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CENTRE FOR THE ECONOMICS OF EDUCATION AND TRAINING

CEET's Stocktake of the Economics of Vocational Education and Training*

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CENTRE FOR THE ECONOMICS OF EDUCATION AND TRAINING

The *Monash University-ACER Centre for the Economics of Education and Training (CEET)* is a joint venture of Monash University and the Australian Council for Educational Research (ACER). CEET also collaborates with staff of the Centre for Human Resource Development and Training at the University of Melbourne.

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CEET receives its main funding from ANTA as a Key VET Research Centre and undertakes consultancies for a range of other authorities.

Focus of Work

CEET's research focuses on the contribution of education and training to economic and social development. CEET's recent work includes:

- the costs of vocational programs in schools, in TAFE and in industry;
- models for assessing demand for training;
- labour turnover and the effect on jobs for entrants to the labour market;
- the impact of globalisation on the occupational structure;
- evaluation of 'user choice' for apprenticeship training;
- analysis of the efficiency and equity in the training market;
- policies to improve the transition of youth from education to work;
- framework for performance measures of school completion and transition to work and study;
- the impact of VET research on policy and practice;
- equity and VET;
- models for analysing student flows in higher education and in vocational education; and
- returns to investment in enterprise training.

CEET's Stocktake of the Economics of Vocational Education and Training

Introduction

The past decade has seen an intensification of interest in the role of education and training in helping people find jobs and stimulating national economic development. In Australia and elsewhere there have been numerous reports and policy developments aimed at strengthening the linkages between education, training and the labour market.

Despite the constant affirmation of the important role that education and training play in the economic success of individuals, enterprises and nations, there is much uncertainty about the likely pay-off from any additional investment in education and training or from any shift in the balance of existing investments. This review is intended to provide a basis for addressing these significant national issues.

The review focuses on the economics of vocational education and training (VET) in Australia. Economists are interested in analysing VET not only because many of its purposes are explicitly economic in nature – to help people get jobs, to lift enterprise productivity, and to make the nation more competitive – but also because it is a significant area of economic activity in its own right.

In 1998 around 1.5 million students were enrolled in formal VET programmes. These students represented about a quarter of all enrolments in education and training in Australia. In 1997 almost 4 million people reported completing a training course during the previous 12 months. Expenditure on VET from public and private sources amounts to about 2 per cent of GDP, and many thousands of people are employed in the sector.

From an economic perspective it is important to understand the reasons behind these substantial allocations of resources, the uses to which the resources are put, and the extent to which they are used efficiently and equitably. The review is intended to provide a conceptual framework and empirical foundation that can be used to help address the purposes, role, effectiveness and future shape of VET.

Of course, the purposes of VET are broader than those captured by the outcome measures commonly used by economists, such as increased earnings and productivity. Important educational objectives such as the development of individuals' intellectual capacity and the promotion of a stable, tolerant, and equitable society are difficult to measure in economic terms, although they almost certainly have direct economic consequences. Accordingly, the review draws on a broader literature than the exclusively economic and acknowledges the limitations of economics in analysing VET, as well as the current paucity of data in some key areas. An important purpose of the review is to help identify a future research agenda on the economics of vocational education and training in Australia.

The Scope of Vocational Education and Training

Maglen (1997) defines VET in this way in his inaugural lecture at the University of Melbourne:

> VET is taken to encompass all educational and instructional experiences - be they formal or informal, pre-employment or employment-related, off-the-job or on-the-job - that are designed to directly enhance the skills, knowledge, competencies and capabilities of individuals, required in undertaking gainful employment, and irrespective of whether these experiences are designed and provided by schools, TAFE or higher education institutions, by private training providers or by employers in industry and commerce (Maglen, 1997).

This very broad definition has a number of implications for the scope of the review. Maglen suggests that what is and what is not VET is determined by the *outcome* the educational and instructional

experience is designed to achieve, not primarily its *content*. Thus VET is not only education and training that is designed explicitly with employment as the objective. In this view of VET, the forms it can take vary substantially – from informal on-the-job training to extended and complex courses of study. The knowledge and skills acquired through VET may be rudimentary and practical or highly theoretical and abstract. The employment orientation of VET means that it requires effective feedback from the occupations, industries and employers it is designed to serve. It also means that VET is not confined to any one age group, and involves people across their life spans as their needs change – whether those needs are to enter the labour market, to obtain employment, to obtain new skills and knowledge for their current work, or to change jobs or occupations. Needless to say, the diversity of forms and users of VET means that it is provided and delivered by a wide variety of organisations in the public and private spheres.

It has been argued that this definition is too broad. For example, do not many courses in higher education institutions (and schools) include educational and instructional experiences which contribute to individuals undertaking gainful employment effectively? It can also be argued to be too narrow, since adult and community education activities are not always directly related to "undertaking gainful employment". Further, employment outcomes may be obtained from educational and training experiences that are not designed specifically with employment as the objective. This has been recognised as an important consideration, for instance, in Adult and Community Education where research has shown that many students have employment motives, and achieve employment outcomes, in what are officially non-VET courses. In another CEET project vocational education was defined as all formal post-school education which prepares students for (or further develops their skills in) a specific vocation or for work generally, up to and including the level of para-professional occupations (Selby Smith, Hawke, McDonald and Selby Smith, 1998, p. 157). Such a definition includes literary and basic education programmes, as they also prepare students for work generally. 'Training' was taken to include both on-the-job and off-the-job training to a similar level. This definition is consistent with that used in McDonald et al (McDonald, Hayton, Gonczi and Hager, 1993).

Bearing these points in mind the review's material is drawn from many diverse sources. While it draws substantially on research on the Technical and Further Education (TAFE) component of VET, it is not confined to TAFE. The review also discusses VET in schools, universities and ACE, as well as the great variety of VET conducted within private providers, enterprises and workplaces.

Background

The 1993 strategic review of VET research and development identified "Policy and Economics" as one of the major areas of research need in Australia (McDonald et al, 1993, p. 42). The review conceptualised the area as being primarily concerned with "The economic benefits of vocational education and training – both at the micro and macro level, including the relationship between education and the economy and the training agenda".

It is not surprising that research on the economics of VET was accorded such a high priority. To a greater extent than in other fields of education, the debate about VET has a strongly economic flavour, either in terms of the productivity and earnings benefits that will (hopefully) flow from greater public and private investment in VET, or the role that financing mechanisms play in facilitating access to VET opportunities. Of course, the debate about VET involves far more than economic considerations, but the economy provides a persistent, and insistent, backdrop to the field as a whole. The bracketing of "Policy and Economics" in the 1993 strategic review underscored the central role that economics plays in VET decision-making.

What is perhaps a little more surprising is that there had been, in fact, so little systematic research on the economics of VET, or on other fields of education for that matter. Various suggestions have been offered for this lack of research attention, including the lack of clear outcomes data for much

education and training activity, and the limitations of economists' tools for analysing the "black box" of education and training processes. It has also been suggested that academic economists are little interested in applied research, although the comparative strength of economic research in other applied fields, such as health, would seem to belie this.

To help fill this research gap ANTA commissioned CEET in 1993 to conduct the first major review of the economics of VET in Australia (Burke et al, 1994) as well as an extended guide to the literature (Ferrier et al, 1994). This review argued that analysis of the economic benefits of VET needed a dual focus. The work clearly needed to conceptualise and measure the contribution of education and training to economic and social development. It also needed to better understand the implications for VET of the changing nature of the Australian economy. Both of these foci required that researchers understand the VET sector itself. From an economic perspective, "the benefits of VET" refer to the *net* benefits, that is the gains that remain after the resources and costs involved have been deducted. Consideration of the benefits of VET also has a strong distributional element – which individuals and groups receive the benefits, and who pays? It is simply not possible to consider questions of the level and distribution of costs and benefits through VET without detailed knowledge of the sector itself. Self-evidently, the VET sector does not exist in isolation from wider developments in society. A key part of the research agenda, therefore lies in better understanding how VET is shaped by, responds to, and anticipates economic and social change.

Given the considerable expansion which has occurred in research on economic aspects of VET since 1993, CEET included in its work programme for 1999 a Stocktake of the economics of VET. The Stocktake was to provide the basis for an informed discussion about the Centre's future work programme, and where its contributions might be best concentrated, summarising what had been achieved and what still remained to be done. Thus, CEET set out to synthesise the major findings of the research on the economics of VET in Australia over recent years, as well as key findings from overseas researchers. It also attempted to update the research agenda to take account of the substantial changes which have taken place in the policy and institutional framework of VET in Australia over the past decade.

Key Changes in Australia

Australia is a particularly interesting country in which to be studying the economics of VET. Australia has moved more rapidly over the past decade towards a market-oriented, demand-led VET sector than have most OECD countries. It is especially noteworthy that these substantial structural changes, and the adoption of a national framework for VET, have occurred within a federal political system in which the prime constitutional responsibility for education lies with the States and Territories that make up the federation, and not the federal (Commonwealth) government.

The Australian economy has undergone significant structural change in the past 20 years. It has become much more open to international competition, a number of public sector activities have been restructured and privatised, and economic activity has become more diversified with less reliance on primary production and manufacturing. The economic changes have been associated with extensive initiatives to increase skill levels through education and training. Half of the labour force now holds a post-school qualification (certificate, trade qualification, diploma or degree), and this proportion will increase further as the number of people currently in education enter the labour force and less well-qualified persons retire.

Australia is enjoying a long period, nearly a decade, of consecutive economic growth. Employment and productivity growth in Australia have generally been higher than in most OECD countries since the mid-1980s. However, the growth in the labour force has also been comparatively strong, with the net effect that unemployment has remained quite high, although it is trending downwards.

There have been numerous reports and policy developments aimed at strengthening the linkages between education and the labour market, and stimulating the development of training and learning cultures within enterprises (see for example, Australian National Training Authority, 1998). The policy emphasis is on developing an Australian labour force that is equipped to participate in an economy that is competitive in global terms. While many of these policies have been similar to those in other OECD countries, there have been some distinctive elements to the overall policy framework in Australia and the way it has been applied.

In terms of the range of system types, Australia is closer in character to having a "loosely coupled" education and training system than it is to having the tight connection between the education and labour market domains that typifies German-speaking countries and parts of Scandinavia (McKenzie, 1998). However, the interface between education and the labour market in Australia is not as loose as that in the United States. Labour markets are relatively more regulated in Australia, school and VET curricula are more standardised, and qualifications produced by the education system are more closely linked to labour market requirements. The interface in Australia is probably even tighter than it is in Canada (a federal country with many other similarities to Australia), because the apprenticeship and traineeship system provides for more young people in Australia than in Canada, and the role of the Australian federal government has been much more significant than its Canadian counterpart in developing a national qualifications framework, and in generally providing coherence across the education and employment policy areas.

A particularly interesting feature of the Australian policy approach is the attempt to incorporate some of the key elements of tightly coupled systems linking education and training and the labour market (such as a national policy and qualifications framework; and an increasing role for employers) with elements of more loosely coupled systems (such as an emphasis on user choice; development of a private training market; creation of multiple pathways; and flexible delivery systems).

Since the mid-1980s there has been a concentrated effort in Australia to put in place a set of policies and programmes to expand and strengthen the nation's vocational education and training system. An OECD review team that visited Australia in 1997 argued that, despite the differences in emphases between governments of different political persuasions and between some stakeholder groups, there has been a striking degree of broad policy consensus around a set of five underlying principles that have guided the reform agenda (Schwartz et al, 1997):

- A national framework.
- Competency, not time based.
- Demand, not supply driven.
- Multiple pathways and flexible delivery.
- A commitment to access and equity.

Principle 1: A National Framework
The OECD review team argued that there was broad agreement that Australia needs a national training system. In a country where education and training, at least below the university level, have been viewed as principally the responsibility of State and Territory governments, this represents a significant change. The decision to adopt a national training strategy is evident in the establishment of ANTA in 1992 and the Australian Qualifications Framework (AQF) in 1994.

Principle 2: Competency, not Time Based
The second key principle identified by the OECD review team was that Australia's vocational education and training system should be competency based. The VET system, in particular, is committed to awarding credentials based on demonstrations of what students know and are able to do. This means that course design, curriculum and assessment will all be driven by the industry developed skill standards, and that demonstrations of prior learning based upon these standards will be recognised.

Principle 3: Demand, not Supply Driven
The third principle was that the vocational education and training system must be client focused and user driven. A major thrust of the federal government and ANTA has been to promote more choice and competition, to reduce the monopoly of public training providers by creating a public and private training market, and generally to simplify and streamline the system to make it more accessible and responsive to the needs of two key groups of clients: industry and trainees.

Principle 4: Multiple Pathways and Flexible Delivery
The fourth principle was that of multiple pathways and flexible delivery. One consequence of the decline in traditional apprenticeships is that policy leaders and educational institutions have moved to create a much greater diversity of pathways for young people to follow in moving from school to employment, and there has been a weakening of the formerly tight boundaries that have traditionally separated secondary schools, TAFE institutions, universities, and employer-based training. Credit transfer and recognition of prior learning have been important mechanisms in this regard.

Principle 5: A Commitment to Access and Equity
Substantial evidence was found of a continuing commitment to the principle of access and equity. Although the reviewers heard significant concern expressed about how the least advantaged young people would fare in a more deregulated education and training system, they also reported a widely shared view that one important criterion for judging the success of the training reform agenda was its ability to reach disadvantaged young people and adults.

The Distinctiveness of Australian TAFE

There are few tertiary sectors anywhere that can match Australian TAFE institutes in terms of the breadth of programmes provided, the varied backgrounds and ages of students enrolled, or the range of delivery modes employed. When viewed from a comparative international perspective, the key defining characteristic of Australian TAFE is its diversity.

Compared to tertiary education in many OECD countries, TAFE in Australia enrols a relatively high proportion of mature-age and part-time students. The net enrolment rate among 17-34 year-olds in Australian "non-university tertiary education" (which largely corresponds to TAFE programmes) was 5.2 per cent in 1996, which was well above the OECD country average of 2.4 per cent (OECD, 1998a). In this regard, Australia ranked fourth among the 19 countries for which comparable data were available. The relatively high participation in Australian TAFE is particularly evident among the 26-29 age group, in which Australia ranked first of the 15 countries compared.

The relatively high rates of participation across a wide range of ages in Australian TAFE reflect the diversity of programmes on offer. These include:

- Stream 1000 recreational non-award courses for personal interest, leisure or general enrichment;
- Stream 2000 courses which provide pre-vocational training and basic education in areas such as literacy and numeracy and adult education;
- Stream 3000 courses which provide initial vocational education and training, such as apprenticeships and technician training; and
- Stream 4000 courses which provide post-initial training, such as advanced certificates and associate diplomas in a wide variety of areas.

The only two countries with similar age participation profiles to Australian TAFE are Canada and the United States, where the community college sector performs many of the same functions as TAFE in Australia. However, it would still be the case that there are some distinctive programme types in Australian TAFE – most notably in apprenticeships – that have few parallels in North America.

The distinctiveness of Australian TAFE is further underlined by the fact that no other OECD country enrols as high a proportion of part-time students in non-university tertiary education. In 1996 almost 80 per cent of enrolments in Australian TAFE were on a part-time basis, which was the highest proportion among the 20 OECD countries for which comparable data were available (OECD, 1998). By contrast, the corresponding proportions for Canada and the United States were 38 and 64 per cent respectively, and the average for OECD countries was just 22 per cent.

Having a high proportion of the student population enrolled on a part-time basis (often in conjunction with full-time employment) implies that Australian TAFE institutes need to have flexible opening hours, a range of delivery modes, and to be able to call on a pool of staff with relevant industry experience who, of necessity, will often be part-time or sessional themselves.

A high proportion of part-time students also implies that considerable TAFE personnel resources need to be allocated to enrolling and advising students, and to tracking their progress. This requirement has become even more marked through the increasing tendency of students to enrol for individual modules without the intention to complete a full course. The modularisation of curriculum delivery at tertiary level features more prominently in English-speaking countries than in most other parts of the world. It is particularly evident in Australian TAFE.

Structure of the Stocktake

(i) The first chapter examines the *changing nature and patterns of employment* in Australia. In the overview particular emphasis is given to the knowledge economy, the implications of increasing globalisation of economic activity and the effects of technological advance. Changes in three areas are then considered separately. First, changes in the nature of work, including broader conceptions of work in Australia. Fundamental to the existence of vocational education and training as a distinct subset of education, is the importance of work as a human activity contributing to individual identity, social institutions and personal and national wealth. Major changes in the nature of work therefore have potentially important implications for vocational education and training. Secondly, changes in the industrial relations environment, where it is argued that the continuing individualisation of the employment relationship, including the growth of nominally independent contracting and the growth of non-standard employment, leave a gap in the process of skill formation. Thirdly, changes in the skill requirements of Australian industry, including a stronger focus on intellectual capital.

In general, VET is seen as having a key role in providing the skills, knowledge, attitudes and work practices that will maintain and improve the competitiveness of Australian industries. It has also been recognised as having a key role in promoting equity in skills acquisition, and hence employment. However, the nature of work in Australia is changing. Globalisation and rapid technological change are altering patterns of employment, including in the informal and voluntary sectors of the economy. Employment is shifting towards more skill-intensive occupations and industries. Work places and work practices are being redesigned. Workers are expected to be more flexible in their current job and in finding alternative employment. The implications for education and training of long-term economic and technological change have tended to become taken-for-granted. The evidence, however, is a little more mixed.

In fact, growth in the demand for skilled labour has not always been rapid, nor evenly distributed throughout the economy. Trends include a continuing shift away from agriculture and manufacturing to service industries, the changing occupational profile of the workforce, the greater importance of international trade, the continued importance of technology in production, and increasing uncertainty over stable full-time employment. Though overall these trends point to an increased demand for skilled workers, none necessarily has the wholly positive implications for skill formation suggested by many discussions of the emergence of the knowledge-based economy.

The number of part-time and casual jobs has been growing disproportionately and some categories of low-skill work have also increased their employment share. Technology has sometimes removed, rather than created, a need for skilled workers. Whether people are changing their occupation more now than previously is not clear, nor is whether enterprises facing competition are also those that provide the most training for their workers.

Internationally, research indicates that bundles of inter-related and internally consistent human resource practices rather than individual practices seem to be the key to improved performance in enterprises, particularly where integrated with complementary aspects of the overall business strategy. Increased levels of training may be ineffective without a surrounding context of flexible human resource and work practice strategies.

Especially in the cutting-edge high technology sectors of the economy, employers are beginning to recognise that their major 'assets' are not necessarily their plant and equipment, or land and buildings, but the 'intellectual capital' embodied in their intangible assets, including the skills and knowledge of their employees. They are considering and adopting better ways of reporting and managing these intangible assets, including through the use of financial and non-financial indicators. While this increased emphasis on human resources has the potential to influence investments in VET we still know very little about the progress of these developments or their implications, including their impact on, and implications for, demand for VET. There is considerable scope for further research to advance understanding and improve practice.

(ii) The second chapter is concerned with the *demand for VET*. The question 'what is the demand for VET?' is deceptively simple, and the answer is not straightforward. At one level, of course, it can be given by counting the number of people seeking places, such as in TAFE institute courses and with private providers, those who take up apprenticeships, or undertake enterprise provided training programmes. However, if one wishes to analyse why the numbers are as they are, why they have shown trends such as they have in the past, and how they are likely to change in the future, then the question turns into one about what determines the demand for VET, and that is a much more complex issue. To undertake a stocktake of what has happened to demand for VET over the last five years or so in this country, requires an unpacking of the layers of issues that have surrounded that demand.

The demand for VET can be viewed from three different perspectives, those of:

- *Individuals* – those who acquire VET;
- *Industry* – employers in both the public and private sectors who need trained workers and/or training for their workers; and
- *Governments* – on behalf of society as a whole, who see VET as meeting national (or state/regional) objectives.

What they demand, in turn, can be seen to fall under one or other of the following six headings:

- *Pre-employment vocational education and training* – that undertaken by young people, prior to their entry into the workforce. VET in schools and full-time TAFE courses are examples of pre-employment vocational education and training.
- *Initial employment training* – that undertaken when people first enter employment. Apprenticeships, traineeships, orientation and induction courses are examples of initial employment training.
- *Job-related training* – that undertaken by workers as part of their employment. Categories include on-the-job training, off-the-job in-house training and off-the-job training by external providers.
- *Job-switching training* – that undertaken by people who, even though they are currently in employment, are seeking career changes and alternative job opportunities.

- *Job-re-entry training* – that undertaken by people currently out of work, who are seeking re-entry into employment, for example after parental leave, redundancy or long bouts of unemployment. Labour market training is an example of job-re-entry training.
- *Non-workforce-related training* – that undertaken by people preparing for or participating in voluntary unpaid employment, in community or other informal sector activities, preparing for their retirement, or as a leisure activity. An example is language education undertaken in order to relate better to a new daughter-in-law from a different cultural background.

Whilst conceptually quite distinct, in practice this categorisation of demand for vocational education and training can often involve people undertaking training in the same areas, even enrolling in the same VET courses. For example, the 1997 TAFE Graduate Destination Survey found, from among its respondents, the following percentage distribution of principal reasons for undertaking TAFE courses of at least one semester's duration: to get a job or business (25.3); to get extra skills for job (17.2); to get a better job or promotion (15.4); requirements of current job (14.2); to try for a different career (12.9); for interest or personal development (11.5); to get into another course (3.5) (NCVER, 1998, Table 13, p xxii).

The range of VET courses, programmes, options or 'products', from which individuals and employers can choose is constantly expanding, diversifying and transforming. Some options which were available five years ago are no longer available, while others have been introduced since. (For a summary of the range of options available in 1993 see *Working Nation,* 1994, chapter 4; for 1998, see ANTA, *A Bridge to the Future*, 1998). This is something of a mixed blessing – change can bring about improvement in both the extent and quality of the options available, but frequent change can bring confusion. For those contemplating VET to be able to make rational decisions as to how much and what type to acquire, they need to have a clear idea, not only of what they need, but also of what the options are, and how effectively the available options will meet their needs. A recent survey of the evidence of awareness among individuals and employers of VET options found insufficient (or imperfect) information about training products and services (Robinson, 1998, p 116). In this environment, it cannot be assumed that the levels and composition of demand for VET that are observed are optimal, from any of the three perspectives, ie. for individuals, industry or governments.

Estimates of total expenditure on VET provide some indication of the overall level of demand, but not its composition. One recent estimate had governments contributing almost fifty percent of that funding, industry about forty percent and individuals less than ten percent (FitzGerald, 1998, p 13). However, because of the massive subsidies and cross-subsidies that much expenditure involves, the breakdown of funding between individuals, industry and governments need not reflect the relative contribution each makes to the demand for VET.

The matrix in Table 1 considers the six types of VET demand in relation to the three different perspectives that they can be viewed from. The matrix highlights how both the nature and extent of demand change as the perspective changes.

Table 1: Six Categories of Training Demand and Three Perspectives

Category of training demand	*Perspective on demand*		
	individual	*industry employers*	*governments*
Pre-employment	X	X	X
Initial employment	X	X	X
Job related	X	X	X
Job-switching	X		
Job re-entry	X		?
Non-workforce	X		?

The individual, or 'private', demand for VET is the broadest in scope, since it extends across all six categories. Individual demand varies in its strength and composition depending on the interplay of demographic, economic and social factors. It is individuals who actually undertake and acquire vocational education and training, not industry or governments. The *human capital* individuals acquire through VET – the knowledge, skills, aptitudes and attitudes that it imparts - becomes embodied in them, and only they can acquire ownership of it. Individuals demand VET for different reasons. It can, of course, be seen as an end in itself and demanded as a *consumption good* – on a par with an evening at the theatre or a ride in a hot air balloon.

The bulk of the demand by individuals is not for VET as an end in itself, but rather as a means to an end. In this sense, it is a *derived demand* - the demand for VET being determined by the individuals' demand for whatever VET may lead to. The more they perceive that VET will allow them to achieve that end, the greater will be their demand for VET. There are two ways of looking at this derived demand; (a) where VET is seen as an *intermediate good,* part of a package that contains not just VET; or (b) as an *investment good*, that will yield a favourable return in the future, such as a good job, higher pay, promotion, a new career direction, or successful re-entry into employment. Crucial to the level and composition of the private demand for VET for investment purposes is the *private rate of return on VET* - which sets the costs of acquiring VET against the benefits that flow from it - and how this compares with the return individuals are able to get from alternative uses of their time and other limited resources.

Industry demand for VET is much more concentrated on ensuring that it has an adequate supply of trained workers. Pre-employment, initial employment and ongoing job-related training are the primary focus of industry demand. The choices the employers face with respect to training are five-fold:

- What pre-employment requirements do they expect of prospective employees?
- How much, and what type, of initial education and training – in the form of apprenticeships, traineeships, cadetships, orientation and induction programmes - will the fresh recruits they propose to take on require?
- When is it more appropriate to recruit (poach) trained workers from other employers rather than train their own workers – that is, how do they minimise their demand for training?
- How much, and what type, of training should they require their workers to undertake as part of their ongoing employment?
- Is it more appropriate to provide that ongoing training in-house – either on or off the job – or outsource it to external training providers?

The decisions they reach in answering these five questions will determine the level and composition of their demand for training. These, in turn, will depend on a host of considerations, particularly the perceived relative costs associated with each alternative, and the perceived benefits to the organisation that will flow from them. This, in turn, will be influenced by the incentive structures in place in the training/recruitment/labour markets in which they operate, and the economic and financial environments in which their organisations are delivering their products. Employers, especially those in the private sector, do not demand training for the welfare and betterment of their employees *per se*, but only if it fits with the business strategies they are pursuing. Ultimately this means primarily how it impacts on the 'bottom-line' – annual profits, dividends to shareholders, share prices.

The 'public' demand for training, that expressed through state and national governments, both reflects and influences the private and industry demand for VET. Part of the public demand, of course, is akin to that of the private sector, since governments are major employers in their own right. They require a public sector workforce with all the skills, knowledge and attitudes necessary to deliver the range of services governments are mandated to provide, including in public administration, education, health, defence and police services. The considerations involved in determining their demand for training in this context are substantially the same as those of other employers, as canvassed previously.

Their demand for VET, however, is much broader than merely meeting their own workforce requirements. Progressively, but especially throughout the 1980's and 1990's, VET has become recognised as a vital element in the achievement of national, state and regional economic and social policy objectives. This is well illustrated in the mission statement for VET, and its underpinning objectives, contained in ANTA's national strategy for VET 1998-2003, *A Bridge to the Future*:

> To ensure that the skills of the Australian labour force are sufficient to support internationally competitive commerce and industry and to provide individuals with opportunities to optimise their potential.

The five objectives being:

- Equipping Australians for the world of work;
- Enhancing mobility in the labour market;
- Achieving equitable outcomes in vocational education and training;
- Increasing investment in training; and
- Maximising the value of public vocational education and training expenditure (see ANTA, 1998, preface).

In assessing the demand for VET from this perspective two considerations must be kept in mind. First, the public demand for VET, like the industry demand, is a derived demand, arising directly out of the policy objectives and political agendas of governments. Secondly, forecasts of the skill requirements of the country, or a particular state or region, and the assessment of the training needed to ensure their supply, only translate into demand when the public policy frameworks, and their accompanying funding and other incentive structures, allow that demand to be realised.

Emphases on pre-employment, initial and ongoing job-related training are the most common features of public demand for VET, in pursuit of economic, social, regional and other objectives. Training for job re-entry, a cornerstone of the previous national government's demand for training, through a raft of labour market training schemes, has been downplayed under the present national government. Job-switching training and non-workforce-related training, whilst they may be affected by the support governments provide to VET for other purposes, are generally regarded as being more a matter of private concern.

There is, then, no automatic correspondence between individual, industry/employer and government perspectives. The differences in the nature of the demand for VET by individuals, firms and governments spring directly from the different reasons each group has for wanting VET to be undertaken. The various demands are, in some cases, complementary, in other cases competitive. An environment which gives precedence to individuals' demands for VET may not yield the training outcomes desired by employers. Equally, a VET system that is directed solely to the requirements of industry may be at odds with, or may be unable to cater adequately for, every individual's needs. Moreover, neither may be capable of meeting all of the demands governments place on the VET sector. In turn, however, the policy objectives and frameworks adopted by governments, and the funding mechanisms they put in place, will have a profound effect on demand for VET by both individuals and industry. For example, government policies, across the spectrum of the economy – fiscal and monetary policy, industry and investment policy, research, development and technology policy - as well as more directly in education and training, and the incentive structures they create, play a pivotal role in whether a country adapts an essentially 'low-skill' route to economic development, or a 'high skill' one (Finegold and Soskice, 1988; Ashton and Green, 1996).

The demand chapter also included consideration of modelling of industry's demand for publicly funded training, as illustrated by CEET's work for the Victorian Government; and consideration of the demand for training by small and medium sized enterprises. In 1997 over 42% of Australia's

labour force worked in small business, including agriculture (Australian Bureau of Statistics, 1998). If learning practices and skill levels in small businesses fall short of what are required for peak performance, promotion of training for and by small enterprises constitutes a high priority. Initiatives by governments and industry organisations tend to be most effective when they are based on knowledge of the sorts of information and inducements to which small enterprises are likely to respond and when they overtly recognise the distinguishing characteristics and special circumstances of small businesses.

In the next chapter the Stocktake considered the *supply of vocational education and training*. By supply economists mean the quantity of goods or services offered by providers at various prices. A supply function or supply curve sets out how the quantity supplied will increase with an increase in the price offered to a provider. In evaluating the changes that have occurred it is necessary to remember that the amount of a good or service actually provided in a market is the result of both supply and demand. The expansion or contraction of a particular sector or type of education and training will rarely be the result of supply factors alone.

If efficiency is improved it means that a given quantity is likely to be offered at a lower price. How responsive the quantity supplied will be to an increase in the price offered will depend on technical conditions of supply, such as whether particular forms of equipment or specialised staff are needed. It may vary with the degree of competition among suppliers. The responsiveness of the quantity supplied to price is likely to be greater the longer the period of time, as providers will be able to engage more staff and other resources, and new providers can enter the market. These conditions are likely to vary across fields of study. For example, the supply response is likely to be slower for engineering education than for business studies, which require relatively less costly specialised equipment.

An overview of the supply of VET in Australia considers the quantitative indicators of the changes that have occurred in supply over the last decade within a changing economic and policy context. The chapter focuses on the outcomes, ie. whether the changes in supply that occurred in the new policy framework met the desired objectives. The main policy instruments used to affect both supply and demand in the 1990s were:

- putting more publicly funded education and training into competitive markets;
- expansion of charges in public education;
- increased public subsidy to fee charging private institutions;
- mandating or exhorting increased expenditure by employers;
- restraining or cutting public funds;
- developing a new structure for VET based on competencies and the recognition of training however acquired; and
- changing the management structure of public education.

Four main objectives of the reforms can be identified:

- to increase the levels of investment in education and training, at limited cost to government;
- to equip both young and older Australians to be flexible members of the workforce;
- to achieve more equitable outcomes from education and training; and
- to maximise the education and training outputs achieved from the resources involved.

The four objectives of the reforms can be seen as very similar to the five objectives of the national strategy for VET: to equip Australians for the world of work; to enhance mobility in the labour market; to achieve equitable outcomes; to increase investment in VET; and to maximise the value of public expenditures on VET (ANTA, 1998).

There are several major options in relation to financing mechanisms for VET. Funds can be provided by governments, employers, individuals and their families. Possible combinations are set out in Table 2 below.

Table 2: Common Combinations of Funding Sources and Provider Types

Funder / *Provider type*	Government	Employer	Individual, family and community
Government	X	X	X
Employer	X	X	
Private provider	X	X	X
Individual, family and community	X		X

Even within the various categories there can be very different forms of funding. For example, government assistance to students can be through vouchers or loans directly to students rather than funding the provider. In European countries the overwhelming source of funds for education and training is governments, but they often provide funds for private providers of education and training. In countries such as Korea, the United States and Japan there is a more substantial level of private finance. Government funding is largely preserved for government providers.

Changes in the main sources of funds for education and training which have occurred in Australia during the 1990's are considered including:

- did investment in training increase?;
- at what cost to government finance?;
- were Australians better equipped for work?;
- was equity in education and training improved?; and
- was the education and training delivered more efficiently?

Reforms to vocational education and training over the last decade were undertaken in the context of an economy increasingly exposed to international pressures and with an agenda for economic reform that stressed smaller government and the wider establishment of competitive markets. A major factor stimulating these reforms at the beginning of the 1990s was the high level of unemployment and the poor employment prospects for school leavers and low-skilled workers. This emphasised the importance of training and re-training the existing workforce, including those at the operative level. The training needs of the existing workforce were emphasised by changes occurring in the industrial and occupational structure. The majority of the Australian workforce had no post-school qualifications and little formal training in the workplace. Many lacked the literacy skills required for the new tasks. Supervisors and managers also were viewed as lacking the skills necessary for the satisfactory performance of the tasks confronting them.

At the same time as the need for increased training was being emphasised, economic reform required that public outlays be contained and that publicly funded activities demonstrate increased efficiency and responsiveness to client needs. Policy reforms to achieve this included measures to introduce greater competitiveness among suppliers, to reform regulation and management, and to increase accountability requirements. A growing share of public funds for education and training was made available for competition by the private sector. At every level of education and training there was a move to devolve greater responsibility for finance and staffing to provider institutions. There were,

though, considerable differences across the States and sectors. In universities, where the expansion in student numbers was greatest, students and their families were required to bear an increasing share of the costs. In VET, reforms to the support for apprenticeships in the 1990s shifted part of the burden of cost to the trainee, by allowing the wages of trainees to apply only for time on the job and by the development of the 'training wage'. In VET 'user choice', introduced in 1998, allowed the employer and the trainee under the New Apprenticeship system to choose the training organisation to be funded by government for delivery or assessment of training. An enhanced role for industry in vocational education and training was sought, including in determining competency standards.

Some conclusions included:

- The supply of formal education and training expanded in the 1990s, but most of the expansion in participation rates occurred in the early 1990s. The increase in provision appears to have been handled by shifting some of the costs to the private sector and reducing the unit cost per student. This was most evident in higher education.
- Employer provision of training did not keep pace with the training in the formal education system. It is too early to tell if the development in the late 1990's of training packages, which focus on units of competency and modes of assessment, is leading to a revival of employer training.
- There is insufficient data over time to confirm that the reforms are leading to more relevant education and training. A decline in apprenticeships compared with the 1980s needs to be seen against the changing structure of employment. Apprenticeships remain a robust form of education and training for young males. Traineeships and vocational programmes in schools have expanded, but the long-term consequences are not yet clear.
- The conclusions on equity are limited. There does not appear to have been much improvement and in some cases it is possible that equity has diminished. However, this may be due primarily to economic and social forces outside the education and training system. Those who suffer from multiple disadvantages appear to be cause for particular concern.
- Costs per student or trainee have been contained and in some areas have fallen. On the face of it, this is a valuable achievement, but the consequences for quality have not yet been established clearly. New developments in flexible and workplace delivery may reduce costs – especially recurrent costs – and shift the burden among the parties who contribute to the total costs of vocational education and training.

Four special issues in supply are considered next. First, inter-sectoral issues of two broad types are discussed. The first group consists of issues concerning VET and its relationships with other formal educational sectors (schooling, ACE and higher education). These include the movement of students between sectors; overlaps and links in courses and qualifications; and shared and contrasting values and cultures. Overall, the boundaries dividing the various sectors of education, which always had particularly porous elements, appear to have eroded more quickly in recent years. Paradoxically, while the barriers between the sectors have diminished, many of the characteristics that have in the past helped to give each sector a unique identity remain strong. The second group comprises issues around the roles and relationships of the public and private sectors in VET. For instance, should the sectors compete or be complementary? In what circumstances should public resources be available to the private sector? To what extent can resources be shared, and how? What impact results from the shifting of resources from one sector to the other? Do both sectors have an equity role? Many of the issues in both groups are complex and multi-faceted.

Secondly, attention is given to VET provision in secondary schools. As a result of a series of agreements between Federal and State/Territory Governments since 1995 three broad types of school vocational programmes became evident.

- The first, **VET in Schools**, has become the dominant field of activity and classification. This term refers to vocational programmes which comply with the National Training Framework initiated by ANTA. The term incorporates the training package concept, where progression and assessment

are based on a competency based model of learning, and outcome standards which are industry derived. The role of schools as providers of technically based instruction varies between schools and between States and Territories.

- Secondly, in **School Based New Apprenticeships** a young person undertakes off-the-job skills training and subjects associated with the end of school certificate at school, and works as an employee engaged under a New Apprenticeship (sometimes called Traineeship) contract. The configuration of school and work differs from State to State and between industry areas.
- Thirdly, there are **other vocational learning programmes.** This is the residual category. These programmes include work based learning for so called traditional subjects, such as accounting, agriculture, food sciences and physics; mainstream Year 11 and 12 programmes approved by Boards of Study with significant vocational orientation but not considered to be part of the National Training Framework; various forms of exposure to workplaces through concepts such as work shadowing, work sampling, and work experience; work based enterprise and entrepreneurial learning through various programmes; skills training programmes designed by schools in conjunction with local employers to assist the successful transfer of early school leaving youth into jobs; and school based programmes designed to promote key competencies through a mix of classroom, workshop, simulated and real work environments. Consistent national data are not available on this third category, although there are partial indicators at State or school level.

Thirdly, consideration is given to vocational education and training in the Adult and Community Education (ACE) sector. Within the national VET system community-based providers have been described as having two fundamental roles. First, there is a *generic role*, identical to that of all other training providers; and secondly, there is a *value-adding role*, to 'bring into the system a strongly local, flexible, market-driven and learner centred approach to community-based delivery primarily to individuals' (Schofield and Dryen, 1996, p v). In its generic role the major contribution of ACE to the VET system is in the area of general adult education and training, delivering programmes such as adult literacy, adult basic education, English as a second language and other access and preparatory programmes. A significant contribution is also made in the area of non-industry-specific occupational training in areas such as business, clerical and computing. In their *value-adding role*, ACE providers contribute in four main ways. They increase the level of diversity in the training market, particularly through a focus on groups under-represented in, or under-serviced by, the national VET system. They strengthen links with, and provide a strong focus on, local and regional labour markets and associated demands for VET. They integrate VET activities with other local economic and social developments; and they bring into the VET system practices and values essential to its long-term effectiveness (Schofield and Dryen, 1996, pp vii-viii).

Community (ACE) providers enrolled over 225,000 clients in VET programmes in 1997, compared to over 1,100,000 VET clients in TAFE. The average hours per VET programme taken with a community provider are low compared with programmes in TAFE. However, vocational programmes are of increasing importance in ACE. The proportion of clients engaged in vocational programmes increased by about 8 per cent between 1995 and 1997 and expansion appears to be continuing. An important consideration is that the data may understate the extent of ACE provision of vocational programmes (Campbell and Curtin, 1999). Why have vocational programmes become more important in ACE? Three factors are discussed: increases and shifts in demand; re-classification of some programmes in recognition of their vocational orientation; and resource constraints and opportunities.

Finally, attention is paid to teachers in VET. They are the most critical element in determining the supply of skills, knowledge and attitudes produced through the education and training system. Teachers play the central role in developing curricula, providing students and trainees with an appropriate learning environment, and in assessing and certifying the learning that has taken place. Major questions are being raised about how to ensure that the teacher workforce is able to meet the needs of future learners (OECD, 1998b), especially in the light of the likely demands for VET. Trends in the Australian school and VET teaching workforces are analysed as pointers to likely developments in, and possible problems with, the supply of education and training skills. For example, the

vocational teaching workforce is ageing. The proportion of males over 44 years of age has nearly doubled from 32 to 63 percent over the decade. The proportion of females in this age group has nearly doubled, too, although in 1997/98 those aged 44 and over still comprised less than half of all female VET teachers. Senior TAFE administrators interviewed by Malley et al (1999) identified growing pressures on VET teachers. There was seen to be a need for VET teachers to develop skills in the areas of marketing, entrepreneurial and client-focussed approaches to instructional delivery, general management and leadership, team-based management, project management, and VET in schools provision. The senior administrators also reported difficulty in retaining talented young staff who have both good industry credibility and teaching experience.

Economic restructuring at the national and global level has implications for the likely demand for different types of VET teachers. Technological change is also shaping the type of teachers who are likely to be required in the sector in the future. It is changing the way teachers develop, deliver and assess courses. For younger teachers some of the necessary skills required to cope with these changes may already be acquired during training, but for older teachers they have to be acquired through professional development. There are considerable concerns about the limited resources applied to staff development in the TAFE sector (Villiers, 1998). TAFE Institute interviews raised significant questions about the extent to which staff have been prepared to use new technology effectively, and the extent to which some staff remain out of touch with technological change. A need was also expressed for staff who can access and manage co-operative arrangements for sharing new technology in their areas of subject matter expertise.

Interviews with senior TAFE administrators in Victoria indicated that they saw the employment of staff on contractual and sessional arrangements as a principal means of obtaining organisational flexibility. This was viewed as necessary because of changing market conditions, a need to respond to learners' diverse needs, and to ensure that the Institute remained competitive and relevant. However, it was also acknowledged that having a high proportion of fixed-term, part-time and sessional staff posed particular challenges for staff development and training. On the one hand, there was an increasing need for the Institute's permanent or on-going staff to develop skills in managing a large and diverse workforce, and in ensuring that the quality of instruction was maintained or enhanced. On the other hand, there were also particular staff development needs among the fixed-term and sessional staff themselves. Often these needs related less to subject-matter expertise – especially where the staff were drawn from industry – than to matters of teaching skills and orientation to organisational goals and processes.

The TAFE Institute managers reported increasingly high expectations of what their staff do and achieve. Overall, the task of being a competent performer in the TAFE sector involves activities that are more knowledge-intensive and knowledge-generating than ever before. The VET sector in Australia appears to be facing significant pressures over the next decade in terms of the need to replace substantial numbers of staff who will be retiring, while at the same time ensuring that new and existing staff have the skills and knowledge required to meet the new demands.

Four other matters

Four other matters are discussed in the Stocktake. The first concerns *training markets*. The concept of a training market emerged in the context of the National Training Reform Agenda, an important element of the micro-economic reform agenda initiated at the Federal level in the mid-1980's. The OECD has argued that the development of a market-based approach to post-school education and training is a necessary consequence of the increasing diversification of demand in terms of client groups, learning objectives, and the social, geographical and cultural situations of learners (OECD, 1995). According to the OECD, several supply-side trends are contributing to the development of markets in post-school education and training, specifically greater diversification of institutional frameworks, new learning technologies, and new financial frameworks.

ANTA suggests that the training market 'consists of individuals, enterprises and governments, on the demand side, interacting with public and private providers, on the supply side, for the delivery of training products which leads to a diverse and flexible national skills pool' (ANTA, 1996, p 3). ANTA describes the framework for market structures in VET in terms of a continuum running between 'pure public' and 'pure private' poles at either end. 'In between these two extremes are a range of alternatives which range from government purchasing training through its public provider … to individuals and governments purchasing training from both public and private providers' (ANTA, 1996, p 33).

Anderson (1997, p 3) suggests that the aims of developing a competitive training market are to:

- stimulate greater competition among public and private providers and thereby increase incentives for providers to respond to client needs, particularly enterprises/industry;
- enhance efficiency and effectiveness in publicly funded training;
- increase private investment in training by individuals and enterprises/industry; and
- promote the development of a more integrated and nationally consistent training system.

Research has tended to support the proposition that there is a need to strengthen the demand side of the market. Coopers and Lybrand found that 'employers believe there is little capacity to influence the training system at the current time, that this situation has not changed over the past few years, and that they are interested in exercising considerably more influence' (1996). Research on TAFE student perceptions of training market reforms suggests that they also wish to exercise greater influence over the policy priorities and directions of their providers and the VET system as a whole (Anderson and Hoare, 1996). However, the application of a market framework to VET has also been strongly criticised, including on grounds that it is inappropriate, artificial, contributes to inequities, and distorts decision-making.

The second matter is *user choice*. Generally, moves to open up the training market until the mid-1990s had concentrated on the supply side. They were directed towards making the market more contestable and less monopolistic. These moves included, in some States and Territories, actions to devolve the management responsibility and accountability to individual TAFE institutions, and removal of barriers to market entry for private and industry providers. There had also been some demand side measures: among them the separation of authorities' purchaser and provider roles; and as purchasers, opening a proportion of the publicly funded VET budget to competitive tendering. User Choice, introduced from January 1998 for apprenticeships and traineeships, is an initiative intended to strengthen the demand side of the training market. Nevertheless, most training authorities were at best lukewarm about User Choice, and NSW reserved its overall position.

In 1999 a Queensland review of User Choice found strong support among employers, providers and system administrators for the principle that systems for the funding and provision of training should, as far as practicable, allow apprentices, trainees and employers to access the training and the training provider of their choice. In practice, User Choice was found to be having a clear influence on the choice of provider in both apprenticeships and traineeships, particularly the latter(Smith, 1999). Three major advantages were emphasised. First, the User Choice system had increased the level of competition among providers, and as a consequence has resulted in an increased range of training options (programmes, delivery methods and times) in the attempt to satisfy client needs. Secondly, there was an increased level of interaction between employers and providers, particularly in TAFE. User Choice was seen as having been an important process for "levering providers out of their institutions to meet their clients in the workplace". Thirdly, there was a general perception among VET stakeholders that, due to the increased competition for its "traditional" business resulting from User Choice, TAFE Queensland had significantly streamlined its administrative processes, addressed a wide range of efficiency issues, and significantly improved its 'customer service'. However, a number of concerns were also identified. In particular, the review concluded that implementation was unsatisfactory; information was inadequate, although essential for informed choice; and quality was

threatened. A subsequent review, established by the Queensland Minister for Employment, Training and Industrial Relations, concluded that "notwithstanding some strengths and some quality characteristics, the investigation has concluded that, on the whole, Queensland's traineeship system is only partly effective, is not fit for its purpose, is inefficient and its accountability framework is not as strong as it needs to be. In short, it cannot reasonably be described as a quality system" (Schofield, 1999, p. (ii)).

The third matter is *equity*. It is clear that the VET system faces many challenges in its approach to equity, in monitoring its performance and in achieving equity objectives. Attention to equity in VET has focussed on 'target' or 'disadvantaged' groups who are identified as under-represented in VET, compared with their share of the population. The groups recognised were those traditionally excluded from social, economic and political power in Australia and thus included women, Aboriginal and Torres Strait Islander peoples, people of non-English speaking background, people with disabilities, people with low literacy and numeracy skills, and people living in rural and isolated areas. Barriers and problems faced by each group in relation to VET were investigated, in some cases extensively, and many recommendations were put forward to counter the difficulties exposed. A variety of special equity programmes and initiatives were funded and some success was achieved in addressing identified difficulties, particularly in relation to access to VET. This focus on target groups has now been supplemented by a stronger concern for individuals and the capacity of the VET system to recognise and respond to their many different aspirations and demands. In *Achieving Equitable Outcomes* (released as a supporting paper to the national strategy *A Bridge To the Future)* ANTA set out a new equity objective for VET:

> The overall goal must be an equitable vocational education and training system able to offer inclusive and appropriate products and services for a full range of clients and potential clients (ANTA, 1998, p 2).

Research by Golding and Volkoff has emphasised the intersection of group, intra-group and cross-group factors, rather than group membership itself, as requiring the most urgent attention in improving access, participation and outcomes in VET. They were 'particularly struck' by the 'evidence, effects and importance' of overlapping membership of target groups. Compared with higher education they suggest that the overlapping effects are particularly pronounced in VET, because of the greater diversity of provision and participation in VET by level, course, field of study and provider type (Golding and Volkoff, 1998).

The monitoring of equity has, in the past, relied substantially on participation data. In large part, this has reflected the initial selection of target groups on the basis of their under-representation in VET ie. their low participation compared with their share of the population. It is now recognised that his data is inadequate to report the extent of equity in the VET system or changes in equity performance over time. "Participation alone is an inadequate measure. It serves to focus attention on access to training without giving due regard to the VET experience or the value derived as a result" (ANTA, 1998, p 7). The findings of research studies show that some individuals and groups are able to gain access to VET, but experience difficulties that prevent them from gaining maximum benefit from their participation, from completing successfully and from gaining the outcomes they seek. VET provides inadequate support for some clients; programme material and assessment are sometimes culturally inappropriate or insensitive; and timetables can reflect the needs of enterprises but not learners.

Another important equity consideration relates to the provision of in-house training. In-house training provision varies substantially by occupation. Managers, administrators, professionals and para-professionals (generally) receive more in-house training than plant and machinery operators. There has, however, been a shift towards greater relative provision of training to workers in the less skilled occupations. Results from ABS surveys show that, in 1989, for every hour of in-house training received by labourers, managers and administrators received more than six hours. By 1997 this ratio had halved to one hour of training for labourers to every three hours of in-house training received by

managers and administrators. A similar convergence can be observed for plant and machinery operators. Receipt of in-house training has a curvilinear relationship with age — younger and older workers receive less than workers towards the middle of the age range. Within that pattern, however, there has been a shift of training away from the 20 to 24 years age group towards the 35 to 49 years and 50 to 64 years age groups. There are large differences in the level of provision of in-house training between full-time and part-time employees and between permanent and casual employees. The results were not sufficiently different to conclude that this pattern has changed over time. There were indications, however, that the extent of differences in receipt of external training among categories of workers declined during the eight years spanned by the three ABS surveys.

Study for an educational qualification differs markedly from the pattern for participation in training. It is dominated by younger workers and workers in part-time and casual employment. Although the proportion of employees studying for a qualification has been reasonably constant, the proportion receiving financial support from their employer has declined somewhat. The decline has sometimes resulted in smaller differences among categories of workers in the level of financial support for study received from their employers.

The final matter considered in the Stocktake was *the relationships between R&D and changes in policy and practice*. Questions as to whether R&D affects policy and practice, if so, through what pathways, and whether the relationships can be improved, have been of interest in Australia and overseas. For example, the OECD has shown considerable interest, as have North American and European commentators. In Australia, the issues have been of interest to researchers and also to decision-makers. Previous studies have shown that the relationships between R&D and its decision-making outcomes are almost always complex and not easily discerned. There are many sources of R&D, many potential uses for R&D in decision-making and many potential pathways between researchers and decision-makers.

The research capacity for VET in Australia has grown substantially during the 1990s; and the research base for decision-making by stakeholders has improved. As a result, policy-makers, provider institutions, practitioners and other users are in a better position to make informed decisions. However, the change is occurring in a large, complex and contested activity; VET does not have a strong research tradition or culture; and many of the linkages between researchers and users are weak. It is clear that further improvements could be made. The Stocktake concludes that the challenge now is practical implementation of improved relationships between R&D and VET decision-making, on a long-term and sustainable basis.

The revision of the Stocktake for publication is currently approaching completion. Each section has revealed some gaps in knowledge and understanding and proposed areas for further research. The Stocktake provides a summary of the current position and a basis for substantial further development of the economics of VET in Australia.

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