *Insight* publication.

Another feature of NCVER's research dissemination strategy has been its provision of a clearinghouse function, specifically the International Technical and Vocational Education and Training Research Database (VOCED) which contains information about research, including reports, conference papers, discussion papers from our region, South East Asia and the Pacific, as well as Europe and North America. The UNESCO-NCVER VOCED database ([www.voced.edu.au](http://www.voced.edu.au)) contains over 22 000 abstracts and availability of the reports and papers (including direct links to electronic versions). The NVETRE program reports are all in the public domain and available from NCVER's website ([www.ncver.edu.au](http://www.ncver.edu.au)).

### Further improving the impact on VET decision making

The report titled 'The impact of research on VET decision making' (Selby Smith et al. 1998) examined the influence of research on decision making in VET policy formulation. Selby Smith (1999) notes a number of important issues. Firstly, decision makers can 'use' research without changing direction, that is, no influence on decisions; research can influence a decision maker to either act or not to act; or the decision maker may not know the source of the information being used. Secondly, research can influence a number of levels of decision making: government and government instrumentalities, individual training providers and students. In addition, the influences on policy makers include multiple sources of information and a range of political pressures and considerations. Taking all these issues into account, Selby Smith argues that there should be 'suitably modest expectations' of the influence of research on policy makers.

Bringing research directly into the decision-making processes at the level of both policy and practice is a continuing challenge for the VET research community. A key development has been the role of the research user. In order to ensure that the research has impact on policy and

practice in the sector, users of research are now closely involved in the formulation of the priorities for VET research. Policy makers and practitioners are represented on the National Research and Evaluation Committee and Boards of the major national research centres/partners. Consultations on the national research strategy include a broad cross-section of users at all levels in the VET sector.

NCVER's variety of research dissemination strategies have been effective, as noted by the review of NVETRE. It will continue to improve access to data and information via the web site, *Research At a Glance* and *Book of Readings* on relevant themes. In addition, interactions between researchers and research users, such as the research forums, may be extended. A series of shorter breakfast meetings are already planned.

McDonald (1999) highlights the implementation of an informed and robust critique or commentary of public policies and practice—both in public and private forms. The NVETRE program through funding projects by different research groups on specific themes, meetings of those researchers, research conferences and forums already supports discussions related to practice. However, the establishment of systematic reviews and reviewer groups may encourage further debate and critique as McDonald advocates.

## Summary

The aim of the National Vocational Education and Training Research and Evaluation (NVETRE) program is to improve policy and practice through the creation of a credible body of research and active communication strategies. The recent, independent review of NVETRE and its management found that it has made a positive contribution to policy and planning in the VET sector and the dissemination processes that have been implemented thus far have been successful. The review recommends that a stronger focus on evaluation would be desirable in the future.

For the VET sector, evaluation is defined as:

the process or results of a systematic collection and analysis of data or information used to make an assessment or appraisal in relation to stated objectives, standards or criteria in vocational education and training which may be applied to policies, organisations, organisational function, programs, projects, courses or other activities.

While NCVER believes that evaluation of specific national VET policies is not the role of the NVETRE program, there are two main areas in which NVETRE can expand its focus on evaluation in the future. The NVETRE program could increase the focus on evaluation of the impact of VET programs, cross-sector programs and activities in VET on students, workers and organisations. Since the body of VET research and evaluation is now quite large, the second area which NCVER proposes for expanding the focus on evaluation in NVETRE is that of systematic research syntheses or Systematic Reviews.

NCVER has a vision of establishing a centralised resource for people wishing to undertake systematic reviews of research in vocational education and training and those wishing to use reviews to inform policy and practice. Through the NVETRE program, research review capacity, tools and databases would be expanded, reviewer groups established and systematic reviews published and made available on-line to research users and researchers.

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