

CEET's stocktake

The **economics** of **vocational education** and **training** in **Australia**

C Selby Smith

F Ferrier

D Anderson

G Burke

S Hopkins

M Long

L Maglen

J Malley

P McKenzie

C Shah

© Australian National Training Authority, 2001

This work has been produced with the assistance of funding provided by the Commonwealth Government through the Australian National Training Authority. Copyright for this document rests in ANTA. ANTA will allow free use of the material so long as ANTA's interest is acknowledged and the use is not for profit.

The views and opinions expressed in the report are those of the authors and do not necessarily reflect the views of ANTA. ANTA does not give any warranty or accept any liability in relation to the content of the work. Further information can be obtained from the Australian National Training Authority, GPO Box 3120, Brisbane, Qld., 4001. (Tel: 07 3246 2300; Fax: 07 3221 4826; ANTA Website: www.anta.gov.au)

ISBN 0 87397 679 7 print edition

ISBN 0 87397 698 3 web edition

TD/TNC 64.17

Published by NCVER

ABN 87 007 967 311

252 Kensington Road, Leabrook, SA 5068

PO Box 115, Kensington Park, SA 5068, Australia

www.ncver.edu.au



TABLE OF CONTENTS

TABLES, FIGURES AND BOXES	iv
PREFACE	vii
ACRONYMS	viii
1 PURPOSES AND STRUCTURE OF THE REVIEW	1
1.1 Introduction	1
1.2 The scope of VET	1
1.3 Background	2
1.4 Key changes in Australia	3
1.5 The distinctiveness of Australian TAFE	4
1.6 Structure of the stocktake	5
2 THE CHANGING NATURE AND PATTERNS OF EMPLOYMENT	8
2.1 Introduction	8
2.2 The changing nature of work	8
2.3 Changing skill requirements of Australian industry	13
2.4 The changing industrial relations environment	20
3 THE DEMAND FOR VET	25
3.1 Overview	25
3.2 The determinants of the demand for VET	25
3.3 Modelling industry's demand for VET	35
3.4 Small and medium-sized enterprises (SMEs)	39
3.5 Enterprise accounting for skills: Indicators of intellectual capital	44
4 THE SUPPLY OF VET	53
4.1 Overview	53
4.2 The economic and policy context	54
4.3 Did investment increase?	55
4.4 Cost to government	57
4.5 Is the work force better equipped?	62
4.6 Have more equitable training outcomes been achieved?	67
4.7 Output of quality education and training per unit of resources	70
4.8 Supply and how well it meets demand	71
5 SPECIAL ISSUES IN SUPPLY	73
5.1 Overview	73
5.2 Intersectoral issues	73
5.3 VET provision in secondary schools	80
5.4 VET in adult and community education (ACE)	91
5.5 Regional issues	98
5.6 VET teachers	103
6 FINANCE AND MARKET ISSUES	108
6.1 Overview	108
6.2 Financing options	108
6.3 Training markets	112
6.4 User choice: A major development in training market reform	121
6.5 Conclusions	126
7 SUMMARY, RESEARCH GAPS AND TWO FINAL QUESTIONS	127
7.1 Overview	127
7.2 Summary and findings	127
7.3 Issues for future research	136
7.4 Can equity be improved?	140
7.5 Research impact	144
REFERENCES	151

LIST OF TABLES, FIGURES AND BOXES

LIST OF TABLES

Table 3.1:	Six categories of training demand and three perspectives	26
Table 3.2:	Qualifications profile by selected ITBs (Victoria; 1998)	36
Table 3.3:	Projected net replacement needs rate and change in employment by selected ITBs, Victoria, 1999-00 to 2003-04	37
Table 3.4:	Projected labour market training needs in 1999-2000—Under alternative assumptions about participation rate and intensity of training	39
Table 3.5:	The value of intellectual capital	45
Table 3.6:	Human resource costs in the profit and loss account	47
Table 3.7:	Cost of personnel activities as a proportion of total personnel costs (%)	47
Table 3.8:	Human resource indicators	48
Table 3.9:	Intellectual capital variables	48
Table 3.10:	Intellectual capital tools in use or being investigated in the case study enterprises	49
Table 3.11:	Objectives of IC reporting (human resources): Some indications from the Australian case studies	50
Table 4.1:	Students in education and training (Australia; 1990, 1993 and 1998; '000)	55
Table 4.2:	Population by age (Australia; 1990 and 1998; millions)	55
Table 4.3:	Education participation rates (Australia; 1990, 1992 and 1997; per cent)	56
Table 4.4:	Educational participation rates by age by sector (Australia; 1990 and 1997; per cent)	56
Table 4.5:	Persons aged 15 to 64 with a wage or salary job in past 12 months: Study of training courses in the past 12 months (Australia; per cent)	56
Table 4.6:	Persons completing training courses, number of courses and average hours per person trained and per course (Australia; 1997)	57
Table 4.7:	General government total outlays and outlays on education (Australia; 1990-91 and 1997-98)	57
Table 4.8:	Public and private educational expenditures in selected OECD countries (percentage of GDP; 1990 and 1995)	59
Table 4.9:	Government and private expenditures and outlays on education (Australia; \$billion; and % of GDP)	59
Table 4.10:	State and Territory shares of government outlays on education (Australia; 1989-90 to 1997-98)	60
Table 4.11:	Government outlays on education by sector (Australia; 1997-98; \$billion)	60
Table 4.12:	VET operating revenues (Australia; 1989-90 to 1998)	61
Table 4.13:	Government recurrent expenditure per publicly funded annual hour of VET curriculum (1998; \$)	61
Table 4.14:	Employer expenditure on structured training (Australia; July to September; 1990, 1993, 1996)	62
Table 4.15:	Labour force aged 15 to 64 by highest level of qualification (Australia; May; 1993, 1996 and 1999)	64
Table 4.16:	Apprentices and trainees (Australia; 1985 to 1998; '000)	64
Table 4.17:	Employment and unemployment for persons aged 15 to 24 (Australia; '000)	66
Table 4.18:	Enrolment rates in public and private education by age (for full and part-time students; selected OECD countries; 1996)	66
Table 4.19:	Percentage of 25 to 64 year olds participating in education and training (selected OECD countries; 1994-95)	67
Table 4.20:	Percentage of the population aged 16 to 65 at IALS Document Literacy Level 1 (selected OECD countries; 1994-95)	69
Table 4.21:	Participation of 25 to 64 year olds in job-related education and training and hours of training by literacy level (selected OECD countries; 1994-95)	69
Table 4.22:	Ratio of participation in career or job related training by workers aged 25 to 54 with a university degree to those who have not finished upper secondary schooling (1994-95)	69
Table 5.1:	VET and personal enrichment programs by provider type (Australia; 1997)	93
Table 5.2:	Clients of community providers by program type (Australia; 1995 to 1997; %)	93

LIST OF FIGURES

Figure 2.1:	The holistic nature of work-related learning	12
Figure 3.1:	A 'magic hat' of terms and concepts	45
Figure 4.1:	General government outlays (% of GDP; 1999)	58
Figure 4.2:	Growth in hours worked (Australia; 1991 to 1999)	65
Figure 5.1:	Estimated number of secondary school students participating in VET in Schools programs (Australia; 1995 to 1999)	82
Figure 5.2:	Australian government school enrolments in 1998 in Years 11 and 12: VET in Schools programs and VET in Schools programs with workplace learning	82
Figure 5.3:	VET in Schools enrolments by industry classification (Australian government schools only; 1998)	84
Figure 5.4:	Employment of vocational education teachers (Australia; 1986–87 to 1997–98)	104
Figure 5.5:	Employment of male and female vocational education teachers (Australia; 1986–87 to 1997–98)	104
Figure 5.6:	Proportion of male and female vocational education teachers over the age of 44 years (Australia; 1986–87 to 1997–98)	105

LIST OF BOXES

Box 4.1:	Which adults get education and structured training?	70
Box 5.1:	Barriers to participation in ACE	97
Box 5.2:	The TAFE work force in Victoria	106
Box 6.1:	The nine User Choice principles	122

PREFACE

The Monash University-Australian Council for Educational Research Centre for the Economics of Education and Training (CEET) was established in 1992 as a joint research centre of the Faculty of Education and the Faculty of Business and Economics at Monash University and the Australian Council for Educational Research (ACER). Since 1997 CEET has also had a collaborative relationship with the Centre for Human Resource Development and Training at the University of Melbourne.

This study of the economics of vocational education and training (VET) in Australia has been co-ordinated and edited by us. However, all members of the Centre have contributed to its development, its contents and its overall integration. We hope that the review will provide a useful basis for further research and contribute to improvements in the relationship between researchers and VET decision-makers.

The book builds on and updates a review of the literature on the economics of VET in Australia which was undertaken by CEET for the Australian National Training Authority (ANTA) in 1994. The primary focus is again on VET, which reflects the emphasis given to VET in CEET's recent research and the particular concerns of ANTA, which provides core funding to CEET. The initial draft of the review was prepared during 1999, drawing particularly on literature published since the earlier review, and it was extensively rewritten during 2000. The book also takes account of the substantial changes under way in the policy and institutional framework of VET in Australia over the past decade.

We express our appreciation to our colleagues for their contributions. We are also pleased to acknowledge the valuable part played by Mrs Toni Borrett in preparing the book for publication.

Chris Selby Smith
Fran Ferrier

ACRONYMS

ABS	Australian Bureau of Statistics
ACCIRT	Australian Centre for Industrial Relations Research and Training
ACE	Adult and Community Education
ACER	Australian Council for Educational Research
ACFEB	(NSW) Adult, Community and Further Education Board
ACG	Allen Consulting Group
ACT	Australian Capital Territory
AHC	Annual Hour of Curriculum
AIRC	Australian Industrial Relations Commission
ANTA	Australian National Training Authority
ANTARAC	Australian National Training Authority Research Advisory Council
ANZSIC	Australian and New Zealand Standard Industrial Classification
AQF	Australian Qualifications Framework
ARC	Australian Research Council
ASCO	Australian Standard Classification of Occupations
ASTF	Australian Student Traineeship Foundation
ATS	Australian Traineeship System
ATSI	Aboriginal and Torres Strait Islander
AVETMISS	Australian Vocational Education and Training Management Information Statistical Standard
AWA	Australian Workplace Agreement
AWIRS	Australian Workplace Industrial Relations Survey
CBT	Competency Based Training
CEET	Monash University-ACER Centre for the Economics of Education and Training
CEO	Chief Executive Officer
COAG	Council of Australian Governments
CoPS	Centre of Policy Studies at Monash University
CRLRA	Centre for Research and Learning in Regional Australia
DETYA	(Commonwealth) Department of Education, Training and Youth Affairs
EFA	Enterprise Flexibility Agreement
EFT	Equivalent Full-Time
GDP	Gross Domestic Product
HECS	Higher Education Contribution Scheme
HRA	Human Resource Accounting
IALS	International Adult Literacy Survey
IC	Intellectual Capital
IRRA	Industrial Relations Reform Act 1994
ITAB	Industry Training Advisory Board
ITB	Industry Training Board
JSST	Joint Secondary Schools TAFE programs
LMTN	(Victorian) Labour Market Training Needs model
LSAY	Longitudinal Studies on Australian Youth
MCEETYA	Ministerial Council on Education, Employment, Training and Youth Affairs
MINCO	(ANTA) Ministerial Council
NAC	New Apprenticeship Centre
NCRVE	(US) National Center for Research on Vocational Education
NCVER	National Centre for Vocational Education Research
NREC	National Research and Evaluation Committee
NSW	New South Wales
NTRA	National Training Reform Agenda
NTF	National Training Framework
OEA	Office of the Employment Advocate
OECD	Organisation for Economic Co-operation and Development
OTFE	(Victorian) Office of Training and Further Education
PETE	Office of Post-compulsory Education, Training and Employment, Department of Education, Employment and Training (Victoria)

RCVET	Research Centre for Vocational Education and Training
R&D	Research and Development
RPL	Recognition of Prior Learning
RTO	Registered Training Organisation
SCH	Student Contact Hours
SES	Socio-Economic Status
SMEs	Small and Medium Sized Enterprises
STS	State Training System
TAFE	Technical and Further Education
TEC	(UK) Training and Enterprise Council
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VCE	Victorian Certificate of Education
VEETAC	Vocational Education, Employment and Training Advisory Committee
VET	Vocational Education and Training
WRA	Workplace Relations Act 1996

1 PURPOSES AND STRUCTURE OF THE REVIEW

1.1 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 programs. 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 Gross Domestic Product (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 VET in Australia.

1.2 THE SCOPE OF VET

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.

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, but involves people of many ages as their needs change throughout their lives, for example, whether people wish 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 that contribute to individuals undertaking gainful employment effectively? It can also be argued to be too narrow, since not all VET or adult and community education (ACE) activities are 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 ACE, where research has shown that many students have employment motives, and achieve employment outcomes, in what are officially non-VET courses.

In a recent CEET project, vocational education was defined a little differently, as all formal post-school education which prepares students (or further develops their skills) for a specific vocation, or work generally, up to and including the level of para-professional occupations (Selby Smith et al., 1998, p.157). This definition includes literary and basic education programs, as they also prepare students for work generally. 'Training' is taken to include both on-the-job and off-the-job training to a similar level. This definition is consistent with that used by McDonald et al. (1993).

Bearing these points in mind the material for this review 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 enterprises and workplaces.

1.3 BACKGROUND

The 1993 strategic review of VET research and development, *No small change*, identified 'Policy and Economics' as one of the major areas of research needed in Australia (McDonald et al., 1993, p.42). The review conceptualised this 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 strong economic flavour, in considering both the productivity and earnings benefits that will (hopefully) flow from greater public or private investment in VET, and the role of financing mechanisms in facilitating access to VET. The bracketing of 'Policy and Economics' underscored the central role that economics plays in VET decision-making. 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.

What is perhaps a little more surprising is that there had been 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, despite the comparative strength of economic research in other applied fields, such as health.

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 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 that has occurred in research on economic aspects of VET since 1993, CEET included in its work program for 1999 this stocktake of the economics of VET. The aim was to provide the basis for an informed discussion about the Centre's future work 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 that have taken place in the policy and institutional framework of VET in Australia over the past decade.

1.4 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 Organisation for Economic Co-operation and Development (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 those people currently in education enter the labour force and less well-qualified persons retire.

Australia is enjoying a long period of consecutive economic growth. GDP rose 4.7 per cent in 1999–2000, after recording the thirteenth consecutive quarter of growth over 4 per cent and the longest period of growth over 4 per cent since quarterly national accounts began in 1959. Since the mid-1980s employment and productivity growth in Australia have generally been higher than in most OECD countries. 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 [ANTA], 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, 1998a, 1998b). However, the interface between education and the labour market in Australia is not as loose as that in the United States (US). 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). This is 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 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 with elements of more loosely coupled systems. Thus, attempts have been made to integrate a national policy and qualifications framework and an increasing role for employers with 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 programs to expand and strengthen the nation's VET system. An OECD review team which visited Australia in 1997 argued that, despite 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):

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 VET 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 are all 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 VET system must be client focused and user driven. The major thrusts of the federal government and ANTA have been to promote more choice and competition, to reduce the monopoly of public training providers and generally to simplify and streamline the system. Key elements have been the creation of a public and private training market, and initiatives to make the system 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 related to 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. There has also been a weakening of the formerly tight boundaries that 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. The reviewers heard significant concern expressed about how the least advantaged young people would fare in a more deregulated education and training system. However, 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.

1.5 THE DISTINCTIVENESS OF AUSTRALIAN TAFE

There are few tertiary sectors anywhere that can match Australian TAFE institutes in terms of the breadth of programs 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 enrolls 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) 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 programs on offer. These include:

- recreational non-award courses for personal interest, leisure or general enrichment;
- courses which provide pre-vocational training and basic education in areas such as literacy and numeracy and adult education;
- courses which provide initial VET, such as apprenticeships and technician training;
- 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 US, where the community college sector performs many of the same functions as TAFE in Australia. However, there are some distinctive program types in Australian TAFE—most notably apprenticeships—that have few parallels in North America.

The distinctiveness of Australian TAFE is further underlined by the fact that no other OECD country enrolls 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, 1998a). By contrast, the corresponding proportions for Canada and the US 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 and 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 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, and it is particularly evident in Australian TAFE.

1.6 STRUCTURE OF THE STOCKTAKE

Chapter 2 examines the changing nature and patterns of employment in Australia, since the production and consumption of VET occurs in a world of continuing change. VET both reflects and responds to the changing economic, organisational, industrial, technological, social and political contexts in which it is set, be they local, national or global. The focus of chapter 2 is the emergence of the knowledge economy, the confluence of the forces of globalisation and rapid technological change, especially in the fields of information technology and communications, and the organisational and political responses that are made to them by individual enterprises and by governments. These forces are bringing with them far reaching changes in the nature of work, in the skill requirements of the Australian economy, and in the relationships between enterprises, their managers and their work forces. All of these changes have major implications for VET. In particular, the chapter examines the changing nature of work; the changing skill requirements of the Australian economy; and the implications for VET of the changing industrial relations environment in Australia.

Chapter 3 is concerned with the demand for VET. VET is highly heterogeneous. It comes in a wide variety of forms; it is delivered in a multitude of different ways; and the form and mode of delivery can both change. Thus, the demand for VET is highly diffuse, complex and dynamic. The chapter seeks to identify and analyse the major determinants of the demand from three perspectives: individuals who undertake VET; employers who require their workers to have a wide and often changing array of skills, knowledge, attitudes and aptitudes; and governments, who are large-scale employers and who also see VET as playing key roles in the pursuit of their economic and social objectives. The chapter also examines how the demand for VET from the

individual and employer perspectives translates into actual forecasts of the demand for places in VET provider institutions. CEET has played a major role in reviewing the ways in which the Victorian authorities assess the demand for training and some of CEET's findings are summarised here. Two specific aspects of the demand for training by employers are then examined. First, particular issues that arise for small and medium-sized enterprises are considered. Second, there is a discussion of some ways in which employers account for the skills of their work force and hence bring their demands for training into line with other expenditure and investment decisions that they make.

Chapter 4 is concerned with the supply of VET in Australia. It considers the quantitative indicators of the changes in supply over the past decade within a changing economic and policy context, and focuses on whether the changes in the supply met the desired objectives. The chapter begins with an overview of the economic and policy context within which the supply of VET occurred. Five specific questions are then addressed. Did investment in training increase? What was the cost to government finance of the changes that occurred? Were Australians better equipped for work as a result of the changes that occurred? Did equity in education and training improve? Was the education and training delivered more efficiently?

Chapter 5 is concerned with five specific issues on the supply side: intersectoral aspects, VET in schools, VET in ACE, regional aspects of VET provision, and VET teachers.

In considering intersectoral aspects, the chapter looks particularly at issues concerning VET and its relationships with formal educational sectors, such as schooling, ACE and higher education, and also at the roles and relationships of the public and private sectors in VET. Although the boundaries dividing the various sectors of education have always had particularly porous elements, they appear to have eroded more quickly in recent years. Paradoxically though, many of the characteristics that have helped to give different sectors a unique identity remain strong.

VET in schools expanded rapidly in the 1990s and in recent years training and education authorities have given increasing attention to its form and funding. The second section of the chapter considers the significant features and developments of the three main types of VET in schools; the profiles of the students who take it up; their destinations; and the costs of VET in schools.

Although there is no agreed national workable descriptor of ACE, and the range of ACE programs is diverse (reflecting the many varied outcomes desired by participants) it appears that the provision of VET programs by recognised ACE providers is expanding. In this third section of the chapter it is noted that ACE plays a special role in strengthening equity in education and training and that it tends to be especially responsive to the learning needs of particular communities, small business and regions. Various factors are identified which indicate that the capacity of the ACE sector to fulfil its potential contribution is constrained, under-developed and under-utilised.

In discussing regional aspects of VET the fourth section notes that decisions often aim to address both social and economic issues. These include community strengthening and wealth generation in the region, as well as access to the job market and the wellbeing of the individual.

VET teachers are the most critical element in determining the supply of skills, knowledge and attitudes produced through the VET 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. This final section of the chapter analyses trends in the Australian VET teaching work force as pointers to likely developments in, and possible problems with, the supply of education and training skills from the VET sector.

Chapter 6 is concerned with finance and market issues in VET. Thus, it considers both demand and supply factors. The major options for the finance of VET are outlined, concentrating on the extent to which each alternative could increase the level of investment in VET, provide incentives for the efficient delivery of VET services, and enhance equity. The next section then examines the changes in finance and organisation which have been introduced to develop a training market for VET in Australia. The development of a competitive training market emphasises the role of those who use the training services provided by VET, relative to those who supply them. The final section focuses on a major step in the development of the training market, the introduction of 'User Choice' in 1998. The intention was that clients would have a greater say in matters such as the location, timing and content of the training provided for them by those who deliver and

assess training. Public funds would be allocated to the public or private provider they chose, subject to extensive regulation at the State and Territory level.

The final chapter, chapter 7, is concerned with four matters. First, the chapter consolidates some of the major findings of the book. Second, it identifies a number of important gaps in current research on the economics of VET in Australia. Third, while many equity-related issues have been considered throughout the book, this chapter identifies certain general aspects of the equity performance of the overall VET system. A range of continuing equity challenges are noted. And finally, it explores whether research affects VET policy and practice; if so, through what pathways; and whether the relationships can be improved. Despite considerable progress having been achieved it is clear that further improvements would be desirable and could be made.

2 THE CHANGING NATURE AND PATTERNS OF EMPLOYMENT

2.1 INTRODUCTION

The production and consumption of VET occurs in a dynamic world of change. It both reflects and responds to the changing economic, organisational, industrial, technological, social and political contexts in which it is set, be they local, national or international. Of particular importance, and the focus of this chapter, is the rapidly changing environment that is characterised as the emergence of the 'knowledge economy'. This is the confluence of the forces of globalisation and rapid technological change, especially in the fields of information technology and communications—together with the organisational and political responses that corporations and governments have to them. These forces are bringing with them far reaching changes in the nature of work, in the skill requirements of the Australian economy, and in the relationships between employers and their work forces. All have major implications for VET.

In this chapter some of these changes are reviewed. Section 2.2 looks at the changing nature of work, section 2.3 examines the changing skill requirements of the Australian economy and section 2.4 considers the implications for VET of the changing industrial relations environment in Australia.

2.2 THE CHANGING NATURE OF WORK

Fundamental to the existence of VET 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 VET.

The concept of work

Before considering changes in work it is necessary to consider what work is. 'Work', like many words in the English language, has multiple meanings. *The concise Oxford dictionary* (1995) gives as one of its definitions of the word as a noun, 'the application of mental or physical effort to a purpose; the use of energy'. Another definition it gives is 'a person's employment or occupation etc. especially as a means of earning income'. The former definition excludes almost nothing, so has little to recommend it—leisure activity has a purpose, even if it is solely enjoyment. The latter definition perhaps excludes too much—what of home duties undertaken by a person in the paid work force? The other listed meanings get no closer. Roth (1989) considered that, for most people, the word has a narrow meaning:

Although our situation and abilities have changed radically, although society has evolved and progressed in many respects, our definition of work has not. 'Work' continues to mean being paid to expend energy in a company's or agency's interest so that we can play later.

There has probably been little change in many people's understanding of the word in the decade that has passed since then. Yet this view of work has a short history. As Pahl (1988) reminds us:

The notion that one should obtain most, if not all, of one's material wants as a consumer by spending the money gained through employment emerged for the first time in the nineteenth century ... In pre-industrial times, then, most of an individual's work was done in and for the household. The viability of the household was the crucial priority in life and the work of all members of the household had to be co-ordinated to achieve that end ... There was no a priori assumption that wage labour was a superior form of work or that men were the natural wage earners. Very often women were the main money earners, either by selling produce at markets or by producing textile goods in their homes in the proto-industrial era of the eighteenth or early nineteenth centuries.

It is probably impossible to encapsulate in a few words a thoroughly satisfactory definition. Paul James comes close (James, 1998); he sees work as practical activity engaged in for the purpose of reproducing and enhancing the social conditions of life. But work need not have a social element—the lone, shipwrecked mariner has to work to survive. In essence then, work is effort aimed at producing and/or delivering a good or service or both, whether in a business, the household, or a community. It may be undertaken as an exchange, as a gift or for self.

Applebaum (1992) stresses the functionality of work, both for the individual and for society:

Regardless of how work has been conceptualised in the past, or how it is viewed in the present, work has to be performed. Our man-made environment, our institutions, and our very survival as a species is based on the need to work ... For most people work is necessary for their self-respect and psychological well-being. Work is thought of as being necessary for social progress and the quality of life even if seen only as an instrumental and necessary activity serving as the precondition for other pursuits.

The market, informal and voluntary sectors

Work can be thought of as taking place in three sectors of the economy—the market sector, the informal sector (households) and the voluntary sector. In the market sector, goods and services are bought and sold, and so is human effort in the form of work. While the public sector does not necessarily involve sale of goods and services, it must offer market-competitive remuneration and conditions to recruit in the labour market. So from the perspective of the person employed, the public sector is part of the market sector—it purchases labour in the same way that firms do. Work in the informal sector involves home maintenance and care of intimate others (family and friends). Between able adults who are intimates, there is usually an understanding of mutual obligations as well as emotional attachment. Work in the informal sector may also involve production and exchange in the local community, but without the structures typically associated with the market in an advanced economy. The voluntary sector overlaps the market sector in the sense that many voluntary organisations compete in the labour market to recruit some of their personnel, that is, those who will be paid. However, for most people who work in the voluntary sector, work is undertaken in the absence of expected reward or reciprocal obligation. This characteristic has challenged traditional notions of worth:

Exchange theory and economic theory sustain their elegant simplicity by assuming that every activity has a material quid pro quo. If a relationship does not necessarily involve an exchange of money or goods in return for labor or other goods, if one person transfers goods or provides services to another without receiving anything tangible in return then those subscribing to the theory must hypothesise there really was an exchange but that it was intangible, involving 'psychic' goods or the like ... There is no room in economic or exchange theory for altruism ... But if we wish to conceptualise labors of love, we must develop a more catholic conception of work that is based on what writers since Adam Smith have called use-value. Work must be conceived of generically as an activity with use value that need not have exchange value at all. (Freidson, 1990)

How a particular sort of work is best categorised may change with time. One example is the growth of the service sector, which has seen some sorts of work being undertaken less as a household function and more as a market function. Another example is where governments are withdrawing from being direct service providers through the public sector and instead are increasingly purchasing services from voluntary organisations on behalf of the community. Activity may move, too, from being leisure to work, for example, where a market is discovered for the products of a hobby. Some forms of work are a problem to classify; for instance, the work of prisoners that is neither voluntary nor paid at anything like market rates. Unpaid work by members of professional associations, societies and clubs is viewed as voluntary work by some theorists, but not by others (Paull, 1999).

VET policy

The focus of VET policy in Australia, as exemplified in *A Bridge to the Future*, has been squarely on the market economy—in strengthening enterprises' competitiveness in the goods and services market and people's competitiveness in the labour market (ANTA, 1998). Such a focus has been viewed as consistent with Australia's macro-economic and equity objectives.

However, given that work extends beyond the market economy to include both the informal and the voluntary sectors, should the policy focus be expanded to include work in the broader context? This is not to suggest that the market economy should not remain the central concern of VET policy. Rather, it is to question whether there would be benefits to the nation were a more holistic view of work be adopted, with the result that learning for work would be viewed as more central to life. A policy shift of this sort could be justified were it judged that there are developments in work and society that are more consistent with an holistic approach or that the almost exclusively market focus of the past has been less than optimal.

Key research questions include:

- Is the concept of lifelong learning consistent with an holistic notion of work?
- Are there changes taking place in work within the market economy that make work in the other sectors of increasing importance to the individual's wellbeing and/or to society as a whole?
- How might a strengthened role for the voluntary sector impact on the market sector?
- How might VET and its policy base change to accommodate an expanded notion of work?

Work in the market sector

Any picture of paid work in Australia in the 1990s must convey the diversity of ways that people work in terms of the working week, security of attachment, flexibility arrangements, involvement in or exclusion from decision-making, demand for multiple skills, job complexity and creation and use of knowledge. Case studies give insights at a detailed level, while large surveys, if available, suggest broader patterns.

Burgess (1998) notes that it is necessary to draw on studies of enterprise agreements to gain a picture of major changes that are taking place:

Manifestations of the deregulation of working time include: (a) the extension of the spread of hours for the standard working day or working week; (b) the growth of evening and weekend employment; (c) the growth in rotating and flexible working-time patterns, for example, two-week rosters, average working hours, split shifts, workers at call; (d) the increase in unpaid hours, notably unpaid overtime which has become averaged or an expected part of standard working conditions.

Growth in part-time work continues to outstrip full-time. Full-time employment grew only 1.5 per cent for the year to July 1999 while part-time grew 4.2 per cent. Labour force participation is running at 63 per cent, having contracted a little recently (Wooden, 1999).

Maglen and Shah (1999), using their expanded, 'Reichian', occupational classification, show that between 1986–87 and 1995–96 in-person services were a major growth area of work, as were symbolic analytical services at the conceptual level. But routine production work either declined (advanced skill and white collar levels) or underwent little change (blue collar and low skill levels). They show, too, that growth in the employment of females on a percentage basis has exceeded growth in employment of males in almost all areas, but especially in full-time work. It must be borne in mind however, that growth in other than typically female areas has been from a relatively small base and that participation of married women is declining, while that of single women continues to rise (Wooden, 1999). Growth in well-paid, relatively secure high-skilled employment at one end and low-paid, relatively insecure and low-skilled employment at the other is consistent with the view that Australia is most unequal in terms of the gap between rich and poor (Townsend as reported by Horen, 1999).

Outsourcing by manufacturing enterprises is generally thought to be increasing. Benson (1999) points out that Australian firms have outsourced work for the whole of the 20th century. What is different is that core functions are now being outsourced, and most manufacturers are doing it. Recent case studies undertaken in footwear manufacture and wire products manufacture support that claim (Maglen, Hopkins & Burke, 2001). Much of the outsourcing of component manufacture in footwear is through the setting up of company plants offshore rather than sub-contracting. But the result is the same for the work in the Australian sites—less demand for some of the higher level skills associated with the trade. Parallel case studies in the services area revealed that outsourcing is not limited to manufacturing. For instance, hotels were contracting some cleaning work and supermarkets were looking to reduce the internal preparation of meat lines with preference for buying in high, value-added, meat-based products.

Whether the pattern in Australia ever becomes what Appay, in Europe, refers to as 'cascading contracting' is too early to say (Appay, 1998). In this model, a large manufacturer becomes a designer/assembler/marketer and outsources component manufacture to small companies who in turn outsource sub-components, and so on. All power is at the top, exercised through a competitive market where contracts can be withdrawn the instant the supplier fails to meet orders to standard and on time. At the same time, responsibility for training and personnel support has been dispensed with, as part of downsizing. Each small business is responsible for its own narrow

set of skills. But continual demand from the top for changes in components and greater efficiencies requires that the skills-set change, while margins reduce as an alternative to productivity gains. The latter is similar to the situation Maglen, Hopkins and Burke (2001) observed to be taking place in components manufacture for the automotive industry as a consequence of tariff changes. It is also consistent with Burgess's claim that, not only have many people's hours of employment increased as overtime, paid and unpaid, but there is growing intensity and stress with it (Burgess, 1998).

The picture is a far cry from the one of a generation ago. For those in the full-time labour force, it was a job learnt early in life, working set hours that might, in effect, include overtime. The worker would have only one or two employers over a life time, would perform much the same set of duties with increasing proficiency, and would gain promotion if good enough (and that might require a bit of extra study). The picture is also somewhat removed from the present ideal of people as knowledge workers, thriving through taking on new and exciting roles and contributing their knowledge and ideas as well as their labour, in collaboration with team members and clients. For some, especially conceptual level, symbolic analysts, this ideal is a reasonably accurate picture. For them, lifelong learning must involve the ongoing acquisition of new knowledge, technological skills, creative ability, work management and team skills, and growth in critical thinking.

But what of the rest? For those in the services sector, what Keep and Mayhew (1999) in the United Kingdom (UK) refer to as the flip side of the knowledge economy, 'aesthetic labour' is representative of at least some of it. These are the people in clubs and boutiques where knowledge workers spend their earnings and for whom employability is more about physical traits and personal attributes than it is about technical skills. An emphasis on these sorts of characteristics is not limited to glitzy establishments however. Maglen, Hopkins and Burke (2001) found, in their study of supermarkets, that grooming, presentation, pleasant personality and 'person skills' were the most sought-after qualifications for employment as service assistants. And for front-of-house positions in hotels, they were similarly important. But it would be misleading to imply that there is no demand for changing technical skills and knowledge. New technologies for information management (e.g. stocks, sales, reservations) are continually being introduced and must be mastered by personnel. Knowledge of new product lines and packages must be kept up-to-date. However, while personnel are required to adapt to innovation in processes and products they rarely make any contribution to the change process itself.

It is in manufacturing that learning and innovation are most commonly associated as skill-biased technological change. Berman, Bound and Machin (1998) found that substitution towards skilled labour is characteristic of all developed countries, with industries that carry out microprocessor-based innovation having the greatest skills upgrading orientation. Accordingly, case studies in wire products manufacture revealed an increasing requirement for skills in setting and using numerically controlled and programable logic controlled machinery (Maglen, Hopkins & Burke, 2001). Their studies of footwear manufacturers suggested some demand for such skills, but more for traditional manufacturing skills. In both industries, the tendency was to train personnel in the requisite skills rather than recruit them. In addition, and in common with recruitment for the service industries, there was an emphasis on attitude (if not grooming).

Lifelong learning

It is no longer possible to give one picture that is reasonably representative of how most people work in the market economy. Rather, the world of work in Australia is becoming increasingly heterogeneous and it is in a continuous state of flux. Hence the recognition that people must continue to learn new things throughout life if they are to maintain their employability. But the diversity of what must be learnt or acquired provides new challenges to VET policy and systems. Keep and Mayhew (1999) capture the issue.

This broadening of the spectrum and mix of knowledge, capabilities, traits and physical attributes that can be grouped under the umbrella term of skills raises a number of major issues for policy-makers. First, one of the realities with which policy-makers attempting to forge a national VET (and qualification) system must grapple is that the spectrum of skills that the system must encompass, in terms of both types and levels, has widened. It has widened to a point where demands are differentiated and perhaps divergent, and where the use of blanket terms such as 'upskilling' may be of limited theoretical and operational value unless the nature of the skills being sought is carefully specified and made explicit. A second issue is the fact that once we move away from theoretical knowledge and technical skills and competencies it becomes increasingly difficult to devise national VET systems, programs and qualifications structures and certification

that can address the needs at the softer end of the skills spectrum. Many of the attributes labelled as skills appear to be personality traits or attitudes, which may only be partially amenable to change and enhancement through traditional VET.

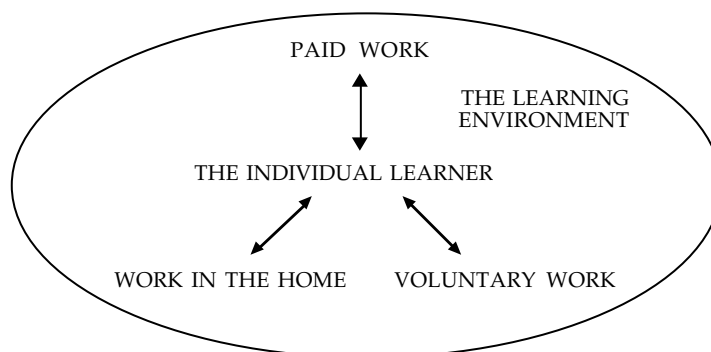
In other words, the sort of learning that is increasingly required is continuous self-development of attitudes, values, evaluative skills, social skills and understanding, together with specific technical skills on a just-in-time basis as innovation and job change demands. Furthermore, in workplaces where conformity and passivity are prescribed, a capacity to make ethical judgements is doubly important.

One would be unlikely to find anyone who would dispute that coping in the modern world demands continuous learning or, for that matter, that there is anyone actively engaged in life who does not continuously learn. Understandably, lifelong learning policy has moved from platitudinous statements about the importance of learning throughout life to give some sense of the nature and purpose of learning that should be pursued by individuals. This includes new skills, upgrading existing skills and general education in order to cope with changes in markets for products and services, industry restructuring and technological change (ANTA, 1998). But the capabilities and personal qualities discussed above imply that underpinning the learning of skills, when and where needed, should be an ongoing process of broad self-development for working life. General education may address these things, but in the context of lifelong learning is more often understood to refer to literacy and numeracy.

Whole person development would appear to be as relevant to work in the voluntary and informal sectors as to work in the market economy. The increasing importance of personal qualities and traits suggests a convergence of learning requirements for work in all its manifestations.

Marx stressed that work is a natural activity of man, but that work under capitalism alienates man from work—something that communism has done just as effectively. Knowledge work has gone a long way to reuniting those who perform it with their work. But for the rest of the work force it seems alienation continues, perhaps made worse by declining commitment between management and labour (Baruch, 1998). At the same time, home duties continue to be undervalued and voluntary work almost ignored, except by those who undertake it. Yet, like paid work, both call on the sorts of human qualities that benefit from continual development throughout life.

Figure 2.1: The holistic nature of work-related learning



Might policy that aligns lifelong learning with work as a whole contribute to a greater recognition of the social importance of voluntary work and work in the home, and also help all forms of work to be viewed as potentially worthwhile and fulfilling? Of course, these are issues of cultural change and so would not be likely to be dealt with in the short term. Similarly, the move to a learning culture is likely to be a long-term process.

Work in the voluntary sector

In a country commonly referred to as the most urbanised in the world, the potential for social isolation is considerable. Those who give of themselves to strengthen social bonds and community wellbeing, and to preserve and protect heritage, contribute richly to social capital. It can be argued that it is the contribution of social capital that would justify a greater government recognition of the training needs of the voluntary sector.

However, quantifying that contribution is problematic. The (then) Industry Commission (1995) considered possible approaches to quantifying the sector's contribution to wealth. It saw conceptual difficulties. If wealth is estimated on the basis of wage and salary levels in the market economy, what levels should be chosen? Would the service have been provided if it had had to be funded at those levels? How can those outputs that are never sold be priced? But because a broadly agreed measure may never be achieved does not mean that there is no shared notion of worth of the work of volunteers—people such as volunteer fire fighters, volunteer trauma counsellors, volunteer child athletics coaches and volunteer museum attendants. Complementing the worth as social contribution is worth as self-respect for the volunteer himself or herself—altruism as its own reward.

In his book *The end of work* (1996), Jeremy Rifkin suggested that the voluntary sector will assume increasing importance as technology continues to reduce the need for labour to support production. Whether or not Australians of all ages come to find they have increasing amounts of discretionary time as a consequence of technological change has yet to be seen. On the other hand, the community is ageing at the same time as there is a lengthening of active years as a consequence of such factors as better nutrition, sanitation and health care. The voluntary sector has the capacity to provide satisfying work that contributes to the overall wealth of the community and to the wellbeing of the increasing numbers in their third age. It also continues to be a potential training ground for young people looking to gain paid employment, but who need the experience and discipline of real work.

The research questions

It has been suggested that the concept of lifelong learning is consistent with an holistic notion of work. Learning to use new technologies involves skills and theory that are effectively brought together as practice in real situations; such learning is not easily transferred. But lifelong learning that is limited to having to learn a new process each time the employer changes a machine or the software seems a poor reflection of what has come to be thought of as lifelong learning in the literature. Motivation would then seem as likely to be based on fear of job loss as on love of learning and its application in work. Such a picture contrasts with the vision of a society in which most people are civic-minded and develop their social skills, qualities and traits along with their knowledge so as to be better contributors in all forms of work.

Demographic changes and the difficulties of youth unemployment mean that there is an increasing role for the voluntary sector, both in enabling those with time and who wish to, to contribute social capital, and for young people to gain valuable experience. CEET is investigating the training requirements of the voluntary sector. An exploratory seminar has already been held and the proceedings published in 2000. However, at this stage no attempt has been made to address in any comprehensive way how VET and its policy base might change to accommodate an expanded notion of work. This is the case even though the thoughts and arguments presented offer a stimulus to debate and may contribute to some worthwhile empirical investigations.

2.3 CHANGING SKILL REQUIREMENTS OF AUSTRALIAN INDUSTRY

This section draws largely on two major reviews completed by CEET during 1999—a review of the sources and impact of enterprise-based education and training (Long et al., 1999a), and a review of changes occurring in enterprises as they affect the types of skills demanded of TAFE colleges (Malley et al., 1999). It addresses three main issues: the broad macro-economic factors affecting enterprises; evidence on the ways that enterprises are reorganising themselves in response to, or in anticipation of, these changes; and the consequent implications for skills formation and the demand for VET.

Listing the issues in this way should not be taken as implying a deterministic view of enterprise or individual worker behaviour. Many of the key macro-economic changes underway result from, and are reinforced by, innovative and risk-taking behaviour by enterprises. Similarly, individual workers—and the skills and knowledge they bring to the job and acquire on-the-job—influence and determine what enterprises do. As will be discussed in chapter 3, the demand for VET by industry, and much of that by individuals, can be viewed as a *derived demand*. Training provides the skills and knowledge required by new types of work or by new workers, and these in turn are derived from the demand for the goods and services produced by enterprises. However, there is frequently a 'feedback loop'. Enterprises and the people who work in them, by developing new skills, new ways of working, and new services and products, change the environment within which they operate, and this in turn feeds back into a need for new forms of VET.

There is a general presumption that enterprise-level changes are increasing the demand for VET. Commonly cited reasons include:

- Increasing global competition means there is an increasing emphasis on the skills of workers to provide firms with a competitive edge;
- The use of technology is increasing and places greater demands on the skills of workers;
- The rate of technological change means that knowledge and skills are becoming obsolete at a faster rate;
- Firms are seeking to organise their work force in ways that place greater emphasis on the skills and knowledge of workers;
- The growth industries are those that place a greater reliance on knowledge and skills.

A considerable body of the research evidence elaborated in this section supports the above contentions. There are, however, some countervailing trends. For example, the effect of technological change is unlikely to be neutral in terms of the demand for skills—but it is not always clear whether the effect is to enhance the demand for skilled labour or to reduce it. It may well be that technological change increases the level of skills and knowledge required by certain groups of workers, but decreases it substantially among other groups of workers. The core-periphery structure of staffing that seems to be increasingly common in enterprises, and the consequent growth of casual and part-time employment, may also militate against an increased demand for skills. The ways in which changes in enterprises affect the distribution of demand for skills also need to be addressed.

It is noteworthy that Australian Bureau of Statistics (ABS) survey data on employer-supported training indicate that only a small proportion of firms report that increased competition or a changed work environment has stimulated an increase in training, and on some measures expenditure on training has fallen in recent years. Such findings challenge conventional views of the relationship between enterprise change and the demand for VET. The role of training at enterprise level is not straightforward, and one of the key implications from the literature is the importance of understanding the context of the individual firm in shaping the demand for training.

Globalisation

Globalisation is a term used to refer to a range of economic and social changes. The OECD (1992) described its economic dimension:

Globalisation represents a new phase in the process of internationalisation and the spread of international production. It refers to a set of emerging conditions in which value and wealth are increasingly being produced and distributed within worldwide corporate networks.

There are many aspects to globalisation, including the increasing importance of international trade; the associated international division of production; the greater mobility of capital; and the higher incidence of technological transfer. Among the most visible examples of globalisation are the development of global communication and computer networks and the growth of international corporate structures.

The advent of more powerful, less expensive information and communications technologies has meant that people's frame of reference is less directly tied to their immediate workplace. Cunningham et al. (1998) cite worldwide trends towards the globalisation of markets, communication and culture that are being driven by new technology. As one example, the Ericsson company requires their employees to adopt a globalised approach to their work, while making specific actions applicable to local regions or individuals. In the words of a senior Ericsson manager based in Victoria, 'our staff need to be interested and committed to the big picture, but also immediately translate that to a specific situation'. This requirement goes beyond the desk and the pay packet; the Ericsson workers need to be competent in using technology to access and process more information, to establish networks, and to know who is doing what in similar organisations on a global basis.

It may be an open issue whether competition has increased overall as a result of globalisation—many international markets are characterised by an oligarchy of dominant players. Nevertheless, for firms in some industries that previously operated in relatively protected domestic markets, globalisation has led to new competitors and stronger incentives to perform. Phrases such as 'international best practice' are an index of perceptions of competition and the

need for greater efficiency. Improved human resource policies, including skill development through training, are viewed as one of the keys to a competitive edge.

Technological change

In *The Rise of the Network Society*, Castells (1997, p.13) describes modern societies as 'both capitalist and informational'. Technology, he says, has given people the capacity to use and build on knowledge as the main source of productivity. According to Castells, technology has facilitated the transition from mass production to flexible production.

To enable the organisation to respond immediately to variations in the market, an increasing proportion of employees must build the capacity to access information electronically via a wide range of networks, and from any place. The argument by Castells (1997, p.172) that 'the network enterprise makes material the culture of the information/global economy; it transforms signals into commodities by processing knowledge' has strong implications for employment and staff development. It implies that enterprise productivity—and even enterprise survival—depends on having workers with the skills, knowledge and motivation to be able to quickly scan the environment and respond and implement appropriate responses. O'Connell (1999) maintains that 'desktop empowerment'—competence in the use of personal computers, the Internet and e-mail—is a key feature of employees who can think and act independently.

The effect of technological change is unlikely to be neutral in terms of the demand for skills—but it is not always clear whether the effect is to enhance the demand for skilled labour or to reduce it. Determining the net effect of a technological change on the need for skilled labour requires tracing backwards through the system of production. For example, it may be that the assembly of an appliance's electrical system is itself a low-skills activity and that the high-skill labour is concentrated in a few engineering and research and development units of enterprises.

Much of the literature in the area of education and training and employment emphasises the positive consequences for skill formation of technological change. But the empirical studies are less uniform. Spenner (1995) reviewed the literature on the effect of technological change on the demand for skills. He found that:

... the empirical literature fails to provide a single or simple answer to the question of how technological change alters the quality and quantity of jobs. (p.224)

Spenner distinguishes between compositional change (the move from lower-skilled jobs to higher-skilled jobs or vice versa) and content change (the change in the skill requirements of a particular job). He notes that aggregate occupational studies show some evidence of movement towards more highly skilled jobs in industrialised nations over the past few decades, but that case studies are more likely to show that particular jobs have been de-skilled as a consequence of technological changes. The latter observation may be a consequence of research selectivity, where de-skilling provides a more publishable story.

A Canadian review (Human Resources Development Canada, 1996) of the employment effects of the shift towards a knowledge-based economy found that the evidence indicated that employment growth in Canada was increasingly related to the use and production of knowledge. The structure of employment has shifted towards high knowledge and technology-intensive industries. This shift has been underway for several decades, but high technology industries, even in the 1990s, still accounted for only a small fraction of total employment.

There are several studies detailing an occupational shift towards a more skilled work force in Australia. Borland and Foo (1994) found that, for the period 1952 to 1987, there had been an increased demand for skilled labour and attributed this to technological change. Maglen and Shah (1999) provide results that point to a bifurcation of skill requirements with growth of employment in relatively highly skilled and in lower-skilled areas. *Australia's workforce 2005* (DEET, 1995) provided projections of likely demand for labour in different occupations based on changes in the previous decade. It predicted that new jobs would require a more skilled work force, but also noted likely growth in areas of lower-skilled employment, such as sales.

In an attempt to reconcile some of the countervailing evidence about the links between technological change and the demand for new skills, Osterman (1995) argued that the same technology is consistent with different skill requirements, because work can be organised in different ways with the same technology. Studies of the international car industry illustrate this point (Womack, Jones & Roos, 1990; MacDuffie, 1995). Hence the focus should be on the way in which firms choose to organise work and its implications for training and skills.

Worker flexibility

Modern workplaces are increasingly characterised by staff working on a variety of tasks in a concurrent manner, and moving between fluid work teams as the need arises. One way in which enterprises try to increase their flexibility is by structuring their work forces around a higher proportion of short-term, part-time or casual labour.

Labour flexibility can be of two forms: internal or external. Internal flexibility involves multi-skilling—enabling a worker to undertake several tasks within a firm. The provision of skills that will enable a worker to more easily move between firms (and minimise any time unemployed) is referred to as external flexibility. The development of a part-time, casual labour force that is mobile among enterprises is another component of external flexibility.

Handy (1988) has argued that ‘today’s organisation is the totality of a diverse network of dedicated, career oriented core workers; fringe dwelling casuals, part-timers and consultants; business partners as well as customers themselves’. All these people are deemed to add value to the organisation. The modern organisation therefore is seen to comprise three different work forces, which together achieve the organisation’s objectives. First, there is a core of ‘full-time, hard working, highly paid professionals, technicians and executives’ who own the organisational knowledge. Second, there is a ‘contractual fringe of individuals or organisations’ who provide services and materials. Third, there is a flexible work force of part-time or temporary individuals who assist in peak times. Each of these work forces has different commitments, expectations and contractual arrangements and therefore requires different management and skill development strategies.

Griffith (1998) describes the promotion by some major US companies of the concept of ‘career resiliency’. This process of learning and adapting is one in which employees are constantly re-appraising their skills and developing new ones. As an employee’s skills grow, the company builds its aggregate skill base, enabling it to adapt more readily to changing environmental conditions and demands.

In companies like Ericsson, where the environment is characterised by rapid change, compressed product life cycles and rigorous market competition, companies are depending on their employees’ own initiative to ‘stay ahead of a rising knowledge curve’. Bridges (1995) even urges workers ‘to view themselves as self-employed consultants, selling their services wherever they are needed within the corporation’. In order to do this, employees will have to look beyond their current competencies to the development of those that are more generic within the organisation.

The central task of the modern organisation is to focus on the market requirements and deliver what the client requires at a time and place that suits and at a price that is affordable. From the client’s perspective, how the organisation structures itself to deliver the service or product is irrelevant. An internal focus on process tends to be associated with fixed work roles, clear lines of responsibility and predictability. On the other hand, a focus on product and delivery requires fluidity and agility in work force roles and functions. Within a truly globally oriented organisation, rigid lines of hierarchical leadership and control are not feasible. In such organisations, teams and their members have to have the capacity to operate with a high degree of autonomy and are expected to demonstrate innovation and creativity.

The value of organisational knowledge

Terms such as ‘organisational wealth’ (Sveiby, 1997), ‘managing knowledge’ (Albert & Bradley, 1997), ‘working knowledge’ (Davenport & Prusak, 1998) and ‘learning staff and staff development’ (NCRVE, 1998) are being used to describe the increasing value placed on the knowledge held by individual employees and, collectively, by the enterprise. It is somewhat paradoxical, though, that despite the rhetorical importance that enterprises frequently accord to the value of the human capital embodied in their employees for organisational success, few enterprises have developed systematic ways of identifying and managing their employees’ skills and knowledge (Guthrie et al., 1999).

The 1998 NCRVE study reviewed best practice and research in the US through the description and analysis of a set of design specifications for fostering a ‘learning staff’ organisation. A number of key ingredients in successful approaches were identified: high expectations that staff should continue learning; staff development organised in a wide variety of ways, including job exchange horizontally and vertically within the organisation, and within the wider community; an ongoing assessment process that is used to see what skills staff need to develop, and whether they have

been attained and applied; the linking of continued employment to performance; encouraging staff to be entrepreneurial; and building learning experiences into everyday job design.

Hemstritch (1998) believes that the concept of knowledge work is critical, because organisations are facing increasing uncertainty, being forced to operate in 'environments with intensifying work effort, shorter time for decision-making, more complex nature of work and its demands'. Like Norris and Wooden (1996), she argues that less-skilled work is disappearing, and that innovation and higher turnover of products, and higher expectations by clients and stakeholders, are demanding higher performance.

Flexible enterprises

The OECD investigation of firms as the units of value-creation in the economy has focused on two aspects of flexibility: numerical flexibility (the ability to change the amount of labour); and functional flexibility (the ability to improve the quality of labour) (OECD, 1999a). The focus on the role of a coherent set of human resource policies draws attention to what were known variously as (functionally) flexible workplaces, high-skill, high-involvement workplaces, or high performance work practices.

Ichniowski et al. (1996) note that the practices that constitute such workplaces are often most easily defined in opposition to 'traditional' forms of work organisation. This is the way MacDuffie (1995) approaches the subject:

Under mass production, workers were hired to perform narrowly defined manual tasks requiring little skill, and were viewed as interchangeable parts. Turnover was high, but jobs were set up so any unskilled worker could learn them quickly, minimising the costs of replacing workers. Absenteeism was high, but buffers of utility workers were established to provide coverage. Motivation was low, but close monitoring by supervisors and efficiency wages ensured adequate work effort. Workers were not expected to think on the job, and were in fact discouraged from doing so. The main concern of mass production managers was to prevent any disruption to the achievement of production quotas, and they developed buffers of various kinds, in part as a safeguard against labor troubles.

On the other hand:

Flexible production gives workers a much more central role in the production system. To identify and resolve problems as they appear on the line, workers must have both a conceptual grasp of the production process and the analytic skills to identify the root cause of problems. Developing an integrated conception of the production system requires that workers directly encounter problems, through the decentralisation of production responsibilities such as quality inspection, equipment maintenance, job specification, and statistical process control from specialised inspectors and engineers to shop-floor teams. Developing the skills for this problem-solving requires a variety of multi-skilling practices, including off and on-the-job training, a few broad job classifications, allowing job rotation within and across teams, and off-line group problem-solving activities (e.g. employee involvement groups or quality circles).

Links between workplace flexibility, skills and productivity

In general, adoption rates for flexible workplace practices appear to increase with firm size, the rate of technological change, and the degree of international competition. Flexible strategies appear to be most prevalent in manufacturing, although it is evident that similar changes are occurring in the services sector (OECD, 1999a). Indeed, it might be argued that in the provision of services there are inherent uncertainties associated with customer interaction that make labour flexibility highly desirable.

Ichniowski et al. (1996) reviewed the literature on flexible work systems and drew the following four conclusions:

- Innovative human resource management practices can improve business productivity, primarily through the use of systems of related work practices designed to enhance worker participation and flexibility in the design of work and decentralisation of managerial tasks and responsibilities;
- New systems of participatory work practices have large, economically important effects on the performance of the businesses that adopt them;

- A majority of contemporary US businesses have adopted some form of innovative work practices aimed at enhancing employee participation, such as work teams, contingent pay-for-performance, or flexible assignment of multi-skilled employees. Only a small percentage of businesses, however, have adopted a full system of innovative work processes composed of an extensive set of these work practice innovations;
- The diffusion of new workplace innovations is limited, especially among older businesses. Firms face a number of obstacles when changing from a system of traditional work practices to a system of innovative work practices.

The OECD (1999a) study focuses on changes in job design and delegation of responsibility in enterprises. It reviews the literature on what it terms 'new enterprise work practices' and their labour market implications, as well as providing some new evidence from the 1996 *Survey of Employee Direct Participation in Organisations*—a survey of workplaces in ten European countries. Stand-alone surveys of work practices in Australia and the US were also analysed. It was found that:

- Within the previous three years more than half of all workplaces had introduced at least one initiative designed to produce a flatter management structure, encourage greater involvement of lower level workers, introduce team-based work organisation, or increase job rotation;
- Larger firms were more likely to report having taken initiatives in the previous three years to develop flatter management structures, greater involvement of lower level employees, and a more team-based work organisation—although the differences were often small;
- There was little variation among industries for the introduction of any of the work practices except for the construction industry, which had a markedly lower incidence of all forms of initiatives, and manufacturing, which had a markedly higher incidence of initiatives in job rotation;
- A workplace was more likely to have initiated a change in one or other of the workplace characteristics if it was part of a private company, had a collective agreement binding on the workplace, there was foreign competition for workplace products, or there was representation on a works council;
- Functional flexibility was not necessarily associated with increased use of part-time or casual labour;
- There was no consistent survey evidence that wages are higher in workplaces with flexible work practices;
- Workplaces with flexible work practices tended to train more than other workplaces.

Macy and Izumi (1993) undertook a meta-analysis of published and unpublished case studies of workplace innovations in North American businesses between 1961 and 1991. They considered 31 policies related to human resources (in the areas of fewer job classifications, multi-skilling, different types of work teams, features of compensation systems, and communication procedures) and 14 indicators of economic performance (covering output and productivity, quality and cost). Of those studies that showed changes in economic outcomes, 75 per cent reported positive outcomes, although the authors noted that this may reflect a possible reporting bias—companies are more likely to make available information on successful innovations. Further, the number of innovations reported is positively related to improvements in economic performance, although not to worker attitudes and behaviours. The results support the conclusion that the largest performance gains occur when businesses make changes in sets of work practices and related organisational policies.

Recent Australian analyses reported by the Productivity Commission (Laplagne & Bensted, 1999) support these general conclusions. They drew on extensive data collected at workplace level through the Australian Workplace Industrial Relations Survey (AWIRS) to examine the relationships between training, innovation and workplace performance. The 1995 survey involved 2000 enterprises that employed at least 20 people. Around three-quarters of the enterprises had provided formal training to their employees in the year preceding the 1995 survey. The large majority of enterprises (around 85 per cent) also reported engaging in some form of major innovation in the 1993 to 1995 period, although this finding needs to be treated with some caution because of the broad definition of innovation used in the AWIRS survey.

Nevertheless, some 20 per cent of the enterprises reported engaging in all four broad forms of innovation measured by the survey (Rogers, 1998). This suggests that a sizeable number of Australian enterprises have a highly innovative workplace culture.

Although Laplagne and Bensted (1999) are cautious about drawing strong conclusions—largely because the AWIRS measures of productivity and productivity growth are the subjective assessments of workplace managers and there are no measures of informal job training—a number of interesting findings were generated that are broadly consistent with other research. First, training and innovation were more common in workplaces experiencing strong productivity growth. Second, training and innovation did not appear to be associated with higher levels of labour productivity once other influences were taken into account. Third, labour productivity growth appeared to be enhanced by the joint introduction of training and innovation. Training required the support of innovation to increase productivity growth, and the benefits of innovation were increased by the addition of training. Finally, the effects differed between different types of enterprises. Training was an effective strategy for less efficient workplaces attempting to catch up to competitors, whereas innovation appeared to promote labour productivity growth among both technically efficient and inefficient enterprises.

Conclusions

New technology and organisational structures, and increased competition, require a more skilled work force. In Western countries, employment is shifting towards more skill-intensive occupations and industries. Earnings differentials have also moved in favour of the better educated and those with more skills despite higher levels of educational participation. Workers are expected to be more flexible both in their current employment and in finding alternative employment. In order to take advantage of these opportunities, it is essential that there is both an awareness of the benefits of training and that training is provided efficiently.

Flexible workplaces are associated with particular organisational structures, work practices and behaviours: flatter management structures, greater devolution of authority, work teams, fewer job classifications, job rotation or flexibility and higher levels of training of non-managerial (particularly shop-floor) staff.

In general, the research literature in Australia and overseas points to positive outcomes associated with the adoption of flexible workplace strategies. However, it is bundles of inter-related and internally consistent human resource practices, rather than individual practices, that seem to be the key link to improved performance. Furthermore, these bundles must be integrated with complementary aspects of the firm's overall business strategy to be effective. In particular, increased levels of training may be ineffective without a surrounding context of flexible human resource and work practice strategies. Such conclusions imply that research on enterprise skill formation and training needs to have access to sufficient information to control for a wide variety of work practices. Otherwise at least some of any effect attributed to training may be due to the work practices that accompany the training, rather than to the training itself.

Although the literature overall supports the view that changes at the enterprise level are increasing the demands for new skills and knowledge, and hence for VET, there are aspects of the labour market that do not sit comfortably with the picture of a rapidly increasing demand for skills. The number of part-time and casual jobs has been growing disproportionately. While employment has been growing in high-skill areas, some categories of low-skill work have also increased their employment share. Nor is it clear that people are changing their occupation more now than previously, or that enterprises faced with competition are those that provide the most training for their workers. And technology can sometimes remove the need for skilled workers instead of creating it.

Although there has almost certainly been overall growth in the demand for skilled labour, that growth has not always been rapid or evenly distributed through the economy. These trends include the continuing shift away from agriculture and manufacturing to the service industries, the changing occupational profile of the work force, the greater importance of international trade, the continued importance of technology in production, and the increasing uncertainty over stable full-time employment. While overall, these trends lead to an increased demand for skilled workers, none necessarily has the wholly positive implications for skill formation suggested by the many discussions of the emergence of the knowledge-based economy. The implications for education and training of some of these long-term economic changes have tended to become taken-for-granted. The evidence, however, is a little more mixed.

2.4 THE CHANGING INDUSTRIAL RELATIONS ENVIRONMENT¹

Despite the major changes to the Australian system of industrial relations since the mid-1980s, there are continuing calls for the modernisation of the system. These calls are most frequently couched in the rhetoric of workplace flexibility and the need for increased national competitiveness in the global, or at least internationalised, economy. The argument is straightforward: changes to technology and reforms to trade regulation at a national and international level make for a borderless economy in which workplace flexibility is a competitive imperative. This scenario has significant implications for the VET system. In essence 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.

In order to address the issue of industrial relations changes and the implications for VET, the first section focuses on the issue of flexibility and the changing labour market, while the second section outlines the major changes which have been taking place in the Australian system of industrial relations. The third and final section examines the implications for VET.

Labour market flexibility

Flexibility in labour markets is a multi-faceted concept. Not infrequently it is equated with wage flexibility, particularly downward wage flexibility. Relativities among occupations, industries and regions, and price signals and consequent employee responses, are at the core of this narrow approach. In contrast, a broader approach was advanced by the OECD in the mid-1980s, when it argued that labour flexibility was best defined as a combination of the general level of wages; relative wages; non-wage labour costs; work practices and work patterns; and education and training.

A variation of this approach is to dichotomise flexibility into internal and external categories. In Australia, external flexibility—movement of labour between enterprises—has traditionally been high. The important issue here has not been industrial relations, but rather the lack of incentives for employers to invest in training such a mobile work force. Internal flexibility comprises numerical flexibility, the ability to adjust the level of labour input and timing; functional flexibility, the ability to switch labour to different tasks; procedural flexibility, the method of negotiating and agreeing on other forms of flexibility; as well as wage flexibility.

A common complaint of employers has been that traditional industrial relations practices are a major constraint on internal numerical flexibility (e.g. Business Council of Australia, 1989). It would be difficult to dispute such claims, as it can reasonably be argued that the *raison d'être* of trade unionism is precisely to counter such managerial unilateralism. The issue then becomes one of balancing apparently different needs, such as those of employers to utilise labour in the most flexible manner and those of standard and non-standard employees and nominally self-employed workers for minimum levels of protection and access to training opportunities and career paths.

So while flexibility is a major driver of industrial relations changes, the changing character of the work force is absolutely pivotal. There are two important changes to note which are having a major impact on industrial relations and indirectly on the process of skill formation. First, there has been a continuing rapid rise in non-standard employment. The term non-standard employment refers to departures from the full-time male breadwinner model of employment, which characterised Australia for most of the post-war period. This is reflected in developments such as an increasing spread of weekly working hours, with more full-time employees working in excess of 49 hours. At the same time, part-time work with very short hours has become more common and more generally, there is an increasing incidence of part-time and casual employment (Campbell, 1999). An important indicator of the rise of non-standard employment is that between 1982 and 1998 the proportion of total employees who were full-time casual employees rose from 4.5 to 11.8 per cent, while the proportion of part-time employees who were casuals rose from 62.4 to 65.4 per cent. In some industries the changes have been even greater, for example, over the period 1985 to 1998, the proportion of casual employees rose from 7.6 to 16.2 per cent in manufacturing; 17.7 to 33.9 per cent in construction; 9.8 to 17.0 per cent in wholesale trade; 49.8 to 58.0 per cent in accommodation, cafes and restaurants; and 33.1 to 42.2 per cent in cultural and recreational services (Campbell, 1999). More generally, most new

1 This section was prepared by Associate Professor Julian Teicher of the National Key Centre in Industrial Relations at Monash University and Bernadine Van Gramberg of the School of Management at Victoria University, Melbourne.

jobs are casual: in the decade to 1998 this accounted for 69 per cent of the net growth in employment (ABS, 1999). Another important development is the continuing increase in self-employment. Total own account workers rose from 816,800 in 1992–93, to 957,4000 in 1997–98, a 9.5 per cent increase, compared with a 9.0 per cent rise for total employment (ABS, 1999). A significant feature of this change is that, although nominally self-employed, many of these workers are effectively subordinated, working for one or a small number of ‘employers’ and subject to detailed direction (Ross, 1999).

A related development to the rise in non-standard employment is the continuing contraction of award coverage, a development that has important implications for the operation of the safety net of pay and conditions established by the Australian Industrial Relations Commission (AIRC). Between 1985 and 1990 (the most recent year for which data are available), award coverage fell from 85.0 to 80.0 per cent, with the largest changes occurring in the private sector (Ross, 1999). Were these trends to have continued, award coverage may fall to 70 per cent in 2000, with only 59.9 per cent of private sector workers covered. This means that not only are a large proportion of the work force denied the benefit of things like minimum wages and hours of work, but it is also likely that they are not represented by unions and may not have access to negotiated benefits, which apply to unionised sectors of the work force. These benefits include skill-based career paths and opportunities for training.

Industrial relations changes

The major theme in the ongoing process of industrial relations change has been flexibility, and this has been equally true at both the federal and State levels. In this discussion, we focus on developments at the federal level, though for an account of developments in each of the States see Teicher and Svensen (1998). Under the federal Labour governments (1983–1996) the intent was to achieve flexibility and competitiveness through decentralising employment regulation to the enterprise level. With the election of a Liberal–National Party government in 1996, the emphasis shifted to using legislation to foster the spread of individualised forms of employment regulation, ‘a more direct relationship between employers and employees, with a much reduced role for third-party intervention and greater labour-market flexibility (Department of Industrial Relations, 1996). The chief vehicle for these policies of the Howard Government was the enactment of the *Workplace Relations Act 1996* (WRA).

Like most federal and State governments of the past decade, the present federal government views the reforms as an engine of improved national productivity:

Industrial relations reform has a fundamental role to play in supporting the Government’s broader strategy for national economic development by securing low inflation, sustainable economic growth and more jobs, especially for youth, together with microeconomic reforms in sectors that are critical for international competitiveness. (Reith, 1996b, p.4)

In advancing its approach to industrial relations reform, the government has argued that a rigid and inflexible labour market was a major contributor to declining relative living standards and a high level of unemployment. While acknowledging that its predecessor undertook major initiatives in areas such as foreign trade and financial regulation, ‘labour market reform—the most important type of structural reform needed—came very late in the process and was entirely inadequate’ (Reith, 1996c, p.2).

While the process of legislative change began much earlier, a major development came with the enactment of the *Industrial Relations Reform Act 1994* (IRRA). It changed the function of awards from being the substantive vehicle for regulating the employment relationship to providing a safety net of fair and enforceable minimum wages and conditions of employment, which would underpin the making of agreements. Under the *Workplace Relations Act 1996* (WRA) awards retain their safety-net function, but are limited to 20 allowable matters in order to foster the ‘efficient performance of work according to the needs of the particular workplace or enterprise’ (s.88A). Included in the allowable matters are classifications and skill-based career paths, hours of work, rates of pay, allowances, penalty rates, and various forms of leave. A notable omission is training.

The centrepiece of the reform has been agreements. The IRRA provided for making two types of agreements in Part VIB: certified agreements with unions; and Enterprise Flexibility Agreements (EFAs). Under the Act, agreements did not have to comply with national wage fixing principles and, in a then radical departure, enterprise flexibility agreements could be made without union involvement. Under the WRA, EFAs were phased out and replaced by Australian Workplace Agreements (AWAs), a form of individual agreement; and provision was made for non-union

certified agreements with constitutional corporations. The government had high expectations of AWAs, which were viewed as:

... a means of increasing efficiency, introducing new technology, and management methods, removing archaic work practices which limit the productivity and profitability of firms, helping workers combine their work and family responsibilities, improving employer-employee relations and introducing more flexible work practices. (Reith, 1996a, p.4)

To facilitate the making of these agreements the government set up a new body, the Office of the Employment Advocate (OEA), which was charged with both promoting AWAs and providing approval for agreements that conformed with the requirements of the Act.

A significant feature of the WRA is that it seeks to restrict the role of unions. For example, it enacts a comprehensive freedom of association regime, which prohibits virtually all forms of discriminatory conduct or treatment of persons on account of their being or not being union members. It also provides for bargaining agents to negotiate AWAs and places restrictions on the union right of entry to workplaces.

At the beginning of the 21st century, it is fair to say that the basis of the Australian system has been fundamentally transformed. In combination, legislative changes and wider economic and political developments have lowered the centre of gravity in industrial relations and, at the same time, brought about a much greater focus on the individual worker, both as employee and contractor. For example, by 30 November 1999 almost 81,000 AWAs had been approved (Office of the Employment Advocate, 1999). The shift in employment towards individual contractual arrangements is estimated to account for up to one third of the work force (ACIRRT, 1999) and has significant training implications, as discussed below.

Issues and implications for VET

There are two major implications which arise from the increasingly individualised workplace. First, workers need to have a sound understanding of contractual arrangements and the various alternative forms of employment regulation and their implications. Second, the growth in self-employment and the removal of training provisions from awards under the WRA necessitates workers developing a more autonomous attitude towards their own professional development.

Contractualism

The term contractualism refers to the types of employment regulation underpinned by common law contracts. In Australia, these consist of either unregistered common law contracts or AWAs and their equivalents in the various State jurisdictions. Both types of employment instrument rely on the common law concept of an offer and its acceptance. Implicit in the making of such a contract is the assumption that a party will enter into a working arrangement with another party because it is personally beneficial to do so. Underlying this are two further assumptions: that the bargaining power of both parties is similar; and that the parties have sufficient knowledge to be able to make a deal which is beneficial to themselves.

The evidence from an analysis of AWAs by ACIRRT in 1999 does not augur well for the bargaining power of employees under this form of agreement. Most AWAs are concerned with specifying changed work practices to reflect more efficient work performance, but notably do not provide pay increases over their duration (up to three years). Those that do specify pay rises which average just 3.3 per cent per year, compared with an average of 4.4 per cent per year for collective agreements negotiated by unions and employers (CCH, 1999a). In addition to the generally inferior pay and conditions applying under AWAs, a recent federal court case has found that employers have a legal right to insist on making the signing of an AWA a condition of employment for new workers. In general, a contract can be deemed illegal if there is duress applied in its making. However, in discussing the meaning of duress, Justice Moore in *Schanka and Ors v Employment National (Administration) Pty Ltd* (46 Australian Industrial Law Reports) stated that there must be illegitimate pressure placed on a party which has the effect of denying the exercise of free will, and the party exerting this pressure must intend to have that effect (CCH, 1999b). Significantly, the ruling does not apply to existing employees, who may be faced with the choice of accepting the AWA or resigning. The court found that the fact that an employee may have signed an AWA was independent of whether duress had been applied or not. This decision offers some protection from duress to existing employees, but new employees must be wary of the value of contracts they enter into.

In terms of the employment relationship, employees must possess certain knowledge, skills and abilities to enable them to play an equal role in the bargaining process, particularly as unionisation rates continue to fall and individual agreements of various types become more common. First, workers should understand the different forms of individual agreements, such as common law contracts and AWAs in the federal industrial relations system, and the implied duties of both employer and employee under these legal instruments. They should also be aware of the nature and limitations of alternative forms of working arrangements such as enterprise agreements and awards. This knowledge base should incorporate an appreciation for common employment regulation clauses and an understanding of the avenues of redress for breach of the employment instrument. The government insists that AWAs are a matter of choice between workers and their employers, so there is a need for training to ensure that employees fully understand the ramifications of their choice in terms of duties owed, legal recourse and available statutory protections of their employment conditions. This is a major training task that did not traditionally confront employees who, for the most part, could rely on the provisions of an award to regulate most areas of their employment relationship.

Training for the new industrial relations environment needs to be broader than simply instilling in workers a sense of their rights under the WRA. Workers will require realistic, hands-on experience in the formulation and negotiation of their own workplace agreements or contracts. Training will be required to develop a worker's ability to formulate a bargaining agenda, where possible ensuring that items such as training needs are included in the workplace agreement. The ability to map out one's own contractual needs is important, particularly where there is genuine opportunity to influence the shape of the contract over the span of its life. In order to make and administer their own agreements, workers will also need to develop improved interpersonal skills, as well as skills in negotiation and conflict resolution.

Individualisation, non-standard employment and ongoing training

The individualisation of the employment relationship means that increasingly employees must be prepared to take an autonomous and pro-active stance in terms of their own professional development. Over the past three years the AIRC has been reviewing each of the 5000 awards in its jurisdiction as part of the process of award simplification required by the WRA. As indicated above, training is not among the allowable matters which may be included in awards. Indeed, the Minister for Workplace Relations applied successfully under s109 of the WRA to have the training provisions removed from all awards (AIRC, 1999).

Under the Act the only remaining avenue to retain a training provision in an award as an allowable matter is if the AIRC finds it is incidental to an allowable matter. In its *Leave Allowability* Decision (which will have significant effects on employer-provided training), the AIRC decided that study leave is not an allowable award matter. However, it agreed that provisions dealing with reimbursement of expenses for employees on study leave were valid. Two types of training provision may be valid award provisions: shop steward training, but only for the purpose of enhancing the dispute settlement process; and study leave, provided it leads to a qualification seen to be a prerequisite for progression through the classification structure of the organisation (AIRC, 1999).

While many employers have well developed policies on skill formation, it remains a longstanding and fundamental problem that many do not train or make an equitable contribution to the national training task (Teicher & Grauze, 1997). Traditionally, much of this slack was taken up by the public sector, but with the extensive privatisations and public service employment reductions since the mid-1980s, this can no longer be assumed. Privatisations have taken two principal forms: asset sales and contracting out. In either case, functions are transferred to the private sector. Where the private sector successor is a large corporation there is a reasonable prospect that training will be a condition of employment for the bulk of the work force. Many privatisations, however, involve contracting out of services to small businesses operating in a competitive market and by whom training is likely to be seen often as an added cost. Indeed, cost shifting devices such as the non-provision of training are part of the competitive advantage of many small operators (Quiggin, 1996). Add to this the effect of employment reductions of 257,000 across the three levels of government over the period 1990 to 1997, and potentially there is a major gap in the national training effort (Lansbury & McDonald, 1999).

This gap in the national training effort is potentially all the more serious when account is taken of the rise of non-standard employment in its various forms. Unless the employer makes provision for training, employees must negotiate it in a certified agreement, AWA or an individual contract. In such a situation, it is unlikely that employers will assist individuals in establishing and

updating their personal training and development plans on a medium to long-term basis. At best, employers are likely to focus on training needs for the job at hand, though with casual workers and contractors they are likely to aim at recruiting workers who already possess the requisite skills. This has two implications. First, workers must take a pro-active stance towards gaining qualifications as well as maintaining and creating a learning plan. Learning must be considered a life-long challenge which is largely self-directed and perhaps self-funded. Workers will need to be equipped to investigate available training and professional development courses; and become autonomous in meeting their VET needs. Second, governments will have to address the training and development needs of a non-standard work force; and give consideration to the place of workplace-based, but not necessarily employer-funded, training.

The trend towards casualisation and part-time work does not necessarily bring with it the implication of less work. Australians are doing more work in less time. Work intensification is a factor which itself has training implications. Employers seek less dead-time in terms of labour utilisation, and the hiring of staff for special functions, or to meet peak demand times, is common. Employees must be more able to organise their workload, prioritise tasks and self-manage the work to be done. Project management skills and an understanding of work-flow techniques are particularly important where there is less reliance on supervisors to direct work to meet delivery targets. Additionally, the flattened structure of most organisations, with less direct supervision, will increasingly place demands on employees to work effectively in teams.

Conclusion

Progress towards labour-market flexibility in Australia has proceeded at an irregular pace and has involved a contest between two models: one seeking to decentralise employment regulation to the enterprise or workplace without excluding union involvement; and the other emphasising a more individualised approach to employment regulation. In order to foster the emergence of this approach the federal government has used legislation to encourage the making of individual agreements and confine unions to a marginal role in the process of employment regulation. Allied with, but not necessarily resulting from, the changed forms of regulation have been important changes in the Australian labour market, notably the growth of non-standard employment. Of particular importance from the perspective of VET is the rise of self-employment and the casualisation of the work force.

These changes have potentially major consequences for the type of training provided, where it is delivered, and who bears the cost. For the most part, awards no longer can regulate employer provision of training. Where the management of an organisation has a clear vision of the training needs of the work force, and adequate resources, this is not such an issue. Alternatively, individuals and unions will need to use agreements to ensure that adequate provision is made for the training and professional development needs of workers. With the rise of individual agreements and self-employment, there is a need for workers to take increased responsibility for articulating their training needs. This, of course, begs the question of whether there is equality of bargaining power and whether workers possess the skills and capacity to negotiate their own employment agreements. Even if this question is answered in the affirmative, workers will also need detailed knowledge of the various forms of employment regulation and the ability to evaluate their relative merits. Once these issues are taken into account there remains the fact that the rise of self employment, casual employment and other forms of non-standard employment are linked to employer concerns to reduce elements of labour cost, which are likely to have an impact on training provisions. Hence, there is increasing pressure on workers to not only identify but also satisfy their training needs. Whether and to what extent governments become involved in resolving these issues of training provision are important policy issues.

3 THE DEMAND FOR VET

3.1 OVERVIEW

VET is a highly heterogeneous product. Primarily a service, it comes in a wide variety of forms and is delivered in a multitude of different ways. Both form and mode of delivery can change. The demand for such a multi-faceted product is also highly diffuse, complex and dynamic. Section 3.2 of this chapter seeks to identify and analyse the major determinants of that demand, from the perspective of the individuals who undertake VET, that of employers who require of their workers a wide and often changing array of skills, knowledge, attitudes and aptitudes, and that of governments who see VET playing key roles in the pursuit of their economic and social objectives.

Section 3.3 looks at how the demand for VET from the individual and employer perspectives translates into actual forecasts of the demand for places in VET provider institutions. CEET has played a major role in reviewing the ways in which the Victorian authorities assess the demand for training, and some of CEET's findings are summarised here.

Two specific aspects of the demand for training by employers are then examined. Section 3.4 deals with some of the particular issues that arise for small and medium-scale enterprises. Section 3.5 discusses how employers account for the skills of their work force, and hence bring their demands for training into line with other expenditure and investment decisions they make in their business activities.

3.2 THE DETERMINANTS OF 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 other private providers, those who take up apprenticeships, or undertake enterprise-provided training programs. 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 past five years or so in this country requires an unpacking of the layers of issues that have surrounded that demand. Those issues have not only determined its direction, but also its meaning.

Demand for what, and by whom?

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;
- *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 VET*—that undertaken by young people, prior to their entry into the work force. VET in schools and full-time TAFE courses are examples of pre-employment VET;
- *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-paid work force-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.

While conceptually quite distinct, in practice this categorisation of demand for VET 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 per cent); to get extra skills for job (17.2 per cent); to get a better job or promotion (15.4 per cent); requirements of current job (14.2 per cent); to try for a different career (12.9 per cent); for interest or personal development (11.5 per cent); to get into another course (3.5 per cent) (NCVER, 1998, Table 13).

The range of VET courses, programs, options or 'products', from which individuals and employers can choose is constantly expanding, diversifying and transforming. Some options that were available five years ago are no longer available, while others have been introduced since¹. This is something of a mixed blessing—change can bring about improvements 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 of training means having a clear idea of what the options are and how effectively these options will meet their needs. A recent survey that looked at levels of awareness among individuals and employers about 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 50 per cent of that funding, industry about 40 per cent and individuals less than 10 per cent (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 does not necessarily reflect the relative contribution each makes to the demand for VET.

The demand matrix

The matrix in Table 3.1 considers the six types of VET demand in relation to the three different perspectives from which they can be viewed. The matrix highlights how both the nature and extent of demand change as the perspective changes.

Table 3.1: Six categories of training demand and three perspectives

Category of training demand	Perspective on demand		
	<i>Individual</i>	<i>Industry employers</i>	<i>Governments</i>
Pre-employment	X	X	X
Initial employment	X	X	X
Job related	X	X	X
Job-switching	X		
Job re-entry	X		?
Non-work force	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

¹ For a summary of the range of options available in 1993 see *Working nation* (Keating, 1994) chapter 4; for 1998, see *A Bridge to the Future* (ANTA, 1998).

of demographic, economic and social factors. Not all types of training, however, are of importance to employers. Industry demand for VET is concentrated on ensuring that it has an adequate supply of trained workers to draw from. Pre-employment, initial employment and ongoing job-related training are the primary focus of industry demand. The 'public' demand for training, that expressed through State and national governments, both reflects and influences the private and industry demand for VET. Policy objectives and political agendas determine what sorts of training governments will promote through financial and other means. Emphases on pre-employment, initial and ongoing job-related training, however, 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 greatly down-played under the present national government. Job-switching training and non-work force-related training, while 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 the individual, industry/ employer and government perspectives. An environment that 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 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.² 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.

The private, or individual, demand for VET

It is individuals who actually undertake VET, 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 own it.

Individuals demand VET for different reasons. It can, of course, be seen as an end in itself and demanded as a consumption good—like an evening at the theatre, a fortnight in Bali or a ride in a hot air balloon. The determinants of private demand for VET for consumption purposes are individuals' tastes and preferences, their income levels, the time they have available to devote to it, the price of VET courses, and the alternative uses for their time and money. Demand will also be shaped by demographic factors, since much of the demand for VET courses for personal enrichment comes from retirees, and others of more mature age.

What proportion of total demand for VET is of this type is not known. Many programs offered in the ACE sector cater to this demand, although not all who undertake them do so solely for personal enrichment. However, it was estimated that in 1997, 2.8 per cent of the annual hours of publicly funded training, or approximately 26 per cent of publicly funded VET clients, were in courses designated, albeit from the supply side, as personal enrichment courses (NCVER, 1997).

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—as part of a package that contains not just VET, that is, as an important ingredient in the achievement of, say, a more fulfilling lifestyle (e.g. after retirement), a more impressive personal resume or curriculum vitae, or as a pathway to higher education; 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.

2 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, have a pivotal role in whether a country adapts an essentially 'low-skill' route to economic development, or a 'high skill' one (Finegold & Soskice, 1988; Ashton & Green, 1996).

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.

Costs of VET to the individual

These costs combine course fees and other out-of-pocket expenses with an estimate of the earnings that are foregone during the training period and/or the value of leisure foregone. The out-of-pocket component of the private costs of VET is usually not difficult to measure. It is frequently well below the full cost per student of VET provision, depending upon the extent of employer and/or public subsidy involved. The earnings/leisure foregone component is often more difficult to estimate and is likely to depend upon the type of training being undertaken and the particular student concerned.

For students enrolling in pre-employment programs, usually on a full-time basis—through VET in schools or in TAFE institutes—the foregone earnings component is incurred by delaying their entry into the work force, mitigated by any living allowances or other student assistance they may attract. However, when unemployment rates are high, as they are among early school leavers, the probability of not having a job for lengthy periods had they not stayed on, reduces the earnings foregone component of costs.

For those contemplating initial employment training, through apprenticeships, traineeships and the like, the foregone earnings component of cost is primarily the difference between a regular wage and the training wage they receive, plus any leisure foregone, for example, through out-of-hours classes and extra study. Dockery, Norris and Strombeck (1998, p.44) estimate that apprentices bear only about 19 per cent of the cost of their training, while their employers shoulder 53 per cent. For those undertaking job-switching training while in employment, there may be no loss of earnings incurred. If so, the only costs for the individual are the out-of-pocket expenses and leisure foregone. Similarly, for the unemployed and those outside the work force who undertake training, there is no earnings foregone component in their costs, only 'leisure' foregone.

Benefits of VET to individuals

These too vary considerably with the type of training undertaken, but generally can be summarised as securing a job, preferably their choice; greater job satisfaction; increased promotion and career advancement prospects; reduced prospects of lay off, redundancy and unemployment; and, of course, higher earnings (Long et al., 1999a, pp.53–54). It is the latter that conventionally is taken to be the major benefit flowing from private investments in education and training, and is used in the calculation of their rates of return to individuals (Becker, 1964; Selby Smith, 1975; Maglen, 1995).

Two further points have a major bearing on the private demand for VET. One is the nature and extent of recognition of the training to be undertaken. Will one's employer take additional training into account when considering actions such as awarding pay increases, providing job security or assessing promotion? Will the training be accepted by industry in general, recognised in other States and jurisdictions, and credited by other education and training providers, such as the higher education sector?

Certification of training successfully undertaken is crucial, especially for portability. For many individuals, especially those contemplating training of the pre-employment, initial employment and job-switching varieties, the qualification the training leads to can be a more important consideration than the actual content of the training program itself. Comparability of certification across jurisdictions, through the Australian Qualifications Framework (AQF), has been a vital ingredient in promoting the demand for VET. Related to the recognition of training through certification is recognition of prior learning (RPL) among those entering a training program. Anything that removes the barriers to, and smooths the pathways into, further training has the potential to raise the demand for VET.

This raises the second point, which is that education and training tend to be cumulative. In economists' jargon education and training are more often complements to one another than they are substitutes (Long et al., 1999a, p.37). Those who enter the work force with higher levels of education, either vocational or general academic education, are more likely to undertake subsequent job-related training. In contrast, early school leavers can become trapped in a low schooling-low training situation that perpetuates their initial employment disadvantage.

The growing traffic along the increasing number of pathways from TAFE to the higher education sector, and that going in the opposite direction, is testimony to this complementarity (Golding, Bluer & Keating, 1996; Werner, 1998). The situation is exacerbated if initial employment training programs, such as apprenticeships and traineeships, have pre-employment education and training prerequisites (Malley, 1997). Labour market training schemes directed at the long-term unemployed, many of whom have relatively low levels of education, have sought to counter-balance this tendency—albeit in a somewhat ‘band-aid’ fashion, and with limited longer-term effect (Chapman, Jarvie & Donald, 1997). RPL also goes some way to countering this tendency, although it too implicitly acknowledges the cumulative nature of the demand for training.

Alternatives to VET

When appraising the worth to individuals of investing in VET, its costs and benefits need to be compared with those of alternative uses for their time and their other limited resources. For those contemplating VET in schools this means assessing the option against staying with a more general mainstream senior secondary education. Their choice may depend on their post-school intentions. For secondary school completers the option of going on to TAFE and other VET courses competes with the universities. For a long time, and for many still, VET has been considered a ‘second-best’ option (Dwyer, 1999), despite its relatively lower costs and the claim that employment prospects of VET graduates are comparable to those of university graduates.³ Again, the strengthening of pathways between the VET sector and the universities has helped to reduce the either/or nature of this choice. The lure of eligibility for university education can be a factor in determining the numbers willing to sign up for initial employment training programs in apprenticeships and traineeships.

For those already in employment much of the ‘demand’ for ongoing job-related training is determined by their employers. Their options, therefore, are limited. Some employers do, however, respond favourably to employee-instigated requests for job-related training, regarding this as an encouraging sign of drive and initiative. For those contemplating switching away from their present employer/occupation/industry into new careers elsewhere, the alternative to undertaking training in preparation for the move depends primarily on what they are contemplating, and how radical a switch it is. If the forces of globalisation and rapid technological change result in individuals having to negotiate an increasing number of career changes over their working lives, this will be an increasing element in the demand for training and it is central to development of the Lifelong Learning movement.

Demand for VET by industry/employers

The demand for VET by employers is almost always a derived demand, rarely an end in itself. The demand is for trained workers and/or training for their workers. Employers require workers who are already trained when they come into their employment and/or they require their existing workers to be further trained to help them cope with changes in circumstances identified by the employers. Employers can also seek recruits with some pre-employment training, but whom they propose to train further, to bring them up to the particular requirements of their operations. The choices that employers face are five-fold:

- What pre-employment requirements do they expect of prospective employees?⁴
- How much, and what type, of initial education and training—in the form of apprenticeships, traineeships, cadetships, orientation and induction programs—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?

3 Comparisons, however, are difficult to make, given the differences and complexities in the study modes and course options of the two areas of education and training. Compare, for example, NCVER (1999e) with Anderson et al. (1998).

4 For a useful survey of employer expectations of recruits and of pre-employment education and training, see Deloitte Touche Tohmatsu (1995).

The decisions they reach in answering these 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.

The demand for training and/or for trained workers is generally the end result of a series of hard decisions employers have to take in order to survive and prosper in a dynamic and competitive business environment. Employers, especially those in the private sector, do not generally demand training for the welfare and betterment of their employees per se, but only if it fits into the business strategies they are pursuing. Ultimately this means primarily how it impacts on the 'bottom-line'—annual profits, dividends to shareholders and share prices. Luttwak (1999) has argued that keeping shareholders happy has increasingly become, in the 'turbo-capitalist' world of the 1990s, the primary motive for all business decisions. It means maintaining and increasing profits, maintaining and increasing competitiveness in domestic and international markets, maintaining and increasing market share, diversifying into new products and markets. This, in turn, requires a range of related decisions, such as cutting costs, improving efficiency, raising productivity, continued investment in new plant and equipment, adopting cutting edge technology, rationalising production processes, re-organising workplaces and work practices.

To operate successfully in this environment frequently results in employers looking for ways to reduce the size of the work force, ensuring that the remaining work force is more and more productive, flexible and adaptable, and has the right combination of skills, knowledge, attitudes and work practices. It is only when these skills, knowledge, attitudes and work practices are different from those already in the work force that training becomes a consideration. However, even then training is not the only option an employer faces. Different sets of skills, knowledge, attitudes and work practices can also be acquired through recruitment.

Alternatives to VET: Recruit or train?

What combination of recruitment and training an employer adopts depends upon a range of trade-offs between the costs and benefits of the available options. Training, especially if conducted in-house, can be very expensive (Dockery et al., 1997; Dockery et al., 1998). Alternatives vary. For example, in some situations, especially when the employer identifies the skills and knowledge required to be of the high-level technical or managerial variety, it may be a cheaper and more effective strategy to attract (poach) them from elsewhere, particularly from competitors. In other situations, as when the requirements are more routine, general, ongoing and of considerable number, it may be more cost-efficient to put pressure on public providers to offer the requisite training courses, and then to recruit their graduates. This entails no direct cost to the employer, with only minimal initial employment training being necessary to prepare these recruits for the particular requirements of the employer. How employers go about this will be taken up shortly.

Even if recruitment is not a viable alternative, because it is the existing work force that is in need of training, and/or because the training required is highly specific to the employer's own operations, an enterprise may still not opt to conduct its own in-house training, preferring instead to either out-source it or buy in training from external providers, customised to its own requirements. This option has been exercised by many small to medium-size enterprises, that have found setting up and maintaining their own in-house training facilities too costly. Pooling resources, through the establishment of group training schemes, is another option for small and medium-size enterprises (SMEs). In recent years an increasing number of large private and public-sector organisations have taken the same path, closing down or drastically scaling back their in-house training divisions. Telstra is a good example; so too are the defence forces.

Enterprise returns to training

Irrespective of whether training is conducted in-house, on or off-the-job, or by out-sourcing to external providers, employers will only financially support the training of their workers if they consider it will yield them a return, such as through increased productivity or greater profitability. Perceptions are often more important in this respect than precise measurement, since the returns to enterprise training are notoriously difficult to measure, even for researchers (Billett, 1998; Dockery, Norris & Strombeck, 1998; Long et al., 1999a). The enterprises themselves frequently do not have a clear idea of how much training is being undertaken by their workers, and how much it is costing them, let alone what the benefits are, and how they are distributed between the enterprise and its workers. For a review of international research see Blundell et al.

(1999) and for a survey of Australian studies of the returns on training to enterprises, see Maglen, Hopkins and Burke (2001). The latter study, of the relationship between training expenditure by enterprises and levels of productivity across a number of manufacturing and service industries, provides clear evidence of the complexities involved in measuring enterprise returns to training.

Demand driven rather than supply led VET

In the case of VET this is taken to mean that provision—teaching and instruction programs, and modes of delivery—should be designed and implemented in response to the requirements of industry and employers, rather than according to what training providers can and are able to offer.

An important question is how these requirements are transmitted to the providers, especially the public external providers in the TAFE system. In part this has occurred bilaterally, with individual employers contracting out their specific training requirements to individual TAFE institutes, or to a consortium of TAFE institutes. It has also occurred through employer groups, organised along industry, occupation and regional lines, lobbying State training authorities or dealing directly with TAFE and other providers to ensure their needs for training are met (see Maglen & Selby Smith, 1995).

In recent times, however, more formal transmission procedures have been instigated, under the auspices of national and State training authorities, in the form of industry training advisory boards (ITBs). These have been established across a broad spectrum of industries in the primary, manufacturing, infrastructure and service industries. With strong representation of employers, ITBs have the responsibility of formulating the training needs of their respective industries, building these into Industry Training Packages. The 'User Choice' program is another means that has been devised to promote industry demand for training as the primary focus of VET provision. Whether these policy-driven initiatives have been successful in tapping industry demand for VET and have adequately translated it into relevant training programs provided by TAFE and other training providers warrants further research.

Industry demand versus training needs and skill requirements

There is a fundamental distinction between industry demand for training and training needs and skill requirements that, all too often, can become blurred in discussions surrounding the demand for VET. The demand for VET is 'realised' demand, that is, it depends on the resources that employers (and, for that matter, individuals and governments) are prepared, at the prevailing level of prices of VET, to devote to it.

Training needs, on the other hand, are what can be identified as the training that should be undertaken by the work force in order to provide the skills, knowledge and improved work practices required by the individual employer (or collectively by the industry).

Assessment of skill requirements, in turn, involves assessing the skills (and related matters such as knowledge, attitudes and work practices) that the employer or the industry will require in order to meet its economic and financial objectives.

Skill requirements do not equal training needs unless training is the only means of acquiring those skills. In turn, training needs remain 'unrealised' demand for training unless employers are prepared to act upon those needs and actively support the training. As has been noted above, the processes that employers have to go through, and the considerations they have to weigh, to translate skill requirements into training needs into demand for VET are complex. Much of what is referred to as industry or employer demand for VET is either skill requirements or training needs, only part of which may translate into realised demand for VET programs.

So what of demand-driven VET? Strictly speaking it is VET that is actually initiated by employers, where all or part of the costs of its provision are covered by the employers. Tailoring VET provisions according to what VET providers ought to be offering to meet the training needs or skill requirements of industry, if not accompanied by any voluntary employer contribution to costs, is really just that—training needs and/or skills requirements-driven VET. Whether these training needs and/or skill requirements are actually translated into demand for VET by industry depends upon whether they are 'realised' by employers at the prevailing level of prices of VET. If these prices are too high, in the opinion of employers, they will remain unrealised. Demand-driven VET is as much about getting the price (costs and incentives of training) right, as it is about accurately assessing skill requirements and their associated training needs.

Elasticity of demand for VET

A significant gap in research into the determinants of demand for VET relates to the responsiveness of demand to (relatively small) changes in the price of VET. This is the case for both the individual demand for VET and the demand from employers. Questions about the responsiveness of demand raise the issue of what is the price of VET and how is it measured? For individuals the simple answer is the fees and other out-of-pocket expenses together with any foregone earnings or leisure related to a specific VET course or program. For on-the-job training, there may be no direct charge for the training, but the price may be in wage reductions or wages foregone. For would-be trainees contemplating a training program—either on or off-the-job—as an investment in their future earning capacity, the notion of ‘price’ may incorporate an assessment of the likely return on that investment against what could be earned on the next best alternative use of the resources involved.

Similar considerations apply to the estimation of the price of training to employers. It can be measured as the financial outlay on setting up and running a training program, or of subsidising employees’ off-the-job training. Alternatively it could cover the loss of current production involved in having workers off-the-job while undertaking training and/or in having trainees (with lower productivity levels) undertaking production activities during their on-the-job training. If employers regard training as an investment, then the price must include an assessment of the expected return vis-à-vis the return they might get from investing the same level of resources (real and/or financial) elsewhere.

Setting aside the problem of determining what is the price of training (and therefore what constitutes a small relative change in that price), what will determine the responsiveness of demand to a small change in price? In general, assuming that those demanding training are aware of the price they are paying for that training, as well as the price of all other alternatives, an increase in price tends to lead to a fall in demand, and conversely for a price fall. How much demand will rise or fall is determined largely by whether training (VET) is seen as having close substitutes or not. The closer the substitutes, the more responsive demand tends to be to relative price changes and hence the higher its measured elasticity. Conversely, the fewer real alternatives there are to training the lower will be the elasticity of demand with respect to price changes.

Determining empirically, the elasticity of demand for training needs, of course, to be conducted on a case by case basis. However, the earlier discussions of the alternatives to training for both individuals and employers suggest that the demand for training from both perspectives would tend often to be comparatively elastic.

Whether the demand for training in VET is elastic or inelastic has important repercussions for the resources devoted to training by both individuals and employers. If demand is elastic, then a small increase in the price of training will lead to a significant decrease in the resources spent on it. Similarly, a small decrease in price would elicit a noticeable increase in spending. Conversely, if the elasticity of demand for training is low, the effect on spending of relatively small changes in its price will be less. Layard and Petoussis (1985) illustrate how the elasticity of demand for education, but not training, can be calculated.

Public (government) demand for VET

Governments on behalf of their constituents at the national, State and Territory levels have their own, and very significant, perspective on the demand for VET. Part of their demand, of course, is like that of the private sector, since governments are major employers in their own right. They require a public sector work force with all the skills, knowledge and attitudes necessary to deliver the range of services they 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 for other employers.

Government demand for VET, however, is much broader than merely meeting their own work force requirements. Progressively, but especially throughout the 1980s and 1990s, 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 to 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. (ANTA, 1998)

The five objectives were:

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

In assessing the demand for VET from this perspective the two considerations that were important in assessing industry demand for VET remain important. First, the public demand for VET is a derived demand, arising directly out of the policy objectives and political agendas of governments. Second, 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.

The policy context of public demand for VET

What is clear from ANTA's mission statement is the explicit acknowledgement of, and the primacy given to, both the private (individual) and industry (employer) perspectives on the demand for VET. However, the underpinning objectives demonstrate that, from a public (government) perspective, the individual and industry perspectives are both to contribute to the achievement of the economic, social and political objectives of governments.

In terms of economic policy objectives, governments in Australia see VET as playing a vital role in maintaining and improving the international competitiveness of the economy, and are intent on providing an appropriate policy framework for that to occur. However, in a dynamic, rapidly changing technological and global economic environment, just what are the required skills and knowledge? Equally, how can VET maximise its contribution to providing them, by ensuring there are no significant 'skill gaps', that is, shortages of some skills and an over production of others? These are not simple and straightforward issues, as the excellent review of the situation in the UK by Keep and Mayhew (1999) makes clear. Keep and Mayhew cite the first report of the UK National Skills Taskforce:

... it would be a mistake to treat the current demands of employers and individuals for skills as coterminous with the needs of the economy. The demand from individuals and employers is conditioned by the current structure of incentives they face and the information they have about education and training opportunities and their economic benefits. It cannot be assumed that these necessarily reflect the wider needs of the economy for economic growth and stability. (UK National Skills Taskforce, 1998, p.33, in Keep & Mayhew, 1999, p.13)

Some work is being done in Australia on the implications of the emerging knowledge economy for the skills, knowledge, attitudes and work practices required by Australian workers, and what this will mean for the sort of training and retraining that they will need. CEET is building a research program that is attempting to fill gaps in this research. For example, Maglen and Shah (1999) have traced the occupational patterns of employment in Australia since the mid-1980s, the impact on them of globalisation and rapid technological change, and the implications for education and training. Employing a categorisation of occupations based on that suggested by Reich (1992) they found that employment growth in Australia has bifurcated. On the one hand, there has been strong growth in full-time employment in occupations requiring increasingly sophisticated conceptual and creative skills, and on the other, even stronger growth in occupations that are rapidly becoming casualised, and which require low technical skills, but high-level interpersonal skills. At the same time employment in traditional male-oriented occupations, requiring middle-level technician, trade and craft skills, has tended to stagnate and decline. (See also Cully, 1999; and Wooden, 1999; for more conventional analyses of the changing patterns of employment in Australia, see Norris & Wooden, 1996; Meagher, Winley & Hanson, 1997; and Sheehan & Tegart, 1998). Many of these changing skill requirements are different from those the VET sector has been used to providing.

The public demand for VET can, and does, have an important social dimension, often overlapping with that of the economy. Three aspects of these social policy objectives warrant particular mention:

- *Equity and access:* Public VET providers have long had a 'community service obligation'. Ensuring VET places are accessible and that VET services are delivered to individuals from disadvantaged groups in society are established functions of TAFE institutes throughout the country. These groups are identified using a variety of criteria—gender, ethnicity, culture, language, location, disability, and socio-economic background.
- *Unemployment:* Unemployment has both a social and economic dimension. At times, especially under the previous national Labour administration, it has been a significant element in the public demand for VET. Labour market training programs, targeted primarily at the long-term unemployed of all ages, formed a major component of the *Working nation* report of 1994 (Keating, 1994). These programs were substantially reduced by the Coalition government, which was elected in March 1996 (Burgess, 1998).
- *Regional development:* Public and other VET providers are more widely distributed across regional Australia than other post-school education institutions and have played a significant part in rural and regional development. In the current political climate their importance to both national and State governments is being re-emphasised. While the 'expansion of the range of [VET] programs undertaken by people in rural and remote communities, including programs that take advantage of computer technology', is listed in *A Bridge to the Future* [ANTA, 1998] as one of the areas of disadvantage being addressed, it is likely that the emphasis on this particular aspect of the public demand for VET will increase in the future.

While the economic and social policy objectives set out above have varying degrees of significance in determining the public demand for VET, one further area has more of a political dimension. The five underpinning objectives of ANTA's mission over the 1998 to 2003 period include 'maximising the value of public vocational education and training expenditure'. This is recognition of the fact that the major external providers of VET in Australia are the public TAFE systems run by the States and Territories, and that it is through them that the majority of public funding (realised demand) for VET is channelled. It is also a statement affirming that governments will not lightly change the status quo significantly, despite the reference to 'a growing and diverse training market' (p.8). Governments are aware of their past investments in the system, and of the need to ensure that they, like individuals and employers, earn a satisfactory return on their investments⁵. They may decide that to achieve it, a sizeable part of the demand for VET by individuals and employers should be directed towards the public VET system. As *A Bridge to the Future* puts it, 'In the last 25 years, over \$4 billion has been spent on providing a comprehensive network of public vocational education and training facilities. Current and future capital investment will be reviewed to identify ways of achieving maximum return on capital investment' (p.21).

Requirements for skills, the needs for training and the public demand for VET

As has already been discussed, these are conceptually quite distinct, but their differences can become blurred in the practical exercise of determining 'the public demand for VET' (Burke et al., 1998; Smart, 1998). This is particularly the case when State training authorities seek to establish training priorities as a basis for negotiating profiles of training provision with TAFE institutes, and for the allocation of training contracts on a tender basis. An illustration of this is the use made by the Victorian Government of the Labour Market Training Needs (LMTN) model as a cornerstone of its future estimates of the amount and type of training to be provided. Whatever the validity of its skill forecasts or training needs projections, they will only convert into realised demand by employers and individuals if an appropriate set of prices and other incentives is put in place. Work undertaken by Shah, Burke and McKenzie (1999), discussed in the next section, to refine and extend the LMTN model, has considerably improved its capacity to forecast skills and to project training needs.

Alternatives to VET: Importing skills from elsewhere

Also, Australia has a long history of looking overseas for its supply of skilled, semi-skilled and unskilled workers. In much of the post-World War Two period there was an emphasis on overseas recruitment to meet shortages of labour in the growing manufacturing sector. Demand for skilled labour from overseas was, however, constrained by the lack of recognition of skills

⁵ Note that governments can have more than one role in VET, such as purchaser, asset manager and service deliverer; and that there is scope for their action in one role to conflict with that in another (see Selby Smith and Selby Smith, 1997).

and qualifications acquired in many overseas countries. The impact of this migration on the VET sector, especially perhaps at the more basic levels, was to reduce the demand for places.

In more recent times, sourcing of skill requirements from overseas has been more selective. Immigration authorities have targeted those in occupations judged to be in demand nationally. However, the numbers are still significant and overseas recruitment still represents a substantial alternative to VET and other forms of education in meeting the skill requirements of Australian employers. In 1999 to 2000, for example, the projected outcome for the skills stream of migration was 35,000. The planned level for 2000 to 2001 is 40,000 (Department of Immigration and Multicultural Affairs, 2000a, 2000b; and Minister for Immigration and Multicultural Affairs, 2000).

3.3 MODELLING INDUSTRY'S DEMAND FOR VET

CEET in 1998 undertook an extensive review of the ways in which the training authority in Victoria assessed the demand for training (Burke et al., 1998). This review led to the presentation of a framework for dealing with a range of information, including insights from leading-edge enterprises, advice from Industry Training Boards (ITBs), advice on community needs and labour market forecasts. Part of that review was a critique of the LMTN which the Office of Training and Further Education (OTFE) had developed to assist with estimating the future training needs of the Victorian work force. As a consequence, OTFE (subsequently renamed Office of Post-compulsory Education, Training and Employment [PETE]) commissioned CEET to revise the model and that work was undertaken in 1999.

The existing LMTN framework has been updated and extended to incorporate: the most recent classification of industries (the 1993 Australian and New Zealand Standard Industrial Classification [ANZSIC]); the most recent classification of occupations (the 1996 Australian Standard Classification of Occupations [ASCO]); data from the 1996 Census; and estimates of net occupational replacement needs. Furthermore, in consultation with OTFE and other key stakeholders, the assumptions used in the LMTN model were reviewed, especially those relating to training required for new entrants and for employed persons with and without qualifications, and the proportion of training provided by the State Training System (STS) to these groups.

The project was divided into three parts to produce: employment projections for Victoria by various categories in more detail than was previously available to OTFE; estimates of occupational replacement needs for Victoria; and an updated and reformed LMTN model. The intention was to dovetail information generated from the first two parts of the project directly into the third part.

Employment projections

The Centre of Policy Studies (CoPS) at Monash University previously provided OTFE with occupational employment projections at up to 4-digit ASCO and industry employment projections at up to 3-digit ANZSIC. These projections are made using the MONASH model. The 4-digit ASCO classification involves 340 broad occupational groups, and the 3-digit ANZIC classification involves 158 broad industry groupings.

MONASH is a dynamic applied general equilibrium model of the Australian economy that identifies 112 industries in 56 regions. A number of inputs are required. Some of the main inputs are: macroeconomic forecasts over a nine-year horizon, and updated quarterly, from *ACCESS Economics*; forecasts of a number of industry-specific variables prepared by agencies such as the Australian Bureau of Agricultural and Resource Economics, Bureau of Tourism Research, the Productivity Commission and CoPS; estimates of future changes in technology and consumer tastes prepared by CoPS; changes in government industry policy, such as tariff and taxation changes; and regional forecasts of growth in aggregate output and employment based on information collected by *ACCESS Economics* on individual projects under construction or in the planning stage around the country. Extensive use is also made of Australian Bureau of Statistics (ABS) time series data in the model, including *Transition from education to work* (1997), and *Labour force* (ABS, 1998b).

The MONASH projections for the period 1998–99 to 2003–04 have been converted to 6-digit ASCO and 4-digit ANZIC classifications. These more detailed projections involve 986 occupations and

465 industries. Since each ITB's⁶ lead agency role can be uniquely determined by a group of 6-digit ASCO occupations, projections of employment by ITBs can be provided. In addition, the CEET work has provided occupational projections at the regional level.

Information provided for further analysis is the distribution of qualifications (highest level attained) of persons employed within each occupation, ITB and region as at May 1998. Table 3.2 is an example of the tables that can be generated from this database. It shows the qualifications profile of persons who are covered by a selected number of ITBs. More than half the persons covered by the Automotive ITB have either a skilled or basic vocational education qualification. In contrast, over 60 per cent of those covered by the Information Technology ITB have either a degree or a diploma. Persons covered by the Wholesale, Retail and Personal Services ITB are the least qualified among this selected group of ITBs.

Occupational replacement needs

For a given occupation, net replacement needs are a result of net separations. Net separations summarise the movements of individuals out of an occupation less those entering from other occupations over a specific period. Net replacement needs in an occupation, together with estimates of growth if there is any, quantify job openings for new entrants, and if training is required, identify minimum training requirements.

Table 3.2: Qualifications profile by selected ITBs (Victoria; 1998)

<i>Industry Training Board</i>	Per cent with highest qualification attained					<i>Total</i>
	<i>Higher & bachelor degrees & post-grad diplomas</i>	<i>Undergrad & associate diploma</i>	<i>Skilled vocational</i>	<i>Basic vocational</i>	<i>Without post-school qualification</i>	
Automotive	1	2	52	4	41	100
Business Services, Finance and Property	21	13	6	9	51	100
Community Services and Health	15	21	8	18	37	100
Engineering Skills	6	9	39	5	41	100
Information Technology	47	14	6	7	27	100
Primary Industries	7	11	15	9	58	100
Wholesale, Retail and Personal Services	8	9	11	6	67	100
All occupations	19	11	15	7	48	100

Net occupational needs have been estimated for 3-digit ASCO occupational groups for the period 1999–01 to 2003–04. A cohort-components method is used to produce the estimates. The results indicate average net replacement needs across occupational groups for Victoria to be 1.9 per cent per annum over the next five years, ranging from 0.2 per cent per annum for miscellaneous intermediate service workers to 6.3 per cent for elementary food preparation and related workers. In absolute terms, the net replacement needs are expected to range from only 100 over the next five years for miscellaneous health and welfare associate professionals to 30,700 for sales assistants.

Table 3.3 compares the projected annual net replacement needs rate with percentage change in employment, over the next five years, in occupations covered by a selected number of ITBs. Employment growth in occupations covered by the Community Services and Health ITB and the Information Technology ITB is expected to be quite strong every year for the next five years, but the net replacement needs rate is expected to remain relatively low for both ITBs. In contrast, for occupations in the Engineering Skills ITB, growth is expected to be negative over the same

6 Industry bodies include Industry Training Boards (ITB) and Industry Training Advisory Boards (ITABs). For the purpose of this report no distinction is necessary and no distinction is made between them. For the sake of simplicity they are referred to as ITBs.

period, but the net replacement needs rate is expected to be relatively high. The results demonstrate that, while the uniform 3.5 per cent annual net replacement needs rate assumed for all occupations in the LMTN model until recently may have been a significant overestimate for Victoria as a whole, it may also have underestimated the needs of some occupations.

Table 3.3: Projected net replacement needs rate and change in employment by selected ITBs, Victoria, 1999–00 to 2003–04

<i>Industry Training Board</i>	Annual net replacement needs rate 1999–04	Percentage change in employment from previous year				
		1999–00	2000–01	2001–02	2002–03	2003–04
Automotive	2.5	1.1	2.6	0.6	1.6	0.0
Business Services, Finance and Property	1.5	1.7	1.6	1.2	1.4	0.2
Community Services and Health	1.2	2.7	3.5	2.9	3.3	2.2
Engineering Skills	2.0	-0.6	-0.5	-1.1	-0.1	-1.4
Information Technology	0.8	3.7	4.0	2.7	3.7	2.1
Primary Industries	2.5	-0.8	0.4	-0.5	-0.2	-1.2
Wholesale, Retail and Personal Services	3.6	1.7	2.2	1.7	1.9	0.6
All	1.9	1.1	1.2	1.1	1.4	0.2

Updating the LMTN model

The LMTN model generates estimates of the number of student contact hours (SCH) of training needed to bring the Victorian work force to a certain skill level. The estimates can then be compared with the current level and distribution of training provision to help determine priorities for resource allocation. The model does not include estimates for training provided that is of a generic or general education nature or for other non-specific industries. Examples of training not included in the model are adult, community and further education, and training delivered to those in correction facilities. Resources needed for such programs would need to be added to those estimated using the LMTN model to obtain a more complete view of the future demand for training.

For each occupation, the model estimates training needs of the following three distinct labour market groups: newcomers into the occupation; currently employed persons without post-school qualifications; and currently employed persons with post-school qualifications. (In this section the term qualifications refers to post-school qualifications.) The CEET work has extended the current model by using calculations at the 6-digit occupation level in each group based on the most recent (1996) occupational classification. The total training needs are obtained by aggregating the needs projected to arise for each of the above groups.

A number of crucial assumptions underlie the projections from the model. Some of these assumptions were also made in the previous version of the model but have now been reframed to enable the user of the model more flexibility to explore training needs under various scenarios. There are five key assumptions. First, the occupational employment projections from the MONASH model are as given. Second, the participation rate in training in each group will depend on the qualification profile within each occupation, as shown in the revised 1996 Census data. Third, the intensity of training within each group will be some percentage of the average training per person (in student contact hours) delivered in 1998. Fourth, the proportion of STS-funded training in an occupation will depend on the ratio of the number of persons with VET qualifications to the number with higher education qualifications, as in the revised 1996 Census data. Finally, it is assumed that the STS will be the sole provider of VET for the labour market.

The participation rate in training is determined separately for the three labour market groups in each occupation. For newcomers into an occupation, this rate is the sum of two proportions from the revised 1996 Census data on qualifications: first, the proportion of employed persons who had

qualifications; and second, some percentage of the proportion of employed persons without qualifications. The rate for employed persons without qualifications and employed persons with qualifications is simply some percentage of the respective number of persons in the two groups. Within each group, the same percentage may be set for all occupations or a separate rate set for each occupation. The participation rate in STS-funded training is then assumed to be a function of the proportion of training in the occupation that occurs in the VET sector as compared to the higher education sector, because not all training may be delivered by the STS. The percentage to calculate the participation rate in training for the three labour market groups may be determined in consultation with stakeholders, such as ITBs, or determined from other data sources. Similarly, information on the intensity of training may be gleaned from stakeholders.

The model implicitly assumes that persons without post-school qualifications have had no training at all. This may not be true in all cases, as it is well known that students in VET often enrol in a course, or a course module, to acquire certain skills and that they may not remain enrolled to obtain a qualification. This suggests that the current model assumptions lead to an upward bias in some of the estimates. Data to correct for the bias are not currently available.

The material that has been provided to OTFE enables 'what if' analyses to be undertaken to identify the implications of changes in the key assumptions underlying the LMTN model. As an illustration, four situations are presented to show the variation in total SCH required to meet training needs, under varying assumptions for intensity of training and participation rate for the three labour market groups. The results for the four situations are given in Table 3.4. Depending on the assumptions used, the total training needs range from 22.3 million SCH to 50.7 million SCH for 1999–2000.

As an example, consider the first scenario for the intensity of training and the first scenario for the participation rate. Training per person for newcomers is assumed to be 150 per cent of the overall average delivered in 1998; for employed persons without qualifications it is assumed to be half the average; and for employed persons with qualifications it is assumed to be a quarter of the average. The percentage to calculate the participation rate in training for the three labour market groups is assumed to be 50, 40 and 20 per cent, respectively. Under these assumptions, the training needs for the three groups for 1999–2000 are projected to be 11.8, 31.1 and 7.8 million SCH, respectively. The total training needs are projected to be 50.7 million SCH.

For the model to produce useful information, it is imperative that OTFE, or other State and Territory training authorities, have in place a process to ensure that all assumptions made in the model are validated on an ongoing basis.

Conclusions

CEET has made significant progress in updating the database on employment statistics for Victoria. The stock of skills is provided, as measured by the highest qualification attained, within each occupation and taking account of their distribution by regions. More importantly for OTFE most of these statistics are by ITBs and facilitate analyses by ITBs. They may also be a useful resource for ITB research officers. CEET has recommended that OTFE pursue a process whereby the information is put in a format that allows user-friendly access to all potential users of the data.

The most up-to-date detailed occupational replacement needs have been calculated for the Victorian work force using the latest international research. At 1.9 per cent the average net replacement needs are considerably lower than the uniform 3.5 per cent assumed in the previous version of the LMTN model. The ageing of the population may increase replacement needs in some occupations over the next five to ten years. In some occupations replacement needs are a more important component of job openings than is expansion demand. In particular, in declining occupations the only source of job openings is that due to replacement needs.

The model provides baseline scenarios for the demand for training. Its output has the potential to play a key role in the discussions with stakeholders about STS-funded training. The structure of the reformed model allows for input from ITBs to be incorporated. In particular, ITB inputs with respect to the participation rate in training and the intensity of training in each occupation should prove useful. The ITBs input may also be important in gauging the amount of privately funded VET that is delivered in each occupation. All assumptions should be systematically validated with alternate sources of information, where practicable. The use of the LMTN model in the planning process needs to be based on a shared understanding of what the model is able and not able to do. In the longer term there could be consideration of the possible inclusion of adult, community and further education provision, estimation of the training needs of the unemployed and those

outside the labour market, and the possibility of designing a model based more directly on skill requirements.

Table 3.4: Projected labour market training needs in 1999–2000—Under alternative assumptions about participation rate and intensity of training

		Percentage for calculating participation rate in training	
		Scenario 1	Scenario 2
	Newcomers	50	25
	Employed (without PSQ ¹)	40	20
	Employed (with PSQ)	20	10

Labour market group	Intensity of training	Demand for training (in millions of SCH)	
	<i>Scenario 1</i>		
Newcomers	1.50 x AVSCH ²	11.8	9.7
Employed (without PSQ)	0.50 x AVSCH	31.1	15.6
Employed (with PSQ)	0.25 x AVSCH	7.8	3.9
	Total	50.7	29.2
	<i>Scenario 2</i>		
Newcomers	2.00 x AVSCH	15.7	12.9
Employed (without PSQ)	0.25 x AVSCH	15.6	7.8
Employed (with PSQ)	0.10 x AVSCH	3.1	1.6
	Total	34.4	22.3

Notes: 1 PSQ denotes post-school qualification
2 AVSCH is the average SCH per person delivered in each occupation in 1998

3.4 SMALL AND MEDIUM-SIZED ENTERPRISES (SMEs)

ANTA's National Strategy (1998) states:

To maintain and extend the national skills pool, industry investment will be further encouraged by attention to both the supply of training and demand for training from industry and the community. It involves investment by small business. Creative initiatives by industry organisations and governments to stimulate demand from small business for training will continue to be implemented. These activities will all contribute to skills formation in workplaces and to the development of learning organisations.

In 1997, over 42 per cent of Australia's labour force worked in small business, including agriculture (ABS, 1998). If learning practices and skills 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 most likely to respond and when they overtly recognise any significant and distinguishing characteristics and special circumstances of small businesses, that is where promotion 'speaks their language'. A training authority chief executive officer (CEO) has emphasised the importance of training costs, noting that when a \$500 voucher was provided for small businesses to purchase training there was an unexpectedly high demand, including for training provided by ACE and private providers (personal communication).

The ABS (1998) defines small businesses other than agricultural as having less than 100 employees (manufacturing) or less than 20 employees (non-manufacturing). Agricultural businesses are treated separately by the ABS because of the difficulty of equating size with number of employees. Medium-sized businesses are defined by the ABS as having 20 to 199 employees and large

businesses as having 200 or more employees. Given that manufacturing firms with 20 to 99 employees are treated as small businesses there is a blurring in the 20 to 99 range. Studies of enterprises conforming to the definition, other than those that do not employ anyone, are the main focus here, although sub-categories are sometimes used for further clarification. The term 'small to medium sized' is used interchangeably with 'small' in reference to groups of firms that cross the range of 1 to 99 employees.

Provision of structured training

ABS figures for 1996 confirm the well-established relationship between firm size and the provision of structured training for employees. Expenditure on training as a percentage of gross wages and salaries for the three months July to September was 1.2 per cent (1–19 employees), 1.9 per cent (20–99 employees) and 3.2 per cent (100 or more employees) (Burke, 1998). Hours of training per employee and percentage of employers providing training showed similar trends: 2.4 : 3.8 : 6.5 and 13: 51 : 88 respectively. Of greatest concern within the context of this discussion was the decline between 1990 and 1996 in the percentage of enterprises in the 1 to 19 employee range that provided structured training: 13 per cent in 1996 compared with 19 per cent in 1990. A substantial, though proportionately lesser, decline took place for the 20 to 99 employee group: 51 per cent in 1996 compared to 64 per cent in 1990.

Hayton et al. (1996), from their case studies, suggested several reasons why small enterprises are less inclined to provide structured training than larger enterprises:

- They have fewer drivers of training. For example, small enterprises are less likely to have strategic plans or business plans with training clauses; and less likely to have high levels of workplace change;
- They have fewer dedicated training resources (personnel, facilities);
- They lack economies of scale that would assist class size and backfilling;
- Organisational structures provide little opportunity for upward mobility; job roles are broad rather than specialised, with less opportunity for change horizontally to a new position within the enterprise.

The ABS 1997 *Training Practices Survey*, on the reasons structured training was provided by enterprises in the previous 12 months, showed for the 1 to 19 employee group that responding to new technology, enabling employees to move to other positions and developing a more flexible work force were much less important than for larger enterprises (Long & Burke, 1998). Also, small firms are more likely to report that their current employees are adequately trained than are larger firms. On the other hand, small and larger firms were more similar with respect to improving the performance of personnel in their current jobs and improving the quality of goods and services. It seems, when it comes to structured training, that the dominant concern is doing what is done now, but better.

Provision of unstructured training

Just because there is less structured training does not mean that there is less training. Hayton et al. (1996) explain:

Training in small businesses is often subsumed under other activities that are not commonly recognised as training. In large organisations formal training becomes necessary to enable groups of employees to get together from time to time to enhance communication and to solve problems. In small businesses, these communication and problem solving activities take place on an everyday basis as groups of employees work together or meet informally to solve problems. These informal and unstructured activities are not readily recognised as training either by employees or researchers, nevertheless they perform the functions that more formal training performs in large enterprises.

Nor does this mean that small businesses provide more informal training than large ones. Recent case studies undertaken by Maglen, Hopkins and Burke (2001) that included small, medium and large enterprises, found informal (unstructured and commonly unassessed and unrecorded) training to be an important source of learning in all the enterprises investigated. Nevertheless, it can be questioned whether small businesses' greater reliance on informal training is to the detriment of business performance. While day-to-day work may provide adequate opportunities for the sharing of experiences and ideas, it is less likely to foster some other types of learning, such as upgraded literacy and numeracy skills, underpinning theory and concept development, and new requirements for occupational health and safety. It can be questioned, too, whether

some approaches to informal training are more effective than others. For instance, in the UK Orpen (1997) found that motivation and commitment related to the frequency and closeness of learner-mentor interaction (although, in the short term at least, they were unable to show an effect on performance).

For employees, it is having their training (or competencies) formally recognised that is the fundamental issue, not how structured the learning process has been. Given small businesses' relative lack of internal labour markets and short life—only one third of Australian small businesses are more than ten years old (ABS, 1998)—competitiveness in the external labour market is especially important for this group.

Business performance

Mark Rogers of the University of Melbourne's Institute of Applied Economic and Social Research has undertaken an extensive comparison of the performance of businesses in Australia by size. Employing ABS *Growth and Performance Survey* data for 1994–95 he shows that labour productivity, measured as either mean or median value added, varied directly by firm size (Rogers, 1998). However, the degree of variation was considerable, even after removal of outliers; and for micro businesses (1–4 employees) and small businesses (5–19 employees) distributions are strongly and positively skewed. The relatively low level of labour productivity in micro businesses may have more to do with having low capital to labour ratios than inadequate skills. Rogers (1999) finds that micro businesses had the highest profitability on all the measures he used (price cost margin; return on assets; earnings to total income). The poorest performing group for each of these measures, using median values, was the one with 20 to 99 employees. Rogers points out the dangers of reading too much into these trends. Comparison of SMEs (1–99 employees) with larger enterprises on an industry-sector basis (two digit ANZSIC), shows the direction of the relationship varying by industry and the relationship is not always consistent for each of the three measures. Labour productivity comparisons delivered more consistent results using the industry groupings. For all sectors other than 'services to mining', labour productivity was higher among large firms. Investigating this further, Rogers concludes:

SMEs appear to rely more on relatively small amounts of capital and much of this is leased. Large firms have higher levels of capital and more of this is owned by the firm. One possible implication of these observations is that SMEs have the opportunity to improve output by using more capital (though it is likely that SMEs may have too small a scale to utilise some types of capital). These observations also suggest that SMEs and large firms will be affected differently by policy changes that effect labour supply and capital. For example, changes to the tax treatment of owned capital will impact more on large firms.

Lending support to this comment are the findings of Davis and Henriksen (1999) in their comparison of enterprises by size in Sweden, other European countries and the US. They conclude that it is the economic policy environment as determined by the interplay of business taxes, employment security laws, credit market regulations, the national pension scheme, wage setting institutions and the size of the public sector that determines the distribution of small and large businesses in a country.

Alternative evidence for lesser labour productivity and profitability in small to medium-sized Australian enterprises comes from the 1995 Australian Workplace Industrial Relations Survey (AWIRS) that investigated firms with 20 or more employees. Wooden and Bora (1999) found, in keeping with observations elsewhere, that wages rose with firm and workplace size, though they rose at a declining rate. Since firms and labour are thought to share roughly equally in returns to increased productivity, it may be assumed that the pattern is mirroring productivity changes.

Generally speaking, small to medium-sized enterprises in Australia appear to be less profitable than larger firms, but many micro businesses are more profitable. The success of the micro businesses may reflect their inherently high proportion of owner/manager participation and this group's motivation. At the same time, it must be borne in mind that micro businesses are major employers. Excluding agricultural businesses, they provide about half of all small business employment and a quarter of total employment (ABS, 1998). The group includes a relatively large proportion of enterprises with low labour productivity, in keeping with their reliance on more labour-intensive technologies. In 1997, about 32 per cent had been operating for more than ten years, a similar level to small business as a whole (ABS, 1998).

Innovation

Rogers (1999) compared small with medium sized and larger firms in terms of innovation. With the exception of 'food retailing', 'accommodation, cafes and restaurants' and 'business services', small and medium-sized firms were much less likely to introduce an innovation in process or product/service than were larger firms. And only in three sectors did twenty per cent or more of small and medium sized firms report any innovation in the past twelve months. These three sectors were all manufacturing industries: 'food, beverage, tobacco manufacture'; 'petroleum, coal and chemical'; and 'machinery and equipment'.

As Rogers acknowledges, a small or medium-sized firm may devote a substantial proportion of its resources to innovation, but because of its small size innovate less frequently than a much larger firm that allocates a lesser proportion of its resources to innovation. Even so, a relative lack of innovation is suggested by the findings, which is consistent with the lesser importance accorded to training to support technological change in small to medium-sized businesses as compared with larger ones (Long & Burke, 1998). Yet it is widely accepted that technological change is the mediator of long-run economic growth, as more efficient processes displace previous ones, liberating labour to produce additional wealth and reducing costs (Schumpeter, 1942). For example, the labour now required to produce one lumen of light is about one ten thousandth of what it was 200 years ago and the real cost about one hundredth (Nordhaus, 1997).

For the two years 1994–95 and 1995–96, businesses with 1 to 19 employees were twice as likely to cease operation as distinct from undergoing a change in ownership as those having 20 or more employees (ABS, 1997). (No figures are available specifically on the 20 to 99 employee group.) Furthermore, 'innovators' were more likely to report an increased income and less likely to report a reduced income. Are many small to medium-sized businesses in Australia performing poorly and eventually ceasing to operate, in part at least, as a consequence of their failure to innovate? If so, this could be one reason for their relatively low levels of expenditure on training.

The relatively 'low tech' nature of many small to medium-sized businesses may be important in providing them with the flexibility to be innovative in terms of output. Maglen, Hopkins and Burke (2001) found, in their recent case studies of wire products manufacturers, that it was the older machines that commonly provided the flexibility to produce small batch, customer-specified products. In contrast, the numerically controlled 'high tech' machines were more suited to continuous production of identical high-quality products. However, it was the latter output that typically served the 'big players in the market', such as automotive manufacturers, and therefore provided the ongoing source of demand. What appeared to be important was deciding on the balance of technologies, older and newer, and being able to match sales, inputs and outputs so as to minimise stocks and inventories, satisfy customers, use resources efficiently and maintain cash flow.

But just as failure to innovate can be the path to loss of competitiveness and eventual displacement in the market, so technological change has its hazards too. In an industry where the life of a leading-edge technology is short, its adoption can be costly (if the requisite finance is forthcoming at all), yet the benefit short lived.

Planning

These challenges necessitate planning, both short-term operational planning as part of responding to current orders, and longer-term strategic planning, where decisions relating to major purchases and technological change are made and the human resource implications determined. These decisions are complex. Panizzolo (1998), who studied the introduction of advanced manufacturing technologies in Italy, writes:

Most of the current failures in advanced automated systems have been due to implementation approaches which do not, adequately, take into account interactions between human, organizational and technical events... These considerations are even more true for SMEs, for whom introducing and implementing these technologies can be a very costly and risky venture insofar as substantial resources, both financial and human, have to be committed ...

Motivated by the many studies which show that small to medium-sized businesses use strategic planning less than larger ones, Ogunmokun, Shaw and Fitzroy (1999) have investigated planning in a group of manufacturing firms in Australia that employ less than 20 people. They conclude that it is the owner/manager's perceptions of the rewards from planning that is the important predictor of the level of planning practices.

Many owner/managers have not undertaken formal study that might otherwise have addressed strategic thinking. Forty-one per cent have no post-school qualifications and only 27 per cent have a degree or diploma (ABS, 1997). Lancaster (1999) suggests that managers of small to medium-sized enterprises are most likely to be convinced of the benefits from planning where the changes in practice are small, relatively concrete, bring together thinking and doing and are linked to present day, up-front problems.

The apparent relationships between survival and growth, innovation, planning and human resource management including training, suggest that promotion of training to the owners and managers of small to medium-sized enterprises may benefit from routinely highlighting the relationship. It also supports approaches that have involved bodies like Small Business Victoria in the promotion of training. Being effectively innovative means being actively involved in knowledge networks so that planning decisions are informed by what current and potential suppliers, clients and competitors are doing and thinking. Human resource management policies and practice within enterprises can encourage participation in learning networks, just as promotions and other interactions can promote them externally.

In general, promotion appears to be potentially most effective where it is concerned with strengthening businesses' ability to acquire a planning-learning culture in an incremental fashion. Training of personnel develops as needed on the basis of sound business planning, particularly as a part of wider change processes. However, it need not mean that there is growth in off-the-job, structured training. In reference to the training needs of small business Gibb (1998) states:

If we in the VET system devote our energies solely to the development of a training culture which focuses on the delivery of structured training leading to a qualification we will miss opportunities to provide the small business sector with the support and cluster of services it needs and we will be irrelevant to its needs.

But if employees in small businesses are not to be disadvantaged by failing to have their skills recognised in the wider labour market, ways must be found to confer recognition that is credible and does not necessarily depend on the co-operation of individual employers, yet is not highly bureaucratic or costly.

Employment effects

In advocating the strengthening of the innovative capabilities of small to medium-sized enterprises there are concerns that doing so will encourage changes that lead to a reduced demand for labour as a consequence of an increase in the capital to labour ratio. Conversely, it can be argued that what is sought is greater business sustainability with, for the majority of employees, increased security of employment. Further, while employed with an innovative enterprise, the employee is likely to be gaining skills that will have greater currency in the wider labour market, should he or she seek employment elsewhere.

In practice, the ABS (1998) found for businesses generally 'innovators' were about 1.5 times as likely to increase employment as 'non-innovators', with the probability of decreasing employment about the same for the two groups. For 'innovator' micro businesses the likelihood of decreasing employment was about 40 per cent less than for 'non-innovators'. It is probable that much of this innovation was product rather than process innovation, which is less likely to displace labour. Van Reenen (1997) attempted to separate process and product innovation in UK manufacturing firms on the basis of patents; and found a positive correlation between innovation and employment due to product innovation. Process innovation appeared to have a negligible or small negative effect on employment.

Further research

Various pieces of research have been drawn together to argue for promotion of learning to small businesses being sensitive and responsive to small-business values and culture. There is considerable potential to examine some of the ideas and arguments further and to investigate some of the associated questions empirically. For instance:

- How well do small businesses that utilise only on-the-job training perform and how do they deal with content that is difficult to learn in this way?
- Is there an association between training and innovation in small businesses?; and between training and business failure rates?

- What is the experience of those VET providers who have worked with small businesses in a holistic way?; what worked best and why?
- Have those small businesses that adopt a more strategic approach to planning then addressed training more systematically? Has their innovative activity increased? Have they been more successful enterprises?

3.5 ENTERPRISE ACCOUNTING FOR SKILLS: INDICATORS OF INTELLECTUAL CAPITAL

Whether an enterprise perceives its expenditure on training as a cost, or as an investment that will contribute to its success, influences the decisions it makes about how much training to undertake, of what kinds, and for whom. Thus, the factors that shape this perception play an important part in determining investments in, and demand for, VET. These factors include the information available to decision-makers about the enterprise, its activities, resources and other factors contributing to its success or failure. As Horner (1999) indicates, people cannot act on what they do not know.

Traditionally, financial statements have played a significant role in guiding decision-making in enterprises, but in the new 'knowledge economy' reports indicating the 'intellectual capital' (IC) of an enterprise are becoming a more important source of useful information. With the potential to influence enterprise decision-making about investments in VET, these reports are relevant to a discussion of demand for VET. Though few enterprises in Australia yet assess and report their IC systematically, there is evidence of a growing awareness of the important role of IC and of preliminary discursive reporting. More systematic reporting in the future is likely as experiments continue with assessment systems and methods (Guthrie et al., 1999; Ferrier & Wells, 1999). In a recent interview, VPAC Engineers and Scientists, a 'new economy' company, attributed its success in part to 'a strong commitment to building employee intellectual capital' (DISR, 2000). Similar sentiments can be found in the annual reports of some of Australia's largest and most successful companies.

Preliminary research in Australia has found that by helping to demonstrate the links between investments in training and economic success even the present limited level of IC reporting encourages a more positive attitude to training investment. This echoes the experience of northern Europe where IC reporting has been further developed over the past decade, particularly in the case of human resources. There research has documented the impact of IC reporting on enterprise decision-making. A 1984 research study by Gul (quoted in Johanson, 1998) found that information is particularly useful for decision-making where it is relevant, improves the quality of the information available overall and reduces uncertainty. More recently, Johanson and Nilson (1996) found that the information provided changed enterprise decisions by making the connections between human resources and the financial results achieved more obvious.

What is intellectual capital?

Intellectual capital (IC) is sometimes confused with intellectual property, or with knowledge management. It is also sometimes thought to be an economic term for describing the skills and knowledge of the people working in an enterprise. While debate continues about the meanings, scope and usefulness of the term, it is now widely accepted that it comprises more than human resources, and that it can be (but is not necessarily) linked with intellectual property, which has a particular legal meaning. Similarly, an understanding of the existence and importance of IC may lead an enterprise to set up knowledge management systems and processes for sharing and developing knowledge. However, the two are different concepts.

Those things that contribute to the success of an enterprise, but are less tangible than its physical assets such as machinery, tools, land and buildings, are now gaining acceptance as the enterprise's IC. These include a large number of different elements some of which are more intangible than others. For instance, IC can include the skills and knowledge of staff, internal systems and processes, and relationships with clients and suppliers, but it may also include brand names and trademarks.

One illustration of the growing importance of intangible assets and their value to an enterprise is the increasing difference between the market value of firms in the knowledge economy and their book value. For instance, Table 3.5 shows a substantial difference between the market and book values of two major enterprises, IBM and Microsoft. Here the market value is taken to equal the

book value, plus IC. However, it is important to note that market values fluctuate and can be influenced by many factors other than the existence of IC.

Table 3.5: The value of intellectual capital

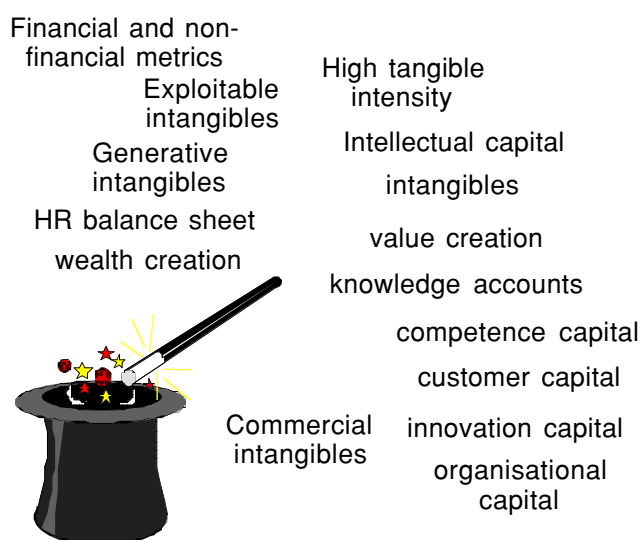
Company	Market value (M)	Book value (B)	M/B
IBM	\$70.7 billion	\$16.6 billion	4.25
Microsoft	\$85.5 billion	\$930 million	91.93

Source: Joia, 2000

Accountants have not been able to develop acceptable accounting standards for valuing intangible assets because these types of assets are ‘not saleable’ and ‘may disappear with the enterprise’ (Guerrero, 1998). However, material presented at an OECD sponsored international symposium held in 1999 (*Measuring and Reporting Intellectual Capital: Experience, Issues and Prospects*, OECD, 1999b) indicated that within OECD nations substantial theoretical and empirical work is being undertaken to explore and explain intangible assets and to test diverse methods of assessing and reporting them as IC. The work exposed a plethora of terms and concepts and some debates over their meanings and application. Figure 3.1 below shows some of the terms used in this work emerging from a ‘magic hat’ in order to illustrate the way in which new terms ‘pop up’ and to give some sense of the optimism with which the work is being performed and about its long-term potential to contribute to economic success.

Though this work is developing a number of different systems for classifying the different intangible assets that comprise IC, a common pattern is to divide them into three groups. The first consists of assets internal to the enterprise, such as patents, concepts, models, computer and administrative systems, organisational culture and spirit. These are sometimes called *structural capital*. The second comprises assets external to the enterprise, including relationships with customers and suppliers, the enterprise’s reputation, brand names and trademarks (*relational capital*). In the third group are the education, skills, experience, competencies and aptitudes of individuals (*human capital*) (e.g. see Sveiby, 1998).

Figure 3.1: A ‘magic hat’ of terms and concepts



This type of three-group classification system is evident, for instance, in a recent annual review of the business consulting firm Morgan and Banks, which recognises three groups of elements interacting to form IC:

- *customer capital*—the strength of the enterprise;
- *structural capital*—the capabilities of the enterprise as demanded by the market; and
- *human capital*—the individual skills necessary to meet customer requirements.

Development of IC reports

As noted above, the emergence of a need to assess and report IC can be attributed to the growing dependency of enterprises for success on their 'intangible' rather than their tangible assets that is part of the shift to a 'knowledge economy'. The change has caused traditional financial reports to become 'significantly less reflective of the assets that create wealth than in times past' (Johanson, Martensson & Skoog, 1999). Putting the dilemma for enterprises succinctly in these circumstances Guerrero notes that they can now 'live and die on the basis of intangible items that never appear on a balance sheet' (1998, p.57).

Internationally the strengthening need to supplement and complement traditional financial statements with information about intellectual, as well as physical, capital poses a challenge to governments, academics, accounting bodies and enterprises. These groups have for some time been exploring and experimenting with a variety of different methods for assessing IC and frameworks for reporting it within and outside the enterprise. The OECD has played a key role in supporting these developments (see OECD, 1999b)—not only to assist industry but also to explore the potential to promote the increase in employer investments in education and training that will be necessary if lifelong learning is to become a reality.

In its initial phase, work towards developing new methods for assessing and reporting intangible assets centred on assigning them a financial value that would allow them to be reported within a traditional financial framework. Taken up largely by accounting professionals, this work built on an understanding of intangible assets as goodwill.

More recent work has two main aims. First, it seeks to provide information that enterprises can call on to improve internal management. Second, it aims to ensure that external stakeholders, such as shareholders and governments, can identify the real value of the enterprise and its performance. Work is concentrating on the development of a range of financial and non-financial indicators of IC. Contributing substantially to the progress being made is a major project funded by the European Union, known as MERITUM (Assessing intangibles to understand and improve innovation management). This project seeks to produce a classification of intangibles; analyse management control systems at the firm level; assess the relevance of intangibles to capital markets; and provide guidelines for assessing and disclosing intangibles (Eronen & Ahonen, 1999). Undertaken by research partners in six European nations, it includes the identification of European best practice at the enterprise level and may provide some useful lessons for Australia.

Indicators of human resources

In the 1960s, recognition of the role of human capital in economic success contributed to the development of Human Resource Accounting (HRA), which supported the inclusion of human resource costs in financial statements. The aim of HRA was to put 'a value on human capital within an accounting framework' (Westphalen, 1999, p.14). Thus it promoted the production of cost-oriented statements of human resources, including human resource profit and loss accounts and human resource balance sheets.

Tables 3.6 and 3.7 below are examples of human resource statements from Scandinavia, where much work was done in developing HRA and experimenting with its use, particularly in the public sector. Table 3.6 is an example of a profit and loss account that includes expenditure on human resources. The statement does not allow for the contribution of human resources to gross added value to be indicated, and points to a relationship between the indicated level of expenditure on human resources and the poor financial result achieved. A reduction in expenditure on human resources in the following year would be a likely outcome of this information.

Table 3.7 presents another type of HRA statement which indicates the costs of several different 'personnel activities' as a proportion of total personnel costs. Data is provided for several years in order to indicate improved efficiencies. This type of statement enables a comparison of the results of different departments in an organisation, but also has shortcomings. It presents the data in a way that suggests an increase in the amount expended on wages for production, and a decline in that expended on other activities, including training, represents an increase in efficiency. However, there may be a positive relationship between expenditure on training and improved productivity and the cost of replacing employees may be well spent if new ideas and enthusiasm are brought into the company.

Table 3.6: Human resource costs in the profit and loss account

Income		504
– supplier costs		-96
<i>Gross added value</i>		408
– depreciation		-110
<i>Net added value</i>		298
	Direct wage costs	-198
	Personnel turnover costs	-47
	Cost of absence	-47
	Personnel/social cost	-17
	Retraining costs	-17
– total personnel costs		- 316
Profit		-18

Source: Johanson, 1998

Table 3.7: Cost of personnel activities as a proportion of total personnel costs (%)

	1990	1992	1994	1996
Replacing employees	3.0	4.2	3.0	2.3
Training	7.5	7.0	6.0	4.5
Annual leave	8.2	8.7	9.0	8.5
Wages for production	69.8	71.8	75.0	77.4

Source: Johanson, 1998, extract from Table 2

An important failing of both types of statements is that they do not relate the results to the strategic goals of the enterprise. They provide insufficient information to answer questions such as: have sufficient resources been devoted to activities to enable the enterprise to meet its objectives?; and is more rather than less investment needed in training, or in replacing staff? (Johanson, 1998; Johanson et al., 1999a).

Such shortcomings of HRA gradually led away from notions of enlarging financial statements with information about human capital assets. Instead, reporting models began to emerge that combined financial and non-financial information. These include models in which 'financial statements and related disclosures are viewed as different layers of information' (Johanson et al., 1999a). In Finland, for instance, 30 years of experience with HRA led to attempts to meet some of its deficiencies by combining a human resources profit and loss account with a human resources report that includes both financial and non-financial indicators. The report can include 'practically anything that has to do with the employees', ranging from basic statistics on the age structure of the work force and the educational background of employees to personnel strategies and knowledge management practices (Eronen & Ahonen, 1999).

Examples of new forms of human resource reports from Europe presented at the 1999 OECD symposium indicate a trend to the reporting of three types of human resource indicators. These are first, indicators showing what resources exist in the enterprise or organisation; second, indicators showing how these resources are acquired, maintained, developed and used; and third, indicators of the impact or effectiveness of these resources, ie. what is achieved. Table 3.8 shows some examples of specific indicators in each category.

Table 3.8: Human resource indicators

Stock indicators	Use indicators	Output indicators
What resources does the firm have?	How is the firm using these resources?	What is their impact, effectiveness?
Age structure of the work force.	Training days/costs per employee.	Employer turnover and satisfaction.
General and vocational qualifications.	Proportion of employees with performance plans.	Value added per employee.

Source: Danish Trade and Industry Development Council, 1999

The Australian experience

The research that has been conducted so far in Australia into the development and use of IC indicators is preliminary. Nevertheless, it points to the potential for IC reports to have an impact on decision-making in relation to human resource development that may help to shape the demand for VET.

Exploratory research undertaken for the 1999 OECD symposium comprised two parts: an analysis of the reporting of IC in the annual reports of 20 public companies, (the top 19 in terms of market capitalisation, plus Morgan and Banks); and case studies of selected enterprises demonstrating an innovative approach to their IC (six of which were reported). Overall, this research indicated that Australian knowledge and practice lags behind that of Europe and North America. However, substantial advances are anticipated in the future (Guthrie et al., 1999; Ferrier & Wells, 1999).

The research entailed coding the information contained in the reports within a framework of IC indicators comprising the three groups of elements: internal; external; and human capital. Table 3.9 below indicates the specific variables used for the analysis. The coding recorded whether a variable did not appear in the report, was expressed in discursive form, or in numerical terms.

Table 3.9: Intellectual capital variables

Internal capital	External capital	Human capital
Intellectual property	• Brands	• Know-how
• Patents	• Customers	• Education
• Copyrights	• Customer loyalty	• Vocational qualifications
• Trademarks	• Company names	• Work-related knowledge
Infrastructure Assets	• Distribution channels	• Work-related competencies
• Management philosophy	• Business collaboration	• Entrepreneurial spirit, innovativeness, pro-active and reactive abilities, changeability.
• Corporate culture	• Licensing agreements	
• Management processes	• Favourable contracts	
• Information systems	• Franchising agreements	
• Networking systems		
• Financial relations		

Source: Guthrie et al., 1999, Table 3

The research found many annual reports included statements by managing directors indicating that IC was an important resource of the enterprise. However, the value of this resource was not demonstrated by reporting in other sections of the report. With the exception of Morgan and Banks, none of the 20 major Australian enterprises studied had adopted a systematic IC reporting framework. Variables were reported in discursive rather than numerical terms.

All enterprises reported on some aspect of their IC, but the extent of reporting, and the type of attribute reported, varied greatly. The average number of attributes reported in each case was high enough to indicate an awareness of the importance of IC, but the lack of systematic reporting suggested a 'loose commitment' to the communication of information about these assets to an external audience.

External capital variables were more frequently reported than internal or human capital variables. Of the human capital variables, the most frequently reported was entrepreneurial spirit (19 instances), which was also the most reported variable overall. Work-related knowledge was the second most frequently reported (12 instances). Only one instance was found of the reporting of vocational qualifications. No industry was significantly ahead of any other in its IC reporting practices.

Why was IC reporting at such a basic level? In part it was attributed to the lack of an established and generally accepted framework for reporting. Enterprises may not have or may not be aware of mechanisms for assessing their IC, even though they are committed to the idea of managing and developing it.

The case studies aimed to investigate in more depth the approaches adopted by some Australian enterprises to the recording and reporting of their IC, including information about internal reporting. Case study enterprises included a public sector organisation, a manufacturing company, a human resources consulting firm and enterprises in the fields of financial services and information technology. The case studies placed a particular emphasis on the reporting of human resources to investigate its impact (or potential impact) on decision-making in the enterprise, especially with regard to investments in education and training (Ferrier & Wells, 1999).

Each enterprise demonstrated in some way an innovative approach to recognising and/or reporting its IC. Few had fully implemented systems or processes for assessing and reporting human resources beyond record-keeping systems for financial information such as pay and superannuation, but all made very positive and supportive statements in their annual reports, other published documents, and in interviews, about the value of the skills and knowledge of their staff to their success. In several cases, the importance was indicated of providing a more formal and systematic indication of this contribution:

... there must be some other way of telling everyone how great our people are and how wonderful our training is and how indispensable we are ... (Manager, public sector)

... we've got to demonstrate that these HR interventions have a direct link to this level of profitability ... (Human Resources Manager, manufacturing)

Several enterprises were at least partially using IC reporting tools; and progress toward a more comprehensive application was evident in a number of cases. The tools in use or being investigated are set out in Table 3.10.

Table 3.10: Intellectual capital tools in use or being investigated in the case study enterprises

-
- The Balanced Scorecard (Kaplan and Norton, 1996)
 - The Intangible Asset Monitor (see Sveiby.com.au)
 - Netmapping (a system for mapping information relationships)
 - Revised management and personnel systems
 - Staff surveys
 - Skills databases
-

Each case study revealed a different 'story' about the journey taken by the enterprise in coming to value and record its IC. Together the stories demonstrated that, while many of the factors that influence them are similar, the specific path that an enterprise chooses depends on its history and culture, the sector and industry in which it operates, the ideas and influence of its people, and in some cases, its physical location (e.g. rural).

The research identified three types of 'objectives', or potential outcomes and benefits, which enterprises sought to achieve from assessing and reporting their IC. Table 3.11 indicates some of these objectives for human resource reporting. Internal objectives were connected with the use of IC reports within the enterprise, for instance to guide and support management decisions. They encompassed the identification of skills and skill gaps and the appropriate allocation and use of these skills by and within the enterprise. External objectives were linked to the use of reports outside the enterprise, such as to project a particular image to attract new business, investors, customers and clients. Internal and external objectives were linked to the use of reports internally

and externally for similar purposes. For instance, a human resources manager might want to demonstrate the value of investments in education and training to shareholders (external), as well as to other managers (internal) to support the case for increasing the level of this investment. Or the enterprise might want to present an image of itself as a good place to work in order to retain existing staff (internal) and attract new staff (external). The number and mix of these objectives, and the emphasis given to them, varied according to organisational characteristics, such as sector and industry, strategic goals and plans.

Table 3.11: Objectives of IC reporting (human resources): Some indications from the Australian case studies

Internal	Internal and external	External
<p>To improve human resource management:</p> <ul style="list-style-type: none"> • Identifying the range of skills, competencies and expertise available within the organisation. • Identifying the most appropriate person/s for particular tasks. • Assisting in putting together teams of staff for particular projects. • Revealing gaps in skills and competence in the organisation. • Clarifying roles in the organisation, including roles as 'knowledge brokers'. • Assisting in planning for career progression, succession, training or development and knowledge management. 	<p>To indicate human resources as an asset in order:</p> <ul style="list-style-type: none"> • To attract and support investment in the organisation. • To convince investors and other staff of the value of human resources. <p>To provide information indicating:</p> <ul style="list-style-type: none"> • The links between human resource interventions and financial results. • The returns on investments in training and development. <p>To present an image of the company that will attract new staff and increase the retention of existing staff.</p>	<p>To provide information to investors and potential investors about the capabilities of the organisation.</p> <p>To present an image of the company as capable and competent:</p> <ul style="list-style-type: none"> • To attract targeted and new customers and clients. • To attract new business. <p>To keep up with competitors.</p>

Source: Ferrier and Wells, 1999

Why so little systematic reporting?

Three main reasons were evident in the case study enterprises why systematic reporting of IC was not further advanced: problems in disseminating knowledge; internal priorities; and promotion and implementation difficulties.

First, there were problems in knowledge dissemination. The stories enterprises told about how they became aware of the value of their IC and began to consider how and why it might be measured and reported reveal the important role of an individual, or group of individuals, within the organisation. Often they learnt of the ideas only by chance. These people drove development of the idea within the organisation, attempting to gather support by indicating the potential to explain 'what is' and to guide decisions about 'what could be'. However, there was no certainty that they would reach those who would be most effective in disseminating information or those who were most likely to use the reports or implement their recommendations. When lines of communication were weak or long, information moved from one point to another slowly, only in part or not at all.

Second, there were problems resulting from internal priorities. The many challenges that enterprises face require choices to be made, including in the direction of effort and the allocation of resources. Some enterprises chose to direct their efforts to the development or application of systems for assessing and reporting their IC, but others chose different priorities.

Third, there were problems in relation to promoting new initiatives and implementing them effectively. Difficulties encountered by those seeking to promote or implement new approaches to IC included: entrenched cultures and practices supporting the domination of financial matters and

countering the inclusion of other types of measures; attitudes viewing the measurement of IC as 'faddism', or 'overly-scientific'; territorialism in organisations structured into divisions, which limited cross-divisional initiatives; problems in identifying appropriate systems and tools; and a lack of skills in using the systems and tools which were available.

On the other hand, there were factors that facilitated the introduction of the approaches in the enterprises examined. There were changes in organisational leadership, which marked a break in cultures and practices and enabled the spread of new ideas, values and ways of doing things. There were instances of leadership, with significant support from senior levels within the organisation for the introduction of IC approaches. There were simulation activities that enabled the development and trialing of ideas and skills in a less risky environment. In some cases, outside expertise assisted in identifying problems and needs and in designing solutions.

Although the extent of IC reporting found in the case studies was generally fairly basic, some enterprises indicated there had already been an impact on their internal decision-making. Generally positive outcomes were identified. For example, increased support from senior management for training and development was noted by one manager as a result of the increased emphasis on the value and contribution of IC:

... now the Board says 'you haven't got enough training dollars in the budget' ... they're pushing us to do more training ... (Manager, public sector).

Several enterprises were able to report improved efficiency and productivity resulting from more informed human resource management, including the identification of people who act as 'knowledge brokers' in the enterprise, and the better matching of people, skills and tasks. In some cases, skills which were not formerly known to exist within the enterprise had emerged, enabling them to be used. The identification of skill gaps had enabled improved targeting of training and development. Surveys also showed increased levels of satisfaction among both customers and staff.

Observations and future research

For governments and policy-makers seeking to promote enterprise investment in VET, the emergence of a movement for assessing and reporting IC in enterprises holds out some hope of influencing decision-making. Though the development and use of IC indicators and reports is still basic, its potential to support a view of expenditure on human resource development as an investment yielding substantial returns has already been demonstrated. It is providing a way of demonstrating the value of people to the enterprise.

However, there are still many unresolved questions. For instance, how great is the potential for IC reports to influence enterprise decision-making? What sorts of reports and indicators will be most useful to enterprises and their stakeholders and most effective in promoting human resource development investments? What actions and policy changes are required to support and encourage appropriate reporting? What information do enterprises need to assist them to identify appropriate methods and systems for recognising and assessing their IC?

In addition, the limited research conducted in Australia on IC provides considerable scope for further work to advance understanding of the concept, as well as promote better practice in its assessment. Four main groups of questions are identified.

First, there are some broad issues. For example, how should IC reports relate to and interact with traditional financial reports? Is it possible and desirable to construct indicators that are comparable across industries or enterprises? Are there cases where construction or use of IC indicators is inappropriate? Is external reporting of the indicators necessary? Are the indicators useful only if enterprise-specific? Can the indicators be used for accountability purposes, such as for demonstrating the use of public funding by educational institutions?

The second group of questions relates to possible differences according to industry, enterprise or organisation size, and sector. For instance, are there differences in the factors driving new forms of IC measurement and reporting; in the measures and reporting practices used; in the use and impact of IC reports; and in the costs and benefits of assessing and reporting IC?

Third, Westphalen (1999) has identified a range of 'stakeholders' in IC reporting. These stakeholders include governments, unions, individuals, employers and industry associations. He also noted some 'stakeholder issues', such as: who are the major stakeholders in Australia? How

are they affected by IC developments? What are the main concerns of the stakeholders, and how and why are these important?

Fourth, the influence of the recognition, assessment and reporting of IC on decision-making in VET requires further clarification. To what extent can IC indicators demonstrate a return to enterprise investments in VET and links between investments in VET and the achievement by enterprises of their strategic goals and objectives? Do different types of IC indicators have a stronger or weaker influence on decision-making concerning investments in VET? How is decision-making affected and what are the outcomes?

In addition, there is considerable scope for Australian enterprises to learn from work being conducted overseas, such as through the MERITUM project, the results from which should begin to be published in 2000–2001. Their applicability to the Australian context could be explored through contrast, comparison and experimentation.

4 THE SUPPLY OF VET

4.1 OVERVIEW

This chapter provides an overview of the supply of VET in Australia. It considers the quantitative indicators of the changes that occurred in supply over the past decade within a changing economic and policy context. 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;
- Increasing the public subsidy to fee charging private providers;
- 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;
- Changing the management structure of public education.

This chapter focuses on the outcomes: whether the changes in supply that occurred in the new policy framework met the desired objectives. Alternative methods of finance and supply are considered in Chapter 6 on finance and market issues.

Key objectives

Four main objectives of the VET reforms can be identified:

1. To increase the levels of investment in education and training, at limited cost to government;
2. To equip both young and older Australians to be flexible members of the work force;
3. To achieve more equitable outcomes from education and training; and
4. 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 expenditure on VET (ANTA, 1998).

Meaning of supply

By supply economists mean the quantity of goods or services offered by providers at various prices. A supply curve sets out how the quantity supplied will increase with an increase in the price offered to providers. The changes that have occurred in 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 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 and the autonomy of public providers to respond.

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 specialised equipment.

Structure of the chapter

The next section of the chapter provides an overview of the economic and policy context within which the supply of VET has changed. Five questions are then addressed. First, did investment in training increase? Second, what was the cost to government finance of the changes which occurred? Third, were Australians better equipped for work as a result of the changes? Fourth, was equity in education and training improved? Finally, was the education and training delivered more efficiently?

4.2 THE ECONOMIC AND POLICY CONTEXT

Reforms to VET over the past 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 work force, including those at the operative level.

The training needs of the existing work force were emphasised by changes occurring in the industrial and occupational structure. Factors contributing to this included the reduction in protection, globalisation, new technologies and changes to management, work practices and industrial relations. The majority of the Australian work force had no post-school qualifications and little formal training in the workplace: this matter is considered in section 4.3 below. Many lacked the literacy and numeracy 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, economic reform required that public outlays be contained and that publicly funded activities demonstrate increased efficiency and responsiveness to client needs. Policy reforms designed to achieve this included the introduction of greater competitiveness among suppliers, reforms to regulation and management, and increased accountability requirements. For example, a growing share of public funds for education and training was made available for competition by the private sector. In universities, where the expansion in student numbers has been greatest, students and their families have been required to bear an increasing share of the costs.

Support for apprenticeship training includes subsidies to employers. 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 to time on the job and by the development of the 'training wage'. Support has been provided for Group Training Companies which employ and take responsibility for training apprentices and trainees, including placement with one or more employers. By 1998 Group Training Companies employed 14 per cent of all apprentices and trainees (NCVER, 1999a). User Choice, introduced in 1998, allows 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 (User Choice is discussed more fully in Chapter 6).

Intense pressures to adapt to the needs of the economy have been felt in VET. Participation of teenagers in VET had, on the data available, been low. VET courses that incorporated work-based training were largely confined to traditional male-dominated occupations where employment opportunities were often threatened. The challenge was to extend work-based training to other areas and create combinations of on and off-the-job and institutional training, including training in secondary schools. VET qualifications were to be more closely related to industry determined competencies, however acquired; and ITBs were given a major role in establishing industry competency standards. A generally enhanced role for industry in VET was sought. The late 1990s have seen the development of 'training packages', which focus on units of competency and principles for assessment.

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 Territories. There were also differences between the various sectors of education and training, with the greatest level of autonomy in the university sector.

4.3 DID INVESTMENT INCREASE?

Enrolments

Table 4.1 shows the distribution and growth of student numbers across the major sectors of the formal education system for Australia as a whole. The table shows little change in school enrolments over recent years. However, there has been substantial growth in higher education and VET enrolments. School enrolments have changed largely in line with population changes, which are shown in Table 4.2. Much of the growth in higher education is due not to demographic factors but to increased participation rates. The total population aged 15 to 29 years fell slightly in the period 1990 to 1998, whereas the number of higher education students rose by nearly 40 per cent.

Table 4.1: Students in education and training (Australia; 1990, 1993 and 1998; '000)

	School to Year 10	School Years 11 & 12	Higher education	VET	Recreational, leisure and personal enrichment	Total VET & recreational, leisure and personal enrichment	Total
<i>% full-time</i>	100%	<i>nearly</i> 100%	59%	<i>approx</i> 15%	0%		
1990	2665	376	485	967	539	1506	5033
1993	2701	398	576	1121	661	1782	5456
1998	2808	391	672	1535	380	1915	5785
Apparent % growth 1990-98	5	4	39	59	-30	27	15

Source: ABS, Catalogue No. 4221.0; DETYA, 1999c; NCVER, 1999c; and earlier publications

Notes: VET data relate to students in streams 2100 to 4500 enrolled at any time in the year. A new system of VET data collection was introduced for 1994, with further changes in later years.

Table 4.2: Population by age (Australia; 1990 and 1998; millions)

	0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-64	65+	Total
1990	1.26	1.26	1.24	1.40	1.36	2.82	2.57	3.27	1.89	17.07
1998	1.28	1.33	1.31	1.32	1.36	2.89	2.90	4.08	2.28	18.75
% change	2	5	6	-6	0	2	13	25	21	10

Source: ABS, Catalogue No. 3201.0

The changes in VET may not be as substantial as shown in Table 4.1 due to the introduction of a new classification that substantially affects comparisons over time. The introduction of a new statistical standard from 1994 led to the reclassification as vocational of many courses previously regarded as 'Recreational, Leisure and Personal Enrichment'. Combining VET with the 'Recreational, Leisure and Personal Enrichment' category indicates a growth in enrolments from 1990 to 1998 that is somewhat less than for higher education.

Overall, access to post-secondary education has increased substantially. Table 4.3 gives an indication of the size of the increase in participation rates in Australia from 1990 to 1997. The participation of those aged from 17 to 24 years in the formal education system has increased from around 40 per cent to over 45 per cent in the 1990s. Table 4.3 also indicates that most of the increase occurred by the early 1990s. Table 4.4 shows that the largest increase in participation in the 1990s was in universities, among 20 to 24 year olds. However it also shows the importance of the TAFE system for older persons. About 10 per cent of the population aged 25 to 29 and 6 per cent of the population aged 30 to 64 were enrolled in TAFE in 1997. The very rapid growth in the population aged 45 and over shown in Table 4.2 suggests that the role of TAFE may become even more important in the future.

Table 4.3: Education participation rates (Australia; 1990, 1992 and 1997; per cent)

Age	7–14	15	16	17	18	19	20–24	25–29	30–64
1990	99	100	93	77	60	49	27	15	8
1992	99	99	95	84	66	54	31	16	9
1997	99	98	95	84	65	54	33	17	9

Source: DETYA, 1999a

Table 4.4: Educational participation rates by age by sector (Australia; 1990 and 1997; per cent)

	15–19		20–24		25–29		30–64	
	1990	1997	1990	1997	1990	1997	1990	1997
School	44	50	1	0	0	0	0	0
TAFE	20	18	14	15	9	10	5	6
Higher Education	9	11	11	15	4	5	2	2
Total (includes other)	76	79	27	33	15	17	8	9

Source: DETYA, 1999a

Training in the workplace

The data in Table 4.1 apply only to the formal education system. ABS survey data provide a broader insight into the extent to which structured training extends beyond the formal education system. The ABS from its 1997 survey estimated that nearly four million persons had undertaken a training course in the previous 12 months.

Table 4.5 shows the percentage of wage and salary earners who either studied or completed training courses in the 12 months prior to the ABS surveys in 1989, 1993 and 1997 respectively. The estimated participation in *in-house* training (training mainly attended by persons working for the same employer) fell in the early 1990s and had not recovered its 1989 level by 1997. A more optimistic impression is given by looking at *external training* (training mainly attended by persons *not* working for the same employer and only partly financed by employers). The percentage of wage and salary earners reporting this form of training rose from 12 per cent in 1993 to 20 per cent in 1997.

Table 4.5 shows only the incidence of training. It does not show the intensity, that is, the number of hours of training. A full-time student in a university can be considered to spend about 1000 hours in class or private study during the year. The length of a training course in the workplace is usually much shorter. Table 4.6 shows the average length of training courses completed is 26 hours. Persons trained undertake on average about two training courses per year and an average of about 55 hours of training in the year.

Table 4.5: Persons aged 15 to 64 with a wage or salary job in past 12 months: Study of training courses in the past 12 months (Australia; per cent)

	Study or training courses undertaken			Total study or training as % of wage and salary earners
	<i>Studied</i>	<i>In-house</i>	<i>External</i>	
1989	17	35	10	48
1993	19	31	12	47
1997	16	33	20	53

Source: ABS, Catalogue No. 6278.0

Table 4.6: Persons completing training courses, number of courses and average hours per person trained and per course (Australia; 1997)

		'000	Average hours
Number of persons completing training courses		3957	55
Number of training courses completed ('000)	While working	7949	21
	Not working	357	143
	Total	8306	26

Source: ABS, Catalogue No. 6278.0

Other data from the surveys indicate a 30 per cent decline in hours of *in-house* training per employee trained: from 52 hours in the 1989 survey to 38 in 1993 to 36 in 1997 (Wooden et al., 2000). There could be changes in the efficiency of delivery and because there are nearly four million persons being trained, this is still a very large activity. The total of *in-house* training hours delivered appears to be about two thirds the size of that delivered by public VET providers.

Summing up enrolments and training numbers

Overall enrolments in both VET and university have been expanding quite rapidly. On the other hand, there are some indications that the amount of in-house training per worker provided in the workplace declined in the early 1990s and had not recovered in the mid to late 1990s to its earlier level.

4.4 COST TO GOVERNMENT

Overview

A major concern of governments in recent years has been to achieve the expansion of education and training without excessively increasing their financial burdens. Before reviewing outlays on education and training in Australia some comparisons are made of outlays across OECD countries. These indicate that Australia does not have a high level of public expenditure in general and only an average level of public outlay on education relative to GDP. Thus, while efforts to encourage private spending and efficiency in public spending should be pursued there is no indication that the levels of public spending in Australia are particularly high by world standards.

Table 4.7 shows the changes in total government outlays on all their activities and education outlays in the 1990s. Government outlays were about 35 per cent of GDP at both the beginning and end of the period. During this time there was a shift in the composition of government outlays. Cash benefits grew as a percentage of GDP and interest payments and capital expenditures declined. Education outlays fell slightly as a percentage of government outlays.

Table 4.7: General government total outlays and outlays on education (Australia; 1990–91 and 1997–98)

	Approximate total government outlay (\$ billion)	As % GDP	Government outlay on education (\$ billion)	As % GDP
1990–91	139.7	35	18.4	4.6
1997–98	200.9	35	25.1	4.4

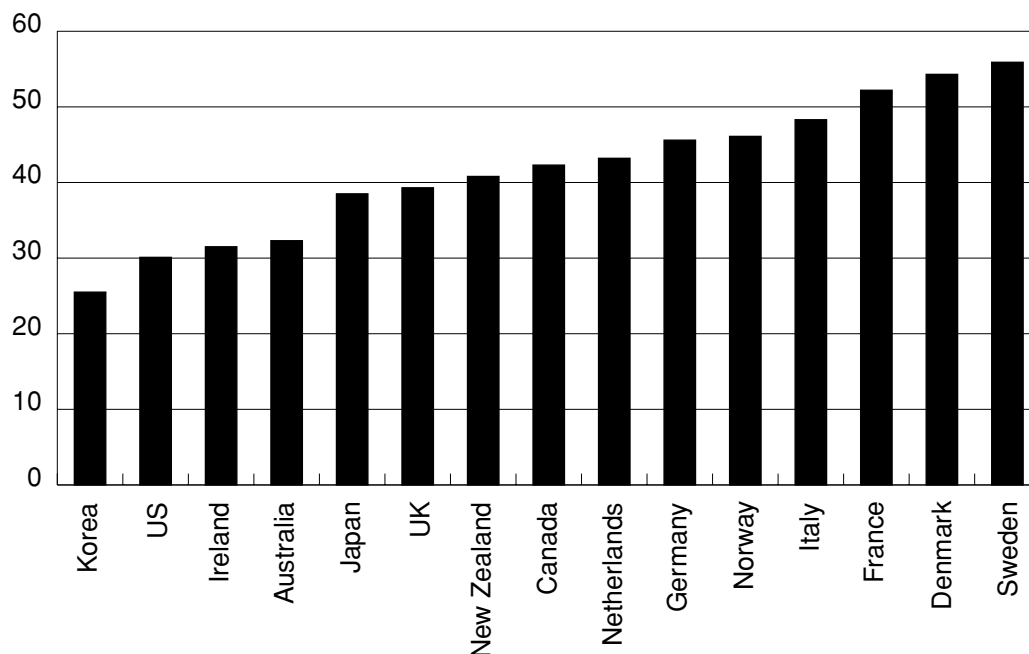
Source: ABS, Catalogue Nos 5510.0 and 5204.0

There has been a sustained policy commitment to contain public sector expenditure for the past 20 years. Australia has managed to contain the level of public outlays despite an ageing population and a sustained high level of unemployment. A range of measures has been taken to contain public expenditure for a given level of service, to privatise services and outsource activities, and to privatise a range of government trading enterprises. There has been a reduction in public debt and interest payments.

In comparison to other OECD countries, Australia has a relatively low level of government outlays, as illustrated in Figure 4.1. Table 4.8 provides comparisons with a range of OECD

countries for *educational* outlays. It is notable that Australia has a higher rate of private expenditure than the European countries with high levels of public expenditure. Only Korea, the US and Japan have higher rates of private expenditure relative to GDP. Table 4.8 also shows, in several of the countries listed, expenditures on education had increased in the period 1990 to 1995. In most cases this had involved a growth in public expenditures.

Figure 4.1: General government outlays (% of GDP; 1999)



Source: OECD, 2000

Australia's expenditures

The expansion of post-secondary education and training in the 1990s required either an increase in expenditure on education by government, reduced expenditure per student, or an increase in private spending. A mixture of these has occurred, though it is not easy to document the changes precisely. Table 4.9 summarises the changes in public and private outlays on both public and private education. It shows a decline in public expenditure as a proportion of GDP. There is a rise in private expenditure, though the private expenditure (net of any subsidies received from government, such as grants to non-government schools) is still only about 15 per cent of total outlays on education.

The percentage of GDP devoted to education, which was at an historically low level in the late 1980s, rose in the early 1990s. This was the same time that enrolments were rising quickly. Another factor pushing up expenditures in the early 1990s was a catch-up in teacher salaries, which had lagged in the late 1980s.

The share of the GDP being spent on education is affected by:

- Change in the GDP;
- Change in the volume of resources of teachers and other inputs to education and training; and
- Change in the prices of those inputs relative to the overall price level.

Table 4.8: Public and private educational expenditures in selected OECD countries (percentage of GDP; 1990 and 1995)

	Public expenditure and subsidies in 1995	Private expenditure and subsidies in 1995	Total in 1995	Total in 1990
Japan	3.6	1.2	4.7	4.7
Korea	3.6	2.6	6.2	m
Italy	4.6	0.1	4.7	5.8
Australia	4.7	1.0	5.6	4.9
Netherlands	4.8	0.1	5.0	m
USA	4.9	1.7	6.6	m
France	5.8	0.5	6.3	5.6
Canada	6.3	0.7	7.0	5.7
Denmark	6.6	0.5	7.1	6.4
Sweden	6.6	0.1	6.7	m
Unweighted average	5.2	0.9	6.0	5.5

Source: OECD, 1998a

Note: 'm' represents missing data

Table 4.9: Government and private expenditures and outlays on education (Australia; \$ billion; and % of GDP)

	Net private expenditure not financed by government: \$ billion	Net private expenditure as % GDP	Gov't outlay (\$ billion)	Total outlay	Gov't outlay as % of GDP	Total outlays as % of GDP
1989-90	na	na	16.7	na	4.3	na
1992-93	3.0	0.7	20.9	23.9	4.9	5.6
1997-98	4.6	0.8	25.1	29.7	4.4	5.2

Source: ABS, Catalogue No. 5510.0 and unpublished data

Real growth in the GDP has averaged 4 per cent per annum since 1992-93 or about 20 per cent in the period 1992-93 to 1997-98. A declining share of GDP can still represent increased absolute resources. However, offsetting this is the change in relative prices. The increase in prices in the GDP averaged only about 1.5 per cent per annum, but teacher and other salaries appear to have increased at over 3 per cent per annum. Overall, it looks as if there has been an increase in real resources of about 7 per cent over the period from 1992-93 to 1997-98.

Table 4.10 shows that the States provide the majority of outlays for education and training, but that their share has declined substantially, from 63 per cent of all government outlays in 1989-90 to 57 per cent in 1997-98. The Commonwealth's share rose quite sharply in the early 1990s, from 37 to 44 per cent, but recently it has begun to decline. The States provide the bulk of public funds for schools and VET, while the Commonwealth provides nearly all the public funds for higher education and for student assistance.

Sectors

Across the whole of education and training the average picture is of resources expanding in line with student numbers and with a small increase in the share borne by the private sector. However, the averages hide much more diversified changes across the sectors. To consider this the distribution of public outlays, including student benefits, is noted first in the main sectors. Table 4.11 shows that about 60 per cent of total government outlays on education goes for schools, nearly 20 per cent for universities and a little over 10 per cent for TAFE.

Table 4.10: State and Territory shares of government outlays on education (Australia; 1989–90 to 1997–98)

Year	Government outlay (\$ billion)	% provided by States and Territories
1989–90	16.7	63
1990–91	18.4	62
1991–92	20.0	61
1992–93	20.9	59
1993–94	21.2	57
1994–95	22.0	56
1995–96	22.8	56
1996–97	24.2	57
1997–98	25.1	57

Source: ABS, Catalogue No. 5510.0 and unpublished data

Table 4.11: Government outlays on education by sector (Australia; 1997–98; \$ billion)

	Consumption expenditure	Capital expenditure	Student benefits	Other	Total*
Schools	10.0	0.7	0.7	3.4	14.7
TAFE	2.2	0.3	0.2	0.1	2.7
Universities	3.3	0.8	0.9	0.1	5.1
Total*	17.7	1.8	1.9	3.8	25.1

Source: ABS, Catalogue No. 5510.0

Note: * Totals include other expenditures, such as pre-school and transport

School expenditures

Much of the growth in school enrolments, and therefore in expenditure, has occurred in 'other non-government' schools, which are largely privately funded. The savings to governments are offset to some extent by the growth in government funding of non-government schools in recent years. The documentation of this is a matter of current study.

There has been an apparent growth in government recurrent funding of government schools, although it is difficult to determine whether real resources per student have risen. For example, other information, such as student to teacher ratios, suggests resources per student have not risen and may even have fallen. The average ratio of students to teachers has risen from 15.0 to 15.3 in government schools and fallen in non-government schools from 16.1 to 15.2.

Also, there is wide variation in the changes across States. Clearly there has been an increase in expenditure in several States. However, there have been marked reductions in Victoria and South Australia, which had above average expenditures per student at the start of the decade.

VET revenue and expenditure

Changes in the nature of the VET sector and major changes in the data collections mean that considerable courage is needed to make comparisons over time. Table 4.12 reports VET revenues over the period. The total government share is shown to fall from 87 per cent to 82 per cent of the total. The share of public funds coming from the Commonwealth increased markedly with the various growth funds in the 1990s up to 1997. The other notable change is the growth in 'fee-for-service'. There has not been a marked change in student fees, as State authorities tend to cap the level of fees at about \$1 per contact hour. As with schools there are marked differences across the States.

Table 4.12: VET operating revenues (Australia; 1989–90 to 1998)

	1989–90		1993		1998	
	\$ million	%	\$ million	%	\$ million	%
State Government	1558	74	1828	63	2191	59
Commonwealth Government	283	13	619	21	866	23
Fee-for-service	85	4	219	8	323	9
Student fees and charges	71	3	102	4	155	4
Ancillary trading and other	113	5	130	4	192	5
Total	2109	100	2898	100	3726	100

Source: NCVET, 1999d

For some years ANTA has been reporting public expenditure per 'annual hour of curriculum' (AHC) delivered in government funded VET programs. Estimates are also made of cost per hour of successful module completion. But changes in the financial and student statistical systems mean that comparisons over time are not feasible. Table 4.13 provides the most recent data. There are remarkable differences among the States, which reflect differences in State management, funding and staffing policies. These need to be explored in detail and linked to measures of quality before conclusions can be drawn as to the relative success of different State policies.

Table 4.13: Government recurrent expenditure per publicly funded annual hour of VET curriculum (1998; \$)

NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
15.2	10.3	13.3	13.5	13.3	16.5	28	16.8	13.4

Source: ANTA, 1999a, vol.3, p.79

Higher education—expenditure per EFTSU

It is in higher education that the government has achieved the greatest expansion in enrolments for a relatively small increase in its outlays. This has been achieved through cutting real expenditures per student and increasing the share of the cost borne by students.

The share of expenditure borne by students was affected mainly by the introduction of the Higher Education Contribution Scheme (HECS) in 1989 and the decision in 1996 to increase substantially the level of HECS charges for certain courses, to increase the rate of repayment and to reduce the threshold income at which the repayments had to begin.

Employer expenditure

Table 4.14 reports employer expenditure on training based on ABS surveys. In the last quarter of 1996 it totalled nearly \$1.2 billion or nearly 1 per cent of GDP. Three-quarters of this expenditure was incurred by firms with more than 100 employees.

Table 4.14 shows that, on average, large firms undertake more hours of training and have higher levels of expenditure on training than smaller enterprises. Only about half of employers with 20 to 99 employees were undertaking training in 1996, well down on the level of 80 per cent in 1993 when the Training Guarantee Levy was in force. Less than a fifth (19%) of small employers with fewer than 20 employees provided structured training in 1990 and only 13 per cent in 1996. Overall, training expenditure as a percentage of wages fell in the early to mid-1990s, especially in firms with less than 100 employees, a pattern also observed in the US (Thurow, 1999). This is compatible with the findings on decline in the amount of *in-house* training discussed above.

Table 4.14: Employer expenditure on structured training (Australia; July to September; 1990, 1993, 1996)

		Employer size			
		<i>1–19 employees</i>	<i>20–99</i>	<i>100 or more</i>	<i>All employers</i>
% of gross wages and salaries	1990	1.4	1.9	3.0	2.6
	1993	1.6	2.7	3.2	2.9
	1996	1.2	1.9	3.2	2.5
Hours of training per employee	1990	4.0	4.1	7.1	5.9
	1993	4.1	5.3	6.2	5.6
	1996	2.4	3.8	6.5	4.9
% employers providing structured training	1990	19	64	94	24
	1993	18	80	98	25
	1996	13	51	88	18

Source: ABS, Catalogue No. 6353.0

Note: Structured training is all training activities which have a predetermined plan and format designed to develop employment-related skills and competencies

Summing up—expenditures

There was a shift from public to private spending on formal education in the 1990s. The private share increased in higher education mainly because of HECS. There was also a relative enrolment increase in private fee paying primary and secondary schools. In VET fee-for-service increased, but fee-paying by students appeared to provide about the same percentage of revenue. The data available make it difficult to draw conclusions about the overall change in resources per student in VET and schools. There was an apparent decline in resources per student in higher education.

4.5 IS THE WORK FORCE BETTER EQUIPPED?

A major thrust of reforms in the 1990s has been to make education and training programs more relevant to the needs of clients—particularly to industry. In part this thrust was supported by reforms to funding, encouragement of a training market, reforms to the curriculum, recognition of prior learning (RPL), assessment and development of a national qualifications framework. This section concentrates on the VET sector and discusses briefly the major reforms. It then considers the changes in supply of education and training separately for young entrants to the labour force, and for existing members of the labour force in employment or changing employment.

For those who are likely to enter the full-time labour force from school (still about 50 per cent of an age cohort) two main reforms have been promoted. The first was the attempt to identify and incorporate in schools what were called 'employment-related key competencies'. The second was the extension of recognised vocational education into schools.

Ensuring that young people acquire employment-related key competencies was a major recommendation of the Finn Committee (1991) and elaborated by the Mayer Committee (1992). The integration of key competencies with the separately developed statements and profiles in eight key learning areas has been piloted within the States. Information campaigns were conducted for teachers, parents and business.

Vocational education has been expanding rapidly in the final two years of secondary schooling. By 1999 an estimated 30 per cent of students in Years 11 and 12 were taking programs of study that included VET modules or units of competency. Many school students are now undertaking programs that involve work placements. These are discussed further in Chapter 5.

A major reform in the VET sector was to base certification on industry determined competency standards. A vocational competency comprises the specification of the knowledge and skill and its application within an occupation or industry to the standard of performance required in employment. A system of industry training boards, with employer and union membership, advises on industry standards across occupations covered by VET sector training.

The establishment of national standards has largely been achieved. Industry competency standards define a 'product' and thus are important in the development of a training market, but there has been criticism of the effects of competency-based teaching and assessment. This criticism centres on the neglect of more holistic approaches to competencies and overall educational outcomes. 'Training Packages' that focus on units of competency to be achieved and assessment procedures have now been widely implemented. A particular aim is to facilitate training and assessment in the workplace.

There has been ongoing criticism of the operation of the framework for the recognition of training. Attempts to simplify the processes for accrediting courses and recognising providers have been made in the Australian Recognition Framework.

Similar reforms have not been extended to higher education. Though competency standards have been developed for some professional groups (such as nurses), universities have remained in control of their curricula. Various schemes of collaboration between universities and industry have been supported and universities have actively sought industry funds for courses, consultancies and research.

For schools and VET, as well as higher education, there has been a move to increase the specification of outcomes, set out in profile agreements, and devolution of the methods by which these outcomes are achieved. Profile agreements include the broad distribution of activities, quality assurance requirements and equity objectives. In universities, financial incentives were for a time provided to speed up the adoption of quality assurance procedures. Performance indicators have been developed in higher education and VET as a means of monitoring the performance of provider institutions.

In higher education, public funding is provided by the Commonwealth and the universities operate as autonomous institutions in raising private revenue, in allocating their expenditures and in making contracts in Australia and internationally. In some States the TAFE institutes have been given almost similar autonomy, as the role of the State authority has changed to one of purchasing training hours from Registered Training Organisations (RTO), rather than managing the TAFE sector. At school level there is also a movement to greater autonomy in management of government schools, again with considerable variation across States.

Since the mid-1980s there has been growth in the tendering out of the provision of publicly funded training in VET. As discussed in more detail in Chapter 6, ANTA has urged the development of a market for training as a prime means of increasing the responsiveness of VET providers to the needs of industry. It has encouraged State and Territory authorities to increase the proportion of Commonwealth funds allocated by open tender. In 1998 over \$240 million was paid for VET delivery to 'non-TAFE providers', such as private providers, secondary schools and independent rural colleges (NCVER, 1999d, p.14). For the year 2000 about \$440 million, or over 10 per cent of public VET funds, were to be contestable by public and private providers (ANTA, 1999b). The provision of training under Commonwealth labour market programs from the mid-1980s was also put out to tender, though most of these programs were abolished by the Howard government after 1996. TAFE institutes have also been encouraged to undertake fee-for-service activities.

Following a review of training reforms that advocated greater emphasis to the demand side (Allen Consulting, 1994), ANTA funded pilot projects for 'User Choice' in training. This was the basis for the provision of training under New Apprenticeships from the beginning of 1998 (see Chapter 6). A report to ANTA by KPMG in 1999 noted generally favourable responses to 'User Choice' from employers, providers, apprentices and trainees, despite a number of concerns such as increased paperwork (KPMG, 1999). However, an investigation of the quality of traineeships in Queensland in 1999 resulted in strong criticism of the current modes of operation, particularly of wholly on-the-job training and of the effects of 'User Choice' as implemented in Queensland (Schofield, 1999). Subsequent inquiries by the same investigator in Victoria and Tasmania came to similar conclusions (Schofield, 1999a, 2000).

Qualifications

Good measures of the skill levels of the work force are not available. One inadequate proxy is the level of qualifications of the work force. Changes in the type of qualifications and in the data collections severely affect the capacity to measure even this over time. Table 4.15 shows growth in the proportion of the labour force holding a post-school qualification from 46 per cent in 1993 to 50 per cent in 1999. The greatest growth is in the proportion of the labour force with degrees,

which is not surprising given the rapid growth in higher education enrolments since 1988. The apparent sharp changes in the numbers with skilled vocational and basic vocational qualifications may be the result of changes in data collection methods.

Table 4.15: Labour force aged 15 to 64 by highest level of qualification (Australia; May; 1993, 1996 and 1999)

	1993		1996		1999	
	'000	%	'000	%	'000	%
Degree or postgraduate diploma	1059	12	1359	15	1670	18
Undergraduate and associate diplomas	882	10	891	10	823	9
Skilled vocational	1393	16	1482	17	1241	13
Basic vocational	572	7	595	7	864	9
Total with post-school qualifications	3906	46	4326	48	4599	50
Total without post-school qualifications	4645	54	4641	52	4613	50
Total labour force	8551	100	8967	100	9212	100

Source: ABS, Catalogue No. 6227.0

Young entrants to the labour force

In 1990 about 70 per cent of 19 year olds had reached year 12, were still participating in education and training or had completed some recognised training. The proportion had risen (mostly in the early 1990s) to over 80 per cent by 1998 (ANTA, 1999a, vol.3, p.21). The proportion of 22 year olds who had attained qualifications at Australian Qualifications Framework (AQF) Level 3 or were pursuing education and training towards qualifications at that or a higher level had risen from a little over 40 per cent to 55 per cent. These changes are in line with the changes in participation noted earlier.

Apprentice and trainee numbers

One indicator of the success in equipping the work force is the extent to which specialist needs are met. As already mentioned about a third of students in the final years of schooling now undertake some VET studies in school (ANTA, 1999b) leading to at least some of the competencies required for a VET certificate. There is some information on the destinations of such students, but very little evaluation of the effects of such training on employment and further training has yet become available.

A major form of special training for young persons is the apprenticeship system, supplemented from the mid-1980s by traineeships. Table 4.16 shows the estimated numbers from the mid-1980s. Notable are the peak in apprenticeships in 1990, the fall in apprenticeships in the mid-1990s and the sharp rise in traineeships in the late 1990s.

Table 4.16: Apprentices and trainees (Australia; 1985 to 1998; '000)

	ABS data		NCVER data	
	<i>Apprentices</i>	<i>Apprentices</i>	<i>Trainees</i>	<i>Total apprentices and trainees</i>
1985	148	129	0	129
1990	163	161	12	173
1995	115	123	12	135
1998	125	127	79	206
1999	132	na	na	na

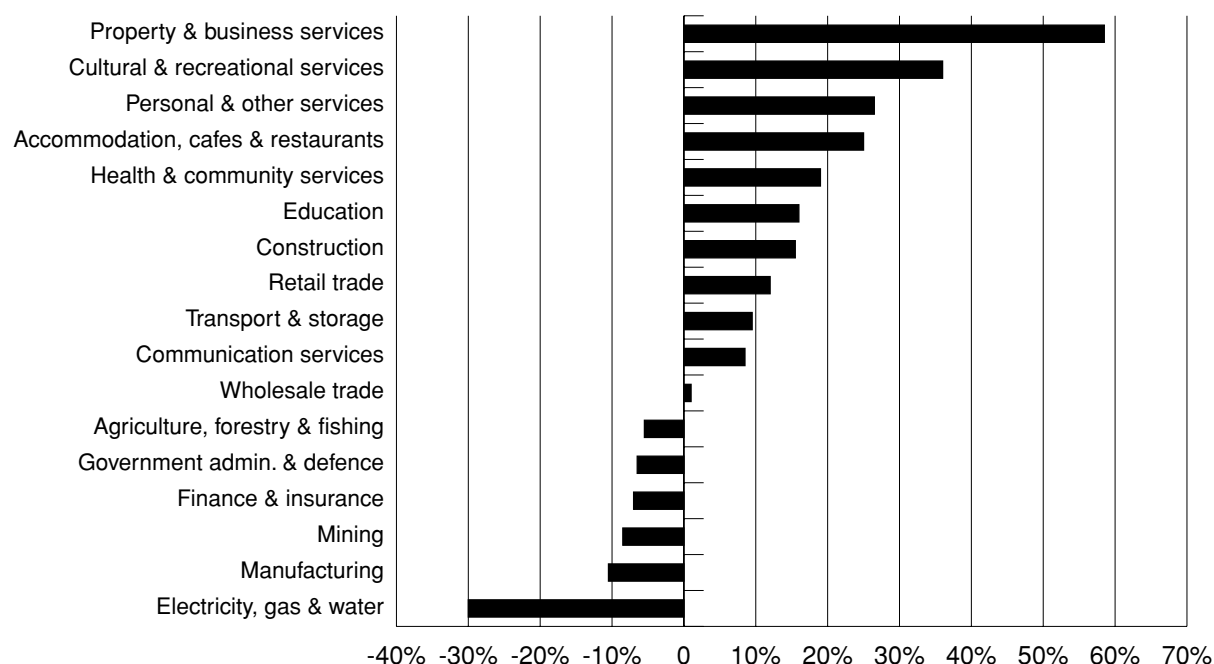
Source: ABS, Catalogue No. 6227.0; NCVER, 1998a, 1999a, 1999b

Notes: ABS data are based on sample survey in May; NCVER data are from a count by training authorities and are for year ended 30 June

Critics do not see the rise in traineeships, which can generally be completed in a year, as compensating for the decline in apprenticeships in relation to the skill needs of the work force. Also traineeships and apprenticeships are not commensurately spread across industries. Employment in some industries such as manufacturing, where apprenticeship has been common, has declined. The relative growth in total hours worked in the 1990s by industry is given in Figure 4.2. The fastest growth in employment has been in a range of service industries where apprenticeship was not common in the past.

A further factor is the decline in full-time employment for young people. Table 4.17 shows that the number of persons aged 15 to 24 in full time employment was about 25 per cent lower in 1999 than in 1990, whereas apprenticeship numbers were only about 20 per cent lower. Also, the age range of apprentices has moved up—largely in line with the increased retention to the end of school up to the early 1990s. However, it is worth noting that for young males apprenticeship remains a very important source of jobs and training. In 1990 about 21 per cent of 19 year old males were apprentices. In 1999 the figure was about 18 per cent.

Figure 4.2: Growth in hours worked (Australia; 1991 to 1999)



The rapid recent rise in traineeship numbers has already been noted. The effects of this on the quality of the labour force are yet to be analysed. Some traineeships are undertaken entirely on-the-job and there are complaints about the quality of training provided in some cases (Schofield, 1999, 2000, 2000a; Smith, 1999). Completion rates for traineeships have been about 60 per cent, but in recent years have fallen to around 56 per cent (DETYA, 1999d). Apprenticeships and traineeships represent an important part of VET. However, total clients in VET exceed 1.5 million. In the TAFE system apprentices and trainees make up about a third of clients aged 15 to 24, but only a tiny fraction of older enrolments (NCVER, 1999b).

Some indication of the value of TAFE training in meeting the needs of employers is obtained from employer surveys. Data from only two surveys, in 1995 and 1997, are available. They show that two thirds of employers agree that the VET system is providing appropriate skills and a higher proportion indicate a reasonable degree of satisfaction with the public system (ANTA, 1999a, vol.3).

Graduate destination surveys in 1995, 1997, 1998 and 1999 indicate the success of TAFE graduates in obtaining jobs (NCVER, 1999e). The overall rate of employment reflects the state of the job market, though particular imbalances can potentially be revealed. However, to date the surveys have thrown little light on this matter.

Table 4.17: Employment and unemployment for persons aged 15 to 24 (Australia; '000)

	Employed full-time	Total employed	Unemployed looking for full-time work	Total unemployed	Labour force	Not in the labour force	Population
1990	1237	1673	201	256	1929	818	2747
	45%	61%	7%	9%	70%	30%	100%
1999	924	1587	151	247	1834	848	2681
	34%	59%	6%	9%	68%	32%	100%

Source: ABS, Catalogue No. 6203.0 (August data)

Existing members of the labour force in employment or changing employment

Table 4.18 shows the very high rate of participation in the formal education and training system in Australia for older persons in comparison with selected OECD countries. Australia is second only to Finland in the 20 to 29 age group, heads the table for the 30 to 39 age group and is second to the US for ages 40 and over. Table 4.4 showed that most of the older students in Australia are in VET. Table 4.4 also showed that the proportion of the total population of older persons who are in education and training was growing slightly in Australia—and such is the size of the population aged 30 to 64 that this represents a large increase in enrolments.

Table 4.18: Enrolment rates in public and private education by age (for full and part-time students; selected OECD countries; 1996)

	Students as percentage of population of stated age			
	15–19	20–29	30–39	40 and over
Finland	82	30	7	1
Australia	83	25	14	5
Norway	84	25	5	1
Sweden	83	24	9	2
Netherlands	89	24	4	1
Canada	79	21	5	1
Germany	88	21	3	0
United States	73	20	6	8
New Zealand	75	19	8	3
OECD country mean	77	19	5	2
United Kingdom	72	18	8	3
Austria	76	17	3	0
Mexico	36	8	1	0

Source: OECD, 1998a, Table C1.2

Note: 'm' represents missing data; 'n' represents negligible or zero

Table 4.19 shows international comparisons for all education and training for 25 to 64 year olds, including employer training in the workplace, for selected OECD countries. On the basis of these statistics Australia's performance is more modest. As already discussed employer training expenditure and provision per worker tended to decline in the early 1990s. There is some indication though that training for older workers in the workplace held up better than for younger workers in the 1990s (Wooden et al., 2000).

One other indicator of whether the education and training system is meeting needs is the number of unfilled vacancies for skilled workers. In general, over the past decade, these numbers have not been high in total, though they have on occasion provided justification for particular types of skilled migrants to be recruited. This suggests that the training system is responding reasonably

rapidly to the changing needs of the labour market. A recent concern is for workers in information technology, although much of the job expansion in this area is for graduates from higher education.

Summing up—meeting client needs

The data on the extent to which VET is meeting the needs of the labour force are limited. Given the lack of evidence, various beliefs can still be held about the extent to which reforms of VET have stimulated a more relevant provision of education and training. It is clear that there has been an expansion of education, though there is some indication that the quantity of training supported by employers in the workplace, which rose slightly in the early 1990s, has declined subsequently (Table 4.14).

Table 4.19: Percentage of 25 to 64 year olds participating in education and training (selected OECD countries; 1994–95)

	25–34	35–44	45–54	55–64	All ages	25–44 employed	25–44 unemployed
Sweden	56	61	58	38	54	62	47
New Zealand	53	51	45	28	46	57	37
UK	54	54	42	23	45	62	34
Switzerland	52	45	39	25	42	51	41
United States	46	46	44	28	42	50	33
Canada	44	42	32	18	37	46	36
Australia	42	40	32	20	36	46	27
Netherlands	46	41	32	16	36	47	51
Belgium	25	22	23	13	22	26	17
Ireland	28	25	20	9	22	31	11
Poland	18	17	14	3	14	22	8

Source: Based on the International Adult Literacy Survey (IALS) (OECD, 1998a, Table C5.1)

Note: The data in this table are from a household survey while the data in Table 4.18 are from administrative collections

The quantitative data on apprenticeships show numbers are lower than in the 1980s, but the changed patterns of youth employment and industrial employment could explain much of this. Traineeships have expanded very rapidly recently, especially for persons in their 20s and 30s, though there is concern about the quality of training delivered entirely in the workplace.

4.6 HAVE MORE EQUITABLE TRAINING OUTCOMES BEEN ACHIEVED?

The evidence on equity is mixed. Aggregate measures for target groups tend to show some improvement over time until the early 1990s. However a matter for further investigation is whether the combination of several forms of disadvantage means that some sub-groups are in fact more disadvantaged than a decade ago. The cause of this may not necessarily lie in the education and training system, but rather in the structure of employment, income and families.

Young persons

All education sectors produce data to monitor the progress of designated target groups. School data are reported by MCEETYA (1999a), university data by DETYA (1999b), and VET data by ANTA (1999a). Reports are made (by gender) for:

- Persons with language background other than English;
- Indigenous peoples;
- Rural persons and those living in isolated locations;
- Persons with a disability; and
- Persons of low socioeconomic background (data for schools and universities).

There is little indication, in aggregate, of disadvantage by gender or of disadvantage for those with a language background other than English. There is strong evidence of continuing disadvantage for the other groups. Indigenous persons appear to be well represented in TAFE, though the types of courses and module completion rates (ANTA, 1999a, p.67) indicate disadvantage. Indigenous persons are clearly under-represented in the other sectors of the education and training system in enrolment, attendance and completion.

Persons from a disadvantaged socio-economic background have a lower rate of school completion and participation in universities. Males from low socio-economic backgrounds suffered the largest fall in school completion rates in the years 1993 to 1997 (MCEETYA, 1999a, p.94). Persons of low socio-economic status, who comprised 25 per cent of the population, made up 15 per cent of all university students in 1991, but 14.5 per cent in 1997 (DETYA, 1999b, p.57). Similar data for changes in VET are not available due to changes in the data collection. Census data for 1996 indicate that persons of low socio-economic status are clustered within particular parts of major cities and country towns. There is some indication that the disparities in economic and social disadvantage are widening in Australian society. If so, the education and training system may have greater problems to address.

Persons from a rural background have a slightly lower rate of completion of schooling (Productivity Commission, 1999), but a noticeably lower rate of participation in higher education. DETYA (1999b, p.58) noted a decline in the rate of participation in universities in the 1990s by persons with a rural background and the particularly low rate of participation for those from an isolated location. On the other hand, participation in VET by persons in these groups is somewhat above their share of the population (ANTA, 1999a, p.64).

Results from longitudinal surveys of young Australians show that, for the period from the early 1980s to the early 1990s:

- Differences in completion of Year 12 associated with socio-economic status, region, and school type declined, but the advantages of females and students from a non-English-speaking background were at least maintained.
- The advantages in higher education participation of young people from a higher socio-economic background and from urban areas were unchanged; advantages associated with a non-English-speaking background and attendance at an independent school declined; and advantages associated with being female increased.
- Attendance at a non-apprenticeship TAFE course was the most equitable form of educational participation in Australia. Young people from a lower socio-economic background, from rural areas or who had attended a government school were more likely to enrol in a non-apprenticeship TAFE course. Compared with the early 1980s, advantages that had favoured females disappeared by the mid-1990s; advantages that had favoured students from a higher socio-economic background were reversed; and the advantage of students from rural areas increased (Long, Carpenter & Hayden, 1999).

Disadvantage among older persons

Much of the data on disadvantage relates to young persons. There is a growing concern, for economic and equity reasons, for the education and training needs of older persons. They have often been severely affected by economic restructuring. The work force participation rate of adult males over 45 years has fallen notably, though the participation rate for females has risen.

The population is ageing and there are increasing numbers of older persons who may seek education and training for economic or other reasons. Table 4.2 showed that the population aged 45 to 64 increased by 25 per cent in the period 1990 to 1998 compared with an overall growth in population of only 10 per cent.

Australia has a large number of adults with low levels of literacy and skills, many of whom are very disadvantaged in the labour market. Table 4.20 shows that Australia compares poorly with Sweden, Germany and the Netherlands, though better than most of the other countries, in the proportion of the population who are at the lowest level of assessed literacy. A higher proportion of older than of younger persons have low levels of literacy: about 10 per cent of 15 to 24 year olds in Australia are at level 1, over 20 per cent of those aged 45 to 54; and well over 30 per cent of those who are 55 years and over (ABS, Catalogue No. 4228.0).

Table 4.20: Percentage of the population aged 16 to 65 at IALS Document Literacy Level 1 (selected OECD countries; 1994–95)

Australia	Canada	Germany	Ireland	Nether-lands	New Zealand	Sweden	Switzer-land	United Kingdom	United States
17	18	9	25	10	21	6	17	23	24

Source: OECD, 1998a, Table A3.1

Note: IALS is the international adult literacy survey, conducted in 1996

Table 4.21 shows that persons with low levels of literacy are not likely to receive compensating education and training in the workplace. Those with high levels of literacy are much more likely to receive training. Australia does not appear to rank well in the international comparisons in this regard.

Table 4.21: Participation of 25 to 64 year olds in job-related education and training and hours of training by literacy level (selected OECD countries; 1994–95)

	Participation rate		Mean hours per participant	
	<i>IALS level 1</i>	<i>IALS level 4/5</i>	<i>IALS level 1</i>	<i>IALS level 4/5</i>
Australia	9	54	198	152
Canada	9	51	501	137
New Zealand	20	57	303	200
Switzerland	10	44	107	173
United Kingdom	18	65	124	139
United States	15	58	92	104

Source: OECD, 1998a, Table C5.4

The fact that further education and training is concentrated not on the least, but on the best educated, is well documented across countries (Table 4.22). Australia's performance appears about the average and certainly better than Switzerland and the US. Continuing education and training is similarly linked to higher status and full-time employment. Box 4.1 summarises the findings.

Table 4.22: Ratio of participation in career or job related training by workers aged 25 to 54 with a university degree to those who have not finished upper secondary schooling (1994–95)

Australia	Canada	Germany	Nether-lands	New Zealand	Sweden	Switzer-land (French)	Switzer-land (German)	United Kingdom	United States
2.01	2.34	1.96	1.88	1.80	1.58	4.80	12.25	1.70	4.09

Source: OECD, 1999a, p.151

Box 4.1: Which adults get education and structured training?

- Training tends to be provided disproportionately for those with more education.
- Workers with higher levels of literacy obtain more training.
- Participation rates rise quite strongly with the level of income, though those on low income who do receive training tend to receive more hours of training.
- Men and women in employment participate at fairly equal rates, though women may receive less employer support and less hours of training over a lifetime.
- Training participation declines with age, but less so in the US and Nordic countries.
- Part-time workers and casual workers participate less than full-time permanent workers.
- Workers receive more training in countries with higher levels of education, high research and development (R&D) and high trade in 'high tech' production.
- The amount of training is larger the bigger the firm.
- Training is higher in unionised workplaces.
- Workers in managerial, administrative, professional and semi-professional jobs have a higher than average intensity of training; operators and labourers have low levels of training .
- There is a high incidence of training in finance, insurance and business services; community, social and personal services; mining; utilities (electricity, gas and water); and public administration.
- Agriculture and construction have relatively low levels of training.
- Self-employed persons undertake less training than employees.
- The unemployed and those not in the labour force receive less education and training than the employed.
- There is considerable variation across countries.

4.7 OUTPUT OF QUALITY EDUCATION AND TRAINING PER UNIT OF RESOURCES

The aim of the Australian reforms in VET included maximising the returns to government outlays on education and training; in other words improving the efficiency of the system.

There are several aspects to this. First, there is the quantitative question. Have more students been given education or training for a given outlay? As already discussed in section 4.3 this appears to be the case. The data are most clear for government outlays for universities.

Second, there are questions of what the students have achieved. One measure of this is completion rates at school, VET and university. For schools the usual measure has been the 'apparent retention rate to year 12', which rose rapidly until 1992, but subsequently declined. It is, however, very difficult to isolate the influence of schools, as changes in employment prospects seem to be a major influence on school retention rates. Retention rates went up in the recession of the early 1990s and declined in the following years of economic recovery.

There is now annual reporting of the completion rate for modules in VET, though not of completion rates for qualifications. There is good evidence that a large proportion (perhaps 50 per cent) of students in the VET system undertakes modules successfully, but does not proceed to complete a qualification (Foyster, Hon & Shah, 2000). Module completion rates in recent years have averaged about 80 per cent; and the changes occurring do not appear substantial (ANTA, 1999a). At university there is some indication of a recent rise in the proportion of students who complete undergraduate degrees, though data on a consistent basis over time have not been analysed.

There is relatively little variation among the States now in expenditure per student in government school systems (MCEETYA, 1999b). Universities are funded by the Commonwealth and (ignoring research-related funding) their public funding for teaching per student varies primarily according to course mix.

As discussed in section 4.4 there is considerable variation across the States and Territories in cost per annual hour of curriculum in VET (see Table 4.13). The factors underlying the cost differences need further analysis. The lower costs in particular States largely reflect the lower provision of public funds per student contact hour. In Victoria the higher level of devolution of control of TAFE institutes has allowed them to seek various forms of coping with lower levels of funds. One major method of cost saving has been the delivery of a greater proportion of teaching by casual or sessional staff for whom the cost per hour of teaching delivered is lower than for a full-time on-going staff member (Malley et al., 1999).

There is little indication of differences in the quality of the training delivered by high and low cost States (ANTA, 1999a). Indicators such as module completion rates, student and employer satisfaction and student destinations do not seem to vary consistently among high and low cost States. That is not to say there are not differences in quality that may show up over a longer time span, just that the available data do not indicate clear differences. The recent concerns about quality, leading to reviews in Queensland, Tasmania and Victoria, can be noted in this regard.

The increased use of flexible delivery modes, including training delivered in the workplace, has the potential to reduce the cost of training or at least the proportion of cost borne by government. ANTA (1998b) has reviewed recent experience. A major finding is that training delivered by distance modes or in the workplace usually involves considerable up-front fixed cost outlay before any training is delivered. Unit operating costs of delivery may subsequently be lower than in conventional classroom delivery. However, there is considerable variation in the composition of costs and in who bears the cost burdens between the various forms of delivery (Symmonds et al., 1999).

Very little attention has been given to capital costs in the delivery of education and training, although some attention has been paid to current practices in relation to governments' varying roles as purchaser, asset manager and service deliverer in VET and possible future changes (Selby Smith & Selby Smith, 1997). It may be an opportune time to undertake a careful analysis, especially as the introduction of accrual accounting is now making the annual cost of capital more transparent (NCVER, 1999d).

4.8 SUPPLY AND HOW WELL IT MEETS DEMAND

The supply of formal education and training has 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 is most evident in higher education. Employer provision of training has not kept pace with the increases in the formal education system. It is too early to tell if the development of training packages 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. The 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 programs in schools have expanded, but the long-term consequences for the quality of training and the meeting of skill needs are not yet clear.

The conclusions on equity are limited. There does not appear to be 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 are not 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 VET.

Further issues for research include:

- The costs and quality of new forms of organisation and delivery of VET;
- Expenditure on education and training across the various sectors;
- The costs of capital facilities in education and training and potential efficiencies;
- Analysis of the effects on equity of various forms of charges for education and training;
- The methods of providing effective incentives and learning environments for less advantaged youth and adults; and
- The effectiveness of various forms of stimulus to training by enterprises.

5 SPECIAL ISSUES IN SUPPLY

5.1 OVERVIEW

This chapter discusses five specific issues. In section 5.2 two broad types of intersectoral issues are considered. The first group consists of issues concerning VET and its relationships with other formal educational sectors, such as schooling, higher education and adult and community education (ACE). The second group comprises issues concerning the roles and relationships of the public and private sectors in VET.

Section 5.3 is focussed on VET provision in secondary schools. VET in Australian schools expanded rapidly during the 1990s. The section considers the significant features of the main types of VET in schools which have developed. It also outlines the profiles of these students and their destinations, and comments briefly on the costs of VET in Schools.

ACE warrants particular attention in relation to the supply of VET and ACE is considered in section 5.4. Data indicate that the provision of VET programs by recognised ACE providers is expanding. Also ACE plays a special role in strengthening equity in education and training and in responding to the learning needs of specific communities, small businesses and regions. However, since there is no agreed, national, workable descriptor of ACE it can be difficult to distinguish ACE clearly from other forms of education and training.

Section 5.5 addresses regional issues. Communities sharing a geographical area often seek to achieve and maintain a unique identity and to strengthen their economic base. Although some non-metropolitan regions continue to thrive, data from recent censuses show that rural and regional Australia has generally underperformed metropolitan Australia in terms of employment, participation and job growth. VET is one policy instrument that governments can use to support communities and address economic and social issues such as community strengthening and wealth generation, access to the job market and its benefits. Decisions are required, for example, about whether to rely predominantly on distance delivery strategies or invest in more substantial infrastructure. Problems can arise in recruiting industry-based teaching staff, given the limited pool, especially in some regions and specialist fields. The content and structure of the VET curriculum can be issues in some regions. Another challenging issue is whether the curriculum expectations of industries in regions are necessarily consistent with the learning demands of long-term sustainable growth. ANTA has acknowledged the importance of VET in regional and remote Australia, including by its support of the Centre for Research and Learning in Regional Australia at the University of Tasmania.

The final section of the chapter is concerned with VET teachers. Teachers are the most critical element in determining the supply of skills, knowledge and attitudes produced through the VET system. Teachers play the central role in developing curricula, in providing students and trainees with an appropriate learning environment, and in assessing and certifying the learning that has taken place. Section 5.6 analyses trends in the VET teaching work force in Australia as pointers to likely developments in, and possible problems with, the supply of education and training skills from the VET sector.

5.2 INTERSECTORAL ISSUES

Introduction

Two broad types of intersectoral issues are relevant to this stocktake of the economics of VET. First, there are issues concerning VET and its relationships with other formal educational sectors, such as schooling, ACE and higher education. These issues include the movement of students between sectors; overlaps and links in courses and qualifications; and shared and contrasting values and cultures. Second, there are issues concerning 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. To do them justice would require much more detailed analysis and discussion than is possible in this book, where they are taken up in two ways. First, some aspects of intersectoral roles and relationships have been

included in discussions that focus on other matters. In this way, some relevant concerns are included, for instance, in discussions about the demand for and supply of VET, the financing of VET, 'training markets', and the role of adult and community education. Second, this section seeks to address more specifically certain major trends in intersectoral roles and relationships and the factors contributing to them. It also notes some areas for further research.

The boundaries dividing the various sectors of education have always had particularly porous elements. However, the boundaries appear to have eroded more quickly in recent years. A decade ago the collapse of the binary divide in higher education, which previously separated colleges of advanced education from universities, illustrated the strength of the pressures exerted on these barriers. More recently there has been an increased provision of vocational programs in schools and in ACE, and documentation of extensive student movement between universities and TAFE.

Paradoxically, while the barriers between the sectors have diminished, many of the characteristics that helped to give each sector a unique identity remain strong. Similarities between the sectors contrast with many differences, such as in funding provisions, administrative arrangements, community perceptions, course structure and content. VET and schools retain a closer relationship with the States and Territories than higher education. VET has developed close links with industry, strengthened by the implementation of training packages; universities retain traditional links with professional associations. ACE strives for a high degree of learner-responsiveness. So does VET, but it is tempered by a primary concern with responsiveness to industry needs. Interestingly, VET remains a particularly contested area: between the Commonwealth and State and Territory governments; between the public and private sectors; and between the industry partners.

While these many differences suggest that the barriers between sectors will not disappear, and that each sector will retain a strong individual identity, discussions about intersectoral issues are often infused with concerns about the potential for diluting or suppressing these identifying traits. For instance, the ACE sector defines itself by reference to a particular set of characteristics, and there is a view that if ACE goes 'too far' in taking on provision of vocational programs its special identity will be lost or dissipated. Such concerns are indicative of the tensions that pervade intersectoral relationships and which arise when external pressure on each sector to extend links meets internal pressure to preserve self-identity.

Intersectoral relationships are of particular relevance to the VET system, given that it connects with each of the other education and training sectors (schools, higher education, ACE and industry training), that its internal structure comprises a significant private as well as public sector, and that the Commonwealth and State and Territory governments are both actively involved. In recent years the significance of intersectoral aspects has increased further, because of a renewed emphasis on lifelong learning, which presupposes that individuals can continue to train and study throughout their lives, moving easily from formal to informal education (and vice-versa) and between various sectors of the education and training system. Participation in education and training follows a more diverse pattern than it used to do, involving longer periods of initial education—often in conjunction with employment—and increased involvement by adults in further education and training during their working lives. Increasingly, policy-makers, researchers, and students, have begun to consider the whole pattern of education and training provision in terms of objectives to be achieved and the resources that are available, rather than the separate goals (and roles) of each sector. Nevertheless, the majority of research studies still tend to be sector specific and funding for cross-sectoral projects tends to encounter institutional constraints. Intersectoral research is hampered also by a lack of comparable data and other material.

A new challenge to traditional boundaries

In recent years there has been a growing concern with the rigidity of traditional sectoral boundaries and their appropriateness in particular circumstances. Through policy changes and demand for less restricted intersectoral movement with improved recognition arrangements, governments, students, employers and communities have challenged the sectors to think of themselves less as completely separate systems and more as linked pieces making up a larger system of education and training.

This concern with the problems that can arise from relatively rigid boundaries between the sectors is evident in a number of different ways. It is illustrated in the adoption by governments of 'seamlessness' as a policy objective and in the horizontal and vertical expansion of arrangements

between sectors for recognition and collaboration. It is visible also in growing competition between the sectors for students and funding; and in the wider adoption of a multi-sectoral model of an education institution. It is clear in the growth of research studies that explore issues across, rather than within, sectoral boundaries.

At both State and national levels, governments have embraced the notion of 'seamlessness', or 'seamless pathways', between VET and other educational sectors. In its national strategy for VET 1998–2003, *A Bridge to the Future*, ANTA explains that:

Students need to be able to move freely within the vocational education training sector and between vocational education training, senior secondary schooling and universities, while ensuring that outcomes from each are recognised and valued. (ANTA, 1998, p.13)

New agreements have been made between sectors for mutual recognition and collaboration. Education institutions have strengthened links, creating bridges into external sectors. Access points have been multiplied and diversified to allow entry at different levels and on a variety of bases (Teese, 1997). The range of cross-sectoral activities has been extended to include:

- *Articulated programs*, including double or joint qualifications;
- *Cross sectoral delivery*, where parts of higher education programs are delivered in VET, and vice-versa; and
- *The establishment of educational consortia* to deliver consultancy, education, training and research services (ANTA, 1997).

Government concerns with maximising efficiency and effectiveness in education and training provision have promoted activities leading to increased competition between the sectors, for students and for government funding. The implementation of 'User Choice' and widespread competitive tendering, have opened up public funding for VET to the private sector and drawn ACE and universities into the competitive training market. Vocational programs have expanded in ACE and have been implemented in the senior levels of secondary schools.

Efficiency concerns have also encouraged a new look at traditional institutional forms. In Victoria a Ministerial Review of the Provision of TAFE in the Melbourne metropolitan area (1997) expressed concern about duplication and overlap in high cost technical training provision and the under-utilisation of capital stock in some TAFE institutes. It argued that improved structural arrangements for some TAFE institutions were necessary to 'provide them with the financial strength and the capacity to respond positively to a rapidly changing training environment' (p.1) and recommended rationalisation of specialist training delivery. Following this review, some TAFE institutes were amalgamated, and some became divisions of universities. In NSW an institutional model has been developed and instituted which comprises a formal partnership between an upper secondary college, a TAFE institute and a university: the Coffs Harbour Education Campus.

Intersectoral research has contributed to understandings of seamlessness and of the factors driving it. For example, it has investigated pathways and other links between sectors (or their lack), documented student movement between sectors (Golding, 1998, 1998a; Werner, 1998, 1998a), and explored the factors contributing to demand for intersectoral movement. Studies have also been undertaken of the costs of providing similar training in different sectors (e.g. Symmonds et al., 1999) and of credit transfer (e.g. Trembath, 1999). Many studies that do not have a specific intersectoral focus have produced findings with implications for other sectors of the education and training system, including VET. Broad studies, such as those of macro changes in the economy and the labour market, of particular industries, or educational equity, have raised important cross-sectoral concerns (e.g. Butler & Ferrier, 2000).

Factors driving the challenge

What is driving the new challenges to sectoral boundaries? Some important factors are discussed elsewhere in this book, but three significant areas are briefly re-stated here. First, there are policies of lifelong learning, which promote ongoing participation in education and training to gain, maintain and continually update a range of skills useful in work and life. These policies challenge sectoral boundaries by increasing demand for cross-sectoral recognition and movement, for workers to be able to enter and exit courses and programs at many different points, and for a diversity in opportunities that may not exist within a single sector.

Second, efficiency concerns have increased in importance as rising demand for participation in education and training, linked to economic change and lifelong learning, has placed pressure on the available level of public resources to provide sufficient and appropriate opportunities. Rigid sectoral boundaries have come to be viewed as inhibiting efficiency by, for instance, forcing students to repeat previous work, where recognition of this work would be appropriate.

Third, equity considerations place pressure on intersectoral boundaries, particularly where their rigidity unfairly restricts the ability of individuals or groups to gain access to, and successfully participate in, education and training. This can occur, for instance, where movement from one sector to another is restricted by entry or exit criteria that are narrowly defined and fail to recognise the diversity that exists in the educational (and economic) backgrounds and experiences of students.

These factors have been highlighted, and understanding of them advanced, in the growing research that focuses on intersectoral issues or raises other relevant matters. Additional factors operating at different levels have also been identified as studies have explored a variety of intersectoral issues. For example, Teese (1997) points to the emergence of seamlessness in the context of economic change. Simultaneous pressures on the work force to lift education levels and on educational institutions to diversify have weakened the boundaries between the sectors, leading to:

Greater mobility between them on the part of individuals and greater collaboration between them at the institutional level. (p.10)

Individuals, institutions and governments have embraced seamlessness for different reasons. Individuals are influenced by the potential benefits to be gained by moving across the sectors. Young people seek to put together 'packages' of education and training to help them become established in the labour force. Workers (including displaced workers, women returning to the paid work force and disadvantaged groups) seek advancement through further education or re-training, or to make up for interrupted post-school education and training. Institutions are driven largely by self-interest. They seek to develop strategies to strengthen their long-term economic viability and to promote their success in the competitive market for students and resources. Governments, as noted above, seek to maximise efficiency in various ways, including by reducing unnecessary overlap (Teese, 1997). There has also been a long term tendency to give greater priority to the requirements of users compared with providers.

Employment objectives and a desire to make 'amends for inappropriate choices' contribute to a growing movement by students between TAFE and universities. Students seek to move across sectors for 'vocationally specific training' and 'to update practical skills and develop industry links'. University-TAFE movement is the result of diverse motivations. For example, it can be about changing field of study or direction; to update previous qualifications; or to seek a better job in a similar field (Golding, 1998).

Demand for opportunities to make amends for inappropriate choices is increased by the existence of factors that influence, and sometimes restrict, the choices students make when they leave school. Extensive research shows that these choices tend to reflect the student's level of achievement at school; whether or not they complete year 12; gender; and socio-economic background (e.g. see Misko, 1999; Ainley, 1998).

Issues

There are many intersectoral issues that have yet to be resolved, some of which have been raised elsewhere in this book in discussions that focus primarily on other matters. Three types of issues are discussed briefly here: barriers to the movement of students across sectors; funding issues; and administrative issues.

Barriers to student movement

Research indicates flaws and inadequacies in the credit transfer arrangements for students entering university from VET and vice-versa. ANTA (1997) points to four substantial barriers affecting articulation and credit transfer:

- The commitment to graded assessment in higher education, but not in competency-based VET programs;

- The control over higher education curricula by individual institutions, leading to high costs and complexity in negotiating arrangements for transfer between institutions with credit for academic work which has already been completed;
- A failure by some institutions to give articulation and credit transfer appropriate priority; and
- The VET sector's reluctance to accredit non-competency based higher education.

The latter problem is supported by NCVET data, which indicate that the proportion of higher education graduates entering VET and receiving credit for their previous study is very small. Of 43,702 higher education graduates entering VET in 1995, only 13.3 per cent received recognition of their prior learning or credit transfer for at least one module (ANTA, 1997). Yet, 38 per cent of all students in publicly-funded VET courses throughout Australia in 1998 held a degree or a postgraduate diploma (NCVER, 1999). At the same time there has been a steady increase in the number of students going to university who have previously studied in TAFE. For example, in 1997, 17.6 per cent of students admitted to bachelor degree courses in universities had previously undertaken TAFE study, compared with 12.1 per cent in 1992 (Cummins, Rutten & Wagstaff, 1998).

Recognition arrangements have been found to vary substantially from one educational institution to another, so that there is no necessary pattern to guide students. For instance, prior study accepted for credit by one institution may be rejected by another, and arrangements may be better developed in some disciplines than others, so that students in some fields of study are disadvantaged (Cohen et al., 1997; Teese, 1997). Teese points to a 'pedagogical conservatism' in some universities that is the basis for mixed views of academic standards in VET. His research found that the proportion of students offered a place on the basis of their VET participation differed substantially from one Victorian university to another. Such inconsistencies support the view that the processes of gaining admission to university are 'something of a year to year lottery and require students and universities to make decisions under conditions of great uncertainty' (Cohen et al., 1997, p.7).

The extent of intersectoral movement might increase if such problems were addressed. Research conducted in NSW and the ACT on admission outcomes for NSW TAFE graduates applying for a university place in the period 1991 to 1996 found a high level of interest among TAFE students in going on to university—over half of the students surveyed. Over the period of the study, the number of applications from TAFE graduates grew at an annual rate of 9.7 per cent, compared with 2.4 per cent for school leavers.

Intersectoral movement depends on the existence of links between the sectors at different points and taking a variety of forms. These links are often referred to as 'pathways' and have been the subject of considerable research that has attempted to map them, and to identify the barriers affecting movement along them, including the failure of recognition arrangements. Studies have also sought to identify the extent to which pathways are recognised and used; the potential for new routes; and for increased use of existing links (e.g. Sharpe & Robertson, 1996; McIntyre & Kimberley, 1997; Cohen et al., 1997).

While the pathways notion has often suggested a linear progression—a student moving from a starting point in a straight line to a destination—new research indicates that, at least for young people, the reality is often more complex. Only a minority of young people (40%) experience a linear progression through post-compulsory education. Instead, the majority construct 'patterns' :

Rather than moving through and beyond particular territory, young people may be seen as 'weaving' interconnections around their lives; ones that they will strengthen or abandon over time, with cross overs and strands that they may return to, and connections that some may emphasise more than others. (Dwyer & Wyn, 1998, p.82)

This finding challenges the existing range of intersectoral links. It emphasises the importance of finding new ways of accommodating such patterns of participation in education and training, including a reconsideration of the restrictions on the degree to which programs or courses which have long been seen as the preserve of a particular sector can be offered in and by another.

Funding issues

Each educational sector is funded on a different basis and from a different range of sources, which may impose differing restrictions on the use of the funds provided. Each sector requires a different

level of financial contribution from its participants and may employ a different method to collect these contributions. Different sectors respond in diverse ways when participants are unable to make required contributions up-front. For example, HECS applies to higher education students, but not to students in VET.

These differences raise some important questions in relation to intersectoral roles and relationships. Do the differences affect the ways in which the sectors interact? Do they support, or hamper the achievement of objectives across sectors? What implications do they have for the movement of students back and forth across sectors? Do they affect efficiency and equity?

Funding regimes have been demonstrated to influence behaviour in significant ways, particularly where funds come with different sets of accountability requirements. Incentives matter. Educational sectors that need to respond to funding bodies which require them to meet diverse, perhaps even conflicting, performance measures are likely to encounter difficulties in reconciling these differing requirements with the objective of collaborating and co-operating across sectoral boundaries. These concerns are already evident in the ACE sector, for instance, where a view has emerged that winning funding to expand the provision of vocational programs can prove to be a double-edged sword. In serving a new master it may become more difficult to continue to pay attention to ACE's traditional clientele and objectives.

Students may turn away from one educational sector because they cannot meet the level of contributions required or comply with the designated payment methods. Do they turn to another sector of the education and training system, or leave it altogether? Do they use credit transfer arrangements to take advantage of the cheaper alternatives to achieving an educational objective? Chapman (1998) has argued for the extension of an income-contingent loans scheme for students in VET, similar to the HECS scheme operating in higher education. He argues that up-front fee regimes in VET are poor policy, for both economic and social reasons. The talent of those able to benefit from VET but unable to afford to enrol is wasted; and the exclusion of prospective students due to a lack of income 'further entrenches the already strong nexus between a young person's family background and their future professional success' (p.41). The cost of participating in VET, including income foregone, when combined with a lack of family support and available sources of finance in capital markets, potentially creates a significant barrier to many students that is exacerbated by up-front fees.

In a recent paper Chapman, Doughney and Watson (2000, p.16) argue that:

A key policy implication of lifelong learning is the need to support seamlessness in education and training provision. However the absence of a cross-sectoral funding mechanism for VET and higher education is a major stumbling block to the effective implementation of lifelong learning in Australia. The anomalies arising from sector-based funding create operational difficulties for institutions, provide conflicting messages to students and are a major disincentive to staff interested in providing cross-sectoral courses ... There is an urgent need for policy research that evaluates the costs and benefits—to individuals, to institutions and to governments—of perpetuating the current funding distinctions between the VET and higher education sectors.

Another issue concerns the appropriate use of capital, including its provision, costing and pricing. The production of VET services generally involves capital as well as labour inputs. Examples include the buildings and equipment used in engineering courses; or the expensive land used by inner city VET providers in Melbourne or Sydney. Production of VET services at minimum cost requires that the appropriate combination of inputs be selected for producing them. In turn this requires that consideration be given to the relevant costs (ideally the opportunity costs, representing the next best available use of the resources in question). In fact this rarely happens. Once capital has been obtained to maintain or expand the facilities for producing VET services, provision is rarely priced, especially in the dominant public sector. This applies for individual courses, in specific providers, in the public VET system as a whole, and when comparing public with private provision. Insofar as the different sectors of education and training use varying combinations of inputs, including capital, and there are varying proportions of public and private sector provision, resources will tend to be used inefficiently, overall and in the individual sectors.

Administrative issues

From an educational point of view, from the perspective of students and from the viewpoint of efficient use of scarce resources, there can be substantial advantages from well-organised education providers not being unnecessarily restricted by artificial boundaries between the sectors of education and training. However, administrative perspectives can pull in a different direction. For example, TAFE uses student contact hours as the basic counting and funding unit, while

higher education uses equivalent full-time students. Higher education categorises fields of study by disciplines, while the VET sector uses occupations to define fields of study. Higher education and VET collect different information about students and report this to the Commonwealth and State and Territory governments respectively. While there is some overlap, the data sets of each sector are not commensurable.

Administrative structures tend to focus on the core features of the sector for which they are responsible. Intersectoral issues may appear to be peripheral to the core interests of administrative bodies. For example, university administrators tend to be more concerned with teaching at undergraduate and postgraduate levels and with research than with the relatively small proportion of potential students who believe that their transitional arrangements and the recognition of their prior learning are insufficiently addressed. There is a danger that in multi-sector institutions, which tend to be larger than the alternative single-sector institutions, the concerns of small, although important, specialised sections of the institution will be overlooked or at least not given an adequate priority. Also, overlapping and inconsistent information, reporting, audit, accountability and industrial relations requirements for VET and higher education can have costly, frustrating and time-consuming consequences (for example, see Chapman, Doughney & Watson, 2000).

Compared with stand-alone educational providers multi-sector institutions are likely to have more advantages in some circumstances than others. For example, in the major metropolitan centres the larger demand for specialised VET (and other) courses and the diversity of accessible educational institutions permits a proliferation of specialised education and training providers which would be uneconomic in rural and remote locations. However, in these locations, multi-sector institutions permit economies of scale and scope which would not otherwise be practicable, and make it possible to develop diverse expertise to a high level, both in technical areas and in overall educational management. The Murrumbidgee College of Agriculture at Yanco, for example, includes thriving VET courses, an internationally recognised Co-operative Research Centre and substantial extension activities: the activities might well be less successful and more costly if the components had to operate individually.

Finally, there are the complexities of Commonwealth-State relations. Schools are predominantly administered by the States and Territories; the universities by the Commonwealth Government, despite being legally created by the States. VET is a contested sector: between the Commonwealth and the States and Territories; between the public and the private sector; and between the industry partners. In general, the respective roles of the different levels of government and of the private sector compared with the public are explicable in terms of historical developments rather than the clear application of over-riding principles. Consequently, it is not surprising that multi-sectoral education and training providers can, when seeking to better serve their communities, students and enterprise clients, inadvertently raise Commonwealth-State tensions.

Future research

Intersectoral research has increased. However, there are still many gaps in understanding that would benefit from further research. Such research warrants a higher priority than it has been given in the past as sectoral interactions increase, and given the imperatives of lifelong learning and economic change. There is much to be learnt about the current arrangements that exist across sectors, including how they operate, the outcomes that result, and major changes that are occurring or in prospect. More detailed research themes that could be taken up include:

- The implications of differing sectoral arrangements for funding, pricing and student support, for equity and efficiency outcomes;
- The implications of the varying administrative and managerial arrangements on efficiency and equity outcomes, both between sectors and between States and Territories. For example, to what extent are the lower costs of VET provision in Victoria than in NSW (after due allowance for relevant differences in inputs, such as differing patterns of enrolment by field or geographical provision; and in outputs) due to greater efficiency compared with underfunding?;
- The extent, nature, range and impact of collaborative arrangements between educational institutions across the sectoral boundaries (e.g. for teaching, sharing staff, student movement, research); and how these arrangements are changing, with implications for their advantages and disadvantages. For example, in Victoria in 1997, dual sector institutions admitted almost three times as many TAFE graduates to bachelor degrees as single sector institutions (11.4% and 4.6% respectively); 50 per cent of TAFE graduates

were granted credit in the dual sector institutions compared with 35 per cent in the single sector institutions; but the average credit granted was lower in the dual sector providers (14.9%) than in the single sector institutions (20.6%) (Cummins, Rutten & Wagstaff, 1998);

- The prevalence, structure and operation of multi-level institutions compared with institutions operating solely within one sector, say VET; and their implications for such factors as costs, efficiency and equity;
- The outcomes for students (and staff) who change sectors, including their motivation for doing so, the courses they left and joined, and the outcomes in terms of efficiency and equity. For example, what barriers did they encounter and how could such difficulties be addressed?;
- The impact of participation in school-based vocational programs on the post-school destinations of students, their attitudes to lifelong learning, and their future career path. More generally, what is the impact of different intersectoral pathways on educational equity and labour market outcomes?

5.3 VET PROVISION IN SECONDARY SCHOOLS

Overview

As a result of a series of agreements between Federal and State and Territory Governments since 1995, three broad types of school vocational programs have become evident. This section considers the significant features of these programs. It also outlines the profiles of the students and their destinations, and comments briefly on the costs of VET in Schools.

Types of VET in schools

It was not until the entry of ANTA into this field, by way of grants to the States in 1996, that the current national concept of VET in Schools began to form. Ministers eventually agreed to it at the MCEETYA meeting held in Hobart on 23 and 24 April 1998:

Boards of Studies, in agreement with State and Territory Recognition Authorities will recognise as VET in schools only that which delivers national industry and/or enterprise competency standards.

The term *VET in Schools* refers to vocational programs that comply with the National Training Framework (NTF) initiated by ANTA. This includes programs incorporating work contact as well as a large number of school-based vocational programs that do not have work-based learning or school/industry partnerships. The term incorporates the training package concept, where progression and assessment are based on a competency-based model of learning, and outcome standards that are industry-based.

VET in Schools appears to be confined to non wage-based, or training contract free programs offered, usually to students in Years 11 and 12. Typically these programs are also included in the end of school certification process approved by the State or Territory Board of Studies or Curriculum Council. Many include components of workplace learning, though responsibility for organisation and student assessment remains with the school.

The role of schools as providers of VET varies between schools as well as between States and Territories. In some cases schools provide all instruction and assessment as individually registered 'VET providers' or become de facto providers through agreements between training and education authorities. In other cases schools have to enter the training market and purchase components of instruction and assessment. In addition, some schools may develop memoranda of understanding that allow them to operate as a collective provider with other schools and registered VET providers, such as a TAFE institute.

A second type of vocational program is referred to as *School-based New Apprenticeships*. In this type of program a young person attends school for off-the-job skills training and subjects associated with the end of school certificate, but also works as an employee engaged under a New Apprenticeship (sometimes called Traineeship) contract. The configuration of school and work in this type of program also differs from State to State and between industry areas, but generally takes the form of a young person studying for their end of school certificate while simultaneously being indentured to an employer.

In some instances students will attend school on a part-time basis, completing Years 11 and 12 over three years. The contract of training may extend beyond the period of school attendance and cover the equivalent of a full 'trade Certificate III' or it may parallel the school attendance period and result in the award of a Certificate I or II. Frequently the VET content studied by the School-based New Apprentice will be the same as that studied by the non-indentured VET in School student at the same school. In this type of program the time spent on the job with the employer is not counted as school time, as the supervision of on-the-job learning is a contractual employer responsibility.

The third type, *other vocational learning programs*, includes all other programs not included in the previous two categories. These programs include:

- Work-based learning for so called traditional subjects such as accounting, agriculture, food sciences and physics;
- Mainstream Year 11 and 12 programs approved by Boards of Study with significant vocational orientation, but not considered to be part of the NTA;
- Various forms of exposure to workplaces through concepts such as work shadowing, work sampling, and work experience ;
- Work-based enterprise and entrepreneurial learning;
- Skills training programs designed by schools in conjunction with local employers to assist the successful transfer of early school leaving youth into jobs; and
- School-based programs designed to promote key competencies through a mix of classroom, workshop, simulated and real work environments.

The development of VET in Schools and School-based New Apprenticeships

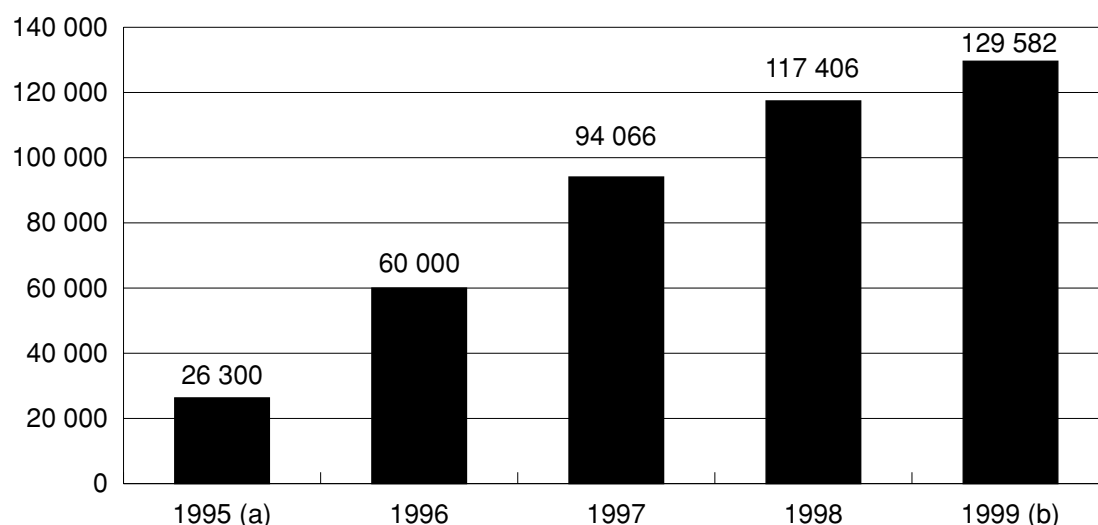
Since 1995 there has been a steady increase in the number of students enrolling in VET in Schools programs. The complexities of consistently counting vocational enrolments at a national level have not yet been resolved. Thus reported data should be treated as estimates indicative of enrolment trends.

For 1999 the MCEETYA VET in Schools Task Force estimated 130,000 Year 11 and 12 students from all school types were enrolled in a VET program (Figure 5.1). This was more than double the number enrolled in 1996.

Increasing numbers of participating schools

The number of secondary schools with approved VET programs increased from 1441 in 1997 to 1729 in 1998, with a further increase to 1850 estimated for 1999. State and Territory comparisons indicate that all except the ACT (where all senior schools provide it) had new schools entering the VET field each year. However, there has been a slowing in the rate of growth of participating schools as the limit of all schools is approached. Much of the growth in enrolments has been due to new schools entering the field with new students rather than increased enrolments from already participating schools. Significantly, any future increase in numbers is thus likely to depend on fundamental changes in the student population, the school environment or the curriculum.

Figure 5.1: Estimated number of secondary school students participating in VET in Schools programs (Australia; 1995 to 1999)



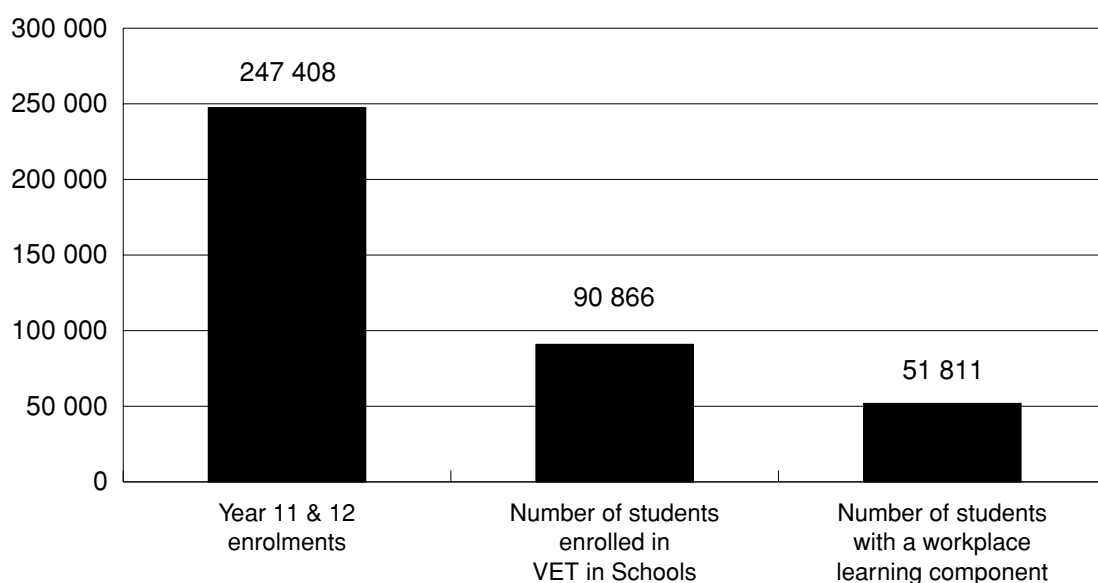
Source: Ainley and Fleming, 1997; Spring, 1999

Aggregates by school sector

There has been a recent increase in the number of vocational enrolments in non-government schools, which were initially slow to enter this area. However, VET in school students are still more strongly represented in government schools.

Given the annual rate of growth in VET enrolments and the prevailing frameworks of post-compulsory schooling, it is likely that the proportion of students participating in VET programs in government schools will stabilise at about 40 per cent of Year 11 and 12 enrolments (Spring, 1999). In 1998 enrolments approached this level, with 37 per cent of Year 11 and 12 students in government schools participating in a VET program. As only 22 per cent of students in Catholic and 14 per cent of students in independent schools now participate in VET programs, growth in enrolments might be expected as the programs become better known. However, based on issues of class and values it is reasonable to assume that the proportion of independent school students undertaking VET studies will remain significantly below that in the Catholic and government sectors. Participation rates for vocational programs by socio-economic background and school achievement are discussed later.

Figure 5.2: Australian government school enrolments in 1998 in Years 11 and 12: VET in Schools programs and VET in Schools programs with workplace learning



VET in Schools and workplace learning

Since Carmichael's proposal in the early 1990s for 'mixed' pathways for secondary schools, work-based learning has grown as a key component of the post-compulsory curriculum. By 1998 national estimates indicate that of the 247,408 enrolments in Years 11 and 12 in government schools, 37 per cent were enrolled in VET in Schools programs and 57 per cent of those had a workplace learning component (Figure 5.2).

Conversely, 43 per cent of students in government schools who were enrolled in VET in Schools programs were in vocational programs with no work placement. This occurs for a variety of reasons. For example, there may be insufficient numbers of accessible employers (particularly for regional and remote schools). The school may not have designed employer participation into the program. In these cases, workshop or simulated environments may be provided by participating TAFE institutes or be available at the school. For instance, case study evidence suggests that vocational programs in office and clerical skills, information technology and hospitality often use TAFE institute or school facilities as a substitute for workplaces (Malley, Frigo & Robinson, 1999a). The Joint Secondary Schools TAFE (JSST) programs offered across NSW, and the Memorandum of Agreement process between schools and TAFE Institutes in South Australia, are mechanisms that provide attractive and efficient alternatives to work-based learning.

Participating workplaces

After three years of program growth and promotion it is likely that, unless other underlying factors change, there will be only marginal increases in the number of workplaces providing structured work placements for VET in Schools programs.

The identification of the number (and turnover) of workplaces participating in VET work placement is important for two reasons. Schools that offer extensive work-based learning programs have varying resource requirements, depending on the number, size, type and location of workplaces they have to service. From a central policy perspective, if workplace learning is to be further promoted as an essential feature of VET in Schools, then an understanding of the extent of participation by workplaces is required, but there are no reliable estimates at present. The analyses by the ABS of employer training practices in Australia (ABS, 1998a) include contracted employee training (New Apprenticeships), but they do not identify training provision for non-employees, such as VET in Schools students.

The number of workplaces¹ that have actively participated in this type of program can be inferred from estimates of students with a workplace learning component in their VET program. An upper level of 52,000 workplaces is derived, if it is assumed that in 1998 each student went to one workplace for work placement. However, many workplaces are likely to have more than one student in a year. Assuming that each supported two students on average during the year will produce a lower estimate of 26,000 participating workplaces. This is a crudely estimated range and that excludes consideration of workplaces providing other forms of workplace learning for VET in Schools.

There are also no available reliable indicators to identify participating employers or work sites. Are they participants in partnership arrangements with schools? If not, then are they traditional participants in apprenticeship/traineeship provision, who have added school-initiated programs to their existing training arrangements? Or are they substituting some forms of traditional employment, particularly apprentices, with non wage-based students? For the moment these questions remain unanswered.

VET in Schools enrolments by industry

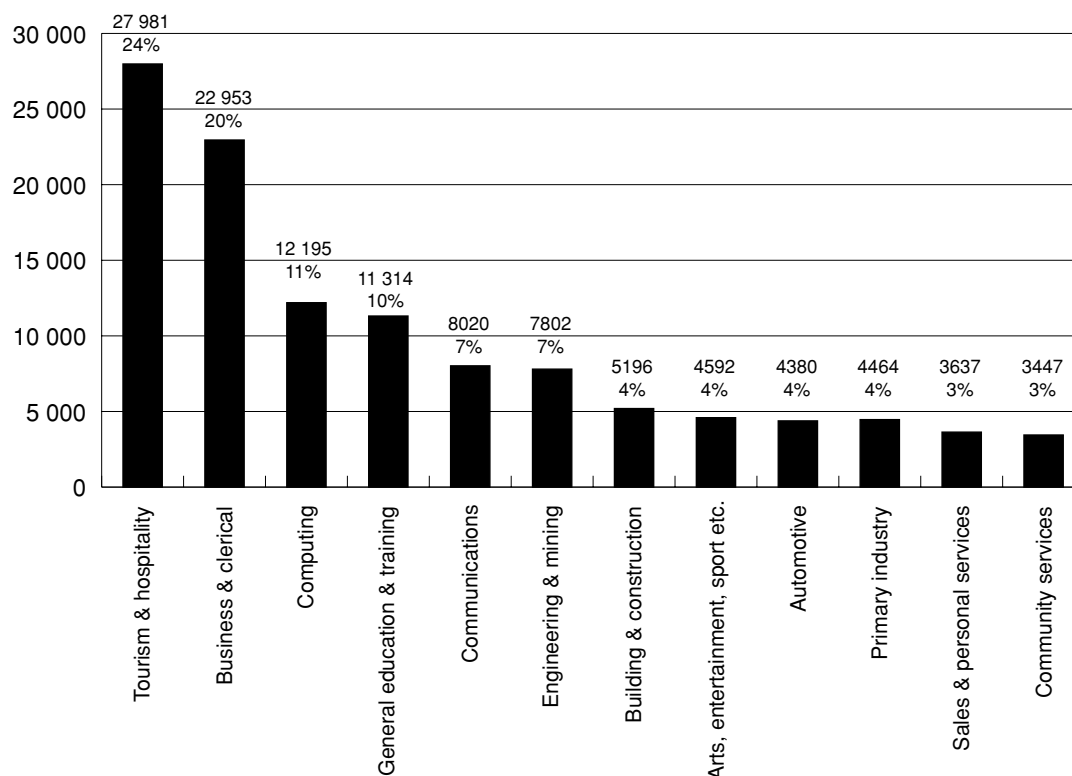
Two broadly defined industry areas appear to account for 44 per cent of VET enrolments in the government school sector. Figure 5.3 shows that 24 per cent of enrolments are in tourism and hospitality; and 20 per cent in business and clerical. Large enrolments occur in these two areas because schools and TAFE Institutes can offer places not tied to the provision of workplaces. Facilities such as kitchens, dining rooms and simulated offices are readily available at most schools and TAFE institutes. However, these areas also have large numbers of students undertaking workplace learning.

1 Note that workplaces are not the same as employers or enterprises. Workplaces are individual work sites. Large employers and enterprises (such as supermarket chains and fast food outlets) often have many workplaces operating under a common name.

Informal advice from the State education agencies suggests that the areas of communication and computing also have large enrolments not undertaking work placements. Courses in these four industry areas make up over 60 per cent of the VET in Schools enrolments. These contrast with courses that are more dependent on access to specialist equipment and expertise, such as automotive, engineering, and building and construction, that are likely to include higher levels of work-based learning.

Whether these levels of enrolment are related to industry demand is problematic. If schools and TAFE provide places on the basis of availability of internal facilities rather than workplaces, then a significant component of VET in Schools is supply driven and not necessarily related to industry demand for entry level skills.

Figure 5.3: VET in Schools enrolments by industry classification (Australian government schools only; 1998)



Source: Spring, 1999

The implementation of VET in Schools by State and Territory

Variations in participation in VET in Schools programs reflect the different arrangements for VET within State and Territory curriculum and certification frameworks. NSW had the largest number of Year 11 and 12 students enrolled in VET in Schools programs (53%), but the lowest level of VET student participation in work-based learning (38%). This can be largely explained by a component of the NSW program (JSST) that allows school students to undertake their VET learning in TAFE Institutes and TAFE's associated workshops and simulated work environments.

Victoria and Western Australia had the lowest proportions of combined Year 11 and 12 government school students participating in VET programs (15% respectively in each State), but differed with regard to work placement. In Western Australia all VET students in government schools participated in work-based learning, whereas in Victoria only 50 per cent of students did so. South Australia and Tasmania indicate that all VET students in government schools undertake workplace learning as part of their course.

What are the sources of enrolment growth?

From a policy perspective it is important to know the composition of the growth in VET in Schools enrolments. How much is due to enrolments by students who would not have otherwise

continued through Years 11 and 12? How much comes from students who would have stayed on at school anyway, but who have opted for a different type of program?

The evidence suggests that the growth of VET in Schools has been sustained mainly by students who would have stayed on at school, particularly in schools entering the VET arena for the first time. As age specific participation and retention rates have marginally oscillated over the 1996 to 1998 period it could be inferred that the VET in Schools program has not attracted large numbers of additional students to continue through Years 11 and 12. However, it is equally reasonable to suggest that the provision of VET in Schools programs has prevented further declines in participation and retention, particularly given the decline in Year 10 to 12 participation rates since 1993.

Gender issues

There is an emerging concern about differences between males and females in school participation and retention. Between 1994 and 1998 school participation rates for 16 and 17 year old males were consistently lower than for females. The 16 year old male participation rate in full-time schooling has hovered at about 77 per cent, consistently some six percentage points below that for 16 year old females. A similar pattern is apparent for 17 year old males, with a participation rate oscillating between 55 per cent and 57 per cent, also some 6 per cent below that for females.

Data from the longitudinal studies of Australian youth indicate that participation by females in VET in Schools is similar for males and females, but there are differences in the fields of participation. This is discussed later.

Future projections

The stability of student participation and retention rates in Years 11 and 12 suggest that VET in Schools is being absorbed into existing schooling structures and that there is unlikely to be a sudden upsurge in demand. This stability provides a basis for modelling future enrolment growth in school-based VET.

On the basis of no significant change occurring to education systems and values it is projected that there will be 150,000 to 200,000 VET in Schools enrolments throughout Australia over the 2000 to 2010 period. If there is a policy intent to have a higher level of participation in VET in Schools, then significant shifts need to occur in the structure of schooling, the design and classification of elements of curriculum or the values that teachers, parents, students and employers hold towards vocational skills and applied learning. This type of projection though, masks significant differences such as depth and rate of student participation between States and industry fields.

School-based New Apprenticeships

The Liberal and National Party Government, which was elected in March 1996, introduced the New Apprenticeship concept as a means of structurally reforming the provision of skills training in Australia. One key feature of this policy was the creation of a pathway into senior secondary schools for the restructured form of apprenticeship. By endorsing an agreed 'Principles and Framework for New Apprenticeships for School Students' at the June 1997 meeting of MCEETYA, Federal and State and Territory Ministers cleared the way for implementation of the new form of apprenticeship in schools in the following year.

Under this framework agreed characteristics of school-based New Apprenticeships include:

- A registered training agreement linked to an industrial award signed by an employer and a trainee which is validated by a State and Territory Training Authority;
- The trainee being enrolled under a relevant Education Act and working towards the attainment of a senior secondary school certificate and thus attending both school and work; and
- A formal structured training component, which may be given credit within the senior secondary certificate or within the training program, but which can only be delivered through a Registered Training Organisation (RTO) and meets nationally endorsed standards.

By the end of 1998, the first year of implementation, there were 1591 registered school-based New Apprentices with an estimated 4857 expected by the end of 1999 (Spring, 1999). Queensland, through arrangements made between its education and industrial training agencies, has

embedded this part-work and part-school concept into schools in a way that is attracting large enrolments. Victoria, through widespread coalitions of school clusters with group training companies, relies more on growth through locally negotiated arrangements. The variations between States and Territories partly reflect different administrative arrangements, but also probably employer location and density. For 1998 these school-based New Apprentices represented less than 1 per cent of Year 11 and Year 12 enrolments and less than 1 per cent of all apprentices and trainees.

A breakdown of the New Apprentices by ANTA industry codes reveals a different profile from that for VET in Schools. Just over two thirds of school-based New Apprentices were concentrated in four industry areas: tourism and hospitality (20%); engineering and mining (18%); sales and personal service (17%); and business and clerical (13%). This pattern is significant in that, other than engineering and cooking components in hospitality, these represent employers using the apprenticeship concept in new occupational areas.

What is of interest for the future is whether these employers are creating new positions to accommodate school-based New Apprentices or whether they are converting existing jobs (part and full-time) or apprenticeships to the new format. If there is a significant element of conversion occurring, then this might be seen as shifting the focus of 'end on' school leaver entry level training from TAFE Institutes to concurrent models with schools. There is clearly a need to monitor the growth and associated effects of school-based New Apprenticeships as the program proceeds from its current fledgling status.

Profiles and outcomes of participants in school-based vocational education

Data sources

Data to map student background characteristics with post-school destinations is more often than not collected and analysed by research agencies outside of government. For Australia the main source of information about the socio-economic background of students in schools who have pursued particular fields of study (such as vocational education) and their subsequent post-school pathways comes from the Longitudinal Studies on Australian Youth (LSAY).

LSAY is administered by the Australian Council for Educational Research (ACER) with funding provided by Federal and State and Territory governments. It is a national longitudinal sample survey, which commenced in 1989 with a sample of 14 year olds, who were followed up annually until 1997. Nationally representative samples of 16 year olds were added to this original group for each year in the period 1990 to 1994 and are also being followed up until the age of 27. Subsequent new Year 9 samples were commenced in 1995 and 1998.

The complexity of data collection and analysis for LSAY means that published findings refer to periods prior to the most recent policy initiatives on youth, vocationalism or schooling. Thus, contextual and classification differences will emerge when using the data to influence current policy and programs.

Other national data collections, such as those of the ABS and the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) provide aggregated data on students and schools (ABS, 1998a; MCEETYA, 1997), transition from school to work (ABS, 1997) and labour force participation (ABS, 1998b).

Student profiles

At the national level a series of analyses based on LSAY data sets identify recurring socio-economic profiles for those most likely to undertake vocational studies at school (Lamb, Long & Malley, 1998; Fullarton, 1999; Lamb & Ball, 1999).

The 1998 study by Lamb, Long and Malley provides information on those who participated in vocational programs at senior secondary school. Participation is measured for the period 1991 to 1993 and covers enrolment in a vocational studies unit or subject in either Year 11 or Year 12. The study reports that Year 11 and 12 students participating in vocational programs were more likely to have attended government schools and to be from home backgrounds where parents worked in skilled or unskilled manual occupations. Females doing vocational programs were more likely to have mothers who were Australian-born English speakers. Of students enrolled in vocational subjects, over 70 per cent came from families where the wage earner was classified as being in a skilled or unskilled manual occupation. Over 80 per cent attended government schools and over 70 per cent had Australian-born English-speaking mothers.

Fullarton (1999) used 1996 and 1997 data from LSAY to explore the characteristics of students undertaking either work experience or work placement in Years 11 and 12. Using students undertaking workplace learning programs in Year 11 as an approximation to VET in Schools, she found similar socio-economic status profiles to those identified by Lamb. Using participation rate measures Fullarton found that students undertaking workplace learning were more likely to have parents in skilled and unskilled occupational groups who had not proceeded beyond secondary education and who lived in regional, rural or remote locations. Students doing workplace learning programs were also more likely to come from government schools and be in the lowest quartile of achievement in maths and reading.

Ainley and Fleming (1997) found that school-industry programs were more extensively provided by schools in provincial cities and country towns than in capital cities or rural areas. They also analysed their national survey of school industry programs in Years 11 and 12 by postcode; and found that the two lowest ranked areas on socio-economic status had the most frequent provision of these programs.

When comparing Year 12 participation rates in vocational education and technology across school sectors Lamb and Ball (1999) found that low achieving students in Year 12 tended to favour vocational education and technology options. Approximately 19 per cent of students from the bottom two quartiles of achievement enrolled in these types of course. Lamb and Ball also reported a continuing difference between students from government and non-government schools which was similar to that noted earlier.

These analyses suggest a relatively stable profile of students undertaking vocational pathways in senior secondary school since at least the early 1990s. This profile is one where vocational students are more likely to come from non-metropolitan lower socio-economic English-speaking backgrounds, and be in the lower quartiles of achievement within government schools.

Case study evidence (Malley, Frigo & Robinson, 1999a) suggests that where schools offer streamed vocational options, these are seen as one way of providing a viable and relevant pathway for students who might otherwise leave early, or choose not to continue with tertiary studies. The dilemma with this approach though, is that, while many students self select into these options, many teachers, students, parents and employers attach a status to the vocational stream below that of the academic stream. Some schools provide vocational options on a 'whole of school approach', arguing that all students need some degree of exposure to applied learning models and workplace values. Unfortunately, there do not appear to be many schools in Australia that are doing this.

As long as schooling systems offer vocational learning as an optional stream it is likely that the socio-economic profiles described above will be maintained. Where States and Territories provide a variety of engagement options in vocational programs, or a unified curriculum which includes vocational elements, there is less likely to be overt downward pressure on the status of vocational students and programs.

Transitions, aspirations and outcomes

Outcomes of participation in VET, as measured by post-school destinations and intentions, are also important when evaluating this type of program. Lamb, Long and Malley (1998) again provide a benchmark for the early 1990s by following up at age 19 the destinations of former Year 11 and 12 students who participated in vocational programs and comparing them with those of the students who did not participate, as well as with those of students who left school at Year 10.

A comparison of post-school destinations between the vocational studies group and the non-vocational group suggests differences in terms of future participation in education and training. Both males and females who studied vocational subjects at school were more likely to proceed into the post-school VET sector (53% of males and 51% of females) than those who did not study vocational subjects (43% of males and 35% of females). But another group of the former vocational studies students were more likely by the age of 19 not to have engaged in further education or training (38% of males and 36% of females) than students who did not undertake vocational studies at school (28% for males and females).

Differences in outcomes between males and females who studied vocational subjects at school might reflect the traditional gender bias of traditional apprenticeships and some TAFE courses. Males were more likely to go into apprenticeships (22% of males compared with 2% of females) and females were more likely to study at the diploma or certificate levels within post-school VET (27%) or else proceed to higher education (21%). The difference between males and females of

further participation in higher education for those doing vocational subjects at school (21% for females compared with 9% for males) is of interest and requires additional explanation.

Comparisons of post-school outcomes for vocational students and early school leavers are also provided by Lamb, Long and Malley (1998). That more early school leaving males continued on to post-school VET studies (70%) than either males who stayed at school in vocational studies (53%), early leaving females (44%) or females in vocational studies (51%) is a surprising finding, but is explained by their movement into traditional apprenticeships and certificate studies in TAFE. This movement also partly explains why the proportion of early school leavers not engaging in further education and training is lower than for male students who stay and study vocational subjects (31% compared with 38%).

Comparing outcomes for Year 10 school leavers with VET students in Years 11 and 12 provides an indication of the limitations of attempting to confine analyses only to participants in vocational programs. Broader questions about transition to further education, training and work by the 15 to 19 year age group, and particularly by the early school leavers, imply that issues of connection and inclusion are important for the entire age cohort, not just for those doing VET. The implication that vocational studies at school should provide both incentive and advantage to access particular jobs and courses requires comparative analyses with non-vocational and early school leaving youth, bearing in mind the overall labour market context and other opportunities for post-secondary education and training.

Lamb and Ball's (1999) later sample of only Year 12 students provides more comparative outcome information which illustrates broad and interrelated, but not absolute trends. They concluded:

... that while the study of vocational education and technology subjects in school is related to high rates of post school VET participation, the participation is, relatively speaking, achieved through access to apprenticeships and traineeships rather than other TAFE courses. By comparison, entry to non-apprenticeship TAFE courses is much stronger among those studying 'arts and humanities' and 'sciences and humanities' subjects ... (p.28)

A Victorian study of post-school destinations of VET in Schools students (Polesel et al., 1998) presents a more optimistic picture. The study reported that, of the 1997 graduates of VET in Schools programs, 58 per cent were continuing in some form of further education and training (21% in university and 31% in the post-school VET sector), 17 per cent were in apprenticeships or traineeships, 14 per cent were in full-time work, 5 per cent were in part-time work and 6 per cent were unemployed. One explanation for the differences in outcomes in this study and those found in the LSAY-based studies of Lamb, Long and Malley is the particular context of VET in Schools in Victoria. At the time of the Victorian study only 15 per cent of Year 11 and 12 students in this State were enrolled in VET programs, and these programs generally require a two year commitment to complete a full AQF certificate of study within the VCE framework. Another explanation is that the Victorian study reports on Year 12 completers, whereas the Lamb, Long and Malley (1998) work reports outcomes for a youth cohort, some of whom did not enter or complete Year 12.

Costs of VET in Schools

Under the current funding arrangements additional Commonwealth resources are provided through the Australian National Training Authority (ANTA) and the Australian Student Traineeship Foundation (ASTF) to assist in the development of VET in Schools. These arrangements concluded in 2000, and there is considerable interest in the likely funding of VET in Schools over the 2001–2004 period. The interest is not just from school system authorities and individual schools, but also from TAFE Institutes and other VET providers who have become involved—or are interested in becoming involved—in providing some of the VET in Schools programs.

The limited amount of overseas evidence suggests that VET programs cost more than general education programs (Tsang, 1995). Vocational programs have commonly been found to involve smaller classes, more specialised teachers, and more expensive buildings and equipment than general education programs. However, the applicability of these findings to Australia is limited. Most of the research has been conducted in developing countries, with different cost structures to Australia. Furthermore, the VET programs concerned have generally been conducted in separate institutional structures that are separate from other parts of secondary education, and it is not at all clear that the nature of those programs is comparable to current forms of VET in Australian schools.

A review of the evidence on the costs of provision of VET in Australian schools is provided in a study by Burke, McKenzie and Shah (2000). This study concludes that greater costs are involved on average than for the provision of other curriculum areas. However, the extent of that additional cost varies with a range of factors, such as the type of VET program provided in a school; the extent of work placement; the size of the school's Year 11 and 12 enrolments; and the number of separate VET programs a school provides.

The review concluded that there were five main factors affecting the costs of provision of VET in a school. The first factor was start-up costs. The second concerned the teaching time allocated to the teaching of VET units (where schools provide the tuition). The third factor involved the payments, if any, to other organisations for the provision of tuition or assessment. The fourth factor was the incidence of other teacher and personnel time for work placement activities and assessment of competencies. The final factor was the cost of materials and equipment costs.

Start-up costs

The start-up costs can include teacher development programs, purchase of course materials and any registration requirements. In some cases the start-up costs include the establishment of specialist facilities, such as in engineering or hospitality. However, it is likely that the provision of specialist facilities will occur only occasionally and that schools will seek assistance from other organisations, mainly TAFE institutes, where they lack appropriate facilities.

Teaching time requirements

The major factor in the provision of VET units by a school is the teaching time required. If students take the VET units in addition to the usual load in Years 11 and 12 there will be additional teaching required. This is the most expensive organisational model for providing VET. However, most provision of VET in Schools involves students substituting VET units for other Year 11 and 12 units. In other words VET in Schools generally does not add to a student's load, but replaces other parts of their study program.

From the perspective of the school, however, the position is not so clear. Although a VET in Schools program may not require students to study more subjects or units, it may require schools to provide a broader curriculum from which students can choose. Thus, a considerable proportion of the costs of VET in Schools can be associated with curriculum diversification rather than with VET itself.

In other cases, though, the allocation of teacher time to VET units may be partly offset by the reduction in other elements in school activities. This will vary with the VET program concerned. For example, in Victoria the provision of VET studies in business undertaken at Year 11 can involve the provision by a school of units equivalent to two semester units of the whole Year 11 program. If the business units simply replace two other units previously provided then there is no addition to the school's direct teaching costs.

The issue of students spending time in structured workplace learning as part of their VET program complicates the matter even further. If the time students spend in work placement is treated as a substitute for other Year 11 and 12 classes then it can lead to a reduction in overall teacher time requirements in a school. Thus, VET in Schools can reduce school costs by shifting teaching and supervision costs to the workplace. However, the extent to which this eventuates will depend on the level of teacher involvement in organising and supervising students' workplace experience. The evidence is that this supervision and contact time is substantial (Malley, Frigo & Robinson, 1999a).

The degree of flexibility in timetabling and in policies on maximum and minimum class sizes influence the extent to which substitution of VET units for other parts of the curriculum can occur. If the provision of the VET studies cannot replace other activities in the school then additional teacher time requirements will not be offset, and overall costs will rise. This is more likely to occur where:

- Schools have a relatively small number of senior secondary students;
- Only a small number of students take a particular VET program;
- Schools offer several VET programs; and
- The VET programs offered require smaller class sizes than other Year 11 and 12 classes, for reasons such as pedagogy or health and safety.

Payment to other organisations

Payment to other Registered Training Organisations may be required where the school lacks the necessary specialist facilities or staff, or the number of students is small. The most common example of this is the payment to TAFE institutes for the provision of VET units. Some schools require students to make part of the payment to the TAFE institutes. The extent to which schools purchase the provision of VET units varies considerably across States and Territories. If a school is able to reduce other activities without affecting the comprehensiveness of its program it may be able to fund such payments from its usual budget. However, the extent to which this is possible is dependent on the school's freedom to reallocate its budget across personnel and other payments, and the number of students in each VET program.

Other personnel time for work placement and assessment of competencies

Substantial additional costs can arise from the arrangement of work placements of students. Some VET programs require work placement. Many do not, but it is strongly recommended. The cost per student is likely to be greater the larger the number of VET programs the school provides and the smaller the number of students. It is likely to vary with external factors such as the industry in the school's area, the nature of the local business organisations and the support from other regional bodies involved in such activities (Malley, Frigo & Robinson, 1999a).

Materials and equipment costs

Some VET subjects, such as hospitality, have annual materials and equipment costs notably higher than most regular Year 11 and 12 units. In some schools these costs are borne by the students, who purchase the necessary equipment and pay a levy for the materials.

Policy and research issues on costs

Overall, the introduction of VET in Schools will increase costs if a wider range of programs is offered to students, if the course load increases for a significant number of VET students and if the average class size declines.

However, the additional costs may be relatively small in schools with large numbers of senior secondary students, a limited range of VET programs and if limited assistance is given to work placements. The additional costs in such schools may be able to be accommodated within the school budget if there is reasonable flexibility in timetabling and in the allocation of funds across personnel and other expenditures. Schools are unlikely to change their timetables and other arrangements unless there is sufficient demand for VET programs.

The additional costs are less likely to be absorbed in schools, especially those in non-metropolitan areas, where:

- Student numbers in senior secondary school are small;
- It is considered sound education policy to offer a range of VET activities;
- Liaison with local business and support for work placement is required; and
- Where purchase of tuition and assessment from other training organisations is required for a small number of students across a range of VET programs.

If no on-going financial support for VET in Schools is provided it seems likely that VET provision will be restricted in smaller schools and more concentrated on the programs such as business and information technology that can be substituted for other school activities. Alternatively, VET provision will continue to be provided in smaller schools, but at the expense of larger class sizes in regular subjects or in the lower levels of the school and additional teacher workloads. In this case there are possible implications for the quality of education in these schools.

Continued growth in the extent and depth of VET participation by students at school will improve the possibility of substituting VET classes for other classes in a greater number of schools. This implies that, in an environment of rapid growth in VET provision, the cost differentials that are presently estimated to exist between VET and other classes will not necessarily be a reliable guide to future cost differentials. In addition, the transition costs associated with rapid growth would need to be considered.

The cost implications will also depend on where the growth occurs. For example, costs are likely to be lower if growth in participation occurs in business, where larger class sizes tend to operate and materials costs are smaller, rather than in engineering, where class sizes are often smaller and

materials and other costs are higher. The cost implications will also vary with the extent to which schools are encouraged to provide more than one VET program. That is, the cost implications would be smaller if schools were encouraged to specialise in particular programs.

Summary

VET in Schools has expanded rapidly. It aims to improve the transition from education to work and further study for school leavers. The evidence to date is not clear on its effectiveness, but it clearly caters more for those who are less likely to enter higher education and may be enhancing their further education, training and employment opportunities. The evidence on the impact of VET in Schools on early school leavers is unclear, but there is a strong suggestion that it is more attractive to middle achieving students who would have proceeded to complete Year 12 than to early school leavers. This raises questions about the social and economic purposes for introducing VET into the secondary curriculum.

There are a range of models of VET in schools with varying implications for cost and effectiveness, which need to be monitored and explored further.

5.4 VET IN ADULT AND COMMUNITY EDUCATION (ACE)

Adult and community education (ACE) warrants being given particular discussion in relation to the supply of VET. In part this is because data indicate that the provision of VET programs by recognised ACE providers is expanding, but also because ACE plays a special role in strengthening equity in education and training and in responding to the learning needs of particular communities, small businesses and regions. However, discussions about ACE in Australia encounter difficulties in clearly distinguishing it from other forms of education and training. As Volkoff, Golding and Jenkin (1999) indicate, there is no agreed, national, workable descriptor of ACE. The term is sometimes used to refer to a sector, a curriculum area, particular types of programs, learners or outcomes.

Given this complexity, researchers concerned with ACE and VET have tended in recent years to consider ACE as a fourth sector of education, distinct from schools, VET and universities and comprising a network of community-owned and managed providers delivering educational and other services (e.g. Volkoff, Golding & Jenkin, 1999; McIntyre & Kimberley, 1997; Schofield & Dryen, 1996). This description works particularly well for NSW and Victoria, where the term 'ACE' is applied for administrative purposes only to ACE programs provided by incorporated, non-profit, community-managed associations (Campbell & Curtin, 1999). However, the description is much less apt for other States and Territories where ACE is viewed and organised differently and often much more informally. In Queensland, for instance, the term ACE is ambiguously used to refer to a program classification as well as to provider types. In Western Australia it is used to describe a kind of program or particular style of delivery, including 'friendly supportive learning environments in local venues' (Volkoff, Golding & Jenkin, 1999).

ACE is sometimes distinguished from other forms of education by the identification of certain 'generally agreed features' and 'underlying principles' that may also be present in schools, VET and universities, but which together 'serve as defining features for the ACE sector' (MCEETYA, 1997, p.7). These include:

- A learner-centred approach in which participants are involved in determining their learning needs, program design and content, and mode and method of delivery;
- Responsiveness to local communities and 'communities of interest' to meet the learning needs of their members; and
- Ensuring learning opportunities are accessible to all, including people not considered a high priority in other education sectors, such as older people; those with low language, literacy and numeracy skills; and people with low or no income.

While the sectoral-based description commonly preferred by researchers is used here, it is important to note and acknowledge its limitations. In addition, both Volkoff, Golding and Jenkin (1999) and Campbell and Curtin (1999) describe changes in process or mooted in the structure and funding of ACE in several States and Territories, that may have an impact on the reporting of VET activity in ACE (community-based) providers. In these changes it is possible to detect a movement toward more formal, institutionalised ACE as a strengthening objective.

ACE programs

The range of ACE programs is diverse, reflecting the many varied outcomes desired by participants (MCEETYA, 1997). These can include social, recreational, civic and personal outcomes, income-generating outcomes and pathways to other sectors and to employment.

However, for policy and funding purposes and within NCVER statistical collections, ACE programs are classified into two main groups: vocational education; and general adult education (personal enrichment). NCVER identifies 'Personal enrichment programs' as those 'not specifically designed to lead to further education or employment' (NCVER, 1998a), thus clearly distinguishing them from VET programs. National ACE policy states that through its programs ACE educates and trains people already in the work force and assists people to re-enter the work force. In addition, general adult education makes a broad contribution to 'social cohesiveness, cultural awareness and participation in the community' (MCEETYA, 1997, pp.13–14).

The distinctions between vocational and non-vocational programs in ACE are the subject of continuing debate and have sometimes been criticised as artificial and unhelpful. Schofield and Dryen (1996) found that some ACE organisations challenge the 'policy boundaries' between general adult education and VET on the basis of the contribution of general programs to the development of work skills and the vocational motivations of some participants. This view is supported by the findings of a recent survey of learners in ACE (Volkoff, Golding & Jenkin, 1999), which confirmed that learner expectations of vocational outcomes are not restricted to specifically VET programs.

In the report of its second enquiry into ACE, the Senate Employment, Education and Training Reference Committee commented on the 'conceptual inadequacy' of differentiating for policy and funding purposes between educational programs on the basis of their vocational orientation. It criticised the divide for failing 'to accommodate the rich harvest of various kinds of educational experiences that make up the learning society' and perpetuating 'unhelpful divisions' between, for instance, private gain and social benefit, and between short-term interest and long-term gains (SEETRC, 1997, reported in Volkoff, Golding & Jenkin, 1999).

While this debate has not been resolved, nevertheless Schofield and Dryen (1996) note a widespread acceptance of the view that, depending on its content, orientation and clientele, general adult education may, or may not, contribute to the national skills pool, but its core focus is not vocational (p.A1.3).

The special roles of ACE

Within the national VET system ACE (community-based) providers have been described as having two fundamental roles. The first is a *generic role*, identical to that of all other training providers. In addition 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 & 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 programs such as adult literacy, adult basic education, English as a second language and other access and preparatory programs. 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-served by, the national VET system. They strengthen links with, and provide a strong focus on, local and regional labour markets and associated demand 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 & Dryen, 1996, pp.vii–viii).

Volkoff, Golding and Jenkin (1999) find that education and training provision within the ACE sector has distinctive qualities that are not commonly found in TAFE or other VET providers. They note a capacity in ACE, for instance, to address learning environment and access issues while effectively delivering vocational outcomes, to respond to the needs of specific groups of learners, and to attract and cater for a diverse range of learners seeking quality VET outcomes. They also point to a commitment to addressing the learning needs of local communities, supporting access for learners who may not consider study in more formal settings.

Expanding VET provision

An indication of the quantitative size of the provision of VET and personal enrichment programs by community providers and by TAFE and other providers is given in Table 5.1. Community providers enrolled some 270,000 clients in personal enrichment programs in 1997 and 225,000 in VET programs. This compares with 110,000 clients in personal enrichment programs in TAFE institutes and some 1,141,000 VET clients in TAFE. The average hours per VET program taken with a community provider are low compared with programs in TAFE.

Table 5.1: VET and personal enrichment programs by provider type (Australia; 1997)

	VET programs		Personal enrichment	
	<i>Clients '000</i>	<i>Annual hours '000</i>	<i>Clients '000</i>	<i>Annual hours '000</i>
TAFE and other government providers	1141	272,000	110	2102
Community providers	225	11,000	270	6290
Other registered providers	93	19,200	0	178
Total	1459	302,200	380	8570

Source: NCVER, 1999c

Vocational programs are of increasing importance. Table 5.2 indicates that the proportion of clients engaged in vocational programs in community providers increased by about 8 per cent between 1995 and 1997; and expansion appears to be continuing.

Table 5.2: Clients of community providers by program type (Australia; 1995 to 1997; %)

Year	Vocational programs	Personal enrichment programs
1995	39.5	60.5
1996	42.5	57.7
1997	47.9	52.1

Source: Campbell and Curtin, 1999, Table 2.4

The data may understate the extent of ACE provision of vocational programs. Drawing on an extensive documentation in ACE-related research of the limitations of data on adult education Campbell and Curtin (1999) suggest that considerable ACE activity may be under-reported. They note, for instance, that the national annual statistical collection (AVETMISS) is the main source of data on ACE, but it reports only ACE activity where public funds are involved. In addition, the reporting of ACE activity depends on the varying scope of each State's data. In some States and Territories no statistics are currently collected from community-managed education providers—only personal enrichment programs in TAFE institutes are reported as ACE activity.

From Kelly and Goldsworthy (1993) Campbell and Curtin indicate two further factors contributing to data difficulties: the multiplicity of bodies responsible for adult and community education; and the large number of non-government (private) groups involved. Schofield and Dryen (1996) suggest that gaps in ACE data may reflect the extent to which the States and Territories distinguish between ACE providers (ie. community-based providers) and other public or private providers and the co-ordination and funding of provision by ACE providers in each State or Territory. They also pointed to variations in the ways in which States and Territories collect data on other than TAFE Stream 1000; distinguished between ACE provision of accredited and non-accredited courses in Streams 2000–4000; and included ACE provision of other than Stream 1000 courses within the State Training Profile.

Reflecting these data limitations, information about the disciplinary mix of vocational programs offered in ACE is patchy and relies on relevant research rather than annual statistical collections. McIntyre, Morris and Tennant (1993) identified the four main strengths of ACE as in the fields of arts and humanities, business, health and community services, and other services. Interviews with

community providers in Victoria conducted in 1995–96 (CEET, unpublished) similarly reveal strengths in the provision of business programs, particularly in computing and other office skills.

Identification of the spread of vocational programs across providers is also limited by a lack of data. Schofield and Dryen (1996) indicated that about 15 per cent of ACE providers had gained registration as VET providers and were therefore eligible to seek government funding for accredited VET programs. Volkoff, Golding and Jenkin (1999) found that in Queensland the number of community providers with RTO status or with the ability to achieve such status was very small. In Victoria however, by 1998 19 per cent of registered ACE providers were delivering accredited vocational programs and were actively involved in tendering for government funds to expand this delivery.

Why more VET?

The expanding provision of vocational programs by community-based (ACE) providers can be attributed to three main factors: a response to increases and shifts in demand from individual learners, communities and enterprises; reconsideration of the vocational orientation of some programs resulting in their re-classification from general adult education to VET; and responses to resource opportunities and constraints.

Responding to demand

Much ACE research highlights the development of strong links at the local and regional levels between community-based providers, communities, enterprises and industries. It describes how these links promote the provision of programs to meet very specific vocational education needs that may be overlooked elsewhere in the VET system.

McIntyre, Morris and Tennant (1993) assessed sources of demand for vocational courses in ACE and identified direct demand from employers and organisations; demand stimulated by the (now defunct) Training Guarantee Act; demand related to Commonwealth and State funded labour market programs for the unemployed (now also curtailed); and demand from disadvantaged groups. They found that government agencies, large firms and small businesses, local councils and community organisations were turning to ACE to meet their immediate needs for workplace training. They reported that the principals of some larger ACE centres regard their 'natural clientele' as small business, which seeks a 'low cost' and 'quick return' from training. This was identified as a 'specific market not being addressed by TAFE and private providers'.

The role that ACE plays in meeting the vocational needs of small business was clear also in interviews conducted by CEET in Victorian community providers. Several providers were actively engaged in strengthening their links with local enterprises, resulting in the provision of programs to meet the particular needs identified. This appeared to be the case especially among ACE providers located in regional centres, but occurred also in some parts of the Melbourne metropolitan area.

Clemans and Bradshaw (1998) illustrate the strong relationships between community providers and small business, particularly those owned or operated by women. They found that ACE has a developing role in providing training to meet the needs of small business. Most of the employers who use ACE are in small businesses and a significant proportion of ACE participants work in small business as employers, self-employed or employees. Women use ACE courses particularly in the early stages of their business development, to assist them in setting up the business. As the small business progresses women are less likely to undertake learning activities in ACE.

Their research found that ACE tutors and co-ordinators have a sophisticated awareness and a complex understanding of the needs of women in small business. They recognise the intersection between personal and business development; they identify the importance of teaching women in small business-related programs to assume an identity as a small business woman and adopt the small business ethos; they understand time management needs; and they recognise the importance of technological familiarity and expertise. This contrasts markedly with the orientation of other parts of the VET system toward 'big' business.

Reconsideration of program classification

Though ACE has a long history of meeting the vocational needs of adult learners (e.g. Gribble, undated) the vocational orientation of many ACE programs has traditionally often been overlooked or discounted. Thus the majority of ACE programs were officially classified as 'personal enrichment' rather than 'vocational'.

Throughout the past decade, considerable ACE research has contributed to a questioning of this classification and the appropriateness of the personal enrichment/vocational distinction by uncovering the vocational motivations of learners and the vocational outcomes of many ACE programs. In this way the research has contributed to a process in which the vocational orientation of many enrichment programs has been recognised by re-classifying them as vocational courses (e.g. Schofield & Dryen, 1996).

McIntyre, Morris and Tennant (1993) surveyed over 2000 participants in ACE courses in NSW. Respondents were asked to state their motives for enrolling 'in terms of ways they thought their (present) course may be helpful to them' (p.65). The principal conclusions of the survey included that, although only a quarter of respondents reported a vocational motive as their primary motive, up to 90 per cent had a vocational component among their motives. Further, the motive for participation depended largely on the course area. While 50 per cent of participants in business courses reported a vocational motive as their primary motive, in arts courses the same proportion reported a self-development motive and in services courses the majority (67%) reported a community work motive.

From a survey of 6000 adult education participants, the Adult, Community and Further Education Board (ACFEB, 1994) found that the single most common reason for enrolling was to learn a skill to find a job. The second most common reason reported was to prepare for another course. When responses were grouped, vocational and personal skill development were nearly equally common reasons given for enrolling. However, there was considerable variation across providers, courses, gender, age and employment status. The proportion of young people (15–19 years old) enrolled for vocational reasons was particularly high (84%). Regardless of age, gender or employment status, learning and skill development was a major outcome for all participants.

ACFEB (1995) explored the educational and employment outcomes of a sample of participants in 1992 ACE courses. It found that employment outcomes occurred in all types of courses, but were highest in vocational courses (60%). Slightly more than a quarter of participants in adult basic education courses achieved an employment outcome, and 13 per cent of students in general adult education. It was noted that results were affected by an economic recession and may have been different in other circumstances. In the case of education outcomes, the research found that most participants who undertook an ACE course to gain this type of outcome achieved their goal. This included significant proportions of participants from all course types.

Volkoff, Golding and Jenkin (1999) surveyed a sample of learners in accredited VET programs in ACE and TAFE. They found that learners chose ACE in order to achieve a set of personal, social and vocational goals, rather than just one goal. Some ACE learners had specific vocational intentions or requirements, such as a need to re-skill to gain or maintain a job, or secure a promotion. Others valued the content, learning experience and environment as of equal or higher importance.

Irrespective of the type of course they were enrolled in two thirds of ACE learners were studying to 'help them perform a great range of jobs' and 88 per cent were studying for 'the knowledge or skills'. Though ACE learners clearly had a learning orientation at least half indicated a 'job oriented' reason for their participation.

Resource constraints and opportunities

Concerns about inadequate resources are a recurring theme in the growing literature on adult and community education for the past decade (e.g. McIntyre, Brown & Ferrier, 1996). Resource constraints have been exacerbated by the expansion of ACE, which has created new pressures on the limited resources of community-based providers and encouraged them to supplement their income from government funds and student fees with funds from other sources.

In this context, the opening up of competition for government funds for accredited VET programs has provided an opportunity for some community-based providers. Their success in winning funds is reflected in the increased focus on VET demonstrated in the data on participation and program delivery. However, other providers have not been able to respond to these opportunities. Some have been hampered by a lack of resources required to enter the market and compete effectively. In addition, some providers have expressed concerns about the impact of a shift to a stronger VET focus on the provision of general adult education and the traditional values of the ACE sector.

Schofield and Dryen (1996) found that three factors had influenced community-based providers to become registered training providers. First, registration was required to win contracts with the

Commonwealth to deliver labour market programs. Second, it was necessary to be eligible to bid for Commonwealth Growth Funds for training provision. Third, it responded to demands from clients for quality assurance. However, they also identified factors influencing providers *not* to offer VET courses. These included a desire to maintain effort in general adult education, insufficient funding, appropriate equipment and/or staff, and administrative requirements.

The difficulties and choices facing individual providers are indicated in a study of four community providers (Barnett & Wilson, 1994), which found that financial constraints created pressures to change provision to include more skills-based and vocationally focused courses. Three of the providers had chosen to become more involved in VET. The fourth had not, due to perceived low demand in the local area, coupled with a lack of human resources to deliver programs. This study found also that community providers tended to co-operate with TAFE, but to compete with private providers of VET.

Interviews with community providers in Victoria in 1995–96 by CEET found that well-resourced, larger community providers were enthusiastic about the new opportunities in VET. However others, particularly smaller providers with fewer resources, did not intend to enter the training market, or would do so only on a very limited basis. Available skills and resources were important influences on their decision, combined with their assessment of the demand for vocational programs in their local area.

McIntyre, Brown and Ferrier (1996) suggest that, in a competitive market for funds, some providers may find themselves in a downward spiral. Their capacity to compete with larger and better-resourced organisations will decline each time they are unsuccessful in winning funds and thus have fewer resources to devote to competing effectively.

For a small number of providers, particularly smaller providers with limited resources, the cost of registration as a training organisation has been found to constitute a barrier to entry to the training market (Volkoff, Golding & Jenkin, 1999). This has occurred even though the costs are considered to be low (Schofield & Dryen, 1996). Entry to the training market for these providers has been possible however, through collaborative arrangements with another provider or a TAFE institute.

While funding concerns are a recurring theme in the ACE research, variations in funding arrangements in each State and Territory, and ongoing changes in these arrangements, make it difficult to compare the adequacy of resources (and the efficiency and effectiveness with which they are used) in a comprehensive way.

McIntyre, Brown and Ferrier (1996) investigated the income and expenditure of ACE providers in NSW. They found that to obtain resources these providers drew on both financial resources and in-kind contributions. Income was earned primarily from three main sources: government contributions; student fees and charges; and commercial activities. The proportion of total income derived from each source varied markedly from one provider to another, as did the costs they incurred in undertaking activities.

The size of the organisation, measured in terms of its activity in annual student contact hours, was found to be a significant influence on its income and activity costs. There were economies of scale and other advantages evident in being a larger provider. However, size did not account for all of the variation. Local factors were also extremely important. Among ACE organisations of the same size, variations in income, activity and activity costs could be explained by the way providers responded to the challenges of financing the delivery of ACE in a given locality. Decisions took into account funding regimes, the character of the area, potential participants and the type of programs they demanded. The government 'funding regime' was found to be only one factor in the ACE 'funding equation'. Equally important were the ACE organisation's strategic directions, which in turn reflected 'a reading of the character of an area and its ability to generate fee income' (p.93).

Apart from the work by McIntyre, Brown and Ferrier (1996) there has been little exploration of the costs of delivering vocational programs in community-based providers. In particular, no published comparisons have been located of the costs of delivering similar programs in ACE and in other VET settings. Nevertheless, a reduction in costs is described as one of the impacts of the entry of community-based providers into the training market (e.g. Schofield & Dryen, 1996, p.vii).

Lower costs might give ACE providers an advantage in the competition for VET funds, particularly where price is a significant factor in determining the allocation of contracts. The

ability of community-based providers to contain costs and offer VET programs at a lower price (both to governments and to participants) may reflect the importance of in-kind contributions in this sector.

Case studies of five providers (McIntyre, Brown & Ferrier, 1996) indicated three types of in-kind contributions: community; government; and their own. Community contributions included premises, materials or services made available free of charge or at discounted rates by local people or bodies such as the unpaid work of community management committees and staff. Government contributions included the work of the NSW Board of ACE in acting as a broker or agent for the sector, for instance in securing agreements for the use of school premises. Contributions by providers themselves included the funding of concessions on course fees for some students and the cross-subsidisation of courses for equity reasons. Overall, the research identified that the financial value of in-kind contributions was such that if free or discounted services and resources were withdrawn the providers might find it difficult to meet the full costs of replacing them.

The equity role of ACE

ACE has traditionally been regarded as fulfilling an important equity role. The National Policy for ACE (MCEETYA, 1997) states that:

ACE has a tradition of open access and well-developed competence in meeting special educational needs. It can increase learning opportunities and pathways, particularly for individuals from groups under-represented in employment, education and training. (p.15)

This role has been described as particularly important for women, who form the majority of participants in ACE, and who have been under-represented in other educational sectors (e.g. Campbell & Curtin, 1999; Volkoff, Golding & Jenkin, 1999). In the context of a national and international focus on *lifelong learning* it is expected to become of even greater importance and for a more diverse group of participants. Adult education is envisioned as integral to lifelong learning, promoting family and community learning as well as dialogue between people of diverse cultures and backgrounds (Campbell & Curtin, 1999, p.19).

Data on participation in ACE indicate that, in spite of the sector's recognised equity role, participants in most ACE programs still tend to be young, employed and educated—though less so than TAFE students. While vocational training in community-based providers has been found to become more attractive to potential students with age, particularly for women and those aged over 65, participation declines markedly with age, so that less than 10 per cent of those aged over 55 years participate, compared with about a third of young people (AAACE, 1995). In addition, while women comprise the majority of participants, it has been noted that the sector has failed to respond adequately to their particular learning needs. Thus ACE does not appear to be fulfilling its equity role as well as it might; and it may not be in the best position to fulfil the broader equity role expected of it in the future.

Explaining participation patterns, research has uncovered a range of barriers to participation in ACE. Drawing on research by Bennink and Blackwell (1995), McIntyre and Kimberley (1997) note dispositional, situational and institutional barriers that fall into four groups summarised in Box 5.1. Individual members of disadvantaged groups are described as facing different combinations of these types of barriers.

Box 5.1: Barriers to participation in ACE

Group A	Group B
Low self-confidence	Socialisation
Inappropriate content and delivery	Lack of interest or relevance
Previous educational experiences	Family commitments
	Lack of support
Group C	Group D
Accessibility of facilities and services	Lack of awareness
Lack of transport	Negative image of ACE
Cost	

Source: McIntyre and Kimberley, 1997, Table 2.1

Drawing on other work identifying barriers to participation in ACE (Sharpe & Robertson, 1996) McIntyre and Kimberley note that lack of recognition of ACE poses a basic problem for the development of pathways within ACE and between ACE and other education sectors. In particular, they find that the current uneven development of ACE across States and Territories is a 'limiting factor'.

Within the VET system the potential of ACE to contribute to the achievement of equity objectives is considered to be important, particularly in relation to women. However, McIntyre and Kimberley (1997) and McIntyre (1998) indicate that the capacity of the sector to fulfil this contribution is constrained, under-developed and under-utilised.

First, it is limited by the constraints of cost-recovery and the competition for adult learners with a capacity to pay. ACE operates largely on a 'user pays' basis with an equity role assisted by limited public funds, which, within the framework of a competitive training market, are not necessarily available to purchase specific equity outcomes. While some providers are able to subsidise the participation of disadvantaged individuals, this depends on the resources available to them.

Second, the equity role is constrained by a failure of VET policy-makers to recognise the compound nature of educational disadvantage and that it can be localised and unevenly distributed. In ACE the burden of achieving equity objectives and outcomes falls unevenly on providers in different locations. Though ACE has demonstrated strength in identifying and responding to local demand this role is neither adequately encouraged nor supported. Community organisations might better be used to identify the specific needs of people from equity backgrounds and broker or provide appropriate VET services.

Finally, as noted above, the equity role of ACE is particularly constrained in States and Territories where ACE is poorly recognised, organised and developed. McIntyre and Kimberley note that in Victoria, the 'large and highly developed network of ACE providers' has been important in supporting women's participation in VET. They suggest that where ACE is not as well developed it may not even be possible to speak of ACE organisations 'competing' for public funding to deliver equity (p.26).

5.5 REGIONAL ISSUES

Nations seek to position themselves relative to others on both a global and a regional basis. Similarly, communities within countries sharing a geographical area often aim to achieve and maintain a unique identity and to strengthen their economic base. Howard and Buultjens (1999) state: 'While the term region is not a precise concept, it is generally taken to describe a coherent unit in a particular geographical space'. They point out that coherence for a non-metropolitan region may result from some geographical feature in common, a shared industrial base or proximity to a major town or city. And of course, a city-based or a non-metropolitan region that is treated as one entity for some purposes may be treated as more than one for others.

Some non-metropolitan regions continue to thrive. However, Howard and Buultjens, on the basis of 1986, 1991 and 1996 census figures, find that rural and regional Australia has generally under-performed metropolitan Australia in terms of unemployment, participation and job growth. They discover a great deal of variation, both between regions, and within regions over time. Perhaps surprisingly, a few regions such as Moreton in Queensland and Mid-north Coast NSW have low participation and high unemployment levels, yet have experienced high job growth. But for others, such as Gippsland in Victoria, Far West in NSW and Southern Tasmania, all labour market indicators are poor. Owen and Bound (1999) have reported on a 'study into the role of VET in regional Australia ... [and] outline the ways in which change in working, technology and community impact on regional Australia', defined as areas outside the major urban centres with populations of 100,000 people or more. The Asquith Group (1999) has undertaken a detailed study of the participation of young people in schools, VET and labour market programs, together with relative funding, in an outer suburban area of Melbourne.

More general trends are addressed in a range of publications (such as Dusseldorp Skills Forum, 1999; ACER, 1998; Garnett and Lewis, 1999; Productivity Commission, 1999). Some of the evidence is quite striking, for example Ball's evidence that the participation in VET by students from rural and remote locations is lower than for Aboriginal and Torres Strait Islander students for each age group for 15-19 through 20, 21, 22 and 23 to 24 inclusive; and generally lower than for those students with disabilities (Ball, 1999, Table 3, p.192). An ACER study noted that the VET system plays an important role in the transitions from school to work for a wide range of young

people, particularly those who are disadvantaged, including those based in rural areas, and that 'there is room for VET to do more in serving the needs of these groups' (ACER, 1998, p.xvii).

Typically, with contraction or closure of those enterprises (commonly agricultural or mining) that were the centripetal force that brought other businesses to their region, the economic base declines and the image can become one of despair and decay. For most Australians, who hold strong historical attachment to the bush in spite of being metropolitan dwellers, the situation is regrettable. For those who are directly affected it is more serious. The young leave to seek opportunities elsewhere, withdrawing the potential human capital essential to any long-term recovery. The elderly, who are unable to make the transition elsewhere, find themselves increasingly deprived of the basic services upon which they depend. Some local residents attempt to work on as their property values diminish and the demand for their services contracts. Others, like their youth, relocate in the hope of a fresh start despite the difficulties in doing so.

Of course, it should not be overlooked that education and training institutions, including TAFE institutes, can be significant enterprises in their own right. They employ staff, purchase goods and services from local or external suppliers, and construct buildings or other facilities. They can be an important source of income to the local community, analogous to other businesses. Indeed, in certain cases they are one of the larger enterprises in terms of their economic contribution to the local economy (Selby Smith, 1975). Another study considered the extent of provision of different VET courses, at different academic levels, in different locations and for different skills and occupations in terms of their potentially powerful and pervasive effects on other economic activities, firms and regions and on the particular skill mix chosen by enterprises (Maglen & Selby Smith, 1995).

The role of governments

Governments, national, local and regional, are looked to for support. Both the Howard government and the recently elected Bracks government in Victoria have indicated their intention to assist regional and remote areas to become more prosperous and viable. As the Deputy Prime Minister and Leader of the National Party said as part of the 2000–01 Budget:

The Government is forging new partnerships for growth between regional communities and all spheres of government ... the Government is determined to see significant progress made in reducing the gap in economic opportunity between the city and the country ... we aim to [achieve] greater equity in service delivery for people living in regional Australia.

Issues are at the same time, social and economic. For instance, Heath (1999) finds that, while job-search methods through a direct approach and through friends and family are known to be more successful than indirect ones, such as through newspapers and employment agencies, young people in high unemployment areas are more likely to use indirect methods than those in low unemployment areas.

The concerns of governments are not only local, however. Larcombe and Cole (1998) note in reference to regions in Australia:

One of the ironies of globalisation, with all its instantaneous flows of capital, data and information, and the constant restless mobility of celebrities, corporate managers and professionals, is that regions and localities have emerged as key spatial units of economic activity, with the fortunes of key regions impacting the performance of the national economy. Regional production systems have become increasingly important in the global economy.

Decisions in relation to regional VET, too, aim to address both social and economic issues at community and individual levels—community strengthening and wealth generation in the region, and access to the job market and the well-being that it may provide for the individual. Not only are there decisions to be made whether to rely predominantly on distance delivery strategies or to invest in more substantial infrastructure (third party access strategies can also be appropriate: see Selby Smith & Selby Smith, 1997); hard decisions must also be made regarding curriculum. In what areas is demand sufficient to justify employment of staff and investment in equipment and materials? A more fundamental issue for VET provision in non-metropolitan regions, however, is whether the curricular expectations of industries in regions are necessarily consistent with the learning demands of long-term, sustainable growth. VET in regional Australia can also suffer from a limited pool from which to recruit industry-based teaching staff, certainly in some regions and specialist fields.

Determinants of growth in regions

An important element of a region's success is the level of sustained economic growth it experiences. While, from a national perspective, regions are in competition for domestic markets, investment and tourist dollars, where gains may in part sum to zero, clearly there is capacity for local growth that makes a contribution to aggregate growth. It is inevitable that mineral deposits will eventually be exhausted or cease to be economic; similarly, demand for agricultural and secondary industry outputs can change. New technologies may yield growth for the individual enterprise involved in existing production; but work must be available for displaced labour if regional labour market opportunities are not to decline.

There is considerable interest in understanding what makes for growth in regions as economic units and the capacity of regions to attract new investment. In a review of the literature, Maskell and Malmberg (1999) conclude that:

It is the basic assumption of all studies of the spatial distribution of economic activity that location patterns can never be determined by the supply of ubiquitous factors. Firms locate and build their competitiveness in interaction with localised capabilities, which are primarily based on the region's infrastructure and built environment; the natural resources accessible in the region; the region's specific institutional endowment [practices, regulations, conventions, habits etc. relating to markets and to capital, land and labour]; and the knowledge and skills available in the region.

Given the importance of high-technology industries to advanced economies, there is much interest in the success—or otherwise—of 'high-tech' regions. Understandably, the phenomenal growth of 'Silicon Valley' in the US has resulted in it receiving special attention. Finegold (1999) investigated California-based clusters in both the computer industry and the biotechnology industry. He concluded that four elements appeared to have been essential to create and sustain 'high-skill ecosystems': some catalyst to trigger the process, such as government demand coincident with entrepreneurs and world class researchers prepared to set up new firms; a nurturing environment, in the form of world-class research universities, for new talent and for firm-university partnerships; supportive infrastructure for transport and communications, with a regulatory and cultural environment that supports risk-taking; and interdependence between organisations, through vertical and horizontal linkages between enterprises, and networks of individuals. However, Finegold points out that these concentrations of high-skill employees draw on the services of a large, lowly paid and low-skilled work force; and that the gap between the rich and poor in these regions appears to be widening.

The consistency of government policy can be an issue. Sternberg (1996) comments in relation to high technology regions in Europe:

There are a variety of ways in which government policy influences high-tech regions. In industrialised economies, technology policies are pursued by a variety of different ministries with various instruments and with varying means of implementation. Unfortunately, the policies of different ministers often have different goals and may produce conflicting, counter-productive effects.

In Australia, the Centre for Research and Learning in Regional Australia at the University of Tasmania has given particular attention to regional issues in VET. It has argued that 'strong social cohesion, trust and social capital underpinned all successful VET outcomes' (CRLRA, 2000). The Centre's studies of seven sites across Australia concluded that, despite the diversity within and between regions, VET enables rapid change in regional Australia; has a positive impact on the social and economic wellbeing of regional Australia; and its potential contribution is most likely to be achieved through collaborative local, community-based and inclusive planning to meet the needs of individuals, enterprises and communities. They argue that quality partnerships in VET involve bonding communities and connecting them to external agencies and information. They concluded that VET's impact on social and economic wellbeing is achieved through building capacities, particularly skills, confidence, networks and job readiness.

Kilpatrick, Falk and Harrison (1999) argue that 'learning, social capital and change are inter-linked. At the micro level of interactions, social capital in the form of knowledge resources and identity resources, oils the process of change to enhance outcomes'. Drawing on data from geographic communities and communities of common purpose, they suggest that:

Knowledge resources [ie. knowledge of the skills, knowledge and affective attributes (including values) of others in the community and outside the community; and the common physical resources of the community] allow community members to combine their skills and knowledge (human capital) with the knowledge and skills of others. Identity resources [ie. identifying oneself and

others, inside and outside the community, as being willing to act spontaneously or on request] allow community members to feel confident that other community members will act to share information, advice or access to a physical resource if it is sought ... We suggest that learning occurs not only through a sharing of resources, but also as community members reconstruct their identities and the identities of others, and extend their knowledge resources during interactions which use social capital. Thus social capital is dynamic, and is both used and built through learning processes ... a precondition to building social capital is the existence of sufficient numbers of interactions of a particular quality. Both quantity and quality of interactions therefore have a role in the development of social capital ... Capacity to survive and even thrive comes through building social capital, and with it the capacity to share knowledge, skills and resources for the benefit of the community.

Education and training

Education and training resources are a vital ingredient for regional growth. Bradley and Gans (1998) examined census data on 104 Australian urban centres, mainly for the years 1981 and 1991 (some data was sourced from other researchers). Growth was positively associated with the share of the population holding educational qualifications, in university-based education and in non-university-based, post-secondary education:

We find that a diversity of skills was important as opposed to an emphasis on university as opposed to other tertiary education. The positive correlation between initial human capital and subsequent growth has also occurred in other studies based on US experience ... Combined with our results here this suggests that the positive influence of human capital may not simply reflect the relatively good performance of human capital intensive industries (e.g. services) over the decade but important spillovers on the quality of life and perhaps on productivity growth.

Learning communities

At the heart of the importance placed on post-secondary education and skills is the capacity of enterprises to innovate, both as technological change to improve productivity and competitiveness and as product and service change to capture new markets or to retain existing ones. The capacity to innovate depends on being able to learn from the experience of others as well as to create new knowledge. Clusters of firms and education institutions share knowledge, both through cooperative research and development and as spillovers as part of trading with each other. Venkatachellum (1998) observes that: 'the common assumption in the R&D literature has been to treat these spillovers as unintentional. However ... numerous studies indicate that part of these spillovers is quite intentional and results from knowledge sharing between firms'.

The most accessible knowledge is that which is codified, for instance as specifications in an order for a new or modified component, or as a training manual. Tacit knowledge is, by definition, not easily transferred. However, proximity enables some of this knowledge also to transfer—through such things as direct observation and shared cultural understanding. 'It is mainly at the local level that a firm's ability to create knowledge will enable it to interact with related firms in a process of *collective learning*, whereby partly codified and partly tacit knowledge is interchanged and utilised in each of the participating firms' (Maskell & Malmberg, 1999). Finegold (1999) found, in a survey of 2,000 technical professionals in five global corporations, that informal learning, such as through visits to other firms, was judged the most useful form of learning.

It is sometimes claimed that cities, as a consequence of their size, are particularly geared to learning interactions. For instance, Glaeser (1999) comments that:

The primary informational role of cities may not be in creating cutting edge technologies, but rather in creating learning opportunities for everyday people. Dense urban agglomerations provide a faster rate of contact between individuals and each new contact provides an opportunity for learning.

Of course, sooner or later, other consequences such as traffic congestion, pollution and its costs, and land and housing prices may counteract the benefits.

These findings lend support to what has come to be called 'new growth theory'. Lucas (1988) stressed the benefits to productivity growth flowing from knowledge spillovers, which enrich the learning of others. For Romer (1990) this sharing of knowledge on the basis of proximity allows increasing returns to scale. Attention has shifted from technology itself as the source of productivity growth to the learning processes that make it possible.

An associated question is whether regional specialisation or non-specialisation provides more benefits for learning and growth. In a study of the number of innovations per employee in nearly six thousand US enterprise sites, Feldman and Audretsch (1999) come down firmly on the side of diversity with a shared scientific base. They conclude that specialisation is negatively associated with innovative activity. A narrow regional employment base provides less opportunity for ideas that are new or that challenge current thinking to be shared than where network members are drawing on a common body of scientific knowledge in diverse ways. Putnam (1993) found that Italian regions with a large number of small firms engaged in a mix of competition and co-operation, and with a high level of horizontal integration, were particularly successful economically. The flexibility that arose from high horizontal and low vertical integration in a regional economy allowed the firms and their regions to succeed in a rapidly changing business environment. Similarly, Bradley and Gans (1998) found Australian city growth rates to be inversely associated with industry specialisation.

Although knowledge sharing networks are an important aid to innovation, successful implementation depends on operational personnel who are adaptable to change, who quickly learn new ways of operating and who can adopt new procedures to the requisite standards. VET has an important complementary role alongside higher education in providing and maintaining a strong learning culture in regional communities.

The risk of stasis

Enterprises may fail to keep abreast of changes in their markets and the behaviour of their competitors. Or they may consider that a potential innovation is too difficult to introduce, given their level of investment in existing plant and established ways of operating. They may start innovatively but, over time, become set in their ways. 'The resulting institutional endowment will become, in the long run, an obstacle to future development and perhaps even develop into a *regional lock-in*. Such obstacles may be physical, but they seem, perhaps paradoxically, more often to be social and cultural' (Maskell & Malmberg, 1999). Capacity to learn may be predicated on the capacity to unlearn. It is at these times that new industry centres may overtake them, as new firms start up with the new technologies and approaches, unencumbered by earlier practices (Brezis and Krugman, 1997). As Amin and Wilkinson (1999) put it:

Where tacit knowledge and competences are specific, externally derived information may require converting if it is to be readable within internal knowledge and learning systems. The absorption of radically new codified knowledge requires the development of new, or the modification of existing, tacit knowledge if competencies are to evolve effectively ... If firms are not able to shed old learning or established routines, practices and outlooks, this may hinder adaptation, regardless of their ability to develop new competencies and imaginative combinations of codified and tacit knowledge.

Curriculum

VET providers are well placed to be learning network partners in their regions. When networks are functional, 'user choice' can be conducive to their facilitating the introduction of new knowledge, evaluating existing knowledge and assisting firms in the process of customising it as knowledge in action. Enterprise-based training, too, is more likely to be near leading-edge. But with regional lock-in, even if VET providers are not committed to the status quo, they may nevertheless be expected to teach a conservative curriculum for enterprises under 'user choice'. Similarly, enterprise-based training will align with their current, but now outdated, industry practices. And in those regions that have never had learning networks, especially those with narrow industry bases, curricula that are limited to highly customised programs are unlikely to counteract the process of local industry decay.

Those who undertake dated training learn skills for which there is a diminishing demand. Given that the enterprises in which they are employees or trainees are likely to downsize, if not close altogether, they are likely to find themselves back in the labour market, where they may be in competition with people whose competencies are viewed by prospective employers as having greater currency.

Support for institutionally provided VET is an important contribution to perhaps the most important factor in regional economic growth—the skills, knowledge and learning commitment of a region's community. But it is equally vital that institution staff maintain some critical distance from entrenched 'local verities' if they are to be able to continue to be a source of creative and critical input to shared industry knowledge, and thereby help avert regional lock-in.

It is also vital that VET curricula, whether for full-time students or for employees and trainees, be forward looking. This is not to claim that they should exclude content relevant to established practice in the region. Rather, it is to suggest that programs should also introduce students to new, alternative technologies and promote a critical approach to work. Ideally, there should be some acquaintance with underpinning theory, especially in courses at para-professional level, so learners can participate effectively in learning networks. It is important, too, that VET curricula support and foster a diversity of learning outputs, the production of which may, nevertheless, depend on a shared, broad body of knowledge.

Regional VET institutions, which conduct themselves in these ways, have the potential to enrich the capital endowment of regional areas. They can contribute to resisting, even reversing, the downward spiral of backward-looking curricula, enterprise downsizing and closure, and reduced employment and training opportunities. They also have the potential to advantage local people in the wider labour market if they seek to work elsewhere. Overall, VET institutions can make valuable contributions to their regional communities and to individual enterprises, trainees and students. Since the arguments that have been advanced have largely been hypothesised rather than grounded in empirical research on VET in Australian regions, there is scope for further field-based research to validate the relationships between VET and regional development and to tease out their complexities at the level of communities, enterprises and individuals.

5.6 VET TEACHERS

Teachers are the most critical element in determining the supply of skills, knowledge and attitudes produced through the VET system. Teachers play the central role in developing curricula, in 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 work force is able to meet the needs of future learners (OECD, 1998b), especially in the light of the likely demands for VET. This section analyses trends in the Australian VET teaching work force as pointers to likely developments in, and possible problems with, the supply of education and training skills from the VET sector.

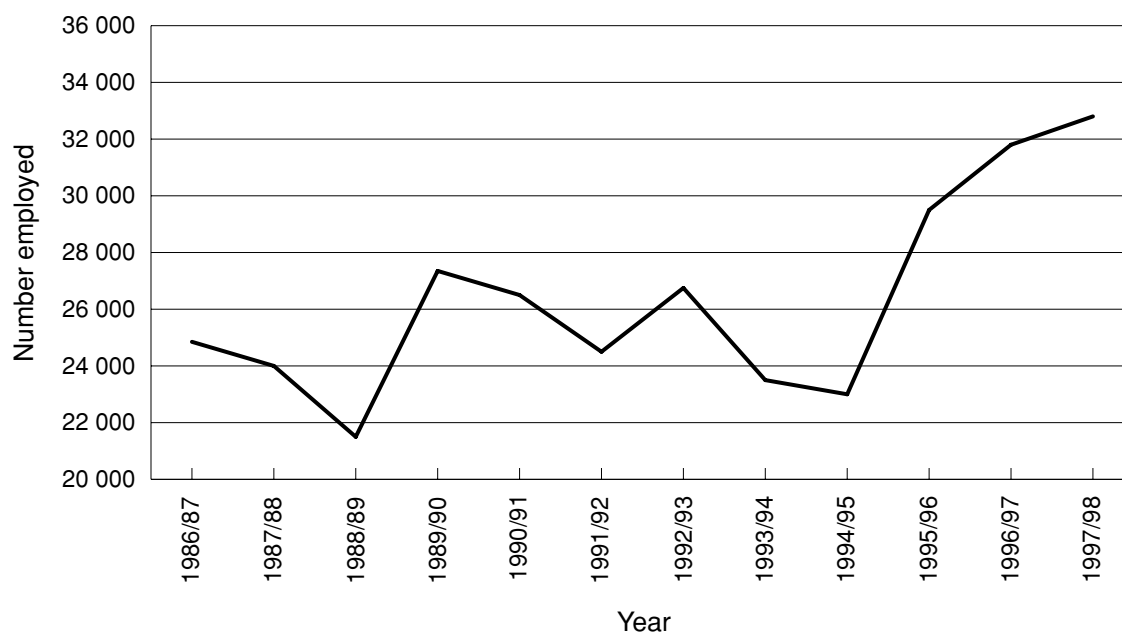
Teachers in the VET sector

Teaching in VET in Australia is undergoing enormous changes due to national and global economic restructuring, organisational changes within the sector, and technological and industrial relations changes. When coupled with trends in teacher demographics, these changes imply substantial pressures on the VET teaching work force over the next decade.

Demographic trends among VET teachers

The following analyses are based on unpublished data from the ABS Labour Force Surveys between 1986 and 1998. Figure 5.4 shows the estimated total number of VET teachers working in Australia between 1986–87 and 1997–98. There was little variation in teacher numbers until 1994–95, but since then they have been increasing, though at a decreasing rate. Note that these data are for the number of individual teachers, not the numbers expressed in equivalent full-time (EFT) terms. The increase of 43 per cent in the number of VET teachers between 1994–95 and 1997–98 is likely to be largely due to the increased numbers employed on part-time or sessional bases.

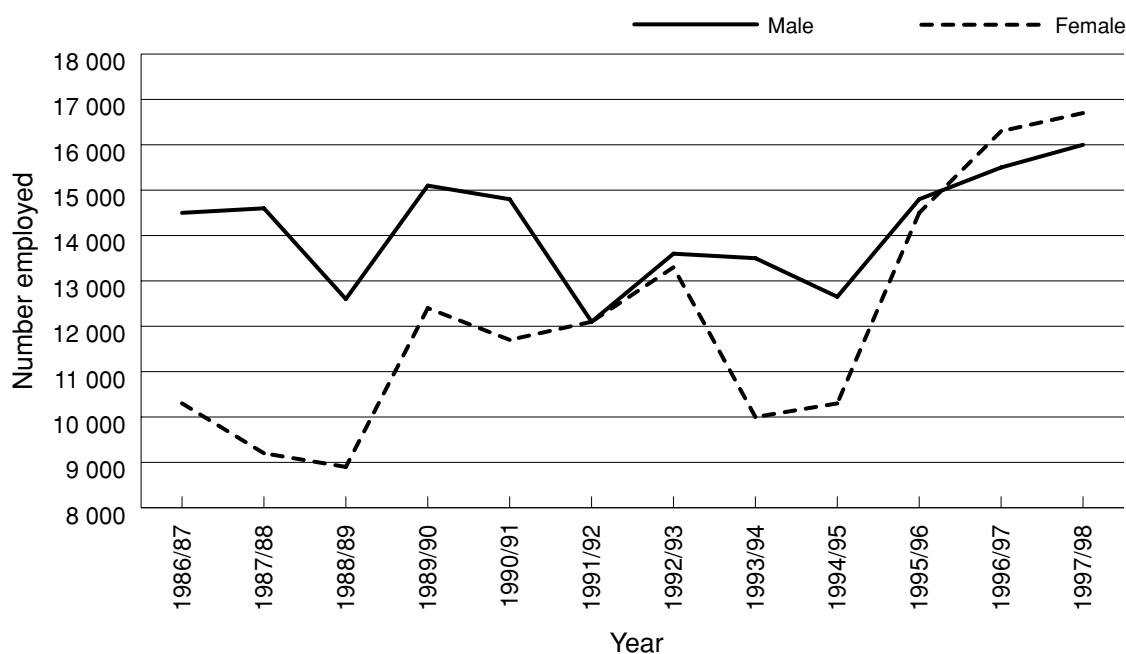
Figure 5.4: Employment of vocational education teachers (Australia; 1986–87 to 1997–98)



Source: Unpublished data from ABS Labour Force Surveys, Cat. No. 6203.0

The ratio of male to female VET teachers has changed substantially over the decade. In 1986–87 58 per cent of VET teachers were male, but in 1997–98 males made up only 49 per cent of the total. Figure 5.5 shows that, apart from the year to year fluctuations, the number of male teachers has not changed much, whereas the number of female teachers employed has shown a generally upward trend.

Figure 5.5: Employment of male and female vocational education teachers (Australia; 1986–87 to 1997–98)



Source: Unpublished data from ABS Labour Force Surveys, Cat. No. 6203.0

Figure 5.6 shows the ageing of the vocational teaching work force in Australia. The proportion of males over 44 years of age has nearly doubled from 32 to 63 per cent 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. In the next ten years, as teachers in these older age groups leave the work force, their replacement will begin to become an issue of increasing concern.

Figure 5.6: Proportion of male and female vocational education teachers over the age of 44 years (Australia; 1986–87 to 1997–98)



Source: Unpublished data from ABS Labour Force Surveys, Cat. No. 6203.0

Skill demands in the VET work force

Senior TAFE administrators interviewed by Malley et al. (1999) identified growing pressures for 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. Some of the main findings from the study by Malley et al. are outlined in Box 5.2.

Economic restructuring at the national and global level has implications for the likely demand for different types of VET teachers. For example, the high growth in tourism and hospitality industries in Australia over the last decade has resulted in a demand for teachers prepared to teach courses leading to the qualifications required to work in these industries. The decline in manufacturing in general, and in particular in the traditional textile, clothing and footwear industries, is likely to result in a drop in demand for teachers prepared to teach courses in these areas. Such teachers will either have to retrain or leave the profession.

Technological change is also shaping the type of teachers who are likely to be required in the VET 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. Even for the younger teachers the skills acquired during training are likely to be outdated rather quickly and will need constant updating. In this context, there are considerable concerns about the limited resources applied to staff development in the TAFE sector (Villiers, 1997).

The TAFE Institute interviews raised significant questions about the extent to which staff have been prepared to effectively use new technology, and the extent to which some staff remain out of touch with technological change (and why). Although staff training and development in

computing is reported to be relatively widespread in Victorian TAFE institutes, there is a clear perception that more needs to be done to reach all staff, and to further develop existing staff competencies.

Box 5.2: The TAFE work force in Victoria

Malley et al. (1999) conducted a detailed analysis of trends in the Victorian TAFE work force and their implications for future staffing needs. The Victorian data amplify the Australia-wide trends discussed in the previous section. Key findings on Victoria included the following:

- In 1998 there were approximately 5700 EFT teachers or just under 60 per cent of all equivalent full-time (EFT) staff in TAFE Institutes. Among the teaching staff, just under 3000 EFT (53% of EFT teachers) were in tenured ongoing positions, 1900 EFT (33%) were in fixed-term contract positions, and 800 EFT (14%) were in sessional teaching positions;
- Since 1993, the total number of EFT teachers has declined by 500, mostly through a reduction in the number holding tenured positions. However, over the same period, the number of EFT staff in non-teaching positions rose by about 400. This means that the total EFT staffing of Victorian TAFE is little changed from 1993, although there has been a gradual shift in the ratio of teaching and non-teaching positions in favour of the latter group; and
- The overall consistency of EFT staffing levels between 1993 and 1998, and the shift between teaching and non-teaching staff, have been accompanied by an increase of about 10 per cent in total student contact hours. This suggests that a major change in the delivery of VET by TAFE Institutes has been taking place in recent years.

Other key features of the aggregate structure of the Victorian TAFE work force were:

- A gradually increasing proportion of part-time to full-time staff, especially in the teacher category;
- Far more females than males in part-time positions, in both the teaching and non-teaching staff categories (females were 58% and 78% respectively);
- Many more females than males in non-teaching administrative positions; and
- The major area of employment growth has been sessional teaching.

The Victorian TAFE teaching work force is relatively old. More than 40 per cent of male teachers and 30 per cent of female teachers with tenure or ongoing contracts were aged more than 50 years.

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. TAFE institutes often lack the resources to acquire the latest technologies used in the fields in which they are training people. As such, they highly value staff able to form collaborative arrangements with industry to share expensive technology for both production and training purposes.

The 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 in the interviews 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 work force, 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, and that 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.

Thus, the VET sector in Australia is facing pressures over the next decade to replace substantial numbers of staff who will be retiring, and to ensure that new and existing staff have the skills and knowledge required to meet the new demands of a challenging environment. Substantial numbers of TAFE teachers will be retiring over the next decade; and this is particularly so in relation to executive staff in (Victorian) TAFE Institutes. Since around 60 per cent are in the age range that will be retiring from the work force over the next few years, succession planning is a key issue for the management of VET.

6 FINANCE AND MARKET ISSUES

6.1 OVERVIEW

In this chapter, section 6.2 discusses the major options for the finance of VET. It concentrates on the extent to which the alternatives could increase the level of investment in VET, provide incentives for the efficient delivery of VET services, and enhance equity among young people and across groups of VET participants in different age groups.

Section 6.3 examines the changes in finance and organisation that have been introduced to develop a competitive training market. The development of a competitive market has been seen as a means of increasing efficiency and encouraging providers to meet the needs of the purchasers of training more effectively. Its critics see it as likely to increase inequality and they have concerns about its possible effects on the quality of VET. The development of a competitive training market emphasises the role of those who use the training services provided by VET relative to those who supply them.

Section 6.4 focuses on a major step in the development of the training market, the introduction of 'User Choice' in 1998. Under 'User Choice', the intention is that VET clients have a greater say in matters such as the location, timing and content of the training provided for them by the registered training providers who are responsible for the delivery and assessment of training. Public funds for the training delivery and assessment are allocated, subject to extensive regulation at the State and Territory level, to the chosen provider, public or private.

6.2 FINANCING OPTIONS

Reforms to the methods of financing education and training can be assessed against three criteria. Do the proposed reforms promote more education and training? Do they promote efficiency and quality? Do they promote equity?

The main sources of funding for education and training are governments, individuals and employers. Schemes for payment from each of these sources are discussed below. Community groups could be considered a further source of funding, but these groups are also dependent for their funds on the three primary sources mentioned above.

Public funds

As discussed in Chapter 4, the levels of public spending in Australia are low compared with other OECD countries. It is not likely in the short term that increased funding will receive political support in Australia. However, there is a clear opportunity compared with most other OECD countries to increase education expenditures or to provide increased tax incentives.

Even if there is no significant increase in the proportion of GDP available for expenditure on education and training there are a number of schemes that might lead to improved efficiency, additional private expenditures and perhaps increased fairness in the distribution of public funds

Entitlements

'Entitlements' permit the less advantaged to have a proportionate or more than average share of government support for education and training. Entitlement proposals differ in detail from the original 'voucher' concept (Friedman, 1962) in guaranteeing for each person an amount of money after compulsory schooling for the purpose of education and training.

Timmermann (1995) suggests entitlements might be used over a working life for a variety of learning opportunities, including university courses, vocational courses, apprenticeships, on-the-job training, continuing education programs and vocational and non-vocational adult education. The value of the entitlement can be varied according to the social background of the learners. The entitlements might accumulate interest so that their value would be larger when used later in life. The scheme ranks high on equity grounds, though there may be a problem of financing high cost courses, assuming that market forces alone will not ensure a correct allocation of training to meet the needs of the work force.

Levin (1998), who had advocated entitlements in the 1980s, reviewed his proposal in the light of the increasing concern to contain government outlays. As a result he now advocates that an increase in the proportion of government support be based on loans, rather than grants.

The concept of lifetime entitlements is much discussed, but nowhere adopted as a comprehensive scheme. The more limited ideas of entitlements to study leave or a voucher for payment for a limited amount of training are more common.

Learning accounts

The UK has recently introduced *Individual Learning Accounts*. Under this scheme, the government will pay £150 into the account after an adult pays in £25. Accounts will be open to anyone in work, but not in full-time education. The funds can be used for any course the adult wants. It is expected that many of the account-holders will spend their funds at the newly founded University for Industry (Ufi). Ufi will co-ordinate a network of learning centres in traditional education settings, but also in some non-traditional centres like football clubs and churches.

Sweden has recently announced a system of *Individual Learning Accounts* to be used for competence development. These are to be funded by employee and employer contributions, encouraged by a tax entitlement at the time of contribution. The funds are subject to tax at the time they are used, but this is partly offset by a competence grant premium, which is determined not by the costs of the training or living expenses but by the competence acquired. The scheme is to be implemented by 2002 (Commission on Individual Learning Accounts, 2000).

Franchise model

An alternative entitlement scheme is the franchise model advocated by Van Ravens (1998). This involves two elements. First, there is a lump sum grant by government to finance post-secondary school studies, but the proportion of self finance rises with age. Second, there is an open system of learning, where competencies will be accredited whether acquired in the education system, the workplace or the community.

The lump sum grant, which can be used to cover up to 100 per cent of costs for the young, is seen to offset the difficulties of access to finance when they are greatest. The open system is seen to promote efficiency in the way people can learn, with a considerable reduction in unit costs. Van Ravens (1998) argues that 'the drop-out phenomenon, considered an irreparable loss in a closed system, is a non-issue here. Everybody drops out all the time and everybody drops back in. The time it takes to graduate does not need to be reduced and becomes irrelevant'.

There are some similarities between this model and the current operations of the Australian VET system. Over the last decade there has been a promotion of competency-based assessment and recognition of prior learning, including learning in the workplace. The provision of training largely or entirely in the workplace has been promoted. There is no lump sum of finance available, but the fee level in the very large public VET system is low (and waived for low income students). Courses are available on a part-time and evening basis, sometimes at the weekend or with flexible delivery. A wide range of programs is available, including remedial and educational preparation for those who did not complete secondary school, entry-level vocational training and advanced vocational training.

Two very positive aspects of the Australian system may, in part, be attributed to the aspects just described. First, Australia has a particularly high level of enrolment by persons aged over 30 years, compared with other similar countries. Second, there are a high proportion of students in Australia who take units of competency (modules or subjects) successfully, but who do not complete the whole course. This has been estimated at 50 per cent of all those who commence courses (Foyster, Hon & Shah, 2000). There appears to be substantial movement in and out of the VET system, as the need arises, consistent with what Van Ravens advocates.

The Australian system does not have the incentive to efficiency, contained in the franchise model, that might come from the funds being allocated entirely at the discretion of the student across all forms of potential learning. However, there are aspects of this in User Choice, which is discussed in section 6.4 below. User Choice can lead to public training funds flowing to private RTO's, including private providers and the training divisions of enterprises.

Student assistance – Youth Allowance

If students are to participate in full-time education and training they are likely to require some assistance with living costs. Many students, including the majority in VET, are not full-time and

may not be entitled to the Youth Allowance provided by the Commonwealth government, subject to tests on income and wealth. Many students, including those studying full-time, work part-time (sometimes in both term time and vacations). Generalising about the extent to which VET students need financial assistance can be difficult.

Australia has a tradition of considering support for student living expenses separately from support for tuition costs. The arguments for student entitlements that have just been considered, or for fees and loans which are discussed below, could be extended to apply to student living expenses. The point can be emphasised by noting that Sweden uses its loan schemes for student living expenses, whereas Australia relies mainly on grants for living expenses and on loans for tuition costs.

Payments by individuals

At the moment the fees charged in publicly provided VET programs are low. They usually do not exceed \$500 for a full year enrolment, with exemptions for low-income disadvantaged students. Given the limits to public funds there may be a case for introduction of additional fees in education and training. Several options are available: increased fees; increased fees plus access to interest bearing private loans; and increased fees plus income contingent loans financed by government as in the Higher Education Contribution Scheme (HECS).

The first option is a simple increase in fees, with continuation of the exemptions currently provided for students from low-income groups. However, this seems hard to justify. It seems likely to deter many people who are not from high-income groups, who do not qualify for exemptions, but who do not have ready access to funds to pay fees at the beginning of the course. The option also seems likely to decrease the quantity of training undertaken, when the objective is to increase it.

The second option does not have the same drawbacks as the first. Students will be able to pay fees if they can get loans. But they may be unwilling to incur a growing debt when the rewards to their training are uncertain and not likely to be as high as for university graduates. Other disadvantages are the consequences of default for the future creditworthiness of the person concerned.

The third option is to extend to VET the Higher Education Contribution Scheme. This is the system of tuition charges and income contingent loans that was introduced in Australia in 1989. By 1998 receipts from the scheme offset more than 15 per cent of government grants for higher education. Under the scheme:

- Students were initially required to pay about 20 per cent of the operating costs;
- A discount was made to the charge if students paid the fee up-front;
- Repayment (through the income tax system) could be deferred until the student's income reached the level of average earnings in the community;
- No payment was required if income did not reach this level; and
- No interest was charged, but repayments were adjusted by the consumer price index.

The early evaluations did not detect any notable deterrence to enrolment from the introduction of HECS. Since then there have been changes to the scheme. In particular, since 1996 repayments commence when a graduate's income reaches about two thirds of average earnings. The level of the charge has also been raised and now varies by course, being higher for courses that cost more to provide and for those (such as law) that lead to higher average incomes. Though a recent study (Andrews, 1999) found that the revised scheme is not much of a deterrent to enrolment, another study suggested that participation in higher education by people from socio-economically disadvantaged backgrounds remains low and is becoming gradually lower (DETYA, 1999b).

Extending such a scheme to VET would be difficult and could have a negative impact. University courses more obviously lead to increased incomes than do VET courses. The case for the introduction of fees and HECS to universities made by the Wran committee in 1988 was based largely on the higher incomes later received by university graduates and their disproportionately higher socio-economic origins compared with the average taxpayer. However, TAFE clearly caters for less-advantaged persons than does the higher education sector and many of the studies of the income of TAFE graduates suggest only a small addition to their earnings. Thus, increased fees could act as a significant deterrent to study in VET.

The case for investigating the application of HECS to the VET sector has been made by Chapman, Doughney and Watson (2000). They draw attention to:

- The increasing numbers of students moving across education sectors;
- The limited credit given to those who have studied in TAFE on moving to higher education;
- The administrative complexities for students studying in both systems;
- The complexities in managing the finances in joint TAFE and university institutions;
- The complexities caused by different pay and working conditions for staff in TAFE and universities;
- The complexities of Commonwealth funding responsibility for universities and largely State responsibility for VET;
- The relatively low level of fees in TAFE compared with those in university;
- The exemptions from some or all fees in TAFE (but not in universities), such as for those who are on Youth Allowance or have a jobseeker's card;
- The deterrent effect of even relatively low upfront fees if loans are not readily available; and
- The possibility of HECS type arrangements where significant fees are charged in VET.

They emphasise the need for further research to find methods that improve the efficiency of education and training across the higher education and VET systems and increase fairness in the distribution of the total resources provided for post-school education and training in Australia.

Employer funding

Contracts of training, such as apprenticeships, are a means of encouraging employers to finance general training on the understanding that they can pay a less than market wage. Lower wages are justified on the basis of many studies which show that rewards from training are captured to a substantial degree by employees, either with the firm that provides the training, or when they leave that firm. In either case the employer providing the training does not take account of the total benefits in deciding whether to invest in training (and, if so, how much).

Policies for increasing the financial investment of firms in VET include attempts to exhort them to provide more training. Australia does not have the concept of the social partnership and the social obligations of employers to the same extent as occurs in Germany. In the early 1990s Australia introduced a scheme requiring minimum levels of employer training expenditure or contributions for collectively funded training as a percentage of wages. The Australian scheme appeared to increase the level of expenditure of medium sized employers, but not larger ones, whose expenditure usually exceeded the required level prior to the introduction of the scheme. Very small employers were exempt. Arguments against the scheme were its unpopularity with employers and that it took no account of the way in which the amount of training required could vary with the type of employment.

Greenhalgh (1999) found that France and Britain have a similar incidence of training, but that in France the training is markedly longer in duration. There is merit, she argued, in a levy system as a means of offsetting the under-investment in employer provided training identified in Britain.

Social partnerships in training are used in some countries. A good example, from outside the OECD, is the skill development centres in Malaysia. These are non-profit private corporations, established with funds from State government foundations and contributions from employers. They are governed by boards on which employers are well-represented. The centres are usually sited close to industrial parks. They support in-plant training in the first instance and training both on and off the job for qualifications where required. The most successful of these, in Penang, is regarded as a model for the efficient and responsive provision of training. The centres stand in contrast to the expensive and traditional, if good quality, training provided in government owned and operated technical institutions in Malaysia.

Employer reporting of intellectual capital has been promoted in the OECD and is being studied in Australia (see Chapter 3, section 5). It may have an impact on information about the benefits of training, the greater planning of training and better use of personnel. One means of promoting this reporting is a requirement on firms for greater disclosure of their intellectual capital.

However, it seems unlikely that this will occur until schemes seen as useful and useable have been developed and more widely trialed (Westphalen, 1999).

6.3 TRAINING MARKETS

Introduction

This section examines the nature, development and impact of markets in the Australian VET sector in the light of available research. It closes with a brief identification of key policy issues requiring further investigation.

Although private markets for adult and vocational education and training have existed in Australia since the late nineteenth century (Anderson, 1994, 1996a), the development of a market for publicly financed and recognised training is a relatively recent phenomenon. Its origins can be traced to the 1986 balance of payments crisis and the rise of 'economic rationalism' in government during the mid-1980s. The conjunction of these forces led to a process of micro-economic reform to reduce the size of government, constrain public expenditure, enhance public sector efficiency, and increase industrial productivity and national economic growth (Pusey, 1987; James, Jones & Norton, 1993; King & Lloyd, 1993; Marginson, 1993).

A central role was assigned to 'skill formation' in the process of structural economic adjustment, and high priority was placed on reforming the public TAFE sector so as to promote greater responsiveness to the human capital requirements of industry (Dawkins & Holding, 1987). Work commenced on the development of an 'industry-driven' training system, based on a new approach to skills recognition and the adoption of competency-based training (CBT). The pursuit of efficiency, in a context of government budgetary restraint, led to a search for new modes of resource allocation and income generation in TAFE. The user-pays principle was promoted with a view to increasing investment in training by individuals and industry (Dawkins & Holding, 1987; Dawkins, 1988; DEET, 1988; ESFC, 1989).

As a consequence of such factors, a disparate array of market-oriented policies and financial mechanisms was introduced during the latter half of the 1980s. Export education was deregulated in 1986. Competitive tendering was employed in the context of the Australian Traineeship System (ATS) and federal government labour market programs. Program budgeting and performance agreements were introduced in the TAFE sector, and fee-charging was permitted for adult, community and further education and post-initial trade courses in TAFE. The Training Guarantee Levy was implemented between 1989 and 1994 to increase industry investment in work force training, and incentives were provided for TAFE-industry partnerships. States and Territories also began to establish their own systems to register private and industry providers to award publicly recognised VET qualifications (Anderson, 1996a, 1996b).

Introduced in an incremental and unco-ordinated manner, alongside traditional planning models of resource allocation, these initiatives did not amount to a coherent strategy of market reform. Overall their impact was limited and the TAFE monopoly of public funding and qualifications remained largely intact. However, they represented unprecedented experiments in market-oriented resource allocation and foreshadowed the future direction of VET policy (Anderson, 1996a, 1996b).

Open training market

The concept of an 'open training market' comprising a diverse array of public and private providers was first promoted in Australia by the Deveson Report (1990). Drawing on economic theory, Deveson argued that traditional public sector planning models of resource allocation were inefficient and wasteful due to the absence of any price mechanism for registering the true value of goods and services. A market-based approach was proposed on the grounds that increased client choice and provider competition would increase efficiency, quality, responsiveness to client needs, and private investment in training. To these ends, the Deveson Report proposed the deregulation of fee-charging in TAFE, increased commercialisation of TAFE provision, and diversification of training supply through the creation of a national recognition system for private and industry providers and their courses.

The in-principle adoption of the Deveson proposals in 1990 by Commonwealth and State and Territory VET Ministers signalled the emergence of a more concerted approach to training market development. In 1992, the creation of 'an efficient, effective, responsive and integrated training

market' was endorsed by the Ministers of Vocational Education, Employment and Training as part of a national plan for the co-ordinated reform of the training system (MOVEET, 1992).

Established out of an agreement by heads of government in 1992 and operational from 1994, ANTA (ANTA, 1993, p.8) gave priority to the development of 'a more client-responsive National Vocational Education and Training System by establishing a competitive training market'. ANTA growth funds were used to encourage State and Territory governments to allocate an increasing proportion of VET funds on a competitive basis to TAFE and registered private providers.

National competition policy

The emphasis on competition as an instrument of market reform in the VET sector reflected the influence of the Hilmer Report (1993). The report advocated the development of an open and integrated national market through: removal of regulations which restrict competition; restructuring of public monopolies; facilitation of 'third party' access to public facilities; and 'competitive neutrality' between government and private businesses.

The Council of Australian Governments agreed in 1995 to implement a National Competition Policy based on the Hilmer principles. Although viewed as a means to develop a more integrated national training market, ANTA (1996a, p.18) indicated that 'care is needed in the literal application of national competition policy to vocational education and training as the nature of the training market is very different to the public utility industries for which the competition policy was intended'.

Policy objectives

The policy objectives driving the development of a training market have been rather unclear (Anderson, 1997a, 1997b). According to ANTA (1996a, p.3), 'the *training market* is intended to bring about responsiveness, diversity, quality and efficiency in training'. However, these outcomes are more accurately viewed as potential effects of market-based *competition* rather than of a market per se, which 'can be either competitive or uncompetitive' (Foyster, 1997, p.1). The primary objective of government appears to be the development of a *competitive* training market in order to enhance efficiency, choice and diversity, responsiveness and quality. These objectives are to be pursued in conjunction with other non-market objectives, such as social equity (ANTA, 1994b, 1996).

Market preconditions

Conventional economic theory suggests that certain preconditions must be met if markets are to operate effectively and achieve optimal outcomes. Burke et al. (1994, p.61) state that competitive markets entail: a large number of buyers and sellers; a homogeneous product; and good, if not perfect, knowledge.

In the absence of large numbers of buyers and/or sellers, markets are said to be 'thin'. Choice is restricted and competition is imperfect, giving rise to monopolies, price imbalances and inefficiencies in the allocation of resources and funding. This precondition indicates the need to remove barriers to market entry and exit by buyers and sellers. A reasonably homogeneous product and good, if not perfect, knowledge are required to enable buyers to exercise informed choice, and to exert pressure on sellers to compete on price, quality and other desired characteristics.

Burke et al. (1994, p.61) suggest that a competitive training market 'will be *efficient* at least in terms of meeting the needs of buyers with their existing pattern of purchasing power', provided the above preconditions are met and 'assuming that all benefits and costs are private ones'.

The role of government

The case for government intervention rests on the argument that the market, if left to itself, will produce sub-optimal social and economic outcomes. From a social perspective, VET is then seen to produce positive externalities that markets undervalue and under-produce, such as shared values, social cohesion, and the cultural and knowledge base for democratic citizenship. Given unequal patterns of purchasing power in the Australian community, government is also seen to have a responsibility to ensure equitable access for disadvantaged groups (Allen Consulting Group, 1994, 1994a; FitzGerald, 1994).

Economic externalities from the provision of VET are cited to justify a role for government in supporting the development of a highly skilled and adaptable work force. If left to market forces,

there is a risk that under-investment in skills training by individuals and enterprises may erode the common skills pool on which all enterprises rely for their labour supply, with adverse implications for national economic and employment growth (Allen Consulting Group, 1994, 1994a; FitzGerald, 1994).

However, hard *economic* evidence of the externalities of VET is scarce. The contribution of education to improved productivity, for instance, has not yet been clearly established (Maglen, 1990; Maglen et al., 1994).

Some free market economists contend that government has no role in training markets, as the costs and benefits of investment in skills acquisition accrue only to private individuals (Borland, 1990; Chapman & Stemp, 1992; Sloan, 1994). The role of government should be restricted to removing its own 'misguided rules and policies associated with labour market regulation' (Chapman & Stemp, 1992, p.354).

Such arguments relate specifically to 'worker training' and ignore the wider social and economic functions of VET, particularly for the unemployed and disadvantaged. Nonetheless, they underpin views that government intervention in training markets should be limited, and that 'enterprises and individuals gain most from their own training and should both jointly meet much of the costs and exercise their own choices in meeting their training needs' (Allen Consulting Group, 1994a, p.vi).

Although market failure is sufficient justification for government to intervene in training markets, the Allen Consulting Group (1994a, p.vii) argued that government could achieve optimal outcomes by withdrawing from the role of producer and acting only as market facilitator, purchaser and regulator:

Government's main role is ... setting the framework and rules for the market to work: maintaining the 'social currency' of a public qualifications framework assisting the wide portability of skills; correcting market failures, particularly in relation to the production and dissemination of information; and ensuring consumer protection.

As market regulator, the Allen Consulting Group proposed that government should promote competition in accordance with the Hilmer principles, and uphold the social objectives of VET through special measures to control standards of service quality, and to protect equity and other social concerns.

The Allen Consulting Group blueprint for structural and market reform in the VET sector was subsequently adopted and progressively implemented through the ANTA Agreement and other mechanisms (ANTA, 1994a, 1994b). In effect, the development of a training market can be seen as an attempt by government to maximise the potential benefits of market-based approaches, while at the same time minimising the risks of market failure by retaining strategic control over market operations.

Structure, composition and size of the training market

In reality, the 'training market' comprises a collection of heterogeneous markets shaped by a variety of supply-side and demand-side factors, including historical and contemporary patterns of government finance and regulation, consumer choice and labour market demand. An understanding of how such factors interact is 'critical to developing the (training) market' (ANTA, 1996a, p.4).

The structure of the training market has been conceptualised in several different ways, all of which predate User Choice. Deveson (1990) drew a distinction between:

- *The government-funded market* (estimated to be \$1.6 billion in recurrent TAFE funding in 1989) which comprised a mix of market and non-market elements; and
- *The industry-funded market* (estimated to be \$1.3 billion in 1989) in which there was direct competition among providers for resources and clients.

Deveson (1990) also referred to a 'developing market for training outputs' (ie. competencies), and a more developed 'series of markets for training inputs' (ie. training staff, fee-for-service activities). However, the utility of this conceptual framework is limited due to a lack of clear definitions and data on 'inputs' and 'outputs'.

The Allen Consulting Group (1994a) identified three market sectors by funding mode:

- *Quasi-market* in which (primarily TAFE) institutions are funded directly by government, but in which some market-like processes exist and at least implicit competition occurs;
- *Funding market* in which government training funds are open to competitive tendering rather than channelled directly to institutions; and
- *Open or commercial training market* in which the users of training directly purchase training products from providers under free market conditions.

The Allen Consulting Group distinguished between providers, purchasers, products, clients and outputs. It defined *providers* as TAFE institutions, commercial or other non-TAFE training institutions, enterprise training arms, and others. *Purchasers* were taken to include Commonwealth and State governments, enterprises and individuals. *Products* were defined as skills recognised in qualifications or gained in unrecognised courses. *Clients* were individuals and enterprises; and *outputs* were 'skill outcomes ... for clients in the labour market, for use in industry' (Allen Consulting Group, 1994a, p.3).

In 1992, the overall size of the training market was between \$6.5 and \$8.6 billion. TAFE was the largest provider, accounting for around \$3 billion in (mostly government) revenue and 1.7 million students. The Allen Consulting Group (1994a, p.9) noted that 'although a great deal of training is carried out in enterprises, enterprise-based training leading to qualifications is still relatively underdeveloped in most areas'. Commonwealth and State and Territory governments were found to be the largest purchasers, accounting for just under half of the total training market income.

The Allen Consulting Group (1994a) also identified an international market for Australian VET qualifications, consisting of training delivered: *on-shore* to private and government-sponsored full-fee paying overseas students; and *off-shore* through programs funded primarily by the Australian International Development Aid Bureau or by private clients.

Anderson (1994, 1996a) identified three major market sectors on the basis of existing financial and regulatory arrangements as follows:

- A *regulated or closed-market sector* in which access to government funds was restricted to public (primarily TAFE) institutions, and in which resource allocation and training delivery were subject to relatively high levels of government planning and regulation;
- A *partially regulated or quasi-market sector* in which government funds were allocated to public and private providers via simulated market processes such as competitive tendering and funding submissions, and in which training delivery was subject to partial government regulation (ie. provider registration and course accreditation, performance agreements and contracts); and
- A *deregulated or open-market sector* in which training providers (public and private) engaged in direct competition for clients and resources (e.g. overseas students, industry training contracts) and delivered training relatively free of government regulation.

According to ANTA (1999a), 1.54 million students undertook publicly-funded VET in 1998. Commonwealth and State governments expended \$3.740 billion on VET in 1998, of which 2 per cent comprised government fee-for-service expenditure. Enterprises expended \$3.886 billion on structured training in 1998, of which 17 per cent was spent on external training, 48 per cent on internal training, 27 per cent on training by equipment suppliers and manufacturers, and around 6 per cent on 'other fee-for-service revenue'. Expenditure by individuals amounted to \$919 million, of which fees and charges accounted for 84 per cent. In total, individual contributions accounted for around 11 per cent of the total estimated expenditure on VET. On the supply side, TAFE delivered 76 per cent of all recognised VET, community providers accounted for 15 per cent, and 'other registered providers' for 9 per cent.

With the exception of open or commercial markets, all of the above are publicly financed and subject to government planning and regulation. As such they are managed or 'quasi-markets' (Le Grand & Bartlett, 1993) in which the dynamics of conventional free markets are simulated through 'shadow' pricing, planned competition and proxy purchasing. Relatively little is known about the fully commercial training markets that operate outside the national framework of government funding and regulation (Anderson, 1996a).

Market mechanisms

The key elements of the training market framework were established by the early 1990s. These included:

- A national system of provider registration to increase the number and diversity of recognised suppliers of recognised training programs and services;
- CBT in which industry-determined standards became the official 'currency' for skills recognition; and
- An industry training advisory structure at national and State and Territory levels to inform government planning of current and emerging skill requirements.

Although these reforms were important building blocks, the construction of a market framework required a more integrated approach and a fundamental reorganisation of roles, responsibilities and relationships in the VET sector. To this end, a range of structural and financial reforms were implemented during the mid 1990s with the inter-related aims of reforming public sector management and promoting the development of a competitive training market.

Most of the early market reforms involved supply-side changes to increase efficiency by generating direct competition among providers. Over time, the focus of reform shifted to the demand side of the market, with the aim of strengthening the direct influence of individual and enterprise clients over providers (Anderson, 1997a, 1997b).

In recognition of the imperfect nature of quasi-markets, the concept of 'contestable funding markets' is now increasingly used to refer to the opening up of government VET resource allocation to actual or *potential* competition. 'In a contestable market, the threat of new entrants causes incumbent firms to operate at levels approaching that expected in a competitive market' (Industry Commission, 1995, p.ix). Contestable funding mechanisms include competitive tendering and User Choice. In 1999, 1566 Registered Training Organisations (RTOs) accessed public funds, with 937 RTOs chosen under contestable funding arrangements (ANTA, 1999b).

Purchaser/provider split

Public sector management reforms set the broad framework for the construction of markets in VET. The most significant structural change involved a redefinition of the role of government and public TAFE providers through the purchaser/provider split. Drawing on developments in the UK and the US, the Allen Consulting Group (1994a) recommended an internal separation of government's role as policy-maker, funder/purchaser and regulator from the management roles of service delivery agencies. This model aimed to overcome the perceived inefficiencies and unresponsiveness arising from the monopolistic position of TAFE.

The purchaser/provider split created a clearer demarcation between training supply and demand. The former public sector monopoly, in which no effective distinction had been drawn between government funders and TAFE providers, was replaced with a market-like arrangement comprising two elements. The first was a range of public TAFE providers with greater autonomy and responsibility for financial management. The second was a monopsony or single purchaser (central government) with responsibility for planning and buying adequate levels of training.

This structural reform was a necessary precursor to the introduction of competitive financial mechanisms. Once established, the purchaser/provider split enabled government to dismantle the public monopoly and treat TAFE as one of many providers from which training could be purchased on behalf of, or by, clients.

Performance agreements

Annual performance agreements between State and Territory Training Authorities and TAFE institutes were introduced in the late 1980s. Their objectives were: to clarify service expectations by funding a profile of defined activities rather than whole institutions; to effect a shift from funding inputs to outputs (or outcomes); to increase the transparency of and accountability for resource allocation; and to foster greater responsiveness to industry skill requirements. The negotiation of institutional profiles of provision remains the primary method of resource allocation in State and Territory training systems.

Performance agreements represent a step towards market-like arrangements. They treat individual providers as relatively autonomous business enterprises operating under a quasi-contractual arrangement comprising a mix of defined activity and output indicators, which are specified by

government and based on planning inputs from ITABs. As Curtain (1995, p.94) notes, the performance agreement 'embodies a purchaser/provider split with the central government as allocator of public monies establishing an arm's length, quasi-contractual relationship with semi-autonomous public sector agencies'.

Performance agreements in Australia have been criticised for: being overly centralised and unresponsive to emerging market demand; discouraging new market entrants and supply-side competition; and impeding efficiency and institutional change due to reliance on historical cost and delivery patterns (Curtain, 1995; KPMG, 1998).

Competitive tendering

Competitive tendering involves public and/or registered private providers competing for funding contracts from State and Territory Training Authorities (based on one or more selection criteria) to deliver specified training services. Competitive tendering strengthens the purchaser/provider split and creates a quasi-market relationship in which suppliers are required to compete for resources by responding directly to purchaser demands. Although the main emphasis of competitive tendering is on making supply-side resource allocation contestable, the training put to tender by government is usually also influenced by planning inputs from industry.

Competitive tendering is seen to open up the training market to new entrants, promote provider competition, and establish an efficient price for service delivery, provided 'real market' conditions exist (KPMG, 1998). Competitive tendering is similar to the performance agreement model in that a monopsony purchaser prevails, performance targets are specified, and outputs are defined. However, competitive tendering differs in that it involves formal contractual relationships between purchaser (central government) and suppliers (service providers), and direct competition among actual and potential training providers, usually public and private.

Competitive tendering has been employed to varying degrees by State and Territory governments to allocate ANTA growth funds and increasing proportions of their own VET funds. Two main approaches have been adopted. First, there is 'quarantining', wherein specific funds are allocated to public or private providers only for the purposes of market-testing and developing immature or thin markets by expanding the pool of potential suppliers. Second, there is open tendering, in which both public and private providers compete directly for government funds (WADOT, 1995, 1996).

Despite increasing competitive pressures on the supply side, the quasi-market created by competitive tendering differs from a conventional free market in that government retains full purchasing power, establishes 'shadow' prices, and controls market entry through provider registration processes.

Although competitive tendering had been used to allocate ATS and other non-core training funds from the mid-1980s, it was first employed to allocate core VET funds from 1995. In that year, \$21 million of Commonwealth ANTA growth funds were opened up to competitive tendering by public and private providers. By 1998, an estimated \$198 million of government funding was allocated through competitive tenders, up almost 30 per cent from 1997. The proportion of public funds allocated through tenders ranged from 1.7 per cent in Tasmania to 6.7 per cent in Queensland in 1998 (SCRCSSP, 2000).

Preferred supplier arrangements

Preferred supplier arrangements are a variation of the competitive tendering model. Providers with a proven track record of delivering high-quality training in a particular field are first selected to participate in a tendering process. Then a contract is awarded to deliver specified training on a longer term basis. Governments adopt these approaches in market segments where insufficient numbers of providers exist to ensure effective competition on the basis of price and/or quality. As with competitive tendering, governments retain purchasing power, employ contracts, and restrict market entry to approved providers.

Fee-for-service

The fee-for-service model differs from other financial mechanisms currently operating in the VET sector in that users purchase training directly from providers. The main argument for fees in VET is that the lack of a price mechanism in a fully government-subsidised system led to a misallocation of resources, overproduction of free or subsidised programs and services, and consequent resource wastage (Deveson, 1990). A fee-for-service approach is seen to be beneficial

as it creates direct and responsive relationships between providers and clients, promotes competition on price and quality, and increases private investment in training (ANTA, 1996a).

Deveson (1990) rejected full fees in TAFE because individuals were likely to under-invest in training due to inadequate rates of return. Instead his report recommended user charges in the form of partial tuition fees. They were subsequently introduced by Commonwealth and State governments, primarily as a mechanism for encouraging cost recovery and revenue raising in a context of budgetary constraint, raising consumer awareness of training costs, and discouraging 'frivolous consumption'. However, the Deveson report strongly encouraged increased provision by TAFE of fee-for-service training in commercial markets.

At present there are three main forms of fee-charging operate in the VET sector. First, there are partial fees and charges (tuition fees, administration charges, materials fees and student amenities fees), which are paid by local students/trainees (or their employers) enrolled in government-subsidised TAFE courses. Second, there are full fees paid by local students/trainees (or their employers) and enterprise clients for accredited and non-accredited courses offered by public and private providers on the open or commercial market. Third, there are full fees paid by international students/trainees and other overseas clients for local accredited and non-accredited training delivered onshore and, in some cases, offshore by public and private providers.

In 1999, partial fees and charges amounted to \$159.8 million, or 4.3 per cent, of total operating revenue in the national VET sector, mainly TAFE. Accurate data are not available for the latter two categories. However fee-for-service activities—which includes full fees paid by overseas students and local students, in addition to government and private revenues from tendering and consulting activities—amounted to \$341.5 million, or 9.1 per cent of total operating revenue in 1999 (NCVER, 2000).

User Choice

'User Choice' is a quasi-voucher scheme which operates in the context of the New Apprenticeship scheme, and which aims to improve efficiency, responsiveness and quality by empowering clients to make training decisions. Employers and their employees (apprentices and trainees), or their brokers, select a preferred provider with whom they negotiate a customised training plan that meets their needs with respect to content, timing, sequencing, location, mode of delivery, assessment and choice of trainer within the limits set by the NTF. Government funds are then directed to the chosen training provider (ANTA, 1996a).

'User Choice' differs from other funding mechanisms, with the exception of fee-for-service arrangements, in that it strengthens demand-side pressures on providers to compete for clients. Users choose the provider and product, while government determines the amount of funding, and retains administrative responsibility for resource allocation. This has the effect of forcing providers to focus their selling efforts on clients, rather than on central government agencies. Greater scope also exists for client choice in product design and the customisation of delivery.

'User Choice' was implemented in all States and Territories, except NSW, from January 1998. The proportion of public VET funds allocated via 'User Choice' arrangements in 1998 ranged from 2.2 per cent in Western Australia to 16.2 per cent in Tasmania (SCRCSSP, 2000). In 1999, States and Territories indicated that \$396.3 million would be allocated for off-the-job training for New Apprenticeships, including under 'User Choice'. This represented a 16.8 per cent increase over the 1998 total of \$339.3 million (ANTA, 1999b). In section 6.4 'User Choice' is discussed in more detail.

Intermediaries

In the UK and Europe, funding intermediaries have been used as purchasers of training services in place of central government agencies (Curtain, 1995). One model involves government-established and funded intermediaries such as the UK Training and Enterprise Councils (TECs). TECs are separately incorporated, controlled and managed bodies to which government delegates responsibility for allocating training funds within a framework of operational guidelines and accounting procedures. Under this franchising arrangement, TECs operate as relatively autonomous brokers who match clients with providers and, in the case of unemployed youth, with employers.

Intermediaries have not been employed extensively in Australia, although New Apprenticeship Centres (NACs) act on behalf of government to stimulate apprentice/trainee uptake, and to match

clients to providers under User Choice. In effect, NACs are proxy purchasers to whom providers direct their marketing effort.

Vouchers

Vouchers are certificates or statements that entitle holders to purchase education and training up to a specified value from a government-approved provider of their choice. Additional (or more expensive) services may be purchased privately by the client through a 'topping-up' mechanism. Extra value can be added to vouchers for disadvantaged clients or industry sectors that require more resource-intensive training.

Voucher-based systems have been used in the UK in the form of 'training credits' for unemployed youth. Voucher schemes were implemented in Victoria in 1999 on a much more limited scale. Under the \$600,000 Small Business Incentive Scheme, small business owners and managers were issued with a \$400 voucher with which they could purchase training from RTOs (State Training Board, 1999). Under the Youth Allowance TAFE Voucher Scheme, unemployed early school leavers under 18 years of age are issued with vouchers to purchase up to 400 hours of accredited training from RTOs.

Vouchers and their variants most closely approximate the free market mechanism of full fees. They create direct exchange relationships between clients and providers, and stimulate demand-side pressures on providers to compete on price, quality and value-for-money. Also they enable government to regulate quality, protect consumer interests, promote equity and correct market failure.

ANTA (1996a) noted that 'there are no "right and wrong" answers' for how a particular market should be structured. It argued that different market mechanisms can co-exist within a single market framework, and that the selection of models should take account of prevailing market conditions and desired outcomes. In particular, 'consideration must be given to who is making the purchasing decision and the degree of contestability of the market' (ANTA, 1996a, p.33).

Impact and outcomes

Market mechanisms in VET are relatively new, and research on their operation and effects remains patchy and inconclusive. In many cases, the full implications of quasi-market arrangements may only become evident over the longer term. Several factors complicate the task of analysing the impact of market reforms. These include the significant variations in market arrangements in different States and Territories, the co-existence and interaction of diverse market and non-market mechanisms, and delays in data collection and analysis. In addition, there is a dearth of longitudinal data on participation and finance. Data is inconsistent due to changes in the scope and definitions used for major statistical collections and there are difficulties in defining and quantifying key performance indicators (Anderson, 1998).

Until recently, research was concerned largely with examining the conditions under which the market reform objectives could be met and assessing the early effects of market mechanisms. Despite increased competition, few of its imputed benefits had been demonstrated and many negative outcomes had been predicted (Anderson, 1997b). The lacklustre performance of early market reforms was attributed variously to an imperfect understanding of the preconditions for effective markets, a partial application of competition principles, and undue emphasis on supply-side reform (Allen Consulting Group, 1994, 1994a; Selby Smith, 1995). Taylor (1996) stressed that competition should not be viewed as an end, but as a means to achieve greater efficiency and quality.

Poor outcomes have also been attributed to: insufficient information for enterprise and individual clients (Anderson, 1997b; Schofield, 1999, 2000; Smith, 1998; Wiltshire, 1997); inadequate product definition and customisation (Allen Consulting Group, 1994, 1994a; Robinson, 1998); a lack of transparency in costing/pricing structures (Selby Smith, Selby Smith & Ferrier, 1996); high barriers to market entry for small enterprises (Allen Consulting Group, 1994, 1994a); and thin markets in sparsely populated regional and rural areas and small industry sectors (Noble et al., 1999; Schofield, 1999; Smith, 1998; WADOT, 1995, 1996). Wiltshire (1997, p.3) concluded that 'the so-called training market ... is not, at present, a pure market. In particular, it is not demand driven, it is provider and funding driven'.

Despite the relative immaturity of training market development and analytical complexities, the body of empirical research on market reforms has grown considerably in the past few years. Most

recent research has focussed on competitive tendering and User Choice. It casts considerable light on emerging trends and issues.

Competitive tendering

Research findings on competitive tendering are mixed, though on balance they suggest that costs probably outweigh benefits. Early research suggested that competitive tendering had increased provider competition and efficiency, at least in terms of reducing costs to government. However, overemphasis on price competition has also potentially compromised quality (Allen Consulting Group, 1994, 1994a; Anderson, 1997b).

The Employment and Skills Formation Council (ESFC, 1994, p.67) found that the tendering process for federal government labour market programs had 'a number of unintended and unwanted consequences'. The pursuit of government contracts had assumed greater importance for providers than meeting client needs. Other problems included 'unproductive rivalry and waste through duplication of services and facilities within regions and even towns', high tender administration costs, a perceived lack of transparency in funding decisions, and insecurity arising from short-term contracts.

A national study in the VET sector suggested that 'competitive tendering ... along with other elements of training reform, are helping to stimulate a more diverse, responsive, customer-focussed, outcomes-oriented and cost-conscious VET System' (WADOT, 1996, p.6). It found 'little evidence' of negative effects, but highlighted several issues, including: under-provision in rural and regional areas due to diseconomies of scale and thin markets; information deficiencies; access and equity concerns; high administrative costs and complexity; and cost-shifting or substitution of public for private training resources. The full implications and the relative costs and benefits of competitive tendering were 'far from being fully documented' (WADOT, 1996, p.6).

The Bannikoff Review (1998) in Queensland identified inefficiencies arising from competitive tendering, including duplication of effort, and under-utilisation and inadequate maintenance of TAFE capital infrastructure due to a loss of government contracts. Resources had been diverted from TAFE to the private training sector; and within TAFE from training delivery to market administration. As a result the financial viability of TAFE institutes had been undermined, with adverse consequences for: the public interest component of TAFE activity; the quality of product development and delivery; human resource development; access and equity policy and obligations; government policy objectives and priorities; and employment outcomes for students.

Bannikoff (1998, p.23) concluded that: 'The use of competitive tendering needs to be reconsidered because it is not contributing to a reduction in the cost of training, higher quality training, an increase in the amount of training or more relevant training'. He recommended restricting competitive tenders to areas of new and untested demand and high volume/high contestability areas of training; and setting annual budgets for competitive tendering to ensure continuity of supply in thin markets.

User Choice

Overall, research suggests that 'User Choice' has been a more effective mechanism for increasing choice and responsiveness to market demand, although efficiency gains and quality improvements are less evident. In an evaluation of 'User Choice' in its early stages, Smith (1998) identified three positive outcomes: a wider range of training options for employers; increased interaction between employers and providers, particularly TAFE providers; and a more business-like approach by government bureaucracy. Conversely 'both the training and the outcomes of training under the User Choice system in Queensland are of highly variable and dubious quality, particularly where full on-the-job arrangements are in place' (Smith, 1998, p.vi).

Many of the problems related not to User Choice itself, but rather to deficiencies in policy implementation, resourcing levels, and market management, specifically contract monitoring and enforcement, and the regulation of quality assurance. Problems arising from market failure included: a lack of impartial and comprehensive information for clients; high administrative costs; declining quality due to an over-emphasis on marketing; inflexibility and unresponsiveness to employers' needs and circumstances; and systemic fragmentation due to inter-TAFE rivalry.

The advantages and disadvantages of User Choice are discussed in more detail in section 6.4.

6.4 USER CHOICE: A MAJOR DEVELOPMENT IN TRAINING MARKET REFORM

Background

Until the mid-1990s moves to open up the training market had concentrated on the supply side, directed towards making the market more contestable and less monopolistic. In some States and Territories actions had been taken to devolve management responsibility and accountability to individual TAFE institutions, and to remove barriers to market entry for private and industry providers. There had also been some demand side measures, including the separation of the purchaser and provider roles of training authorities, and the opening of a proportion of the publicly-funded VET budget to competitive tendering.

The Allen Consulting Group (1994a, p.39) criticised the demand side measures, arguing that:

... they seem to be strongly centralist in their approach, aggregating demand up from the enterprise level ... [This strategy] does little, however, to encourage a more direct and market responsive relationship between the provider of training and the purchaser client—enterprise or individuals.

The Allen Consulting Group reported that the 'lack of responsiveness, flexibility and relevance' was a 'recurring theme' in their discussions with industry. To counter these problems they recommended a move towards a market-based or choice system that they labelled 'user buys'. Under this system State and Territory funds would be allocated directly to enterprises or groups of enterprises, enabling them to purchase accredited training from any registered provider they considered best able to meet their needs—including (if accredited) the enterprise itself.

ANTA accepted much of the Allen Consulting Group's proposal, but recommended that, rather than being paid to employers, the funds would pass directly from the training authority to the provider, when notification was received of the employer's choice. The scheme was confined, at least initially, to apprenticeships and traineeships. A series of User Choice pilots followed, in all States and Territories and across industry sectors. They included several in Aboriginal and Torres Strait Islander communities.

Following the election of the Howard government in March 1996, User Choice became a higher priority. The new government aimed to link training more closely with employment. It proposed to do away with the existing training reform agenda, 'replacing it with an industry and enterprise driven training system ... focusing on the development of direct relationships between enterprises and individuals on the one hand and training providers on the other' (Liberal Party of Australia, 1996, p.16). In July 1996, State and Commonwealth Ministers agreed to progressive implementation of User Choice during 1997 and to full implementation of User Choice for off-the-job training of apprentices and trainees from 1 January 1998.

Implementation of User Choice

Despite the approval of Ministers, most training authorities were at best lukewarm about User Choice and NSW reserved its overall position. As the policy moved toward implementation, developing Commonwealth-State and Territory tensions were reflected in a substantial reduction in ANTA's role. Primary responsibility was given to State and Territory Governments. This decision emphasised the contested nature of VET in Australia: between levels of government, between the industry partners, and between the public and private sectors. It also emphasised the interactions between VET policy processes and the broader policy approaches and stances of each of the parties to the ANTA Agreement.

The objective of User Choice was endorsed by Ministers as:

... to increase the responsiveness of the vocational education and training system to the needs of clients through the encouragement of a direct and market relationship between individual providers and clients. (MINCO, 1997)

Ministers also endorsed nine principles to underpin its implementation. See Box 6.1 below.

Evaluating User Choice

The pilot programs

Most of ANTA's User Choice pilot projects had commenced by mid-1996 and were evaluated in 1996 and 1997 (Selby Smith, Selby Smith & Ferrier, 1996a, 1997a, 1997b; Selby Smith & Selby Smith, 1997).

Two central issues were investigated at the enterprise level. First, did enterprises want a greater degree of choice in relation to their training arrangements? Second, did enterprises exercise their choices when given the opportunity to do so, and if so in what respects?

The responses from the 55 enterprises involved in the pilots were clear-cut. First, they regarded it as important or very important to be able to exercise choice in timing, location, content, mode and quality of training. They also wanted choice of training provider. Second, the enterprises did exercise their options to make choices when they were provided with the opportunity to do so. For instance, they made choices about the training provider and specific elements in the training arrangements. More than two-thirds reported that they had changed their training provider. In relation to each of the specific elements, other than quality of training delivery, the majority of respondents had decided to change their previous arrangements. The participating Aboriginal communities also supported the importance of greater choice, particularly with regard to customisation. A common view was that the 'User Choice' approach 'allows more diversity', was good because 'the customer is always right' and the training can be 'Koori-ised'.

Box 6.1: The nine User Choice principles

1. Clients are to be able to negotiate their publicly funded training needs.
2. Clients have the right of choice of registered provider and negotiations will cover choice over specific aspects of training.
3. User Choice operates in a national training market not limited by State and Territory boundaries.
4. The provision of accurate and timely information about training options is necessary for informed choice.
5. Pricing of training programs by State and Territory Training Authorities should be based on clearly identified State and Territory unit costs benchmarks. Unit costs set for efficient provision may be increased by including a loading for access and equity reasons.
6. Training over and above that which is essential to the qualification outcome for the apprentice or trainee, and is above that which is funded publicly, can be negotiated and purchased by the client.
7. User Choice would be harnessed to improve access and equity in the VET system and be integrated with existing initiatives.
8. Regulatory frameworks and administrative arrangements relating to VET at the National, State and Territory level are to be complementary to the achievement of the objectives of User Choice.
9. Evaluation of outcomes of User Choice against objectives is an integral element of a program of continuous improvement. Innovation is required to achieve and maintain a best practice training system.

Source: MINCO, 1997

User Choice in practice

In April 1999 ANTA commissioned KPMG Consulting to undertake the second phase of the User Choice evaluation. KPMG commented on the difficulty of separating the impact of User Choice from the impact on VET of other changes and suggested that 'User Choice may be better seen as an enabler of a large, multi-faceted change program, rather than the sole driver of change in the training system' (KPMG, 1999, Volume 2, p.33). Nevertheless, the evaluation concluded that, overall, the policy framework was strong and progressing well. There was evidence of the development of more meaningful partnerships between providers and employers and, at least from an employer perspective, the benefits of User Choice outweighed the costs (KPMG, 1999).

Drawing on a survey of employers, KPMG found high levels of satisfaction with the scope for exercising choice, the degree of provider responsiveness to employer needs, and the information employers received about training products. They indicated that employers believed that User Choice had driven improvements in services and relationships. Employers were involved in a range of training decisions and equipped with information to make choices and influence provider behaviour. They saw fewer barriers to accessing training. In particular, KPMG found

that employers who used private providers were more likely to report positively on a number of items to do with User Choice. But the evaluation reported also that increases in employer satisfaction with training delivery and quality were lower and that relatively few employers had altered their market behaviour. Only seven per cent had changed their provider since User Choice began.

A survey and case studies of providers produced more mixed results. Providers indicated that though User Choice had enhanced responsiveness to employer needs, it had also potentially reduced efficiency due to administrative, marketing and advertising costs, and had possibly compromised quality. Administrative complexity had also increased. Overall only 38 per cent of RTOs regarded User Choice as a success, with private providers more likely than TAFE to respond positively.

KPMG also investigated the views of apprentices and trainees, and the views of State training authorities. Among apprentices and trainees KPMG found less recognition of key elements of User Choice than among employers and providers. The evaluation noted that apprentices and trainees had exercised only limited choice of provider, but more choice in relation to the content of training and the mode and timing of delivery. The evaluation found that State training authorities were generally satisfied with their progress in implementing User Choice. Where difficulties had been encountered steps were being taken to redress them.

Although KPMG concluded that the overall policy framework was strong and progressing well, they expressed concern in some areas and made recommendations for change, including:

- Increased efforts were needed to raise understanding of User Choice among providers;
- Types of choices available should be clarified;
- A greater emphasis on partnership relationships based on quality and responsiveness between providers and employers rather than solely focusing on contestability between providers;
- A better understanding of User Choice as few stakeholders understood the meaning of User Choice Principle 7, which requires that User Choice be harnessed to improve access and equity in VET;
- Provision of information by State training authorities, providers and New Apprenticeship Centres should be more carefully targeted;
- A stronger emphasis on aspects of choice other than choice of provider. In particular, choices around content, timing and location of training needed greater emphasis; and
- A national process for the dissemination of practice and accumulative learning in User Choice should be put in place.

KPMG also identified three 'hot spots for future monitoring', where there was potential for problems to arise:

- Over-bureaucratisation of choice;
- The impact of training packages that are being interpreted and implemented in a way that can introduce inflexibility and restrictions on client choices; and
- Perceptions that User Choice, if interpreted solely from the employer's interest in training with specific business relevance, can conflict with apprentice and trainee interests in acquiring a breadth of skills and experience.

State-based evaluations

The only accessible specific evaluation of User Choice in practice conducted at the State or Territory level was carried out in Queensland (Smith, 1999). However, three other inquiries that focus primarily on the quality of VET training in Queensland, Tasmania and Victoria (Schofield 1999, 1999a, 2000) contain relevant comments on User Choice in those States.

Drawing on a wide range of interviews and providers, Smith (1999, p.21) concluded that

There was almost total agreement among all of those interviewed, irrespective of their affiliation, regarding the effectiveness of the system and the major issues impacting on its implementation.

He found very 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 having a clear influence on the choice of provider in apprenticeships and traineeships, particularly the latter. By the end of 1998, TAFE Queensland had suffered losses in its State market share of apprenticeship new approvals and re-approvals in all the major industry areas employing apprentices.

User Choice had increased the level of competition among providers, and as a consequence, had resulted in an increased range of training options (programs, delivery methods and times) to satisfy client needs. 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'. 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'.

On the other hand, Smith also identified a number of concerns. In particular, implementation was unsatisfactory; information was inadequate, although essential for informed choice; and quality was threatened.

Subsequently, Queensland asked Kaye Schofield to investigate the quality and effectiveness of the traineeship program, with particular regard to those training programs which are delivered fully on-the-job, and to provide recommendations on measures by which quality and effectiveness might be improved. She stated 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 inquiry was not primarily about User Choice, which in any case had only been introduced in Queensland the previous year. Many of the problems she identified were much more deep-seated and long-standing. However, three points she raised have significance for User Choice policy-making and implementation. First, policy objectives had become blurred, as traineeships had come to serve multiple and even conflicting purposes over the years. Second, key stakeholders, such as industry, employers and registered training organisations, consistently reported that they were confused about their respective roles in the traineeship system. She argued that 'at the heart of this confusion lies the question of respective roles and responsibilities of the Commonwealth and the Queensland Government' (Schofield, 1999, p.v). Third, specifically with respect to User Choice, she concluded that 'The benefits which can flow from the introduction of contestability into a traditional public service program or service delivery arrangement have not flowed from User Choice arrangements in Queensland due to two fundamental flaws in the system: proxy purchasing and market viability issues ... User Choice today harbours the worst features of both a voucher system and direct government procurement, with none of their benefits' (Schofield, 1999, p.vi).

She argued that there was a failure by government to organise and manage its market effectively. 'Proxy purchasing' had reduced effective client choice, created conflicts of interest and increased administrative complexity, while imperfect information and insufficient providers in some areas had undermined market viability. She also identified a range of specific problems including: a failure to manage thin markets, particularly in geographically remote areas and specialised industry sectors; pricing policies and practices that promoted quantity and efficiency at the expense of quality and effectiveness; overly complex and resource-intensive administrative systems, resulting in the diversion of funds from training delivery; a lack of rigour in quality control, particularly during contract allocation; and under-investment by providers in human resource and capital infrastructure development, due to inadequate funding and short-term, uncertain contracts. Nevertheless, she emphasised that 'the many flaws and problems in the User Choice system do not justify a return to a public monopoly' (p.viii); and that contestability can help agencies to become more efficient without impairing their effectiveness.

She proposed an 'alternative competitive model' guided by three objectives: increasing the responsiveness of the VET system to the needs of clients (both employers and trainees) through direct market relationships; achieving viable training markets for traineeship delivery; and promoting quality and innovation in delivery.

Subsequently, Schofield undertook a review of the quality of the traineeship system in Tasmania (Schofield, 1999a) and another review of the quality of training in Victoria's apprenticeship and traineeship system (Schofield, 2000). She found that the share of government-funded apprenticeship and traineeship training in Victoria held by private and ACE providers had increased from just under 20 per cent in 1998 to around 40 per cent in 1999. Government funding for apprenticeship and traineeship training in Victoria amounted to \$151.1 million in 1999. While there are some differences in her Queensland, Tasmanian and Victorian reports and her thinking developed ('In hindsight, the process of undertaking three sequential reviews was rather like peeling an onion') the broad thrust of her conclusions remained consistent. Summarising her conclusions from the three inquiries at the NCVET research conference in July 2000 she emphasised four matters (Schofield, 2000a).

First, 'User Choice has promoted flexibility, responsiveness and innovation. In Victoria ... the introduction of User Choice has had clear benefits including: more innovative and flexible approaches to training ... A stronger focus on client service ... better management and training practices [by providers] ... There is greater responsiveness in the system to industry and employer needs ... More effective use of resources ... User Choice has encouraged some RTOs to establish collaborative industry partnerships and alliances' (Schofield, 2000a, p.12).

Second, 'competition has had both positive and negative effects on quality'. There are a range of significant problems in the training system in each State. However, 'many of the claims that competition per se has reduced quality, attribute to competition consequences arising from other factors such as the rise of workplace delivery, greater client demand for customisation, wider issues of contestability of the VET budget, the cumulative effect of years of cost-cutting within the sector, and funding systems which have rightly sought greater efficiency and accountability but not always with due regard to effectiveness, fitness for purpose and ethical practice'.

Third, there are significant problems. 'Market confidence in the system has been shaken ... Employer incentives have distorted employer (and provider) behaviour, casting doubt on the market-driven model of funding for training ... Conflicts of interest inevitably exist ... The highest risks of conflict of interest arise when a New Apprenticeship Centre is also an RTO and when an employer is also an RTO ... There has been corrupt and unethical behaviour within the apprenticeship and traineeship system, and this has not been confined to the private sector ... There is some evidence that the combination of employer incentives and government funding for training has led some employers to reduce their own private investment in training by substituting public funds ... [especially] when the employer is also the RTO ... The apparently ready availability of public funds for training through User Choice may be fostering a hand-out mentality within some businesses and industry generally.'

Fourth, Schofield's inquiries opened up some broader speculations about the directions and future of the overall apprenticeship and training system. In her view the complexity and consequences of mass customisation of apprenticeship and traineeship training has never been fully appreciated within the VET system. 'What is now needed is a re-evaluation of how employment-based structured training can be made more flexible without sacrificing quality training along the way'. She expressed concern about the long-term sustainability of the apprenticeship and traineeship system, given that the new economy has different work force requirements, is a different mix of primary industry, manufacturing and services industries, and that 'new service-based industries ... have different commitments to training.'

Four concluding comments

First, User Choice has been a Commonwealth initiative. The States and Territories have responded to it with varying degrees of enthusiasm. In particular, NSW which represents over two-fifths of total VET activities in Australia, has continued to reserve its overall position. The formulation and partial implementation of User Choice reflects the role of the Commonwealth authorities in VET and illustrates the contested nature of policy-making in this area.

Second, User Choice reflects general changes in public policy, including public sector management, towards more direct and market responsive relationships between providers and purchasers or clients. These broad changes towards the greater empowerment of users relative to providers, although reflected in VET, were not driven initially from within the sector.

Third, User Choice policy development and its implementation illustrate a changing balance between the industry partners. The powerful role played by the union movement under the Hawke and Keating governments has been replaced by an industry and enterprise driven training

system under the Howard government since 1996. At a more local level there is continuing tension between the needs of enterprises and those of apprentices and trainees.

Finally, there are numerous areas where further research could be useful in investigating how efficient use of resources, effectiveness and equity can be enhanced. Outcomes and processes are both important to stakeholders in VET. Interestingly, the 55 User Choice pilots, which included projects in Aboriginal and Torres Strait Islander communities, in regional and remote locations, in prisons and sheltered workshops, demonstrated how 'User Choice' can facilitate empowerment of previously disadvantaged clients of the VET system. Schofield has identified the importance of training quality as well as quantity in VET. A range of research studies and other investigations of the developing User Choice system are warranted; and this topic is a core research activity at CEET in 2000–02.

6.5 CONCLUSIONS

Due to the relative novelty of competition and market reforms in Australian VET, together with the lack of comprehensive data and research on their effects, it is premature to reach definitive conclusions about their potential impact and consequences. The economic benefits of competition and market reforms in the VET sector are yet to be fully substantiated, and they may be outweighed by adverse social, economic, educational and political consequences that are still far from being fully identified and understood.

However, the development of a competitive training market entails a fundamental and comprehensive redesign of institutional structures, cultures and practices in the Australian VET sector. Substantial changes have already been made to financial and delivery arrangements for VET, since the training market concept was first endorsed in 1990 by Commonwealth, State and Territory governments. Most of the early reforms focussed on changes to the supply side of the training market. For example, efforts were directed at increasing competition among providers through competitive funding mechanisms controlled by government. More recently the focus has shifted to the demand side of the training market, to enhance provider responsiveness by empowering clients to make training decisions. Each of these strategies has major implications for the roles, responsibilities and relationships of key stakeholders, including for government's role with respect to funding and regulation.

The nature, impact and consequences of greater competition and market reforms have engendered considerable debate among policy-makers, researchers and affected parties in the VET sector. The challenge now confronting the VET sector is to engage in open and constructive debate about the most effective way forward. This includes consideration of three matters. First, what are the policy objectives of a competitive training market? Second, what are the respective roles and responsibilities of public and private stakeholders? Third, what are the rules and expectations which should govern the behaviour of participants at all levels? Choices and decisions about strategies for the development of a competitive training market need to be well-informed and should be based, as far as practicable, on empirical evidence.

In general, although there is a growing body of research on competition and market reform in VET, the knowledge and information bases remain limited in important respects. Conceptual frameworks and data for analysing the size, structure and composition of the training market require further development. Additional research is required on the extent to which current market conditions satisfy the pre-conditions for an effective training market, specifically in relation to: the structure and composition of the supply and demand sides of the market; the nature of VET products; and the information requirements of clients and providers. More research is required on the efficiency and cost-effectiveness of the various models for competition and market reform; their relative appropriateness for different market sectors; and their implications for access and equity in VET.

Most importantly, there is a need to develop a better understanding of the costs and benefits of competition and market reforms, including a comprehensive evaluation of their impact to date. What efficiency, effectiveness and equity outcomes result from the adoption of particular models of competition and market reform in VET, and at what cost? Such information would provide an improved basis for determining the division of financing responsibilities among the key stakeholders, and for developing appropriate approaches to competition and regulation.

7 SUMMARY, RESEARCH GAPS AND TWO FINAL QUESTIONS

7.1 OVERVIEW

The extensive material presented throughout this stocktake documents and demonstrates the vibrancy and increasing depth of the field of the economics of VET in Australia. It also affirms the considerable progress that has been made since the mid 1990s, when CEET first surveyed the field for ANTA.

However, the work would not be complete without two things. The first is a 'user friendly' guide that summarises the work, highlights some major findings and offers pointers to where issues can be explored in more detail. The second is a discussion of the main gaps in knowledge and understanding that have emerged from the work, together with some indications of places in which further research is warranted or would be useful to decision-makers.

Thus the task of summarising, and drawing out the main points of the work, is the main role of this final chapter. In addition though, it is important that the work be reconsidered in the light of two over-arching questions: First, can equity in VET be improved? Second, how can researchers ensure that their work is relevant and useful to policy-makers and practitioners and has an impact?

The first of these questions has arisen time and again in each of the sections of this work and has underpinned discussions about demand and supply, about funding systems and approaches, about markets and about regions, institutions and governments. Our reconsideration of it here reflects both its importance and the need to consolidate the themes that have emerged from each section into a coherent framework. VET is, after all, about people, as students and teachers, in enterprises industry and government, who come together to form institutions and organisations, and who contribute to, as well as benefit from, the public purse on which education and training still largely depends.

The second question is more than a plea for this stocktake to be given the attention we hope it will receive and think it deserves. The thoughtful and informed work of many researchers, not just those at CEET, has contributed to the findings of this stocktake. What purpose does this work serve if it is never taken off the shelf, never read and influences no important decisions? The gap between researchers, policy-makers and practitioners has at times been considerable. In recent years, efforts on all sides, and advances in mutual understanding, have narrowed it significantly. However, further improvements are both desirable and possible.

7.2 SUMMARY AND FINDINGS

The economics of VET

This stocktake builds on and updates a review of the literature on the economics of VET undertaken by CEET for ANTA in 1994. Economists are interested in analysing VET not only because many of its purposes are explicitly economic in nature, such as helping people get jobs, lifting enterprise productivity and making the nation more competitive in global markets, but also because it is a significant area of economic activity in its own right.

Education and training play an acknowledged and important role in the economic success of individuals, enterprises and nations. But there is still much uncertainty about the likely pay-off from any additional investment in education and training or from a shift in the balance of existing investments. From an economic perspective it is important to understand the reasons behind the substantial allocation of resources to VET, the ways in which these resources are used and if they are used efficiently and equitably.

Australia is a particularly interesting country in which to study the economics of VET. The distinctiveness of the Australian TAFE system, which is not replicated elsewhere in the world, is one reason. Another is the nation's unique blending of some of the key features of loosely coupled and tightly coupled systems of education, training and work. A third reason is despite the differences in emphases between governments of different political persuasions and between some stakeholders there is a striking degree of policy consensus around five underlying principles that have guided the process of VET reform: a national framework; a competency-based training

(CBT) system; provision driven by demand rather than supply factors; multiple pathways and flexible delivery; and a continuing commitment to access and equity.

The changing nature and patterns of employment in Australia

VET reflects and responds to the changing environment in which it is set. The emergence of the knowledge economy is of particular importance to VET, as are the responses that it elicits from enterprises, individuals and governments. From them flow extensive changes to the nature of work, the skill requirements of the Australian economy and the relationships between employers and their work forces, all of which have major implications for VET.

Work takes place in three sectors of the economy: the market sector, the household sector and the voluntary sector. In the past, VET policy and practice has been directed overwhelmingly towards the market sector, but the other sectors are large and there is evidence that they are increasing relative to the market. There are also strong links between the three sectors, so that change in work in one sector is likely to affect the others. Training is relevant for work in each sector and there are some grounds for considering that the focus of VET should be broadened, particularly to encompass the voluntary sector, which is requiring an increasing level of skills.

Work in the market sector is becoming increasingly diverse and variable, with ongoing change anticipated. This raises some challenges for VET policy and practice in both the amount of learning that is required and in the diversity of content. In order to maintain their capacity to participate fully in work and in the broader life of society, it is becoming vital for people to undertake formal and informal lifelong learning. Of special importance are the continuous self-development of attitudes, values, evaluative skills, social skills and understanding, together with the specific technical skills that become necessary due to innovation and job change.

New technology, new organisational structures and increased competition in product and factor markets are leading enterprises to require a more skilled work force. The research literature generally points to positive outcomes associated with the adoption of more flexible workplace strategies. Flexible workplaces are associated with particular organisational structures, work practices and behaviours. However, it is bundles of inter-related and internally consistent human resource practices, rather than individual practices in isolation, which seem to be the key to improved performance. These bundles need to be integrated with complementary aspects of the enterprise's overall business strategy if they are to have their maximum impact. Increased levels of training can be ineffective if a surrounding context of flexible human resource and work practice strategies are absent.

Though changes at the enterprise level are increasing the demands for new skills and knowledge, and hence for VET, there are aspects of the Australian labour market that do not sit comfortably with the picture of a rapidly increasing demand for skills. Almost certainly there has been overall growth in the demand for skilled labour, but that growth has not always been rapid or evenly distributed throughout the economy. The implications for skill formation are not wholly positive.

There have been major changes to the Australian system of industrial relations since the mid-1980s and further change is sought. Changes to technology and reforms to trade regulation at a national and international level make for a borderless economy in which workplace flexibility is a competitive imperative. 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. These developments have significant implications for the VET system, including the type of training provided, where it is delivered and who bears the cost. Increasingly, the centre of gravity in industrial relations has been lowered and employees have to be prepared to take an autonomous and pro-active stance to secure their own professional development.

The demand for VET

There are five main types of VET demanded:

- Pre-employment VET;
- Initial employment training;
- Job-related training (including on-the-job training, in-house off-the-job training and off-the-job training with external providers);

- Job-switching training and job re-entry training; and
- Training for non-market work.

The demand for these different types of VET can be seen from three different perspectives:

- The *individuals* who undertake VET;
- The *employers* who require trained workers and training for their workers; and
- *Governments* that act on their own behalf as large employers, or on behalf of their constituents to meet economic and social policy objectives.

The factors that determine demand differ for each type of VET and for each of the three groups. Demand reflects the views of individuals, employers and governments about the potential benefits of VET, together with the prevailing incentive structures. Equally, it is determined by the VET products that are available, the relative prices of the products, and the information available about the products and their effectiveness in meeting perceived needs.

Demand for VET is a derived demand, that is, it is not an end in itself, but a means to something else. This means that it can be affected, directly or indirectly, by many apparently unrelated factors. The demand for VET is also 'realised demand'. This means that it reflects the level of resources that individuals, industry and/or governments are prepared to commit to it, given the prevailing funding and other incentive structures.

The demand for VET is conceptually quite different from both training needs and skill requirements. Training needs are assessments of what training is required in order that requisite skills, knowledge, attitudes and work practices are available to meet the enterprise's specified objectives. Skills requirements are assessments of the skills (and related matters) that are required by the individual enterprise or industry to meet those objectives. Skill requirements only translate into training needs if training is the only avenue for acquiring those skills (compare poaching trained staff from other enterprises or immigration of skilled labour) and resources are committed to that training.

Demand-driven VET is as much about getting the funding, pricing and other incentive structures right as it is about accurately assessing skill requirements and their associated training needs. A significant gap in knowledge relates to the responsiveness of demand to (relatively small) changes in the price of VET.

Demand for VET, from the perspective of individuals, will differ, depending upon whether and how much they see VET as being primarily a *consumption good* (something to enjoy in its own right), an *intermediate good* (an important ingredient in the achievement of something else) or as an *investment*. In all cases, the level of demand will be greatly affected by the perceived price of VET (relative to other things), the estimated costs and anticipated benefits of VET training, and the alternatives to VET.

Demand for VET by industry (*employers*) is essentially a derived demand. The decisions by firms to commit resources such as funds, facilities and production time to VET, are ultimately made in the context of the dynamic competitive business environment in which they are operating.

The public demand for VET as expressed through *governments* at the State and national level, acting on behalf of their constituents, is determined by the contribution VET is seen to make to the achievement of their objectives. Governments also express demand for VET in their role as large employers.

There is no automatic correspondence between the demand for VET according to the different perspectives of individuals, employers and governments.

How does the demand for VET from the individual and employer perspectives translate into actual forecasts of the demand for places in VET? The problems in forecasting demand are many. But there remains a need for a coherent overview of the relative size of the competing demands to which scarce public funds should be allocated.

One recent contribution to the forecasting of demand is the incorporation of estimates of net replacement demand—demand for newcomers to replace those who leave an occupation. In some occupations replacement needs are a more important component of job openings than is the likely demand from expansion. In particular, the only source of job openings in declining occupations is replacement demand. CEET has made significant progress in developing a method

to measure the stock of skills by highest qualification attained within each occupation. The approach enables the statistics to be provided for geographical regions and for particular groups of occupations corresponding with the coverage of specific ITBs. It facilitates improvements in policy, practice and further research of concern to specialised users.

Stimulating demand for VET from SMEs is one of ANTA's priorities. Over 42 per cent of Australia's labour force works in small business, including agriculture, but the learning practices and skill levels in small businesses may fall short of those required for peak performance. Initiatives by governments and industry organisations to encourage SMEs to invest in VET are most effective when they are based on detailed knowledge of the information and the inducements to which SMEs are likely to respond. In addition, they are effective when they recognise the significant and distinguishing characteristics of SMEs and their special circumstances.

Relatively low levels of cost appear to inhibit substantially the uptake of training by SMEs. The promotion of learning to SMEs needs to be sensitive to their values and culture and responsive to their special circumstances and requirements. Given small businesses' relative lack of internal labour markets and short life (only one-third of Australian small businesses are more than ten years old), competitiveness in the external labour market is especially important for their employees.

The decisions that an enterprise makes about how much training to undertake, of what kinds and for whom may be influenced by whether it perceives expenditure on training as a cost, or as an investment that will contribute to its success. In the emerging knowledge economy, enterprises of many kinds and in diverse industries have begun to recognise that their major assets are no longer necessarily their plant and equipment, or land and buildings, but their 'intellectual capital', including that embodied in the skills, knowledge and attributes of their employees.

For this reason, enterprises around the world are seeking better ways to identify and measure their intangible assets and to develop management skills in leveraging these assets to achieve increased economic success. Much of this work has centred on the development of a range of financial and non-financial indicators of 'intellectual capital' that can complement the information contained in traditional financial reports and be used to guide and inform decision-making, including the levels and types of human resource development necessary to achieve goals. The work is being led by emerging practice in enterprises but is supported by the OECD and a diverse group of policy-makers, accounting professionals, academics and government bodies.

Early research in Australia and overseas has demonstrated that the increased emphasis on human resources that this work encompasses has the potential to influence investments in VET by more clearly demonstrating the links between human resource investments and economic results. However, few enterprises in Australia yet take a systematic approach to the measurement and management of their 'intellectual capital' and much further work is required to develop suitable and appropriate indicators.

The supply of VET

By supply economists mean the quantity of goods or services offered by providers at various prices. A supply curve sets out how the quantity supplied will increase or decrease with a change in the price offered to providers. Changes in the amount of a good or service provided in a market are 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.

The main policy instruments used to affect both supply and demand in education and training in the 1990s were:

- Putting more publicly funded education and training into competitive markets;
- Expansion of charges in public education;
- Increasing the public subsidy to fee charging private providers;
- 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.

The supply of formal education and training expanded in the 1990s. The increase in the provision of formal education appears to have been handled by shifting some of the costs on to the private sector and by reducing the unit expenditure per student, most evident in higher education. The provision of training by employers has not kept pace with the increases in the formal education system and at this stage it is too early to tell if such developments as training packages are leading to a significant increase in training by enterprises.

Overall, enrolments in both VET and university have been expanding quite rapidly, with most of the increase occurring in the early years of the decade. On the other hand, there are indications that the amount of in-house training per worker provided in the workplace declined in the early 1990s and had not recovered by the mid to late 1990s.

Across the whole of education and training the average picture is of resources expanding in line with student numbers and with a small increase in the share borne by the private sector. However, the averages hide much more diversified changes across the sectors. About 60 of total government outlays on education go for schools, nearly 20 for universities and a little over 10 for TAFE.

There was a shift from public to private spending on formal education in the 1990s. The private share increased in higher education mainly because of HECS. There was also a relative enrolment increase in private fee-paying primary and secondary schools. In VET fee-for-service increased, but fee-paying by students appeared to provide about the same percentage of revenue. It is difficult to draw conclusions about the overall change in resources per student in VET and schools, due to the data available. There was an apparent decline in resources per student in higher education.

Overall, the costs of education and training per student or trainee have been contained and in some cases have fallen. On the face of it, this appears a valuable achievement, but the consequences for quality are not established clearly.

There is insufficient longitudinal data to be able to confirm whether the VET reforms are leading to more relevant education and training. Any decline in apprenticeships compared with the 1980s needs to be seen against the background of a changing employment structure. Apprenticeships remain a robust form of education and training, especially for young men. There has been substantial expansion in traineeships, including in new occupations, and vocational programs in schools, but the long-term consequences for the quality of training and for the satisfactory meeting of individual and enterprise skill requirements are not yet clear.

There has been some, but not a great deal, of improvement in equity in VET and in some cases it is possible that inequity has increased. Aggregate measures for target groups tend to show some improvement over time until the early 1990s. However, a matter for further investigation is whether the combination of several forms of disadvantage means that some sub-groups are in fact more disadvantaged than a decade ago. This may be due primarily to economic and social forces outside the formal education and training system rather than to changes within VET.

There is now relatively little variation among the States in expenditure per student in government school systems. Universities are funded by the Commonwealth and (ignoring research-related funding) their public funding for teaching per student varies primarily according to course mix. However, there is considerable variation across the States and Territories in VET costs per annual hour of curriculum. The factors underlying these cost differences warrant further investigation.

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 VET.

Special issues in supply

Intersectoral issues: There are two broad types of intersectoral issues in VET. The first concerns VET and its relationships with the other sectors of education and training in Australia (e.g. schools, ACE and higher education). These issues include the movement of students between VET and other sectors; overlaps and linkages in courses and qualifications; and the values and cultures of the different sectors. The second type of intersectoral issues concerns the roles and relationships of the public and private sectors in VET. For example, should the sectors compete or be complementary? In what circumstances, and on what conditions, should public resources be available to the private sector?

The boundaries that divide the various sectors of education and training in Australia appear to have been eroding with increasing speed over recent years. Paradoxically, however, many of the characteristics that have in the past helped to give each sector a unique identity, remain strong. Similarities between the sectors contrast with many differences, such as in funding provisions, administrative arrangements, community perceptions, course structure and content. Given that VET connects with each of the other formal education sectors, that it includes a significant private as well as public sector, and that the Commonwealth and State and Territory governments are both actively involved, the rigidity or fragility of intersectoral barriers is of particular importance to VET.

In recent years the significance of intersectoral aspects has increased. One reason for this is the renewed emphasis on lifelong learning, which requires that individuals can move easily from formal to informal education (and conversely) and between the various education and training sectors. As support for lifelong learning has strengthened, policy-makers, practitioners, researchers and students have begun to consider the whole pattern of education and training provision in terms of objectives to be achieved with the resources which are available, rather than the separate goals and processes of each sector.

Although intersectoral studies will become increasingly important, the majority of research studies still tend to be sector specific. Funding for cross-sectoral projects tends to encounter institutional constraints, and intersectoral research is hampered by the lack of comparable data.

VET in Schools: The term 'VET in Schools' refers to vocational programs that comply with the National Training Framework. They include programs incorporating work contact as well as a large number of school-based vocational programs that do not have work-based learning or school/industry partnerships.

VET in Schools expanded rapidly during the 1990s and three broad types of school programs emerged:

- *VET in Schools:* non wage-based (training contract free) programs offered usually to students in Years 11 and 12 and typically included in the end of school certification process. Many include components of workplace learning;
- *School-based New Apprenticeships:* a young person attends school for off-the-job skills training and subjects associated with the end of school certificate, while also working as an employee engaged under a New Apprenticeship (sometimes called Traineeship) contract; and
- *Other vocational learning programs:* all other programs not included in the previous two categories, for example, work-shadowing, work-sampling, and work-experience skills training programs designed by schools in conjunction with local employers.

Data on VET in Schools is still fragmented and incomplete and hinders detailed analysis of these programs, but some estimates are possible. Since 1995 there has been a steady increase in the number of students enrolling in VET in Schools programs. For 1999 an estimated 130,000 Year 11 and 12 students from all school types were enrolled—more than double the number in 1996. Much of the growth in enrolments has been due to new schools entering the field with new students rather than increased enrolments from already participating schools. The number of secondary schools with approved VET programs increased from 1441 in 1997 to 1729 in 1998, with a further increase to 1850 estimated for 1999.

If participation in VET in Schools is to be increased, then significant shifts need to occur in the structure of schooling, the design and classification of elements of the curriculum, and in the values of teachers, parents, students and employers towards vocational skills and applied learning. All of these factors currently inhibit further growth. In current circumstances the proportion of students participating in VET programs in government schools will stabilise at about 40 of Year 11 and 12 enrolments.

There are substantial differences between States and industry fields in the depth and rate of student participation. State differences reflect different arrangements. Industry differences may reflect the availability of facilities and workplaces. Participation in VET in Schools is similar for males and females, but there are differences in the fields of participation. Participation may also be linked to socio-economic background. Year 11 and 12 students participating in vocational programs are more likely to be from home backgrounds where parents work in skilled or unskilled manual occupations. There are some differences in post-school destinations between vocational and non-

vocational students, with both males and females who studied vocational subjects being more likely to proceed to post-school VET.

School-based New Apprenticeships see employers using the apprenticeship concept in new occupational areas. This raises some important questions. Are employers creating new positions to accommodate school based New Apprenticeships or are they converting existing full-time or part-time jobs or apprenticeships to the new format? If there is a significant element of conversion occurring, is the focus of 'end on' school leaver entry-level training shifting from TAFE institutes to concurrent models with schools?

Under the current funding arrangements additional Commonwealth resources to assist in the development of VET in Schools are provided through ANTA and the Australian Student Traineeship Foundation (ASTF). These arrangements conclude in 2000, and there is considerable interest in the likely funding of VET in Schools over the 2001–2004 period.

The costs of provision of VET in Australian schools may be greater than the average for the provision of other curriculum areas (Burke, McKenzie & Shah, 2000). However, the extent of additional cost varies with a range of factors, such as the type of VET program; the extent of work placement; the number of Year 11 and 12 enrolments; and the number of separate VET programs.

There is a range of models of VET in Schools with varying implications for cost, quality, effectiveness and equity. These warrant further monitoring and additional research.

VET in ACE: Within the national VET system ACE (community-based) providers have two fundamental roles. The first is a *generic role*, identical to that of all other training providers. The second 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 & Dryen, 1996, p.v).

Education and training provision within the ACE sector has distinctive qualities not commonly found in TAFE or other VET providers. There is a capacity, for instance, to address learning environment and access issues while effectively delivering vocational outcomes, to respond to the needs of specific groups of learners, and to attract and cater for a diverse range of learners seeking quality VET outcomes. There is also a commitment to addressing the learning needs of local communities, supporting access for learners who may not consider study in more formal settings (Volkoff, Golding & Jenkin, 1999).

The provision of VET programs by recognised ACE providers is expanding. This reflects three main factors: increases in demand from individual learners, communities and enterprises; reconsideration of the vocational orientation of some programs resulting in their reclassification from general adult education to VET; and responses to resource opportunities and constraints. Within and outside the ACE sector there is concern about the impact of this shift to a stronger vocational focus on the provision of general adult education and the traditional values of the sector. The distinctions between vocational and non-vocational programs in ACE are also the subject of continuing debate. A recent survey of learners in ACE (Volkoff, Golding & Jenkin, 1999), confirmed that learner expectations of vocational outcomes are not restricted to specifically VET programs.

Resource constraints in ACE have been exacerbated by the sector's expansion over the past decade, creating new pressures on the limited resources of providers and encouraging them to supplement their income from government funds and student fees with funds from other sources. Resource constraints contribute to the sector's inability to fulfil the potential that it has to improve equity in education and training.

There has been little exploration of the costs of delivering vocational programs in community-based providers. In particular, no published comparisons have been located of the costs of delivering similar programs in ACE and in other VET settings. Nevertheless, a reduction in costs is described as one of the impacts of the entry of community-based providers into the training market.

In spite of the ACE sector's recognised equity role, participants in most ACE programs still tend to be young, employed and educated (although less so than the typical TAFE student). Women continue to comprise the majority of participants in ACE, but it has nevertheless been argued that the sector has not responded particularly well to their special learning needs, though the sector's role in providing support and training for women in small business has been documented. An important equity consideration is that the lack of recognition of ACE programs poses a problem

for the development of pathways within ACE, and between ACE and other sectors of the education and training system.

Regional issues: Communities sharing a geographical area seek to achieve and maintain a unique identity and to strengthen their economic base. Although some non-metropolitan regions continue to thrive, data from recent censuses show that rural and regional Australia have generally under-performed metropolitan Australia in terms of unemployment, participation and job growth. In these circumstances, national, local and regional governments are looked to for support.

VET is one policy instrument that governments can use to support communities and address social and economic issues such as community strengthening and wealth generation, access to the job market and its benefits. VET can have an important role in providing and maintaining a strong learning culture in regional communities. It can also assist local people to compete effectively in wider labour markets.

Special problems may arise, for example in recruiting industry-based teaching staff, given the limited pool, especially in some regions and specialist fields. The VET curriculum can also be an issue. Another challenging issue is whether the curricular expectations of industries in regions are necessarily consistent with the learning demands of long-term, sustainable growth. Of course, from another perspective education and training institutions, including VET providers and their students, can be significant enterprises in their own right and important to the region in terms of their contribution to the local economy.

VET teachers: VET teachers are the most critical element in determining the supply of skills, knowledge and attitudes produced through the VET system. How is it possible to ensure that the teacher work force is able to meet the needs of future learners?

Teaching in VET is undergoing substantial changes due to national and global economic restructuring, organisational changes within the sector, and technological and industrial relations changes. When coupled with trends in the demographics of the VET teaching work force, these changes imply substantial pressures on the teaching work force over the next decade. For example, the gender balance of the teaching work force is shifting towards females, the average age is increasing, there is an increasing ratio of non-teaching to teaching staff, and more part-time, casual and sessional compared to full-time teaching staff. Technological change is shaping the type of teachers who are required and there appear to be significant questions about the extent to which staff are able to use new technology effectively.

Although employing staff on sessional and contractual arrangements enables VET providers to increase their organisational flexibility, it poses challenges for staff development and training. There appear to be increasingly high expectations of what TAFE teachers are expected to know and do. Even in decentralised VET systems, with extensive operational responsibilities devolved to providers, there is a continuing need for the overall system authorities to be aware of strategic developments in the teaching work force and in a position to take timely remedial action, where required.

Finance and market issues

Possible reforms to the methods of financing education and training need to be assessed against three criteria. Do they promote more education and training? Do they promote efficiency and quality? Do they promote equity? Many of the options that are available require further investigation and research, but there is considerable scope to modify current financing arrangements to achieve improvements in these three areas.

The main sources of funding for education and training are governments, individuals and employers. The levels of public spending in Australia are low compared with other OECD countries and increases seem unlikely in the short term. But there is a clear opportunity compared with most other OECD countries to increase education expenditures or to provide increased tax incentives.

Even if there is no significant increase in public funding for education and training there are a number of funding schemes that might lead to improved efficiency, additional private expenditures and perhaps increased fairness in the distribution of funds. Among those that might be considered are *learning entitlements* and *franchise models*.

Entitlements guarantee an amount of money for each person to be used for further education and training after compulsory schooling. The value of the entitlement could be varied according to the social background of the learner and they might accumulate interest, so that their value would be greater when used later in life. Entitlement schemes rank high on equity grounds as they permit the less advantaged to have a proportionate or more than average share of government support for education and training. However, there may be a problem in financing high cost courses.

The *franchise model* involves two elements. First, there is a lump sum grant by government to finance post-secondary studies, but the proportion of self finance rises with age. Second, there is an open system of learning, where competencies are accredited whether acquired in the education system, the workplace or the community. The lump sum grant, which can be used to cover up to 100 of costs for the young, is seen to offset the difficulties of access to finance when they are greatest. The open system is seen to promote efficiency in the way people can learn, with a considerable reduction in unit costs.

The Australian system does not currently have the incentive to efficiency contained in the franchise model that might come from the funds being allocated entirely at the discretion of the student across all forms of potential learning. However, there are aspects of this in the User Choice policy in VET.

Given the limits to public funds there may be a case for introduction of additional fees in education and training. Several options are available: increased fees; increased fees plus access to interest bearing private loans; and increased fees plus income contingent loans financed by government as in HECS. An increase in fees may deter many people who are not from high-income groups, but who do not qualify for fee exemptions and do not have ready access to funds to pay up-front fees. The second option does not have the same drawbacks as the first. Students will be able to pay fees if they can get loans. But they may be unwilling to incur a growing debt when the rewards to their training are uncertain. Extending a HECS-type scheme to VET would possibly have a negative impact. The scheme is based on the higher incomes of graduates. However, many of the studies of the income of TAFE graduates suggest only a small addition to their earnings.

Various schemes and initiatives in Australia and overseas are undertaken to increase employer investment in education and training. Australia does not have a social partnership model like that which operates, for instance, in Germany. In Australia, contracts of training, such as apprenticeships, are a means of encouraging employers to finance general training on the understanding that they can pay a less than market wage (Dougherty & Tan, 1997). Lower wages are justified on the basis of research showing that the rewards from training are substantially captured by employees.

The concept of an 'open training market' comprising a diverse array of public and private providers was first promoted in Australia by the Deveson Report (1990), which argued that traditional public sector planning models of resource allocation were inefficient and wasteful due to the absence of any price mechanism for registering the true value of goods and services. A market-based approach was proposed on the grounds that increased client choice and provider competition would increase efficiency, quality, responsiveness to client needs, and private investment in training. Subsequently, developments have been influenced by National Competition Policy.

Since the concept was first endorsed, substantial changes have been made to financial and delivery arrangements for VET. Most early reforms focused on changes to the supply side of the training market, with efforts directed primarily at increasing competition among providers, such as through competitive funding mechanisms controlled by governments. More recently, proposals have shifted the focus of competition and market reform to the demand side of the training market. Now the main objective is to enhance provider responsiveness by empowering clients to make training decisions, such as through the introduction of the policy of User Choice.

Training market reform potentially has major implications for the roles, responsibilities and relationships of key stakeholders in VET. For example, there could be implications for the role of government in funding and regulation; the relationships between the Commonwealth government and the State and Territory governments; the relative roles of public and private providers; and of educational institutions and enterprises.

However, the relative novelty of the competition and market reforms in Australian VET, together with the lack of comprehensive data and research on their effects, and the range of other changes that are taking place, make it premature to reach definitive conclusions about their impact and consequences. The economic benefits are yet to be substantiated and may be outweighed by adverse consequences that are not fully identified and quantified. Although there is a growing body of research, the knowledge and information bases remain limited in key respects. Questions remain unanswered, for instance, about: market effectiveness (e.g. thin markets, information to support decisions); financing issues, including costing and pricing and the distribution of costs and benefits; regulatory issues, including consumer protection and quality assurance; roles and responsibilities of TAFE as public institutions; and the performance and outcomes of market mechanisms, including the impact on social equity.

The policy of *User Choice* was implemented for New Apprenticeships in all States and Territories, except NSW, from January 1998. Its objective is to increase the responsiveness of the vocational education and training system to the needs of clients by encouraging a direct and market relationship between individual providers and clients (MINCO, 1997). User Choice allows enterprises to purchase accredited training from any registered provider they consider best able to meet their needs—including (if accredited) the enterprise itself. Funds pass directly from the training authority to the provider, when notification is received of the employer's choice.

The proportion of public VET funds allocated via User Choice arrangements in 1998 ranged from 2.2 in Western Australia to 16.2 in Tasmania (SCRCSSP, 2000). In 1999, States and Territories indicated that \$396.3 million would be allocated for off-the-job training for New Apprenticeships, including under User Choice. This represented a 16.8 increase over the 1998 total of \$339.3 million (ANTA, 1999c).

Evaluations of the policy and its implementation have yielded mixed results on its efficiency and effectiveness. On the one hand, it has won considerable support from employers, who believe that it has increased the options available to them and provider responsiveness to their needs. On the other hand, the providers find that, though it has led to closer relationships with employers, it has increased their administrative load and costs. There are concerns also that it places too much emphasis on the particular needs of enterprises at the expense of the longer term needs of students and trainees. Its impact on quality is questioned, as is the movement of funds out of the public training infrastructure and into private providers that it enables.

More broadly, as an initiative of the Commonwealth government, the private sector and industry, User Choice illustrates the contested nature of the VET marketplace and the political element of economic and social choices. It reflects also more general trends in public policy, which are being applied in the VET sector, but did not originate there.

7.3 ISSUES FOR FUTURE RESEARCH

This section summarises some of the major areas in the economics of VET that warrant further investigation. However, it should be recognised that there has been considerable progress in research on the economic aspects of VET during the 1990s.

Interestingly, the recently completed national strategy for VET research to 2003 (NCVER, 2000) identifies the economics of VET as the first of ten key priority areas. The strategy, although wider than the economics of VET, contains a number of aspects which parallel suggestions which arise in this stocktake, including more research with a longer-term focus; VET in Schools; more comparisons with overseas VET systems; VET in 'the new world of work—whether that work takes the form of a job, contract work, self-employment or volunteer work'; and continuing stress on improving the relationships between researchers, policy-makers and practitioners in VET.

The changing nature and patterns of employment in Australia

The changing nature of work: Work takes place in three inter-related but still rather separate sectors of the economy: the market sector, the household sector and the voluntary sector. There is scope for additional research in each area and how it can affect VET. The focus of VET in Australia has tended to be on the market sector. There could be benefits from adopting a more holistic notion of work. If so, additional research questions would arise.

The world of work is becoming more heterogeneous and tends to be in a continuing state of flux. Hence, there has come to be an increasing recognition that people must continue to learn new things throughout life if they are to maintain their employability, and more generally to maintain

their capacity to operate effectively in contemporary society. The diversity of what must be learnt or acquired, including general and specific skills, and those skills for work and life more generally at the softer end of the skills spectrum, provides new challenges to VET policy and systems; and wide-ranging avenues for research investigation.

The voluntary sector: the sector is significant in Australia, both for volunteers themselves and for the services they provide. Demographic changes and the difficulties of youth unemployment may imply an increasing role for the voluntary sector, both in enabling those with time and who wish to, to contribute social capital, and for young people to gain valuable experience. Yet the implications of volunteer activity for VET, such as the training requirements of volunteers, the special training needs of those who manage and work with volunteers, the relative priority given to the training needs of volunteers and paid staff, and the amount of VET resources already devoted to volunteer-related training, have received little research attention.

Methods for assessing demand: There is considerable scope for further analysis of the methods for assessing the demand for VET training by enterprises and individuals, and the role of government in assisting and modifying the patterns of demand for VET in the broader social interest. Further research is needed, for example, on the quantitative forecasting of the demand for various levels and types of skills; the provision of additional information to facilitate choice; and concerning improved methods for anticipating changes in the nature and extent of training in the light of likely changes, for varying sorts of enterprises, in factors such as the firm's strategy, competition, technology, work organisation, other innovations, the structure of employment and societal expectations.

The changing industrial relations environment: Changes in technology and reforms to trade regulation at a national and international level make for a borderless economy in which workplace flexibility is a competitive imperative. This scenario has significant implications for the vocational education and training system. 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. In this context there are a range of research matters which warrant further investigation, including the consequences of these changes towards more self-employment and greater casualisation in the work force for the types and levels of training provided in VET, where it is delivered and who bears the cost; and consideration of the framing of enterprise and individual workplace agreements, especially whether they include adequate provision for the training and professional development needs of workers.

The demand for VET: VET is a highly heterogeneous product, comes in a wide variety of forms and is delivered in many different ways. Based on the analysis of the types of VET demanded and the differing perspectives on these of individuals, employers and governments, there are many research questions that warrant further investigation including:

- The costs and benefits of VET, in total and from the differing perspectives of the key stakeholders;
- The net returns from an investment in training compared to the alternatives, such as train or recruit, study or work, now or later;
- The balance between consumption and investment demand;
- Externalities and co-operating factors of production;
- The elasticity of demand for VET;
- Distinctions between industry demand for VET, training needs and skill formation requirements, especially where those demanding VET are not bearing the full cost of providing it; and
- The implications of the emerging knowledge economy for the skills, knowledge, attitudes and work practices required by Australian workers and what this involves for the training and retraining that they will require; and whether these changing skill requirements are those the VET sector has been used to providing.

Assessing replacement demand: The research that CEET has completed in this area already has the potential to play a useful role in discussions with stakeholders about training funded by State training authorities. In the longer term it has potential for expansion, including the inclusion of adult, community and further education provisions; estimation of the training needs of the

unemployed and those outside the labour market; and the possibility of designing a model based more directly on skill requirements.

Small and medium enterprises: Various pieces of research have been drawn together to argue for promotion of learning to small businesses being sensitive and responsive to small business values and culture. There is considerable potential to examine some of the ideas and arguments further and to investigate some of the associated questions empirically. For instance:

- How well do small businesses that utilise only on-the-job training perform and how do they deal with content that is difficult to learn in this way?
- Is there an association between training and innovation in small businesses? And between training and business failure rates?
- What is the experience of those VET providers who have worked with small businesses in a holistic way? What worked best and why?
- Have those small businesses that adopt a more strategic approach to planning then addressed training more systematically? Has their innovative activity increased? Have they been more successful enterprises?

Measuring and managing intellectual capital: The limited research that has been conducted in Australia leaves many questions unanswered and provides considerable scope for further research. Possible topics include: the costs and benefits of using and reporting indicators of intellectual capital; the relationships between intellectual capital reports and traditional financial reports; the perspectives of different stakeholders on intellectual capital reporting; the extent to which indicators of intellectual capital demonstrate a return to enterprise investments in VET or links between investments in VET and the achievement of strategic goals and objectives which are important to the enterprise; possible differences according to industry, enterprise size and sector; and comparisons between Australian experience and the results of overseas research, such as the MERITUM project in Europe.

The supply of VET

There are considerable limitations to the available information and research and these offer much fertile ground for further investigation.

The remarkable differences in expenditure per annual hour of curriculum in government funded VET programs among the States, which reflect differences in State management, funding and staffing policies, warrant further exploration in detail, including assessments of relative quality.

Data on the extent to which VET is meeting the needs of the labour force are limited. Given the lack of convincing evidence, various beliefs can still be held about the extent to which the reforms of VET have stimulated a more relevant provision of education and training.

The available evidence on equity is mixed and far from conclusive. One specific area for further research relates to the equity effects of various forms of HECS and charges in VET.

Very little attention has been given to capital costs in the delivery of VET services, to relative capital costs of different forms of provision, to the balance between capital and recurrent costs, and potential efficiencies.

Other suggestions for further research include the costs and quality of new forms of organisation and delivery of VET; comparative expenditure on education and training across the various sectors; methods of providing effective incentives and appropriate learning environments for less advantaged youth (and adults); and research into the relative effectiveness and cost efficiency of different incentives to encourage employers to provide more training.

Special issues in supply

Intersectoral issues: While intersectoral research has increased there are still many gaps in understanding that could be taken up in future research. In the context of diminishing sectoral boundaries and the imperatives of lifelong learning and economic change, this research warrants a higher priority than it has been given in the past. Possible themes include:

- The implications of differing sectoral arrangements for matters such as funding, pricing, student support, and the varying administrative and managerial arrangements on efficiency and equity outcomes, both between sectors and between States and Territories;

- The extent, nature, range and impact of collaborative arrangements between educational institutions across the sectoral boundaries, as for teaching, sharing staff, student movement and research, and how these arrangements are changing, with the implications for their relative advantages and disadvantages;
- The prevalence, structure and operation of multi-level institutions compared to institutions operating solely within one sector and their implications for such factors as costs, efficiency and equity;
- The outcomes for students (and staff) who change sectors, including the cost and expenditure implications, their motivation for doing so, the courses they left and joined, and the overall outcomes in terms of efficiency and equity;
- The impact of participation in school-based vocational programmes on the post-school destinations of students, their attitudes to lifelong learning and their future career progression; and
- The role of intersectoral pathways in facilitating educational equity and overall labour market outcomes.

VET in Schools: The complexities of consistently counting vocational enrolments at a national level have not yet been resolved, and further research is warranted. There are also significant differences, as in the depth and rate of student participation between States and industry fields, which require further research to elucidate. Given that some aspects, such as school-based New Apprenticeships, are currently still at an early stage, there is a need to monitor their development and associated effects. Since the evidence on the impact of VET in Schools on early school leavers is unclear, but there is a strong suggestion that it is more attractive to middle achieving students who would have proceeded to complete Year 12 than to early school leavers, questions are raised about the social and economic purposes for introducing VET into the secondary curriculum which warrant further investigation. The research conducted to date provides the foundations for much further research. For example, the extent of provision and the costs of VET provision in secondary schools compared with other settings and under a range of different circumstances; access, participation and outcomes by different social groups; and links and pathways between VET in Schools and VET in other settings. There are a range of models of vocational education and training in schools, with varying implications for costs, equity and effectiveness, which warrant further monitoring and investigation.

VET in ACE: Data deficiencies render comparisons difficult; and there has been relatively little exploration of the costs of delivering vocational programs in community-based providers. In particular, there has been no published comparison of the costs of delivering similar programs in adult and community education compared to VET settings. Research could assist the sector to contribute more effectively to the achievement of equity objectives, perhaps particularly in relation to women, but also for other groups and individuals who are disadvantaged at present. The equity role of ACE is particularly constrained in States and Territories where the sector is poorly recognised, organised and developed.

Regional issues: There is a need to ground existing theoretical arguments in empirical research. Field-based investigations are warranted on how providers serving a narrowly based regional industry nevertheless provide VET students with a broad array of skills and the flexibility to call on them as appropriate. Longitudinal case studies could also be valuable in showing how VET providers might avoid getting caught up in developing insularity in declining regions and thereby becoming narrower and less forward-looking in their teaching.

VET teachers: Further research on trends in the teaching work force is warranted, together with analysis of their implications for future staffing of both public and private providers; research on the changing balance of full-time, part-time and sessional staff; the balance between teaching and non-teaching staff; the balance between staff of different ages; and the training needs of VET staff themselves.

In a decentralised system it is still important to be aware of developing trends in the overall VET work force and to be in a position to take action where it is needed for the system as a whole, as well as for individual providers. There is considerable room for research to contribute to an understanding of these trends and to provide an informed basis for responding. There is also a strong case for more research to investigate shifts and changes in the skills required of VET teachers, for instance the skill needs resulting from technological change and work re-organisation, including skills in areas such as marketing, entrepreneurial and client-based

approaches to instructional delivery, general management and leadership, team-based management and project management.

Finance and market issues

Further research is needed to investigate the different financing options that are available for education and training and to compare them with alternatives, including the existing arrangements. Research could also contribute to finding methods to improve the efficiency of education and training across the higher education and VET systems and to increase fairness in the distribution of the total resources provided for post-school education and training. Further research could also make a contribution to knowledge about ways to encourage investment in training by enterprises.

Training markets: Market mechanisms in VET are relatively new and research on their operation and effects remains patchy and inconclusive. A range of policy issues relating to market development and operation have been identified, but not yet resolved. Related to the issue of 'competitive neutrality' are the lack of clearly defined and adequately funded 'community service obligations' and 'third party access' to publicly funded capital infrastructure in the public and private sectors.

There are two key issues relating to market effectiveness. First, there is the issue of thin markets in certain geographical areas and specialised industry sectors. Second, there is the issue of information about training products and outcomes. More research is also needed on other matters, including: drivers of supply and demand; types, causes and consequences of training market failure; and barriers to market entry and exit on the supply and demand sides.

Financing issues that require closer examination include: the distribution of costs and benefits among employers, trainees and governments; costing and pricing of training products; transaction costs; economies of scale and scope; and cost-shifting and substitution between public and private resources.

Regulatory issues that warrant further investigation include quality assurance and consumer protection. More broadly, questions should be addressed concerning the impact of training market reforms on public accountability.

The roles, responsibilities and expectations of TAFE as a public provider in a competitive training market require clarification. The optimal mix and balance of public and private provision in training markets warrants more consideration.

The knowledge and information bases on training markets remain limited in key respects. Improved data and further analysis is needed on the externalities of VET, particularly the relationships between training, productivity and economic and social development, individual and enterprise investment in training and rates of return. Research could contribute to knowledge about the changing structure, composition and size of government and private training markets and patterns of provision, participation and financing.

The performance and outcomes of market mechanisms, both individually and collectively, require evaluation. There is a range of aspects that warrant further investigation, including: their relative appropriateness for different market sectors; and their overall costs and benefits for individual and enterprise clients, and the wider community. Special attention should be paid to the impact of market mechanisms on social equity and regional and rural communities.

User Choice: Given that User Choice was only introduced in 1998 it has been quite extensively studied. Though the evaluations have been supportive, a number of areas, notably quality, the balance between enterprise and trainee needs, information, and cost-shifting, have been identified for monitoring and possible remedial action (especially in relation to trainees). It may be some time before the full effects of the introduction of User Choice become apparent; and in any case a range of other changes have been occurring at the same time. Continuing research on the developing User Choice arrangements is warranted.

7.4 CAN EQUITY BE IMPROVED?

Why should equity in education and training be of concern to economists? A perhaps glib answer, but one no less true, is that economists want to live in a fair and just society as much as anyone else. More pertinent to this discussion however is that economics is primarily concerned with the distribution and use of scarce resources. A fundamental goal is the best use of resources

to achieve a desired outcome (though economists often disagree about what this 'best use' is, and how to measure it). Inequity represents inefficiency, a waste or squandering of valuable resources, including the human resources that could make a significant contribution to achieving desired goals. Inequity may also lead to increased costs. For instance, discrimination in employment against a particular social group can have both social costs, such as additional crime, and increase pressure on social resources, such as public funds.

Governments have recognised the importance of these issues in their approach to reform of the VET system in Australia. They have consistently looked to the VET system to make a substantial contribution to the achievement of their economic and social goals. Though the fine detail of these goals, the balance between them, the priority given to them, and the methods adopted to achieve them, have changed, two over-riding objectives have been maintained. The first is to create and maintain a just and fair society (though there are different views of what this means). The second is to achieve sustained national economic success. Governments see the VET system as playing an important role in achieving both these goals, largely through its contribution to the development of human capital, which provides the basis for an improved quality of life for individuals and provides essential human resources for the economy. In 1994 the government report, *Working Nation*, clearly articulated this view when it stated:

If we are to develop the strength to compete in the world and maintain and increase our standard of living we must make the most of all our resources. Greatest of all these are the talents and energies of the Australian people. (Keating, 1994, p.1)

In 1995 the then Prime Minister amplified this view when he said that:

...In the case of vocational education and training, we have to recognise —as a nation—that we are not just increasing the life chances of the disadvantaged, but guaranteeing our economic competitiveness. (Keating, 1995)

Since then, this role of VET has been re-affirmed in a range of policy documents, supporting papers, and other reports that also often stress the necessity to tackle problems that counter social and economic benefits. For instance, in *Equity 2001* ANTA acknowledged that:

Australia's future prosperity requires that the nation improve its economic performance and international competitiveness. To do this we need to develop a diverse and dynamic national skill pool. This objective cannot be achieved without specific attention being given to the impediments that prevent many Australians from engaging optimally in employment and training. (ANTA, 1996, p.3)

The stocktake: Two equity views

Chapter 1 of this stocktake noted that a commitment to 'access and equity' was one of the five underlying principles of the VET reform process identified by an OECD review team as having support across political boundaries and from all stakeholders in VET. The discussion of the demand for VET in Chapter 2 recognised the role and responsibility of governments to ensure that all groups in the community have opportunities to access appropriate forms of VET. The quantitative indicators of VET participation presented in Chapter 4 showed how the sector has grown, and how some groups in the community that were formerly under-represented in VET have been able to participate in greater numbers.

Throughout the stocktake it has been recognised that overall, the VET sector is more equitable than higher education. It has a more diverse population, with higher levels of representation of some community groups who are significantly under-represented in higher education, such as Aboriginal and Torres Strait Islander peoples. It offers education and training that is, mainly, of comparatively low cost and yet still of a mainly high standard.

These findings paint a picture of equity in VET that is promising, if not yet ideal. It suggests that the prognosis for the achievement of equity in VET is a good one, perhaps even assured. However, elsewhere in this stocktake other material was presented that paints a more gloomy picture, one that suggests equity issues require much further attention. For example, it was noted that, if resource pressures cause the adoption of financing options for VET that include higher fees, there may be a deterrent effect on some people, such as those from low-income backgrounds, or those who do not have ready access to the money to pay up-front fees. The special role of the ACE sector in equity in VET was identified, but it was noted also that resource constraints hinder the ACE sector from fulfilling this role as well as it might. Attention was drawn to the need to assess and monitor the impact of training markets on equity. It was emphasised that those in the community who suffer multiple forms of disadvantage may face particular problems

in participating successfully in VET. The special needs of regions and the gaps between metropolitan and non-metropolitan areas were discussed.

When viewed side by side, what do these two contrasting pictures of equity in VET tell us? First, they indicate most obviously that despite some progress equity in VET has not yet been achieved. Problem areas remain and further problems are to be expected if VET follows particular paths. Second, they suggest that the shared commitment to access and equity of all VET stakeholders, and the responsibility of governments, have not been sufficient. Perhaps they have not been matched by the action or resources required to achieve it. Equity may have been given a lower priority than some other aspects of the VET reform process, such as industry-responsiveness, for instance, or developing a market-based system. A third possibility is that the achievement of equity has been hindered by the unforeseen consequences of something else. For instance, it may have been set back by the implementation of policies that make it harder for some members of the community to participate successfully in VET. Such policies may operate well outside the VET sector. Fourth, and less plausibly, they could indicate that the VET system lacks the expertise, experience or commitment to make the 'right' decisions that will advance equity.

Countering inequity

If the prospects for equity in VET are mixed, how can they be improved? Tackling the causes of the problems that are identified would seem to be a logical step. But is it, and is it enough? In reality, no single cause can be held responsible for the persistence of inequities in VET. Through the work of many individuals, social groups, coalitions, national and international bodies, and governments it has become clearer that a range of influences operating at many different levels combine to create various forms and intensities of disadvantage. Some mainly affect individuals, others have a stronger impact on particular groups or organisations in the community. To add to this complexity, the nature and causes of disadvantage in education are dynamic. They can change, sometimes quickly and in unexpected ways, as can their impacts (e.g. Ferrier & Heagney, 1999, 1999a).

In addition, advances in understanding have shown also that to counter inequity it is insufficient to address disadvantage. Its counterpart, advantage, must also be addressed. This requires more than the removal of barriers and other difficulties that inhibit access to education and training and work against successful participation and outcomes. It necessitates a comprehensive examination of education systems, their cultures, construction and operation. It requires asking the question: 'who does the education system serve?'

The VET approach

In the Australian VET and higher education systems the identification of 'target groups', based on under-representation in VET, has proved to be a useful way to set equity targets and promote and direct effort. It has provided a mechanism for monitoring equity performance and for guiding the distribution of funding and opportunities (e.g. Butler, 1997). Barriers and problems faced by each group have been investigated and many recommendations put forward to counter the difficulties exposed. A variety of special equity programmes and initiatives have been funded and some success has been achieved in addressing identified difficulties, particularly in relation to access to VET.

While interest in target groups continues, this approach to equity 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)

Why has this shift occurred? There are many reasons. First, the move reflects a shift in dominant political values, from social justice to neo-liberalism. Second, though each of the target groups appear homogeneous there can be substantial differences in the characteristics and circumstances of the individuals within a particular group. Third, membership of the groups may overlap. This is important because equity research has indicated that where individuals (and groups) are represented in more than one category the problems and barriers they experience 'compound' to increase the magnitude and impact of the disadvantage they experience. Other problems include that groups are placed in competition with each other for resources and opportunities. They can

become 'competing victims'. Students can be stigmatised by the 'disadvantaged' label. Patterns of inclusion and exclusion may be altered by changes in social and economic circumstances and political decision-making (e.g. globalisation, fragmentation of communities, privatisation), that reconstitute the composition of 'disadvantaged' groups. The original list of groups has splintered as new groups and sub-groups have emerged (Butler, 1997; Butler & Ferrier, 2000).

A further problem is the marginalisation of equity. The identification of target groups as different from the mainstream has tended to reinforce the existence of a norm: a 'typical' VET client, for whom the system was principally designed. The target groups adopted 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. Given the range of target groups, the 'typical student' norm can be identified as comprising young, single, white, able-bodied, Anglo-Celtic males (Butler, 1997; Butler & Ferrier, 2000). The target group approach has not addressed this, but only worked at the margins of the system.

A further reason for the shift from target groups is the lack of success in achieving equity objectives. While many of the activities funded under the target group approach were successful in meeting equity needs and objectives, this success was often short-lived and limited in scope. When special funding for equity programs and initiatives ended, the innovation that marked them often did not continue. Further, the successes achieved were undermined by broader changes in VET that had unintended consequences for equity (Butler & Ferrier, 2000).

As ANTA finds: 'pockets of distinct disadvantage remain even within groups that are well represented as a whole'. Therefore:

... a focus on selected broad client groups needs to be supplemented by closer attention to the capacity of the system to respond to particular needs and circumstances. (ANTA 1998a, p.3)

Measuring equity performance

The monitoring of equity performance 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. It is now recognised that these data are inadequate to report the extent of equity in the VET system or changes in equity performance over time. As the focus of equity attention has shifted, the original goals of widening access and participation have been broadened to include successful outcomes.

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 their studies successfully and from gaining the other outcomes they seek. For example, VET may provide inadequate support for some clients, programme material and assessment may be culturally inappropriate or insensitive, timetables may reflect the needs of enterprises, but not learners (e.g. Golding & Volkoff, 1998, 1998a; Connole, 1997; McIntyre et al., undated).

In *Achieving Equitable Outcomes*, ANTA demonstrates an awareness of the need for monitoring to extend beyond participation data:

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 1998a, p.7)

The new focus on the responsiveness of the VET system to client diversity necessitates additional forms of monitoring. ANTA notes that, while measures of participation, outputs and outcomes can indicate progress toward 'equitable outcomes', they do not indicate the capacity of the VET system 'to respond to the needs of clients'. Additional measures or indicators are required for this purpose. These might include the capacity of the system to: reach out beyond an established client base; to offer a diverse and appropriate range of changes; be effective and innovative in customising training programmes and materials to meet client needs; facilitate access to lifelong learning; and respond supportively to clients at risk of failing to achieve their desired outcomes. New monitoring systems are being developed and are expected to be in place by 2001.

Kearns and Grant (1999) also note the adoption of what they describe as a more strategic approach to equity in VET. This is echoed by Butler and Ferrier (2000), who indicate that the National

Women's VET Strategy and ANTA's equity strategy, *Equity 2001*, show the influence of a strengthening emphasis on target-setting, benchmarking and 'best practice' measures of quality.

Meeting the challenges

The VET system faces many challenges in its approach to equity, in monitoring its performance and in achieving equity objectives. However, a more equitable system is achievable.

The adoption of a 'mainstreaming' approach, that focuses on meeting the needs of a diverse client base, re-positions equity as a more central concern at a policy level than it has been in the past. This change has the potential to lessen some of the problems that have arisen due to the marginalisation of equity concerns and the strong focus on target groups. However, this approach also has drawbacks, not all of which may yet be known. New challenges will be to identify them, monitor their impact and guide action to ensure that they do not outweigh the benefits. One particular danger of the new approach is that where all are considered to have 'special needs', no-one has 'special needs'. Attention can be drawn away from those individuals who face especially difficult circumstances, and particular groups that warrant continued attention.

As understanding has grown of compound disadvantage and of the many cross-group and intra-group factors that can affect access, participation and outcomes in VET it has become clearer that complex educational disadvantage cannot be countered by simplistic responses. An understanding of the various dimensions of this complexity is required. For example, McIntyre (1998) has presented some new and informed arguments that disadvantage is highly localised and differentiated.

Difficulties may arise in monitoring equity performance because of the limited scope of the regularly published data on participation and outcomes. With the shift at policy level to a focus on 'diversity' the question arises of whether the data are sufficient to provide a comprehensive picture of the diversity in the system. A further question relates to the usefulness of the data in an assessment of localised disadvantage, given that the data are generally disaggregated only to State and Territory level. Further, much research has highlighted the importance of socio-economic background in combining with other factors to increase the magnitude of compound disadvantage. Yet data on the socio-economic status of VET students are not collected routinely and published regularly, as they are in higher education.

7.5 RESEARCH IMPACT

At the conclusion of a review of research such as this stocktake, it is particularly apt to consider how researchers can ensure that their work is relevant and useful to policy-makers and practitioners. Many researchers have contributed to the material which has been presented and their work has considerably advanced knowledge and understanding of the economics of VET. It provides a sound basis for informed decision-making. However, merit is not the only, or even the most important, criterion on which the impact of research depends. Many other factors are equally, perhaps more, important.

If researchers want their work to have an influence (and they generally do), they need to know about the factors, the channels and the actions, that will make this more likely. They need to know why some research never sees the light of day, while other research, perhaps of less merit, has a profound impact on thinking and changes decisions.

Thus, this final section of the final chapter considers two highly important issues. What is known about the impact of research? And how can it be improved?

Complex relationships

The relationships between R&D and its decision-making outcomes are almost always complex and not easily discerned. The idea of a one-to-one relationship between research studies and decision-making generally has been discredited, although individual studies may have a direct impact. Rather, the perspectives that have been emphasised in the literature are that the larger impacts of research are more often indirect than direct; delayed rather than immediate; and minor individually but major in combination. R&D involves the accumulation of knowledge. It contributes to the 'climate of opinion' and to the development of 'ideas in good currency'. Nevertheless, there is an acceptance of differences between the R&D and decision-making domains; and of the importance of linkages between them. The R&D system's major contribution

to decision-making may be through the big 'ideas' that are in good currency, often with a considerable time lag. 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.

Alternative perspectives

The relationships between R&D and decision-making can be considered primarily from the perspective of R&D; or primarily from the perspective of decision-making and action. It is the latter perspective which is adopted here, given the interests of decision-makers, and because adoption of the research viewpoint tends to narrow the perspective of the investigator to the research process and research outcomes (the 'keyhole' problem) and downplay the complexity of decision-making. Some 'trace back studies', which take the outcomes or the practice and ask where that innovation came from, and what part was played by R&D in achieving it, have suggested that in science and engineering the benefits from R&D activity can be greater from fundamental research than from more applied research. 'The findings are not always in the direction of favouring immediate relevance and immediate practical application' (Ainley in Selby Smith, 1998, p.59).

The impact of R&D

R&D's impact on decision-making can occur in a variety of ways. For example, R&D can contribute directly to the solution of a practical problem, whether in policy-making or practice. It can raise awareness among VET stakeholders of possible problems, alternative approaches and available solutions. It can raise awareness in the wider community, perhaps strengthening support for existing practice or developing a climate in which new approaches become politically and administratively feasible. R&D contributes to the 'reservoir of knowledge' (Buxton & Hanney, 1997), from which policy-makers, practitioners and researchers can draw in future. R&D, through enhancing the acceptance of the value of research approaches in VET institutions, can provide an improved basis there for policy, practice and performance in the future (Volet, 1999). The involvement of decision-makers in the conduct of R&D projects tends to improve their understanding of particular issues and can facilitate change. Research processes can also have an impact on the subjects of research (Dwyer in Selby Smith, 1999, pp.179-188).

'Use' and 'influence'

The impact of R&D on decision-making incorporates two elements: '*use*', that is whether the R&D served a particular decision-making purpose, such as improving conceptual understanding, solving a particular problem, or as a weapon in political or bureaucratic conflict; and '*influence*', that is whether the R&D made a difference to the decision which was made. Thus, R&D can be used in decision-making even when it makes no difference to the decision which would have been made otherwise. R&D may confirm the decision which was intended. Of course, the counterfactual may be difficult to establish. Second, R&D can influence decisions *not* to act as well as decisions to act. To resolve not to act is as legitimate an outcome of decision-making as to resolve to act. Thirdly, even when R&D is used by decision-makers, and has an influence on the decisions they take, they may not explicitly recognise it. For example, if a middle ranking policy adviser provides advice, based in part on R&D, which is acted on by more senior staff, the latter's decision is influenced by R&D even if they are not aware of the fact.

The VEETAC study

In 1992 the Vocational Education, Employment and Training Advisory Committee commissioned a project to assist in the development of a national R&D strategy in vocational education and training. The report by McDonald and his colleagues argued that 'a stronger research effort will benefit the [VET] sector by providing a better information base, critical analysis and accountability, improved cost effectiveness, varied perspectives, a better understanding of education and training processes and a higher profile for vocational education and training' (McDonald et al., 1993, p.v). They concluded that 'the alternative to a strong research base in the sector is the danger of stagnation' (ibid, p.v); in particular, the continuing use of outmoded practices or discarded theories and the uncritical adoption of practices from overseas. McDonald and Hawke (1995) later provided a report to the NSW Board of Vocational Education and Training advising on research priorities for NSW.

In the VEETAC report McDonald et al. (1993, p.25) estimated that 'only about half as much is spent on vocational education and training (as a proportion of recurrent expenditure) as is spent on research in the other sub-fields of education'. Whereas 28 of all recurrent expenditure on education was for VET, only 15 of educational R&D expenditure was for the VET sector. Thus,

R&D expenditure represented 0.22 of total expenditure in VET, whereas for education as a whole it represented 0.35. The comparison drawn with the health sector by the ARC Review Panel which conducted a strategic review of research in Australian education (Australian Research Council, 1992) is even more striking. In 1991–92 research expenditure as a proportion of total recurrent health expenditure in Australia was 1.5% as it was in 1997–98 (the latest year for which figures are available). For Victoria in 1997–98 research as a proportion of total health expenditure was substantially higher at approximately 2.0% (Australian Institute of Health and Welfare, 2000). And the Federal Government has committed itself to further increases in research funding as a proportion of total health expenditure.

The VEETAC study also made other important proposals. For example, they emphasised the need for a research strategy; and discussed the principles which might underlie it, its scope, and how it might be achieved, monitored and where necessary reviewed. They commented on the wide range of researchers who could contribute to the improvement of VET policy and practice; including NCVER, universities, TAFE systems, TAFE teachers, enterprises and industry bodies, and the wider pool of researchers, such as consultants and overseas experts. They advocated research through industry–TAFE–university partnerships; a co-ordinated national approach for both general issues based R&D and client oriented R&D; and that fundamental research not be forgotten in the push towards applied and relevant research. They also identified various principles for effective dissemination; suggested possible strategies and initiatives; and emphasised the diffusion of knowledge through a research culture.

Victorian studies

Against this background of concern about the strength of the linkages between R&D and policy-making, practice and performance in VET a number of investigations have been undertaken to examine the situation and see what improvements might be possible.

(i) *The Centre for Learning and Work Research* at Griffith University investigated for the State Training Board of Victoria how relevant research could be better injected into the policy discussion process in a timely fashion and how best to 'bring the results of important recent research to the attention of managers and policy makers' (Billett et al., 1997). The study considered the findings of recent research into VET, particularly in industry and enterprises. The authors concluded that their examination 'highlights the limited nature of VET research, contradictions in policy and developing tensions between current policy settings in vocational education and training and contemporary circumstances'. They provided an extensive bibliography and explored a range of issues, commenting that 'these provide a challenge for policy-makers as they reconsider possible directions for VET'.

Concerning the relationship between research and policy formulation Billett et al. argued that 'greater use of research in policy formation is desirable to embed policy formation in the VET environment, as much of it appears to be driven by ideological concerns which often overlook important aspects of practice and issues associated with implementation. Research activity is often funded post-event to validate or evaluate policy initiatives' (Billett et al., p.63). However, the authors were alert to the mutual responsibilities of both researchers and decision-makers in VET to nurture a more productive relationship. 'Equally, there is a legitimate concern by potential sponsors of research, such as government and government departments and agencies, about the ideological or theoretical bias of researchers. Concerns about bias are countered partially by evidence which substantiates findings and which is presented in a way that is open to scrutiny. However, [for some other areas, especially] those associated with values, there will inevitably be a need for the different views to be discussed and debated and conclusions drawn' (ibid, p.63). The authors concluded that much VET research lacked a valid empirical base; 'it is all too often about gathering opinions which may or may not be grounded in a rigorous methodology'.

(ii) *Seddon and Malley* undertook another consultancy for OTFE in 1997 to investigate the extent to which VET providers were using research to inform and advance their goals and operational decision-making in the directions established by the State Training Board (Seddon & Malley, 1998). They noted that, initially the growing interest and support for research in VET took the form of a consolidation of research centres and other formal research capacity (e.g. by establishing links with universities), whereas more recently there has been an expansion of research activity amongst VET providers and practitioners. Seddon and Clemans argue that 'to some extent these developments formalise pre-existing activities, but they have also been driven by policy reforms, including the availability of funding for research, devolution of decision-making to local levels and increased emphasis on evidence-based decision-making' (Seddon & Clemans, 1999).

There were two main purposes of the investigation by Seddon and Malley. First, to assess the existing research skills and capacities that enable VET providers to pursue particular directions for reform. Second, to develop proposals for a statewide staff development strategy to ensure provider skill levels and capacities were available to implement reform priorities. Seventeen VET providers with different research needs and capacities participated in the study, representing a broad range of providers within the State Training System.

The study findings indicated that 'research' was being conducted in VET providers and that it did have an impact on enterprise-based decision-making. Staff in VET providers were engaged in activities consistent with the definition of R&D by the ABS, that is, 'creative work undertaken on a systematic basis in order to increase the stock of knowledge ... and the use of this knowledge to devise new applications' (ABS, 1993). These activities were characterised by originality and had investigation as a primary objective. However, the VET providers were, Seddon and Malley found, engaged in other activities which were at the margins of the formal definition of R&D by the ABS, including routine data collection and management and efficiency studies. Nevertheless, such activities were found to provide information for use in decision-making processes; enhanced research skills and attitudes; and facilitated individual staff development. 'Very often the outcome of this research was not publication, but a process of questioning that underpinned organisational development' (Seddon & Clemans, 1999).

Interestingly, while Seddon and Malley found that R&D did impact on goals and operational decision-making in the 17 VET enterprises they studied, nevertheless there was 'substantial variation in the extent of enterprise-based research, its character and its applications'. They argued that the view of R&D held by enterprise management was an important explanatory factor, as was the extent to which managers perceived a practical link between R&D activity and enterprise operations. It seems clear that training does not stand alone, that organisational and cultural factors are also significant, and that in many cases related changes in these factors are necessary if the full benefits of R&D are to be realised. On the basis of this analysis Seddon and Malley identified three models of organisational development, each resting upon different linkages between R&D and operational decision-making: the informal model (where research and organisational operations were compartmentalised and separate); the strategic planning model (where research was used instrumentally to meet system and enterprise priorities); and the capacity building model (where research was seen as an integral means of building longer term capacity in the enterprise).

(iii) *Tidemann* from OTFE (Tidemann, 1999) 'examined the important role and multiple impacts that research had on the development of the State Training Board's strategic plan, *A Vision for TAFE in Victoria*' (State Training Board, 1998). Of course, research was not the only input. However, she concluded that 'many forms of research did influence decision-making over a period of time ... publications and existing research set the stage for the qualitative phases of the project, and the final results'. In developing OTFE's strategies for the future Tidemann argued that the process provided the opportunity for research to influence the major planning statements in three ways: *specific research* commissioned to support the environmental analysis; *synthesis* of earlier research commissioned by OTFE in areas of strategic importance; and *forums* which facilitated the production of useful knowledge and understanding in relation to the drivers of change, future scenarios and flexible strategies. Tidemann concluded that research did influence policy; that its influence 'was facilitated by the scenario planning process that expressly sought to intervene and provide space for ideological imperatives'; that 'the impact of research occurred through joint reflection and the distillation of new understanding'; and that research's influence was both direct and indirect. The influence of research on the policy process was also enhanced by the research strategy which OTFE had adopted in 1995 for the 1995-97 period. The developments in Victoria were reinforced by initiatives at the national level, including 'the advent of the Australian National Training Authority Research Advisory Council, its research oriented recommendations and subsequent developments'.

Other States and Territories

These findings from Victorian studies are mirrored in other States and Territories. For example, Hawke and McIntyre's study of research on adult education in NSW (Hawke & McIntyre, 1999), which was commissioned by the State Board to explore participation and vocational outcomes, shows that it affected both national and State policy-makers. The NSW Board, for example, sought to address each of the key findings contained in the research report and many of the more detailed matters which were identified. Thus, on funding issues it developed a substantial program of further action-based research to restructure its financial base and to negotiate revised

funding arrangements with government. At the Commonwealth level, the research was used in the context of a Senate inquiry and as the basis for the Australian contribution to an international UNESCO conference; but whether it had influence on decision-makers is more difficult to establish. The finding that this R&D was used in decision-making and had an influence could also be illustrated by examples at the federal level. Similarly, Jones' study of the Sydney Institute of Technology illustrates the influence of R&D on decision-making at the provider level (Jones, 1999).

CEET studies

CEET has undertaken two substantial studies concerned with the relationships between R&D and changes in VET policy, practice and performance. First, an AN TARAC project in 1996 and 1997 sought 'to review the evidence for and where possible evaluate the extent of influence of research in vocational education and training' in three areas, (especially the first two): policy and planning; practice and performance; and community relations. Five complementary approaches were employed:

- A review of relevant literature, noting that there is no single approach to the issue of research impact, either generally or specifically in VET;
- A symposium, to identify key issues promptly and draw on different perspectives and approaches to the research question;
- Quantitative studies, undertaken by the Research Centre for Vocational Education and Training (RCVET) at the University of Technology, Sydney, to provide information on the scope and nature of the impact of research on VET. The quantitative studies provided empirical evidence of the pattern of VET research undertaken in Australia between 1988 and 1996. 1068 different 'significant research activities' were identified by RCVET as having commenced, of which 863 were described as R&D and 205 as local research studies. RCVET also examined the use of research-based information by key decision-makers in VET through 50 semi-structured telephone interviews;
- Nine case studies, to explore the influence of the factors identified in the literature and at the symposium, in the context of particular situations. They provided a richness of understanding which could not be obtained from quantitative responses alone; and
- Reference to overseas experience and perspectives, with a paper setting out preliminary findings circulated to informed overseas commentators, and their responses incorporated in the final report.

The report was published by the National Centre for Vocational Education Research (NCVER) in 1998 (Selby Smith et al., 1998). The proceedings of the symposium held in Melbourne during February 1997 were also published (Selby Smith, 1998). Individual sessions at the symposium considered the impact of R&D from the perspectives of both users and researchers; and at each of the three decision-making levels designated by the funding body. The three decision-making levels were the national, State and Territory level; the level of individual training providers; and the level of community relations, which facilitate interactions between VET and wider economic, political and social systems.

The research team reached three major conclusions. First, the evidence confirmed the initial perspective that research has impact—use and influence—on decision-making in vocational education and training, but not in the way many people think. Since the research enterprise is accumulative the value of research cannot be judged from the impact of individual studies alone. Also, in addition to improved information, the outputs of the research system include research skills and attitudes, and trained personnel. These other outputs contribute to the maintenance and development of the research system and they can contribute in varying degrees to decision-making. While these outputs are often overlooked, as they generally were by users at the symposium, VET decision-making is weakened where they are absent.

Second, it was not possible to evaluate quantitatively the extent of research's influence on decision-making in VET. There was an impact, but decision-making can also be affected by many other factors. There are many different types of R&D; and they can be used in a wide range of decision-making contexts. These different types of R&D have varying levels of visibility to the separate groups of users and other stakeholders; and this affects these groups' knowledge of the extent of the influence of R&D on decision-making. Also, the extent of the use or influence of R&D depends critically on the circumstances of decision-making in a particular context; and on

the linkages between R&D and decision-making in that context. Thus, the extent of the use or influence of R&D cannot be determined by considering the research system alone.

Third, the extent to which R&D is used and has influence in VET decision-making can be enhanced by the actions of the stakeholders. There are responsibilities on both researchers and decision-makers; and suitable incentives can increase the chance of desirable outcomes occurring. To the extent that a significant amount of VET research is now commissioned by training authorities and other users, the actions of these groups influence the quality of R&D. A strong preference for research which is short-term and instrumental can weaken the research base in the longer term. More generally, a weak network of effective linkages undermines the potential for R&D to be used in VET decision-making and to have influence. It limits the potential of the two-way flow of information and people, and for feedback. The emphasis on linkages rather than on dissemination (narrowly defined) increases the responsibilities of both researchers and decision-makers. For example, the wide range of dissemination approaches being pursued by NCVER is contributing to the strengthening of linkages among the various VET stakeholders (NCVER, 1997). The ANTARAC study suggests that enduring linkages are based on sustained mutual esteem between researchers and decision-makers and an understanding of the potential contribution of each party. Also, where those linkages emphasise collaboration between researchers and decision-makers for the good of the VET system as a whole.

The second substantial study undertaken by CEET in relation to the impact of R&D on decision-making in vocational education and training was published in 1999 (Selby Smith, 1999). A consistent approach informs the two books; and the seventeen case studies published in the 1999 book are complementary to the book published by NCVER in 1998 (Selby Smith et al., 1998). Surveys and case studies, taken together, allow for a more complete understanding of the relationships between R&D and decision-making than either can alone. Surveys and case studies build on the advantages and tend to offset the disadvantages of each other. In choosing the seventeen case studies a purposeful maximum variation sample was selected, which enabled the project to capture and describe 'the central themes or principal outcomes that cut across a great deal of participant or program variation' (Quinn Patton, 1990), rather than seeking to choose a 'representative' sample.

Taken together, the case studies illustrated the great diversity of circumstances and the variety of ways in which R&D can have an impact on VET decision-making. Of the total seventeen case studies seven related to the impact of R&D on decision-making at the level of national, State or Territory policy; six related to decision-making at the level of individual training providers; and four were concerned with the relationships between VET decision-making and other economic, social and political systems ie. with community relations aspects. Nevertheless, even at a particular level of decision-making there remained wide differences between the case studies. Furthermore, in some case studies the R&D was initiated by users and in other cases by researchers. McGaw (1999) has concluded that 'serious consideration of recommendations is enhanced when education providers are seriously engaged as sponsors of the review'. It appeared that the researcher initiated projects were less immediately visible to decision-makers; less easy to incorporate appropriately in decision-making processes; and perhaps more likely to challenge established ways of thinking or acting.

Four main conclusions emerged from the case studies. First, the 17 case studies, taken together, tended to confirm the validity of the broad framework adopted for analysing the relationships between R&D on the one hand and policy, practice and performance in vocational education and training on the other. Second, the case studies emphasised the individuality of the specific circumstances through which the broad relationships between R&D and decision-making operate; and the importance of considering dynamic aspects of the relevant situation as well as more static aspects. Administrators and VET practitioners tend to seek clear conclusions and simple recommendations for action, whereas R&D often reveals the complexity of real life situations. Third, in considering the relationships between R&D and decision-making in VET the case studies complemented other approaches, such as literature review, symposium, quantitative studies and consultations with key stakeholders, by providing a richness of detail and an appreciation of the complex and varied channels through which the broad relationships operate. Fourth, the case studies raised the difficult issue of how best to define the precise boundaries of R&D, especially in relation to research skills and attitudes, and at the practitioner level. Indeed, it has been argued that in organisations where the culture of R&D is strong, the distinctions between R&D, continuous improvement, action research, professional social inquiry, reflective practice, learning and work become blurred.

Concluding comments

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. The progress which has been made in VET following the VEETAC review can be contrasted with the minimal changes which followed the Australian Research Council's review of research in Australian education generally (see McGaw's discussion in Selby Smith, 1999, pp.28–34).

A range of developments have contributed to potential improvements in the relationships between R&D and decision-making in VET. These developments include the initiation by ANTA of an active national research program through the Australian National Training Authority Research Advisory Council (ANTARAC) and subsequently the National Research and Evaluation Committee (NREC). There has been a change in the role of NCVER, including its additional activities in synthesising and reviewing research, acting as a clearing house, encouraging dissemination, and facilitating a wide range of interactions between researchers, policy-makers and practitioners, including regular state of the art reviews of major issues and developments in VET. Key national research centres have been developed in VET, especially the RCVET at the University of Technology, Sydney; CEET in Melbourne; and the Centre for Learning and Research in Regional Australia at Launceston. They are geographically dispersed and have focussed on distinct areas of high priority to VET. There has been an increased stress on collaborative work and research partnerships, including with industry groups and VET practitioners. More generally, there has been a significant growth in appreciation of the value of R&D for improved policy-making and practice at the level of training authorities, in VET providers and by practitioners; and a growth in understanding that there are mutual responsibilities for researchers, policy-makers and practitioners.

However, the change is occurring in a large, complex and contested activity; VET does not have a strong research tradition; and many of the linkages between researchers and users are weak. It is clear that further improvements could be made, including:

- More direct dialogue between VET policy-makers, researchers and practitioners about desirable developments and the role that R&D could play in achieving them; and greater emphasis on the mutual responsibilities of decision-makers and researchers;
- Greater emphasis on the importance of R&D—research skills and attitudes, and educated people, as well as new and better information—for improved decision-making by VET institutions and practitioners, as well as for policy-making;
- Enhanced appreciation of the multiple sources of R&D, the multiple pathways through which R&D can affect VET decision-making, and the multiple impacts it can have, both directly and indirectly; and
- More widespread realisation that an emphasis on ongoing linkages needs to replace an emphasis on mere dissemination, conceived of as 'a remote audience for research with whom communication must be established' (McGaw, 1996).

The challenge now is practical implementation of improved relationships between R&D and VET decision-making, on a long-term and sustainable basis.

REFERENCES

- Adult, Community and Further Education Board (ACFEB) 1994, *Snapshots. A statistical profile of adult students and their opinions*, ACFEB, Melbourne.
- Adult, Community and Further Education Board (ACFEB) 1995, *Outcomes and pathways in adult and community education*, ACFEB, Melbourne.
- Ainley, J 1998, 'School participation, retention and risks', in *Australia's youth: Reality and risk*, Dusseldorp Skills Forum, Sydney.
- Ainley, J and Fleming, M 1997, *School-industry programs national survey 1996*, Sydney, Australian Student Traineeship Foundation.
- Albert, S and Bradley, K 1997, *Managing knowledge: Experts, agencies and organizations*, Cambridge University Press, UK.
- Allen Consulting Group 1994, *Successful reform. Competitive skills for Australians and Australian enterprises*, Australian National Training Authority (ANTA), Brisbane, 1994.
- Allen Consulting Group 1994a, *Establishing an effective Australian training market*, Office of Training and Further Education (OTFE), Melbourne.
- Amin, A and Wilkinson, F 1999, 'Learning, proximity and industrial performance: An introduction', *Cambridge Journal of Economics*, vol. 23, March, pp.121–125.
- Anderson, D 1994, *Blurring the boundaries: TAFE and commercial colleges in the open training market*, National Centre for Vocational Education Research (NCVER), Adelaide.
- Anderson, D 1996a, 'The training market reforms and their impact on the vocational education and training system', in C Selby Smith and F Ferrier, (eds), *The economic impact of vocational education and training*, Australian Government Publishing Service (AGPS), Canberra.
- Anderson, D 1996b, *Reading the market. A review of literature on the vocational education and training market in Australia*, Monash University–ACER Centre for the Economics of Education and Training, Melbourne.
- Anderson, D 1997a, *Developing the training market of the future: A review of research literature prepared as a submission to the Australian National Training Authority*, NCVER, Adelaide.
- Anderson, D 1997b, *Competition and market reform in the Australian VET Sector: Review of research*, NCVER, Adelaide.
- Anderson, D 1998, 'Impact and consequences of markets in VET: Research issues', in J McIntyre, and M Barrett (eds), *VET research: Influencing policy and practice*, Proceedings of the First National Conference of the Australian Vocational Education and Training Research Association, Sydney, February.
- Anderson, M, Scutella, R, Harding, G and Woei, T L 1998, *Life after graduation: Our 1996 graduates in 1997*, Melbourne Institute of Applied Economic and Social Research, University of Melbourne, Melbourne.
- Andrews, L 1999, *Does HECS deter? Factors affecting university participation by low SES groups*, occasional paper 99F, Higher Education Division, DETYA.
- Appay, B 1998, 'Economic concentration and the externalisation of labour', *Economic and Industrial Democracy*, vol.19, no.1, pp.161–184.
- Applebaum, H 1992, *The concept of work: Ancient, medieval and modern*, State University of New York, p.598.
- Ashton, A and Green, F 1996, *Education, training and the global economy*, Edward Elgar, Cheltenham, UK.
- Asquith Group 1999, *Map of funding provision for youth: City of Whittlesea. Report to the Dusseldorp Skills Foundation*, Dusseldorp Skills Forum, Ultimo, NSW.
- Australian Association of Adult and Community Education (AAACE) 1995, *Who are Australia's adult learners?*, AAACE, Canberra.
- Australian Bureau of Statistics (ABS), *Aspects of literacy assessed skill levels, Australia 1996*, cat. no.4228.0, ABS, Canberra.
- Australian Bureau of Statistics (ABS), *Australian system of national accounts*, cat. no.5204.0, ABS, Canberra.
- Australian Bureau of Statistics (ABS), *Education and training experience, Australia, 1997*, cat. no.6278.0, ABS, Canberra.
- Australian Bureau of Statistics (ABS), *Employer training expenditure, Australia July–September 1996*, cat. no.6353.0, ABS, Canberra.
- Australian Bureau of Statistics (ABS), *Estimated resident population by sex and age*, cat. no.3201.0, ABS, Canberra.
- Australian Bureau of Statistics (ABS), *Expenditure on education, Australia*, cat. no.5510.0, ABS, Canberra.
- Australian Bureau of Statistics (ABS), *Labour force*, cat. no.6203.0, ABS, Canberra.
- Australian Bureau of Statistics (ABS), *Schools Australia*, cat. no.4221.0, ABS, Canberra.
- Australian Bureau of Statistics (ABS) 1993, *Australian standard research classification*, cat. no.1297.0, ABS, Canberra.
- Australian Bureau of Statistics (ABS) 1997, *Transition from education to work*, cat. no.6227.0, ABS, Canberra.
- Australian Bureau of Statistics (ABS) 1998, *Small business in Australia*, cat. no.1321.0, ABS, Canberra.
- Australian Bureau of Statistics (ABS) 1998a, *Employer training practices, Australia. February 1997*. cat. no.6356.0, ABS, Canberra.
- Australian Bureau of Statistics (ABS) 1998b, *Labour force, Australia*, cat. no.6203.0, ABS, Canberra.
- Australian Bureau of Statistics (ABS) 1999, *Australia now—A statistical profile*, <http://www.abs.gov.au/websitedbs/>
- Australian Centre for Industrial Relations Research and Training (ACIRRT) 1999, *Australia at work: Just managing?*, Prentice Hall, Sydney.
- Australian Council for Educational Research (ACER) 1998, *Access and equity in vocational education and training: Results from longitudinal studies of Australian youth*, Research Monograph No.55, ACER, Melbourne.
- Australian Industrial Relations Commission (AIRC) 1999, *Annual report*, Australian Industrial Relations Commission, 1998–1999.

- Australian Institute of Health and Welfare (AIHW) 2000, *Health Expenditure Bulletin no.16: Australia's health services expenditure to 1998–99*, AIHW, Canberra.
- Australian National Training Authority (ANTA) 1993, *Priorities for 1994. Advice of the Board of the Australian National Training Authority*, ANTA, Brisbane.
- Australian National Training Authority (ANTA) 1994a, *Proposals for more effective implementation of training reform*, ANTA, Brisbane.
- Australian National Training Authority (ANTA) 1994b, *Towards a skilled Australia. A national strategy for vocational education and training*, ANTA, Brisbane.
- Australian National Training Authority (ANTA) 1996, *Equity 2001*, ANTA, September, Brisbane.
- Australian National Training Authority (ANTA) 1996a, *Developing the training market of the future. A consultation paper*, ANTA, Brisbane.
- Australian National Training Authority (ANTA) 1997, *Submission to the review of higher education funding and policy*, ANTA, Brisbane.
- Australian National Training Authority (ANTA) 1998, *A bridge to the future, national strategy for vocational education and training, 1998 to 2003*, ANTA, Brisbane.
- Australian National Training Authority (ANTA) 1998a, *Achieving equitable outcomes*, ANTA, Brisbane.
- Australian National Training Authority (ANTA) 1998b, *Flexible delivery: Resource allocation models*, Stage 2 Project Report, Brisbane.
- Australian National Training Authority (ANTA) 1999a, *Annual national report 1998*, vol.3, Brisbane.
- Australian National Training Authority (ANTA) 1999b, *Directions and resource allocations for 2000*, Brisbane.
- Australian National Training Authority (ANTA) 1999c, *Vocational education and training. Directions and resource allocations for 2000. Report to the Ministerial Council*, ANTA, Brisbane.
- Australian Research Council 1992, *Educational research in Australia*, B McGaw, (Chair), AGPS, Canberra.
- Ball, K 1999, 'Participation in and outcomes from vocational education and training', pp.191–206, in Dusseldorp Skills Forum, *Australia's young adults: The deepening divide*, Dusseldorp Skills Forum, Ultimo, NSW.
- Bannikoff, K 1998, *Report of the TAFE review taskforce: A plan to safeguard TAFE Queensland*, Brisbane.
- Barnett, K and Wilson, S 1994, *Challenges and choices: A study of four providers of adult community education*, NCVER, Adelaide.
- Baruch, Y 1998, 'The rise and fall of organizational commitment', *Human Systems Management*, vol.17, no.2, pp.135–143.
- Becker, G S 1964, *Human capital*, National Bureau of Economic Research, New York.
- Bennink, R and Blackwell, P 1995, *Access for all in adult community education: Overcoming barriers to participation*, Department for Employment, Training and Further Education, South Australia.
- Benson, J 1999, 'Outsourcing, organisational performance and employee commitment', *The Economic and Labour Relations Review*, vol.10, no.1, pp.1–21.
- Berman, E, Bound, J and Machin, S 1998, 'Implications of skilled-biased technological change: International evidence', *The Quarterly Journal of Economics*, vol.113, no.4, pp.1245–1279.
- Billett, S 1998, 'Returns to enterprises from investment in VET', pp.222–233 in C Robinson and R Kenyon (eds), *The market for vocational education and training*, NCVER, Adelaide.
- Billett, S, Cooper, M, Hayes, S and Parker, H 1997, *VET policy and research: Emerging issues and changing relationships*, Office of Training and Further Education (OTFE), Victoria, December.
- Blundell, R, Dearden, L, Meghir, C and Sianesi, B 1999, 'Human capital investment: The returns from education and training to the individual, the firm and the economy', *Fiscal Studies*, vol.20, no.1, pp.203–122.
- Borland, J 1990, 'Worker training', *Australian Economic Review*, 4th Quarter, pp.74–80.
- Borland, J and Foo, L 1994, *The skill composition of employment in manufacturing industry*, Research paper no.427, Department of Economics, University of Melbourne.
- Bradley, R and Gans, J S 1998, 'Growth in Australian cities', *The Economic Record*, vol. 74, no.226, pp.266–278.
- Brezis, E S and Krugman, P R 1997, 'Technology and the life cycle of cities', *Journal of Economic Growth*, vol.2, December, pp.369–383.
- Bridges, W 1995, *Jobshift: How to prosper in a workplace without jobs*, Allen and Unwin, St Leonards, NSW.
- Burgess, J 1998, 'Working-time patterns and working-time deregulation in Australia', *Economic Papers*, vol.48, no., pp.35–47.
- Burke, G 1998, *Expenditure on education and training: Estimates by sector and course*, working paper no.19, Monash University–ACER Centre for the Economics of Education and Training, Monash University, Melbourne.
- Burke, G, Costello, R, Malley, J and Shah, C 1998, *Assessing demand for VET in Victoria: A framework*, report to OFTE Victoria, Monash University–ACER Centre for the Economics of Education and Training, Monash University, Melbourne. <http://www.otfe.vic.gov.au/planning/demand/index.htm>
- Burke, G, McKenzie, P, Maglen, L, Selby Smith, C, Ferrier, F and Selby Smith, J 1994, *The economics of vocational education and training in Australia: A review of recent literature*, ANTA, Brisbane (occasional paper 94/2).
- Burke, G, McKenzie, M and Shah, C, 2000, 'The resource implications of VET in schools', pp.118–25 in P Karmel (ed.), *School resourcing, models and practices in changing times*, Australian College of Education, Canberra.
- Business Council of Australia 1989, *Enterprise-based bargaining units—A better way of working*, report to the Business Council of Australia by the Industrial Relations Study Commission, BCA, Melbourne.
- Butler, E 1997, *Beyond political housework: Gender equity in the post-school environment*, Premiers Council for Women, Department for Women, NSW.
- Butler, E and Ferrier, F 2000, *Don't be too polite girls! A critical review of the literature on women, work and VET*, NCVER, Adelaide.
- Buxton, M and Hanney, S 1997, *Assessing payback from Department of Health Research and Development: Second report* (2 volumes), Health Economics Research Group, Brunel University, Uxbridge.

- Campbell, A and Curtin, P 1999, *ACE—Some issues*, NCVER, Adelaide.
- Campbell, I 1999, 'Changing work patterns', paper presented to *The changing workplace conference*, National Key Centre in Industrial Relations, Monash University, Melbourne, 30 November.
- Castells, M 1997, *The rise of the network society*, Blackwell, Mass., USA.
- Centre for Research and Learning in Regional Australia (CRLRA) 2000, *Managing change through VET: The role of vocational education and training in regional Australia*, CRLRA, Launceston.
- CCH 1999a, 'AWAs under the microscope', *Australian Industrial Law News*, Newsletter 4/1999, p.2.
- CCH 1999b, 'Meaning of duress in AWAs', *Australian Industrial Law News*, Newsletter 11/1999, p.12.
- Chapman, B 1998, 'An economic primer to government's role in VET', pp.35–45 in Robinson, C and Kenyon, R (eds), *The market for vocational education and training*, NCVER, Adelaide.
- Chapman, B and discussants Jarvie, W and Donald, O 1997, 'Labour market programs', in *Changing labour markets: Prospects for productivity growth*, Productivity Commission Workshop Proceedings, 20–21 February, ch.8.
- Chapman, B, Doughney, L and Watson, L 2000, 'Financing cross-sectoral education and training in Australia: Some issues', paper prepared for the 9th Annual Vocational Education and Training Research Conference, Coffs Harbour, July.
- Chapman, B and Stemp, P 1992, 'Government intervention in the provision of on-the-job training', *Australian Economic Papers*, vol.31, no.59, pp.354–68.
- Clemans, A and Bradshaw, D 1998, *But, who'll answer the phone? A report into small business women learning in community settings*, ACFEB, Melbourne, Victoria.
- Cohen, R, Lewis, D, Stone, J and Wood, G 1997, *University admissions for NSW TAFE graduates: Procedures and outcomes for NSW and ACT universities*, EIP study, DETYA, September.
- Commission on Individual Learning Accounts 2000, *Summary of the interim report on Individual Learning Accounts, IKS—A stimulus to lifelong learning*, Stockholm, Sweden, May.
- Connole, H 1997, *Making training work for women: A quantitative study of women's experiences in VET*. A national women's VET strategy project, net-published by TAFE NSW <http://www.tafensw.edu.au/gendequi/>.
- Cully, M 1999, 'A more or less skilled work force? Changes in the occupational composition of employment, 1993 to 1999', *Australian Bulletin of Labour*, vol.23, no.4, December, pp.255–274.
- Cummins, G, Rutten, B and Wagstaff, D 1998, *Movement of students from TAFE to university. Analysis of data from DEETYA higher education student collection*, Canberra.
- Cunningham, S, Tapsall, S, Ryan, Y, Stedman, L, Bagdon, K and Flew, T 1998, *New media and borderless education: A review of the convergence between global media networks and higher education provision*, DEETYA, Canberra.
- Curtain, R 1995, 'Employers and access to publicly funded training', *The Australian Economic Review*, 2nd Quarter, pp.93–100.
- Danish Trade and Industry Development Council 1999, 'Intellectual capital accounts. Reporting and managing intellectual capital', paper presented at the international OECD symposium *Measuring and Reporting Intellectual Capital. Experience, Issues and Prospects*, June 1999, Amsterdam.
- Davenport, T H and Prusak, L 1998, *Working knowledge: How organisations manage what they know*, Harvard Business School Press, Boston.
- Davis, S J and Henreksen, M 1999, 'Explaining national differences in the size and distribution of employment', *Small Business Economics*, vol.12, no.1, pp.59–83.
- Dawkins, J 1988, *Industry training in Australia. The need for change*, AGPS, Canberra.
- Dawkins, J S and Holding, A C 1987, *Skills for Australia*, AGPS, Canberra.
- Deloitte Touche Tohmatsu 1995, 'The demand for education and training', in National Board of Employment, Education and Training, commissioned report no.39, *Demand for and dimensions of education and training*, AGPS, Canberra, October.
- Department of Education, Training and Youth Affairs (DETYA) 1999a, *Education participation rates Australia—1997*, Canberra.
- Department of Education, Training and Youth Affairs (DETYA) 1999b, *Equity in higher education*, Occasional paper 99a, Higher Education Division, Canberra.
- Department of Education, Training and Youth Affairs (DETYA) 1999c, *Selected higher education student statistics*, Canberra.
- Department of Education, Training and Youth Affairs (DETYA) 1999d, *Traineeship non-completion*, Canberra.
- Department of Employment, Education and Training (DEET) 1988, *Skills formation and Structural adjustment*, AGPS, Canberra.
- Department of Employment, Education and Training (DEET) 1995, *Australia's workforce 2005: Jobs in the future*, AGPS, Canberra.
- Department of Immigration and Multicultural Affairs 2000a, *Fact sheets 23 and 25*: see <http://www.immi.gov.au/facts>.
- Department of Immigration and Multicultural Affairs 2000b, *Recent migration program numbers*, April, see <http://www.immi.gov.au/statistics>.
- Department of Industrial Relations 1996, *Legislation guide, workplace relations and other legislation acts*, DIR, Canberra.
- Department of Industry, Science and Resources (DISR) 2000, 'Case studies of innovation in Australian enterprises', published on CD-ROM.
- Deveson, I (Chair) 1990, *Training costs of award restructuring* (2 volumes) (Deveson Report), AGPS, Canberra.
- Dockery, A, Koshy, P, Strombeck, T and Wiwi Ying 1997, 'The cost of training apprentices in Australian firms', *Australian Bulletin of Labour*, vol.23, no.4, December, pp.255–274.
- Dockery, A, Norris, K and Strombeck, T 1998, 'The social returns to apprenticeship training', *Australian Economic Review*, vol.31, no.1, pp.37–46.

- Dougherty, C and Tan, J-P 1997, 'Financing training: Issues and options', *International Journal of Manpower*, vol.18, no.1/2, pp.29–62.
- Dusseldorp Skills Forum 1999, *Australia's young adults: The deepening divide*, Dusseldorp Skills Forum, Ultimo, NSW.
- Dwyer, P 1999, 'Participant pathways and outcomes in vocational education and training: 1992–95', pp.179–188 in C Selby Smith (ed.), *The impact of R&D on VET decision-making: A range of case studies*, NCVER, Adelaide.
- Dwyer, P and Wyn, J 1998, 'Beyond the linear models: Pathways and outcomes of 1991 Victorian exit students' in F Ferrier and D Anderson (eds), *Different drums, one beat? Economic and social goals in education and training*, CEET and NCVER, Adelaide.
- Employment and Skills Formation Council (ESFC) 1989, *Industry training in Australia: The need for change. Interim report on consultations by the Employment and Skills Formation Council*, AGPS, Canberra.
- Employment and Skills Formation Council (ESFC) 1994, *Making the future work*, AGPS, Canberra.
- Eronen, A and Ahonen, G 1999, 'Accounting for intellectual capital, country covered: Finland', paper for the OECD symposium on the measuring and reporting of intellectual capital, Amsterdam, June 1999, <http://www.oecd.org.au>
- Feldman, M P and Audretsch, D B 1999, 'Innovation in cities: Science-based diversity and localised competition', *European Economic Review*, vol.43, February, pp.409–429.
- Ferrier, F, Burke, G, McKenzie, P, Selby Smith, C, Selby Smith, J and Anderson, D 1994, *Past imperfect: Future imperative. A Guide to recent Australian literature on the economics of vocational education and training*, ANTA, Brisbane (technical support paper for ANTA occasional paper 94/2).
- Ferrier, F and Heagney, M 1999, *Dealing with the dynamics of disadvantage: Options for equity planning in higher education institutions*, Monash University–ACER Centre for the Economics of Education and Training, Monash University, Melbourne.
- Ferrier, F and Heagney, M 1999a, *Re-thinking equity for students at Monash University*, Monash University–ACER Centre for the Economics of Education and Training, Monash University, Melbourne.
- Ferrier, F and Wells, R 1999, 'Human resource reporting, some exploratory case studies in Australian enterprises', ACER–Centre for the Economics of Education and Training, working paper no 23, Monash University, Melbourne.
- Finegold, D 1999, 'Creating self-sustaining, high-skill ecosystems', *Oxford Review of Economic Policy*, vol.15, no.1, pp.60–81.
- Finegold, D and Soskice, D 1988, 'The failure of training in Britain: Analysis and prescription', *Oxford Review of Economic Policy*, vol.4, no.3, pp.21–53.
- Finn, B (Chair) 1991, *Young people's participation in post-compulsory education and training*, Report of the Australian Education Council Review Committee, AGPS, Canberra.
- FitzGerald, V 1994, *The rationale for government's role in vocational education and training, Research priorities in vocational education and training—A discussion*, Australian National Training Authority National Research Advisory Council Conference, Sydney, 20–22 April, NCVER, Adelaide, pp.208–229.
- FitzGerald, V 1998, 'Market frameworks for VET', pp.11–22 in Robinson, C and Kenyon, R (eds), *The market for vocational education and training*, NCVER, Adelaide.
- Foyster, J 1997 'How supply and demand forces shape VET market—an interim report', Paper presented to *Different drums, one beat? Economic and social goals in education and training*, Monash University–ACER Centre for the Economics of Education and Training and National Centre for Vocational Education Research, March 20–21, Mt Evelyn, Victoria.
- Foyster, J, Hon, K F and Shah, C 2000, *Moving through TAFE*, pending publication by NCVER.
- Freidson, E 1990, 'Labors of love in theory and practice: A prospectus', in K Erikson and S P Vallas, *The nature of work: Sociological perspectives*, Yale University Press, p.154.
- Friedman, M 1962, *Capitalism and freedom*, University of Chicago Press, Chicago.
- Fullarton, S 1999, *Work experience and work placements in secondary school education*, Longitudinal Surveys of Australian Youth, research report no.10, Australian Council for Educational Research (ACER), Camberwell, Victoria.
- Garnett, A and Lewis, P 1999, *Trends in rural labour markets*, Centre for Labour Market Research, Murdoch University, Perth.
- Gibb, J 1998, 'The relevance of a training culture to small business in Australia', ANTA National Conference: *Creating our future: A new training culture for Australia*, Brisbane, August.
- Glaeser, E L 1999, 'Learning in cities', *Journal of Urban Economics*, vol.46, pp.254–277.
- Golding, B 1998, 'Student choices straddle sectors' in *Campus Review*, vol.8, no.25, July 1–7.
- Golding, B 1998a, 'Uni graduates reach for TAFE', in *Campus Review*, vol.8, no.24, July 8–14.
- Golding, B, Bluer, R and Keating, J 1996, *Articulation and credit transfer. Report for the Australian National Training Authority*, Bendigo Regional Institute of TAFE, Bendigo.
- Golding, B and Volkoff, V 1998, 'Participation in VET in Australia: Different drives, same needs?' in F Ferrier and D Anderson (eds), *Different drums, one beat? Economic and social goals in education and training*, CEET and NCVER, Adelaide.
- Golding, B and Volkoff, V 1998a, *Creating outcomes: Individuals and groups on the vocational education and training journey, report summary*, Centre for the Study of Higher Education, University of Melbourne.
- Greenhalgh, C 1999, 'Adult vocational training and government policy in France and Britain', *Oxford Review of Economic Policy*, vol.15, no.1, pp.97–113.
- Gribble, Helen (undated), *Useful knowledge: A brief history and description of adult, community and further education in Victoria*, ACFEB, Melbourne, Victoria.
- Griffith, C 1998, 'Building a resilient work force', *Training*, January, pp.54–60.

- Guerrero, I 1998, 'Treating capital investment and investment in training on an equal basis', in *Vocational Training, European Journal*, no.14, May–August.
- Guthrie, J, Petty, R, Ferrier, F, and Wells, R 1999, *There's no accounting for intellectual capital in Australia: A review of annual reporting practices and the internal measurement of intangibles*, Paper for the OECD Symposium on the Measuring and Reporting of Intellectual Capital, Amsterdam, June 1999, <http://www.oecd.org.au> (also published by CEET).
- Handy, C 1988, *Goals of management*, Melrose Productions, London.
- Hawke, G and McIntyre, J 1999, 'ACE works', pp.21–27 in C Selby Smith (ed.), *The impact of R&D on VET decision-making: A range of case studies*, NCVER, Adelaide.
- Hayton, G, McIntyre, J, Sweet, R, McDonald, R, Noble, C, Smith, A and Roberts, P 1996, *Final report: Enterprise training in Australia*, OTFE, Victoria, pp.65–66.
- Heath, A 1999, 'Job-search methods, neighbourhood effects and the youth labour market', *Research discussion paper RDP 1999–07*, Reserve Bank of Australia.
- Hemstritch, J 1998, *Australian Human Resources Institute Conference*, Canberra, May 1998.
- Hilmer, F (Chair) 1993, *National competition policy: Report of the independent committee of inquiry*, AGPS, Canberra.
- Hornery, S 1999, Address to the Policy and Strategy Forum of the OECD symposium on the measuring and reporting of intellectual capital, Amsterdam, June, <http://www.oecd.org.au>
- Howard, D and Buultjens, J 1999, 'Labour market performance of Australia's non-metropolitan regions', *Australian Bulletin of Labour*, vol.25, no.2, pp. 105–116.
- Human Resources Development Canada 1996, *Technological and organizational change and labour demand: The Canadian situation*, Human Resources Development Canada, Quebec.
- Ichniowski, C, Kochan, T A, Levine, D, Olson, C and Strauss, G 1996, 'What works at work: Overview and assessment', *Industrial Relations*, vol.35, no.3, pp.299–333.
- Industry Commission 1995, *Charitable organisations in Australia*, report no.45, AGPS, June.
- James, C, Jones, C and Norton, A 1993, *A defence of economic rationalism*, Allen and Unwin, St Leonards.
- James, P 1998, 'Reconstituting work: Towards an alternative ethic of social reproduction', *Arena Journal*, no.10, pp.85–111.
- Johanson, U 1998, 'The answer is blowing in the wind. Investment in training from a human resource accounting perspective', in *Vocational Training, European Journal*, no.14, May–August.
- Johanson, U, Eklov, G, Holmgren, M, and Martensson, M 1999a, *Human resource costing and accounting versus the balanced score: A literature survey of experience with the concepts*, School of Business, Stockholm University.
- Johanson, U, Martensson, M, and Skoog, M 1999, 'Measuring and managing intangibles. Eleven Swedish qualitative case studies', paper for the OECD symposium on the measuring and reporting of intellectual capital, Amsterdam, June 1999, <http://www.oecd.org>.
- Johanson, U and Nilson, M 1996, 'The usefulness of human resource costing and accounting', in *Journal of Human Resource Costing and Accounting*, vol.1, no.1, pp.17–138.
- Joia, L A 2000, 'Measuring intangible corporate assets: Linking business strategy with intellectual capital', *Journal of Intellectual Capital*, vol.1, no.1, pp.68–84.
- Jones, B 1999, 'Review of the TAFE NSW Resource Allocation Model and the impact on the Sydney Institute of Technology', pp.94–103 in C Selby Smith (ed.), *The impact of R&D on VET decision-making: A range of case studies*, NCVER, Adelaide.
- Kaplan, R S and Norton, D P 1996, 'The balanced scorecard—measures that drive performance', in *Harvard Business Review*, vol.70, no.1.
- Kearns, P and Grant, G 1999, *Equity in transition*, ANTA, Brisbane.
- Keating, P 1994, *Working nation: Policies and programs*, AGPS, Canberra.
- Keating, P 1995, Speech to the ANTA National Conference, Brisbane, February.
- Keep, E and Mayhew, K 1999, 'The assessment: Knowledge, skills, and competitiveness', *Oxford Review of Economic Policy*, vol.15, no.1, pp.1–15.
- Kelly, C and Goldsworthy, D 1993, *Hidden from view: A survey of adult, community education data collections in Australia*, ACFEB, Melbourne.
- Kilpatrick, S, Falk, I and Harrison, L 1999, 'Learning in rural communities: A response to rapid economic change', Centre for Research and Learning in Regional Australia, University of Tasmania, Launceston.
- King, S and Lloyd, P 1993, *Economic rationalism. Dead end or way forward?*, Allen and Unwin, Sydney, pp.169–191.
- KPMG Consulting 1998, *Report of the National Evaluation of User Choice—Phase 1*, ANTA, Brisbane.
- KPMG Consulting 1999, *National Evaluation of User Choice: Report to ANTA* (Overview report; vol.1, including employer survey, provider survey and State Training Authorities survey; and vol. 2, including Apprentice/trainee focus groups, and case studies), ANTA, Brisbane.
- Lamb, S and Ball, K 1999, *Curriculum and careers: The education and labour market consequences of Year 12 subject choice*, Longitudinal Surveys of Australian Youth, research report no.12, ACER, Camberwell, Victoria.
- Lamb, S, Long, M and Malley, J 1998, *VET in Australia: An analysis of participation and outcomes using longitudinal survey data*, ACER, Melbourne.
- Lancaster, G 1999, 'Towards a new methodology for strategic planning in SMEs', *Macquarie economics research papers series number 7/98*, Macquarie University, Sydney.
- Lansbury, R and McDonald, D 1999, 'Employment relations and the managerial revolution in the public sector', in R Morris, D Mortimer and P Leece (eds), *Workplace reform and enterprise bargaining issues*, Harcourt Brace, Marrackville, NSW.
- Laplagne, P and Bensted, L 1999, *The role of training and innovation in workplace performance*, Productivity Commission Staff Research Paper, Ausinfo, Canberra.

- Larcombe, G and Cole, M 1998, 'Australian regional employment and growth trends', *National Economic Review*, no.40, March, pp.13–39.
- Layard, R and Petoussis, E 1985, 'Overseas students' fees and the demand for education', *Applied Economics*, vol.17, no.5, pp.805–16.
- Le Grand, J and Bartlett, W 1993, *Quasi-markets and social policy*, Macmillan Press, Basingstoke and London.
- Levin, H M 1998, 'Financing a system of lifelong learning', *Education Economics*, vol.6, pp.201–218.
- Liberal Party of Australia 1996, *Pre-election policy statement: Ensuring better education and training*, Melbourne.
- Long, M and Burke, G 1998, 'An analysis of the 1997 Training Practices Survey', *CEET working paper no. 20*, Monash University–ACER Centre for the Economics of Education and Training, Monash University, Melbourne.
- Long, M, Carpenter, P and Hayden, M 1999, *Participation in education and training in Australia 1980–1994*, LSAY report no.13, ACER, Melbourne.
- Long, M, Ryan, R, Burke, G, and Hopkins, S 1999a, *Enterprise-based education and training: A literature review*, Report to the New Zealand Ministry of Education, Monash University–ACER Centre for the Economics of Education and Training, Monash University, Melbourne.
- Lucas, R E 1988, 'On the mechanics of economic development', *Journal of Monetary Economics*, vol.22, pp.3–42.
- Luttwak, E 1999, *Turbo-capitalism: Winners and losers in the global economy*, London, Orion Business Books.
- MacDuffie, J P 1995, 'Human resource bundles and manufacturing performance: Organizational logic and flexible production systems in the world auto industry', *Industrial and Labor Relations Review*, vol.48, pp.197–221.
- Macy, B and Izumi, H 1993, 'Organizational change, design and work innovation: A meta-analysis of 131 North American field studies, 1961–1991', in W Passmore and R Woodman (eds), *Research in organizational change and development*, JAI Press, Greenwich CT.
- Maglen, L R 1990, 'Challenging the human capital orthodoxy: The education–productivity link re-examined', *The Economic Record*, no.66, pp.281–294.
- Maglen, L 1995, 'Private rates of return on university degrees: Australia—1968–69 to 1989–90', pp.198–215, in F Ferrier and C Selby Smith (eds), *The economics of education and training 1995*, Monash University–ACER Centre for the Economics of Education and Training, Monash University, Melbourne.
- Maglen, L 1997, *VET and the university*, Inaugural Professorial Lecture, University of Melbourne, Parkville.
- Maglen, L, Hopkins, S and Burke, G 2001, *Training for productivity*, NCVER, Adelaide.
- Maglen, L, McKenzie, P, Burke, G and McGaw, B 1994, 'Investing in education and training', in T Larkin (ed.), *Investing in Australia's future: Achieving the Australian 2010 vision*, Business Council of Australia, Melbourne.
- Maglen, L and Selby Smith, C 1995, *Pricing options: A report for the New South Wales TAFE Commission*, Monash University–ACER Centre for the Economics of Education and Training, working paper no.1, Monash University, Melbourne.
- Maglen, L and Shah, C 1999, *Emerging occupational patterns in Australia in the era of globalisation and rapid technological change: Implications for education and training*, Monash University–ACER Centre for the Economics of Education and Training, working paper no.21, Monash University, Melbourne.
- Malley, J 1997, *Entry-level training and the New Apprenticeships: Delivery and funding options*, Monash University–ACER Centre for the Economics of Education and Training, working paper no.15, Monash University, Melbourne.
- Malley, J, Frigo, T and Robinson, L 1999a, *Case studies of structured workplace learning in Australian schools. A report to the Australian Student Traineeship Foundation*, Melbourne, ACER.
- Malley, J, Hill, R, Putland, C, Shah, C and McKenzie, P 1999, *Trends in the TAFE work force 1998–2008 and their implications for staff development*, report to OFTE, Victoria, Monash University–ACER Centre for the Economics of Education and Training, Monash University, Melbourne.
- Marginson, S 1993, *Education and public policy in Australia*, Cambridge University Press, Cambridge.
- Maskell, P and Malmberg, A 1999, 'Localised learning and industrial competitiveness', *Cambridge Journal of Economics*, vol.23, pp. 67–185.
- Mayer, E (Chair) 1992, *Key competencies*, report of the committee to advise the Australian Education Council and Ministers of Vocational Education, Employment & Training on employment-related key competencies for post-compulsory education and training, AGPS, Canberra.
- McDonald, R and Hawke, G 1995, *Three strings to the bow: Research priorities for NSW*, Research Centre for Vocational Education and Training (RCVET), University of Technology, Sydney.
- McDonald, R, Hayton, G, Gonczi, A and Hager, P 1993, *No small change: Proposals for a research and development strategy for vocational education and training in Australia*, Vocational Education, Employment and Training Advisory Committee (VEETAC), Canberra.
- McGaw, B 1996, 'Nature and function of educational research', invited address to Jubilee Conference of the National Foundation for Educational Research in England and Wales, Windsor, England, 2–4 December.
- McGaw, B 1999, 'Impact of national reviews of educational research policy', pp.28–34 in C Selby Smith (ed.), *The impact of R&D on VET decision-making: A range of case studies*, NCVER, Adelaide.
- McIntyre, J 1998, 'Policy symbolism and economic realities: ACE, equity and the market' in F Ferrier and D Anderson (eds), *Different drums, one beat? Social and economic goals in education and training*, NCVER, Adelaide.
- McIntyre, J, Ardler, W, Moreley, W, Solomon, N, Spindler, L (undated), *Culture matters. Factors affecting the outcomes of participation in vocational education and training by Australian indigenous peoples*, RCVET, University of Technology, Sydney.
- McIntyre, J and Kimberley, H 1997, *Planning pathways for women from ACE to VET*, Western Australian Department of Training, Perth, and Australian National Training Authority, Brisbane.

- McIntyre, J, Brown, T and Ferrier, F 1996, *The economics of ACE delivery*, NSW Board of ACE, Sydney.
- McIntyre, J, Morris, R and Tennant, M 1993, *The vocational scope of ACE*, NSW Board of Adult and Community Education, Sydney.
- McKenzie, P 1998a, 'International developments in vocational pathways: lessons for Australia', paper presented to the *Conference of the South Australian Secondary Principals Association*, Adelaide, November.
- McKenzie, P 1998b, 'The transition from education to work in Australia compared to selected OECD countries', paper presented to the *Sixth International Conference on Post-compulsory Education and Training*, Griffith University, Gold Coast, December.
- Meagher, A, and discussants Winley, V and Hanson, E 1997, 'Changes in the demand for labour in Australia' in *Changing labour markets: Prospects for productivity growth*, Productivity Commission Workshop Proceedings, 20–21 February, ch.3.
- MINCO (The ANTA Ministerial Council for Education and Training) 1997, *Report of decisions*, ANTA, Brisbane, July.
- Minister for Immigration and Multicultural Affairs 2000, *Ministerial Press Statements*, 43/99, 034/2000 and 038/2000: see http://www.minister.immi.gov.au/media_releases/media.
- Ministerial Council for Education, Employment, Training and Youth Affairs (MCEETYA) 1997, *National Policy, Adult Community Education*.
- Ministerial Council for Education, Employment, Training and Youth Affairs (MCEETYA) 1999a, *National Report on Schooling in Australia 1997*, Curriculum Corporation, Melbourne.
- Ministerial Council for Education, Employment, Training and Youth Affairs (MCEETYA) 1999b, *Summary 1997–98 Finance Statistics*.
- Ministerial Review on the *Provision of Technical and Further Education in the Melbourne Metropolitan Area 1997*, OTFE, Melbourne.
- Ministers of Vocational Education, Employment and Training (MOVEET) 1992, *Common and Agreed National Goals for Vocational Education and Training in Australia*, MOVEET Secretariat, Canberra.
- Misko, J 1999, *Transition pathways: What happens to young people when they leave school*, NCVER, Adelaide.
- National Center for Research in Vocational Education (NCRVE) 1998, *Learning staff and staff development*, NCRVE, Berkeley, California.
- National Centre for Vocational Education Research (NCVER) 1997, *Australian personal enrichment education and training programs: An overview*, NCVER, Adelaide.
- National Centre for Vocational Education Research (NCVER) 1998, *The outlook for training in Australian industries*, NCVER, Adelaide.
- National Centre for Vocational Education Research (NCVER) 1998a, *Apprentices and trainees in Australia 1985 to 1997 at a glance*, NCVER, Adelaide.
- National Centre for Vocational Education Research (NCVER) 1999, *Australian vocational education and training statistics 1998, in detail*, NCVER, Adelaide.
- National Centre for Vocational Education Research (NCVER) 1999a, *Australian apprentices and trainees statistics: Trends 1995 to 1998*, NCVER, Adelaide.
- National Centre for Vocational Education Research (NCVER) 1999b, *Student outcomes survey: Statistics 1999 at a glance*, NCVER, Adelaide.
- National Centre for Vocational Education Research (NCVER) 1999c, *Australian VET statistics 1998, in detail*, NCVER, Adelaide.
- National Centre for Vocational Education Research (NCVER) 1999d, *Australian VET statistics 1998, financial data*, NCVER, Adelaide.
- National Centre for Vocational Education Research (NCVER) 1999e, *Australian VET statistics, 1999, student outcomes survey*, NCVER, Adelaide.
- National Centre for Vocational Education Research 2000, *The national research and evaluation strategy for vocational education and training 2000–2003*, NCVER, Adelaide.
- Noble, C, Hill, D, Smith, E and Smith, A 1999, 'Policy issues in the implementation of 'User Choice' in the Australian training market', *Journal of Vocational Education and Training*, vol.51, no.1.
- Nordhaus, W D 1997, 'Traditional productivity estimates are asleep at the (technological) switch', *The Economic Journal*, vol.107, September, pp.1548–1559.
- Norris, K and Wooden, M (eds) 1996, *The changing Australian labour market*, Economic Planning Advisory Commission, Commission paper no.11, AGPS, Canberra, March.
- O'Connell, J 1999, 'HR's next challenge: Harnessing individualism', *HR Focus*, January, 7–8.
- Office of the Employment Advocate 1999, *What is the current status of AWAs?*, <http://oea.gov.au.whatstat.html>.
- Ogunmokun, G O, Shaw, R N and Fitzroy, P T 1999, 'Determinants of strategic planning behaviour in small business: An exploratory investigation of small business organisations in Australia', *International Journal of Management*, vol.16, no., pp.190–202.
- Organisation for Economic Cooperation and Development (OECD) 1992, *Technology and the economy*, OECD, Paris.
- Organisation for Economic Cooperation and Development (OECD) 1998a, *Education at a glance*, Paris.
- Organisation for Economic Cooperation and Development (OECD) 1998b, *New skills for new teachers, Education policy analysis 1998*, Paris.
- Organisation for Economic Cooperation and Development (OECD) 1999a, *New enterprise work practices and their labour market implications*, OECD Employment Outlook, June, OECD, Paris.
- Organisation for Economic Cooperation and Development (OECD) 1999b, *Measuring and reporting intellectual capital: Experience, issues and prospects*, An international symposium held in Amsterdam, June, papers published on <http://www.oecd.org.au>.

- Organisation for Economic Cooperation and Development (OECD) 2000, *Economic outlook*, OECD, Paris.
- Orpen, C 1997, 'The effects of formal mentoring on employee work motivation, organizational commitment and job performance', *The Learning Organization*, vol.4, no.2, pp.53–60.
- Osterman, P 1995, 'Skill, training, and work organisation in American establishments', *Industrial Relations*, vol.34, pp.125–146.
- Owen, C and Bound, H 1999, 'The changing nature of regional Australia: Work, technology and community', pp.117–127 in vol.2 of 7th *International Conference on Post-Compulsory Education and Training*, Centre for Learning and Work Research, Griffith University, Brisbane.
- Pahl, R E (ed.) 1988, *On work: Historical, comparative and theoretical approaches*, editor's introduction, Basil Blackwell, p.12.
- Panizzolo, R 1998, 'Managing innovation in SMEs: A multiple case analysis of the adoption and implementation of product and process design technologies', *Small Business Economics*, vol.11, no.1, pp.25–42.
- Paull, M 1999, 'In search of volunteering: A proposition', *Australian Journal of Volunteering*, vol.4, no.2, pp.19–29.
- Polesel, J, Teese, R, O'Brien, K and Unger, S 1998, *VET in schools: A study of post schooling destinations*, A paper prepared for the Department of Education, Victoria, by the University of Melbourne, November. http://www.sofweb.vic.edu.au/voced/research/pdf/sch_des.pdf.
- Productivity Commission 1999, *Report on government services 1999*, Melbourne.
- Pusey, M 1987, *Economic rationalism: A nation building state changes its mind*, Cambridge University Press, Cambridge.
- Putnam, R 1993, 'The Prosperous community: Social capital and public life', *The American Prospect*, no.13, Spring, pp.35–42.
- Quiggin, J 1996, *Great expectations: Microeconomic reform and Australia*, St Leonards, Allen and Unwin.
- Quinn Patton, M 1990, *Qualitative evaluation and research methods*, 2nd edition, Sage, Newbury Park.
- Reich, R 1992, *The work of nations: Preparing ourselves for 21st century capitalism*, Vintage Books, New York.
- Reith, P 1996a, *Better pay for better work*, *The Coalition's Industrial Relations Policy*, Liberal Party of Australia, Canberra.
- Reith, P 1996b, *The reform of workplace relations, implementation discussion paper*, March.
- Reith, P 1996c, *Workplace relations and other legislation amendment bill*, Second Reading Speech, House of Representatives, Parliament of the Commonwealth of Australia.
- Rifkin, J 1996, *The end of work: The decline of the global labor force and the dawn of the post-market era*, Putnam, New York.
- Robinson, C 1998, 'The VET product and the development of the training market', pp.102–124 in C Robinson and R Kenyon (eds), *The market for vocational education and training*, NCVER, Adelaide.
- Rogers, M 1998, *Management, organisational and technological change in Australian workplaces: Evidence from the AWIRS data sets*, working paper no.11/98, Melbourne Institute for Applied Economic and Social Research, Melbourne (see also working paper no.20/98).
- Rogers, M 1999, 'The performance of small and medium enterprises: An overview using the growth and performance survey', *Melbourne Institute working paper no.1/99*, Melbourne Institute for Applied Economic and Social Research, the University of Melbourne.
- Romer, P M 1990, 'Endogenous technological change', *Journal of Political Economy*, vol.98, no.2, pp.71–102.
- Ross, I 1999, 'The future of award regulation', Speech to ACIRRT Conference, *Re-thinking collective and individual rights at work: A reflection and outlook*, Sydney, 16 July.
- Roth, W 1989, *Work and rewards: Redefining our work-life reality*, Praeger, New York.
- Schofield, K 1999, *Independent investigation of the quality of training in Queensland's Traineeship System, report to the DETIR*, July, Brisbane. <http://www.detir.qld.gov.au/>
- Schofield, K 1999a, *A risky business. Review of the quality of Tasmania's traineeship system* (2 volumes), Office of Vocational Education and Training, Hobart.
- Schofield, K 2000, *Delivering quality. Report of the independent review of the quality of training in Victoria's apprenticeship and traineeship system* (2 volumes), Office of Post-Compulsory Education, Training and Employment, Melbourne.
- Schofield, K 2000a, 'The good, the bad and the ugly. Perspectives from three States on the quality of Australia's apprenticeship and traineeship system', paper given at the 9th Annual VET Researchers' Conference, Coffs Harbour, 4–7 July.
- Schofield, K and Dryen, R 1996, *Think local and compete*, ANTA, Brisbane.
- Schumpeter, P 1942, *Capitalism, Socialism and Democracy*, New York, Harper and Row.
- Schwartz, R, McKenzie, P, Hasan, A and Nexelmann, E 1997, *Country note on Australia for the OECD transition review*, OECD, Paris.
- Seddon, T and Clemans, A 1999, 'Enterprise-based research in seventeen VET providers', pp.113–135 in C Selby Smith (ed.), *The impact of R&D on VET Decision-making: A range of case studies*, NCVER, Adelaide.
- Seddon, T and Malley, J 1998, *A staff development strategy for supporting research priorities in the State Training Service*, OTFE, Melbourne.
- Selby Smith, C 1975, *The costs of post-secondary education: An Australian study*, Macmillan, Melbourne.
- Selby Smith, C 1995, 'The economic decentralisation impact of non-metropolitan CAEs', pp.604–646 in D S Anderson, K J Batt, D J Beswick, G S Harman and C Selby Smith, *Regional colleges: A study of non-metropolitan colleges of advanced education in Australia*, Australian National University (ANU), Canberra.
- Selby Smith, C (ed.) 1998, *Research and VET decision-making: February 1997 symposium*, Monash University–ACER Centre for the Economics of Education and Training, Monash University, Melbourne.
- Selby Smith, C (ed.) 1999, *The impact of R&D on VET decision-making: A range of case studies*, NCVER, Adelaide.

- Selby Smith, C, Hawke, G, McDonald, R and Selby Smith, J 1998, *The impact of research on VET decision-making*, NCVER, Adelaide.
- Selby Smith, C and Selby Smith, J 1997, *Third party access and separation of roles in the implementation of User Choice*, Monash University-ACER Centre for the Economics of Education and Training, working paper no.12, Monash University, Melbourne.
- Selby Smith, J, Selby Smith, C and Ferrier, F 1996, *Implementing User Choice: Policy issues. A report to ANTA*, Joy Selby Smith Pty. Ltd., Melbourne.
- Selby Smith, J, Selby Smith, C and Ferrier, F 1996a, *National evaluation of the 1996 User Choice pilot projects: Stage 1, interim report*, ANTA, Brisbane.
- Selby Smith, J, Selby Smith, C and Ferrier, F 1997a, *National evaluation of the 1996 User Choice pilot projects: Stage 2, A report to ANTA*, April.
- Selby Smith, J, Selby Smith, C and Ferrier, F 1997b, *Evaluation of User Choice pilot projects: Stage 2 report, April 1997: A report to ANTA*, ANTA, Brisbane.
- Shah, C, Burke, G and McKenzie, P 1999, *Assessing the demand for training: reforming the labour market training needs model. Report to the Office of Post-Compulsory Education, Training and Employment*, (OPCETE), Melbourne.
- Sharpe, T and Robertson, R 1996, *Adult community education pathways to vocational education and training*, ANTA, Brisbane, and the Western Australian Department of Training, Perth.
- Sheehan, P and Tegart, G (eds) 1998, *Working for the future: Technology and employment in the global knowledge economy*, Victoria University Press, Melbourne.
- Sloan, J 1994, *The market for training in Australia*, working paper series, no. 131, National Institute of Labour Studies Inc., Flinders University of South Australia.
- Smart, N 1998, 'Planning for industry demands: improving responsiveness of supply systems', pp.45-247 in C Robinson and R Kenyon (eds), *The market for vocational education and training*, NCVER, Adelaide.
- Smith, L 1998, *The impact of User Choice on the Queensland training market: A progress evaluation*, Department of Employment and Training and Industrial Relations (DETIR), Brisbane.
- Smith, L R 1999, *The Impact of User Choice on the Queensland training market: A progress evaluation*, DETIR, Brisbane.
- Spenner, K I 1995, 'Technological change and deskilling', in M Carnoy (ed.), *International encyclopedia of economics of education* 2nd ed., Pergamon, Oxford.
- Spring, G 1999, 'National overview of vocational education and training in schools: Data and trends', keynote address to the VET in Schools conference, 27-28 May, Melbourne.
- State Training Board 1998, *A vision for training and further education in Victoria—Vision statement*, State Training Board of Victoria, Melbourne.
- State Training Board 1999, 'Voucher scheme extended', *Training for growth*, June, p.2.
- Steering Committee for the Review of Commonwealth/State Service Provision (SCRCSSP) 2000, *Report on government services 2000*, SCRCSSP, Canberra.
- Sternberg, R 1996, 'Technology policies and the growth of regions: Evidence from four countries', *Small business economics*, vol.8, pp.75-86.
- Sveiby, K 1997, *The new organizational wealth: Managing and measuring knowledge-based assets*, Berrett-Koehler, San Francisco.
- Sveiby, K-E 1998, 'Measuring intangibles and intellectual capital—An emerging first standard' at <http://www.sveiby.com.au/emergingstandard.html>.
- Symmonds, H, Burke, G, Harvey-Beavis, A and Malley, J 1999, *Workplace and institute accredited training, Costs and satisfaction*, NCVER, Adelaide.
- Taylor, R (Chair) 1996, *Report of the review of the ANTA agreement*, AGPS, Canberra.
- Teese, R 1997, *Seamless education and training*, research report for the Ministerial review on the provision of Technical and Further Education in the Melbourne Metropolitan area.
- Teicher, J and Grauze, A 1997, 'Enterprise bargaining, industrial relations and training', in C Selby Smith and F Ferrier (eds), *The economic impact of training*, AGPS, Canberra, pp.254-72.
- Teicher, J and Svendsen, S 1998, *Legislative changes in Australian industrial relations 1984-1997*, working paper no.56, National Key Centre in Industrial Relations, Monash University.
- Thurrow, L 1999, *Creating wealth*, Nicholas Brealey, London.
- Tidemann, S 1999, 'The impact of research on the vision', pp.68-84 in C Selby Smith (ed.), *The impact of R&D on VET decision-making: A range of case studies*, NCVER, Adelaide.
- Timmermann, D 1995, *Problems in financing recurrent education*, OECD, Paris.
- Townsend, P, in Horen, A 1999, 'The lucky (few) country', *The Sydney Morning Herald*, July 24, p.10.
- Trebath, R 1999, 'The cross-sectoral experience: An analysis of credit transfer in Victoria's dual sector institutions', pp.142-149 in C Selby Smith (ed.), *The impact of R&D on VET decision-making: A range of case studies*, NCVER, Adelaide.
- Tsang, M 1995, 'Cost analysis in education', pp.386-392 in M Carnoy (ed.), *International encyclopedia of the economics of education*, Elsevier, Oxford.
- Van Ravens, J 1998, 'The franchise model: Refinancing higher education for lifelong learning', *European Journal of Education*, vol.33, no.1, pp.89-102.
- Van Reenen, J 1997, 'Employment and technological innovation', *Journal of Labour Economics*, vol.15, no.2, pp.255-284.
- Vencatachellum, D 1998, 'Endogenous growth with strategic interactions', *Journal of Economic Dynamics and Control*, vol.23, no.2, pp.23-254.
- Villiers, G 1997, *From rhetoric to reality: Developing a client-focussed service*, Office of Training and Further Education, Melbourne.

- Volet, S 1999, 'A situative perspective on the gap between research and practice', keynote address at the 7th Annual International Conference on Post-Compulsory Education and Training, Centre for Learning and Work Research, Griffith University, Brisbane.
- Volkoff, V, Golding, B, and Jenkin, J 1999, *The vocational essence of ACE: The delivery of VET programs by adult and community education providers*, NCVER, Adelaide.
- Werner, M 1998, 'TAFE: A practical necessity for university graduates' in F Ferrier, and D Anderson (eds), *Different drums, one beat? Economic and social goals in education and training*, CEET and NCVER, Adelaide.
- Werner, M 1998a, *Issues regarding higher education graduates in VET*, NCVER, Adelaide.
- Western Australian Department of Training (WADOT) 1995, *Developing the training market*, (2 volumes), WADOT/ANTA, Perth.
- Western Australian Department of Training (WADOT) 1996, *Developing the training market. Issues and best practices arising from State/Territory pilot activities*, ANTA, Perth.
- Westphalen, S A 1999, *Reporting on human capital: objectives and trends*, paper for the OECD symposium on the measuring and reporting of intellectual capital, Amsterdam, June 1999. <http://www.oecd.org.au>.
- Wiltshire, K 1997, *Factors affecting the training market in Queensland*, The University of Queensland, Brisbane.
- Womack, J, Jones, D and Roos, D 1990, *The machine that changed the world*, Rawson-Macmillan, New York.
- Wooden, M 1999, 'The Australian labour market: Preparing for the new millennium', *Australian Bulletin of Labour*, vol.25, no.3, pp.197–204.
- Wooden, M and Bora, B 1999, 'Workplace characteristics and their effects on wages: Australian evidence', *Australian Economic Paper*, vol.38, no.3, pp.276–289.
- Wooden, M, VandenHeuvel, A, Cully, M and Curtain, R 2000, *Barriers to training for older worker and possible policy solutions*, draft.



The National Centre for Vocational Education Research is Australia's primary research and development organisation in the field of vocational education and training.

NCVER undertakes and manages research programs and monitors the performance of Australia's training system.

NCVER provides a range of information aimed at improving the quality of training at all levels.

ISBN 0 87397 679 7 print edition

ISBN 0 87397 698 3 web edition