

DISCUSSION PAPER

Building the foundations: outcomes from the adult language, literacy and numeracy search conference

NATIONAL CENTRE FOR VOCATIONAL
EDUCATION RESEARCH



NCVER



Australian Government

Department of Education, Employment
and Workplace Relations

Building the foundations: outcomes
from the adult language, literacy
and numeracy search conference

NATIONAL CENTRE FOR
VOCATIONAL EDUCATIONAL RESEARCH

The views and opinions expressed in this document are those of the author/project team and do not necessarily reflect the views of the Australian Government or state and territory governments.

© Commonwealth of Australia, 2011

This work has been produced by the National Centre for Vocational Education Research (NCVER) on behalf of the Australian Government and state and territory governments, with funding provided through the Australian Department of Education, Employment and Workplace Relations. Apart from any use permitted under the *Copyright Act 1968*, no part of this publication may be reproduced by any process without written permission. Requests should be made to NCVER.

The views and opinions expressed in this document are those of the author(s) and do not necessarily reflect the views of the Australian Government, state and territory governments or NCVER.

ISBN 978 1 921809 67 5 web edition

ISBN 978 1 921809 68 2 print edition

TD/TNC 103.10

Published by NCVER

ABN 87 007 967 311

Level 11, 33 King William Street, Adelaide, SA 5000

PO Box 8288 Station Arcade, Adelaide SA 5000, Australia

ph +61 8 8230 8400 fax +61 8 8212 3436

email ncver@ncver.edu.au

<<http://www.ncver.edu.au>>

<<http://www.ncver.edu.au/publications/2345.html>>

About the research



Building the foundations: outcomes from the adult language, literacy and numeracy search conference

National Centre for Vocational Education Research

Adult language, literacy and numeracy are essential ingredients for greater workforce participation, productivity and social inclusion. Both national and international research demonstrate the relationship between increasing levels of language, literacy and numeracy proficiency and positive outcomes for individuals, as well as for communities and the economy.

Yet, even with this knowledge, there is still much that is unknown or requires broader debate. For example, what is the extent of adult language, literacy and numeracy provision in Australia? Whose responsibility is it to provide language, literacy and numeracy training in the workplace? Is there a need for targeted funding? What are the longer-term outcomes of literacy and numeracy programs? What programs work best for different types of learners? How can we quantify the civic and social benefits of improved literacy and numeracy?

Following on from the May 2010 announcement of a \$120 million investment by the Australian Government in adult literacy and numeracy activities, the National Centre for Vocational Education Research (NCVER) hosted a forum on behalf of the Department of Education, Employment and Workplace Relations on 13 September 2010 to explore these questions and to determine what needs to be done to find the answers.

This paper presents a summary of those discussions and recommendations for future action. Background papers prepared for the forum are also provided in chapters 1–6. Forum participants emphasised that, while literacy should be everyone’s business, for those concerned with public policy the focus should be on:

- ✧ targeting those most in need
- ✧ finding sustainable funding models
- ✧ measuring success.

To do this will require further effort to better understand what is currently being done to address literacy and numeracy problems across the country and how to make adult literacy and numeracy a more prominent issue in the community and, in response, to devise sound strategies to implement and measure the impact of new activities.

Tom Karmel
Managing Director, NCVER

Contents

Tables and figures	6
Introduction	7
Chapter 1: Overview	9
Chapter 2: Facts and figures—Australian Government language, literacy and numeracy programs	12
Chapter 3: Literacy, qualifications, jobs, income and growth	16
Chapter 4: Links between literacy and numeracy skills and labour market outcomes	27
Chapter 5: Literacy and numeracy in the workplace	30
Chapter 6: Integrated literacy and numeracy support in VET—implications for skills, equity and research	35
Chapter 7: Outcomes from the adult literacy and numeracy search conference	43

Tables and figures

Tables

1	Language, literacy and numeracy program participation numbers, 2003–04 to 2008–09	14
---	---	----

Figures

1	Employment by qualification, persons aged 15–64, Australia 2009, '000s	18
2	Employment and population by numeracy level, persons aged 15–74, Australia 2006, '000s	18
3	Persons aged 15–74 by qualification level and lowest and highest prose literacy level, Australia 2006, '000s	19
4	Persons aged 15–74 by years of formal education and prose literacy level, Australia 2006, '000s	20
5	Estimated employment rate by document literacy and highest qualification	21
6	Estimated average hourly wages by document literacy and highest qualification	21
7	Literacy and numeracy score, by years of formal education and highest qualification, 2006	28
8	Document literacy score, by labour force status and age	29

Introduction

The importance of language, literacy and numeracy for all adults is recognised now more than ever before.

It has been nearly 20 years since John Dawkins, the then Minister for Employment, Education and Training, in August 1991, released the last national policy on Australian language and literacy. In 2010, the impact of adult language, literacy and numeracy levels on productivity and social participation has re-appeared on the federal government's agenda. In the May 2010 Budget—as part of the Skills for Sustainable Growth strategy—the government announced a \$120 million investment in adult literacy and numeracy activities, including increasing access to the Language, Literacy and Numeracy Program (LLNP) and the Workplace English Language and Literacy (WELL) program, expansion of community-based service development, and development and implementation of a national foundation skills strategy.

An often-cited figure from an Organisation for Economic Cooperation and Development (OECD) study states that increasing the literacy level of a country by 1% leads to a 2.5% rise in labour productivity and a 1.5% increase in GDP per head (Coulombe, Tremblay & Marchand 2004). In Australia, the Productivity Commission recently estimated that, together with improvements in early childhood education and higher education attainment, increases in literacy and numeracy could increase total labour productivity by 1.2% (Gillard 2010). The Australian Industry Group, through its current National Workforce Literacy Project, has found that more than three-quarters of participating employers said low literacy and numeracy levels among employees are affecting their business.

It is therefore a matter of national concern that the 2006 Adult Literacy and Life Skills survey (ALLS) found that almost half of Australia's adult population has literacy and numeracy skills below the minimum level required to adequately function on a day-to-day basis in an advanced economy. This proportion is largely unchanged from the previous international literacy survey in the mid-1990s (ABS 1996). The results from the survey highlight that those most likely to have low literacy and numeracy skills include: people with lower educational attainment (ten years or fewer of formal education); those unemployed or not in the labour force; older Australians (45 years and older); and those from non-English speaking backgrounds (including those whose home language is other than English, as well as those whose first language is other than English). The Adult Literacy and Life Skills survey also shows that the higher an individual's literacy and numeracy skills, the more likely it is that he or she will be employed and the greater their income. This has been supported by recent research by the Productivity Commission, which found that increasing the skill levels of individuals from level 1 to level 3 as measured through the survey would result in notable increases in labour force participation and hourly wages for both males and females (Shomos 2010, pp.48–55).

Coupled with the need to increase the language, literacy and numeracy skills of adult Australians is improving the capacity and capability of the current workforce to deliver effective training. There are various qualifications and accredited courses for language, literacy and numeracy practitioners,

with a further two qualifications recently endorsed.¹ Despite this, Skills Australia suggests that the current supply of professionals in this area is insufficient to meet the demand (Skills Australia 2010; see also Productivity Commission 2010, pp.9–11).

Yet, even with this knowledge, there is still much that is unknown or requires broader debate. For example, what is the extent of adult language, literacy and numeracy provision in Australia? Whose responsibility is it to provide language, literacy and numeracy training in the workplace? Is there a need for targeted funding? What are the longer-term outcomes of literacy and numeracy programs? What programs work best for different types of learners? How can we quantify the civic and social benefits of improved literacy and numeracy?

The National Centre for Vocational Education Research (NCVER) hosted a forum on behalf of the Department of Education, Employment and Workplace Relations on 13 September 2010 to explore these questions and to determine what needs to be done to find the answers. Participants represented a variety of key groups working in this area, including provider organisations, industry bodies, adult learning organisations, research organisations and federal government departments.

The forum focused on three key topics:

- ✧ Why are language, literacy and numeracy important?
- ✧ Who should be targeted by public programs?
- ✧ What is the best means of building language, literacy and numeracy skills?

References

- ABS (Australian Bureau of Statistics) 1996, *Aspects of literacy: assessed skills levels, Australia 1996*, ABS, Canberra.
- Coulombe, S, Tremblay, J-F & Marchand, S 2004, *Literacy scores, human capital and growth across fourteen OECD countries*, Statistics Canada, Ottawa.
- Gillard, J 2010, Address to CEDA Leader Series in Adelaide, 4 May, Committee for the Economic Development of Australia, Melbourne.
- Productivity Commission 2010, *Vocational education and training workforce: issues paper*, Productivity Commission, Melbourne.
- Shomos, A 2010, *Links between literacy and numeracy skills and labour market outcomes*, Productivity Commission, Staff working paper, Melbourne.
- Skills Australia 2010, *Australian workforce futures: a national workforce development strategy*, Skills Australia, Canberra.

¹ Vocational Graduate Certificate in Adult Language, Literacy & Numeracy Practice (TAE70110); Vocational Graduate Diploma of Adult Language, Literacy and Numeracy Leadership (TAE80110). Developed by Innovation and Business Skills Australia.

Chapter 1

Overview

Author: National Centre for Vocational Education Research

Purpose

This search conference on adult language, literacy and numeracy provides an opportunity for discussions that will shape a future research agenda on adult literacy and inform consultations on a national adult literacy policy. To guide its discussions, this paper sets out themes and questions relating to the knowledge gaps and what needs to be done to fill those gaps. While the questions have been categorised under each of the themes, we acknowledge the overlap that may occur across the themes. Chapters 2–6 provide briefing on specific programs and issues.

Background

In the May 2010 Budget the federal government announced a \$120 million investment in access to the Language, Literacy and Numeracy Program (LLNP) and the Workplace English Language and Literacy (WELL) program; expansion of community-based service development; and implementation of a national foundation skills strategy. Further information on the LLNP and WELL programs, as well as the Adult Migrant English Program, is provided in chapter 2.

Issues

Why are language, literacy and numeracy important?

There is considerable research on the links between skills and productivity. However, identifying the specific effects of literacy, language, and numeracy on productivity is difficult, given the complexity of the relationships between these basic skills, educational attainment and the workplace. An often-cited figure from an OECD study estimates that increasing the literacy level of a country by 1% leads to a 2.5% rise in labour productivity and a 1.5% increase in GDP per head. A discussion of the relevance of this work for the Australian context is provided in chapter 3.

The Productivity Commission recently estimated that, together with improvements in early childhood education and higher education attainment, increases in literacy and numeracy could increase total labour productivity by 1.2% (Gillard 2010). An outline of findings from recent work by the Productivity Commission examining the link between literacy and numeracy skills and labour market outcomes is provided in chapter 4.

The Australian Industry Group has found that more than 75% of employers participating in its workforce literacy project indicated that low literacy and numeracy levels were affecting their business. For further details on this project refer to chapter 5.

Increased literacy and numeracy skills are also argued to facilitate social participation and better health (Dorgon 2009; Skills Australia 2010; National Adult Literacy Agency [Ireland] 2009).

Questions

- ✧ Where do we get the biggest return from investment in adult language, literacy and numeracy training? Is there a need to target funding to specific groups, such as older Australians, those from non-English speaking backgrounds and the unemployed?
- ✧ What are the longer-term outcomes from language, literacy and numeracy programs?¹ For workplace programs, what are the productivity gains for employers and how long are they sustained? For employed individuals, what are the benefits in the short- and longer-term? For those who aren't employed, what, if any, are the short- and longer-term benefits? Are there any ripple effects into families and the wider community? What data needs to be captured to measure longer-term outcomes?
- ✧ How do we quantify the social and civic benefits attained by individuals by increasing language, literacy and numeracy skills? Do these benefits justify the level of investment?

Who should we be targeting?

The recent Adult Literacy and Life Skills (ALLS) survey (ABS 2008) indicates that around half of Australia's adult population has literacy and numeracy skills below the minimum level required to adequately function on a day-to-day basis in an advanced economy. This proportion is largely unchanged from the previous international literacy survey in the mid-1990s (ABS 1996). The ALLS survey highlights that those most likely to have low literacy and numeracy skills include: people with lower educational attainment (ten years or less of formal education), those unemployed or not in the labour force, older Australians (45 years and older), and those from non-English speaking backgrounds (including those whose home language is other than English, as well as those whose first language is other than English).

Questions

- ✧ What is the extent of language, literacy and numeracy provision in Australia? Who are the programs targeting?
- ✧ How can we better target those who have low language, literacy and numeracy skills and who are not in the labour force? Will increasing their skill levels lead to increases in labour force participation?
- ✧ The assessment of some programs (for example, WELL) is conducted against the Australian Core Skills Framework (ACSF). Policy-related indicators refer to the performance levels of the ALLS survey. Are the ALLS categories useful when talking about productivity, in particular?
- ✧ What assessment frameworks are used in other adult foundation skills programs, such as language programs? Do they need to be linked to the ACSF or ALLS frameworks for policy-reporting purposes?

¹ This is an issue currently being examined in Canada. The Centre for Literacy Quebec is managing a three-year project aimed at developing and testing an evaluation model to measure the long-term outcomes of workplace literacy and essential skills initiatives on individuals, workplaces, companies, and local community in two provinces, Nova Scotia and Manitoba. This project is based on a recent NZ government initiative, the Upskilling Partnerships Programme.

What is the best means of delivering language, literacy and numeracy training, and who should deliver it? Who should pay for the training?

Tied to increasing the language, literacy and numeracy skills of adult Australians is improving the capacity and capability of the current workforce to meet the increasing demand. While two new qualifications for language, literacy and numeracy trainers have recently been endorsed,² there is concern that the current supply of professionals is inadequate (Skills Australia 2010). The diversity of trainers is matched by the diversity of learners. It is still not yet clear which teaching approaches work best for different groups of learners. Further information on the delivery of language, literacy and numeracy is provided in chapter 6.

Questions

- ✧ Whose responsibility is it to provide language, literacy and numeracy training in the workplace? How can government, employers and providers work more creatively to provide language, literacy and numeracy training? What can we learn from language, literacy and numeracy provision within enterprises?
- ✧ Have we got the balance of language, literacy and numeracy provision right? With a greater proportion of adult Australians having low numeracy skills by comparison with literacy skills (ABS 2008), what more do we need to do to redress this? Low numeracy skills among adults is an area of focus in the current UK Skills for Life strategy, as the first phase of the strategy from 2001–09 did not do this well (Department for Innovation, Universities and Skills [UK] 2009).
- ✧ How successful are current language, literacy and numeracy programs? How is success measured? Is there a need for a more coordinated approach to the provision of adult language, literacy and numeracy training?
- ✧ Is there a need to give greater prominence to other literacies such as health and financial literacy?
- ✧ What types of provision work best for different learners and different learning contexts?
- ✧ Do there need to be stronger linkages between language programs, such as the Adult Migrant English Program and vocational literacy programs?
- ✧ What will the increase in funding for the LLNP and WELL programs mean for the literacy and numeracy workforce and the professional development of other practitioners in the vocational education and training field? Will a requirement for greater professional development deter volunteers?

References

- ABS (Australian Bureau of Statistics) 1996, *Aspects of literacy: assessed skills levels, Australia 1996*, ABS, Canberra.
- 2008, *Adult literacy and life skills survey, summary results: Australia, 2006*, ABS, Canberra.
- Department for Innovation, Universities and Skills 2009, *Skills for life: changing lives*, HMSO, London.
- Dorgon, J 2009, *Adult literacy: a review for the national adult literacy agenda*, National Adult Literacy Agency, Dublin.
- Gillard, J 2010, Address to CEDA Leader Series in Adelaide, 4 May, Committee for the Economic Development of Australia, Melbourne.
- National Adult Literacy Agency [Ireland] 2009, *A cost-benefit analysis of adult literacy training*, NALA, Dublin.
- Skills Australia 2010, *Australian workforce futures: a national development strategy*, Skills Australia, Canberra.

² Vocational Graduate Certificate in Adult Language, Literacy & Numeracy Practice (TAE70110); Vocational Graduate Diploma of Adult Language, Literacy and Numeracy Leadership (TAE80110). Developed by Innovation and Business Skills Australia.

Chapter 2

Facts and figures—Australian Government language, literacy and numeracy programs

Author: National Centre for Vocational Education Research

Language, Literacy and Numeracy Program

The Language, Literacy and Numeracy Program (LLNP) provides language, literacy and numeracy assistance to jobs seekers who are experiencing significant disadvantage in the labour market due to low levels of language, literacy and/or numeracy. The LLNP seeks to improve clients' skills in these areas with the expectation that such improvements will enable them to participate more effectively in training or in the labour force and lead to greater gains for society in the longer term.

All participants in LLNP must be of working age (15–64 years), registered with Centrelink, not full-time students and satisfy eligibility criteria relating to benefit and visa status. The LLNP caters for disadvantaged client groups, including Indigenous people, young males, people with disabilities, isolated female job seekers and cases of age-based workforce exclusion. The program particularly targets clients from non-English speaking backgrounds who need language-only training of varying levels (Department of Education, Employment and Workplace Relations 2010a).

Registered training organisations, including community organisations, TAFE (technical and further education) institutes, private providers and universities are contracted to provide training and training assessment. Clients are referred to an LLNP provider by Centrelink or a Job Services Australia provider and attend training either part-time or full-time. Following pre-training assessment of language, literacy and numeracy competence, clients are placed in the appropriate stream of training with a tailored training focus. Training is normally delivered face to face, although a small proportion of training is delivered by distance mode. LLNP delivers three streams of training: initial, basic and advanced. Training can be vocationally contextualised within each stream of training. There are three types of training:

- ✧ *Complementary training* supports the most disadvantaged participants to achieve their learning outcomes in an environment they find conducive to learning.
- ✧ *Advanced vocationally oriented courses (AVOC)* assist more advanced participants to take part in vocational training and can include elements of workplace experience and observation.
- ✧ *Small group training* allows participants who are struggling in a larger class to build their confidence in a small class before returning to a large class (Department of Education, Employment and Workplace Relations 2010a).

Participants attend training on a part-time (10–19 hours a week), or a full-time basis (20 hours per week). Training is delivered in blocks of 200 hours (or up to 450 hours for AVOC).

In 2008–09, LLNP expenditure was \$67.7 million. The total number of LLNP participants in 2008–09 was 15 710. This figure is well below the 24 000 estimate (Department of Education,

Employment and Workplace Relations 2009a, pp.105, 341). The number of LLNP participants has gradually decreased from 25 454 in 2004–05 (Department of Education, Employment and Workplace Relations 2006). See table 1 for an overview of participant numbers from 2003–04 to 2008–09.

The Australian Government has committed \$294.8 million to the LLNP from 2009 to 2013. In the 2010 federal Budget, the Australian Government announced, as part of its Foundation Skills Package, that it will invest \$67 million over four years to strengthen the LLNP, with the intention of assisting 70 000 job seekers to improve their language, literacy and numeracy skills. The investment will pay for an additional 55 hours of training per client. This equates to a 25% increase in average client hours (Department of Education, Employment and Workplace Relations 2009b, 2010a).

Workplace English Language and Literacy program

The Workplace English Language and Literacy (WELL) program aims to assist organisations to train workers in English language, literacy and numeracy skills. Funding is available on a competitive grants basis to organisations for English language and literacy training linked to job-related workplace training and is designed to help workers meet their current and future employment and training needs. Enterprises are required to make a cash contribution to the provision of WELL training, at least 25% in the first year, and 50% in the second or third year (Department of Education, Employment and Workplace Relations 2010b).

Funding is available for three types of projects:

- ✧ *Training projects*: funding for WELL training projects is available for organisations that have demonstrated a need for language, literacy and numeracy in the workplace. Projects should target workers who need to improve their language, literacy and numeracy skills in order to remain or progress in employment and address participants' employment and training needs.
- ✧ *Resource projects*: WELL resources funding is available for the development and trialling of: training materials designed to enhance language, literacy and numeracy skills that are aligned with endorsed training packages; industry relevant language, literacy and numeracy assessment and reporting methods; and professional development resources for industry trainers/assessors aligned with training packages.
- ✧ *Strategic projects*: WELL funding is available for projects with national scope and involve strategic activities to support ongoing and cost-effective workplace English language, literacy and numeracy training across one or more industry sectors (Department of Education, Employment and Workplace Relations 2010b).

In 2008–09 the WELL expenditure was \$14.9million: \$11.5million was spent on Training projects and \$3.4million on Resource and Strategic projects. The total number of WELL participants was 12 180 (Department of Education, Employment and Workplace Relations 2009a, pp.105, 341). The number of WELL participants has gradually decreased from 23 217 in 2003–04 (Department of Education, Employment and Workplace Relations 2006). See table 1 for an overview of participant numbers from 2003–04 to 2008–09.

In the 2010 federal Budget, the Australian Government announced, as part of its Foundation Skills Package, that it will invest \$15.7 million over four years to improve the skills of workers with low language, literacy and numeracy skills. This will pay for an additional 9500 places over four years (Department of Education, Employment and Workplace Relations 2010b).

Table 1 Language, literacy and numeracy program participation numbers, 2003–04 to 2008–09

Program	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09
Language, Literacy and Numeracy Program ¹	22 925	25 454	23 443	20 198	17 205	15 710
Workplace English Language and Literacy Program ²	23 217	18 124	18 025	16 190	16 558	12 146
Adult Migrant English Program (excluding SPP) ³	36 788	40 705	45 141	50 218	50 432	52 720

Sources: 1 Department of Education, Employment and Workplace Relations (2009a).
 2 Department of Education, Employment and Workplace Relations (2008).
 3 Department of Immigration and Citizenship (2008a).

Client demographics

During the 2008–09 period:

- ✧ 64% of all clients were male.
- ✧ 37% of all clients were from non-English speaking backgrounds.
- ✧ 4% of clients were Aboriginal or Torres Strait Islander.

Adult Migrant English Program

The Adult Migrant English Program (AMEP) is a national settlement program that provides free English language tuition for eligible migrants and humanitarian entrants who do not have functional English. The objective of the program is to assist recently arrived migrants and humanitarian entrants to develop the English language skills they need to engage and participate, and be included more broadly in society. This includes improving access to services in the general community, providing a pathway to employment training or further study and assisting with participation in other government programs. As well as language tuition, AMEP service providers also offer ongoing educational counselling, advice on options for further study and referral to services, including Commonwealth-funded employment assistance, and arrangement of free childcare for under-school-age children of clients during class times. Additional tuition is available through the Special Preparatory Program (SPP) to humanitarian entrants with low levels of schooling or difficult pre-migration experiences (Department of Immigration and Citizenship 2010).

The AMEP is delivered nationally by 13 service providers with learning centres in more than 250 locations. Each client is eligible to receive up to 510 hours of free English language tuition. Clients may choose from the following range of learning options:

- ✧ full- or part-time classroom tuition in formal or community-based settings
- ✧ a distance learning course for clients to learn at home, with curriculum materials specifically designed for out-of-classroom learning, supported by regular telephone contact with a qualified teacher
- ✧ the Home Tutor Scheme, which provides language assistance by a trained volunteer, usually on a one-to-one basis, in the client's home.

The program uses the Certificates in Spoken and Written English (CSWE) as the curriculum. CSWE consists of three levels: level 1 (beginners), level 2 (post-beginners) and level 3 (intermediate), and recognises three stages of learning based on the client's previous learning experience. Within each CSWE level, clients work at the level appropriate to their needs, interests and abilities.

Eligible migrants are referred to the AMEP by their sponsor, settlement provider or Centrelink. Clients may also hear about the program and contact enrolment centres themselves. Migrants are required to register for the AMEP within three months of arrival, or visa grant if onshore, and commence classes within 12 months. Prior to commencement of tuition, AMEP service providers conduct an assessment of each individual's English language skill (Department of Immigration and Citizenship 2010).

In 2008–09 AMEP expenditure was \$174.5 million and the program provided English language tuition to 52 720 clients. AMEP participation numbers have been growing steadily since 2003–04 (Department of Immigration and Citizenship 2010). See table 1 for an overview of participant numbers from 2003–04 to 2008–09.

Client demographics

During the 2008–09 period:

- ✧ 56.6% of all clients across all tuition methods and SPP were family stream entrants, 26.4% were humanitarian stream entrants and 17% were dependents of skilled entrants.
- ✧ AMEP clients represented 193 countries of birth.
- ✧ 68% of all clients were female.
- ✧ 77.4% of all clients were aged 16–44 years.
- ✧ 22.6% were aged above 44 years of age.
- ✧ The most commonly spoken languages were Mandarin, Arabic and Vietnamese.
- ✧ 19% of all clients indicated that they had seven years or fewer of formal education.
- ✧ Humanitarian entrants generally had less formal schooling than others. During the 2003–04 to 2006–07 periods, 42% of humanitarian entrants had seven years or fewer of formal education (Department of Immigration and Citizenship 2008a).

References

- Department of Education, Employment and Workplace Relations 2008, *Annual report 2007–08*, viewed 23 January 2011, <<http://www.annualreport.deewr.gov.au/2008/>>.
- 2009a, *Annual report 2008–09*, viewed 23 January 2011, <<http://www.annualreport.deewr.gov.au/>>.
- 2009b, *Language, Literacy and Numeracy Program 2010–2013: overview paper*, Foundation Skills and Pathways Branch, viewed 23 January 2011, <<http://www.deewr.gov.au/Skills/Programs/LitandNum/LLNP/Pages/default.aspx>>.
- 2010a, *Language, Literacy and Numeracy Program*, viewed 23 January 2011, <<http://www.deewr.gov.au/Skills/Programs/LitandNum/LLNP/Pages/default.aspx>>.
- 2010b, *Workplace English Language and Literacy Program*, viewed 23 January 2011, <<http://www.deewr.gov.au/Skills/Programs/LitandNum/WorkplaceEnglishLanguageandLiteracy/Pages/default.aspx>>.
- Department of Education, Science and Training 2006, *WELL 2006 evaluation: study of WELL projects*, DEST, Canberra.
- Department of Immigration and Citizenship 2008a, *Adult Migrant English Program, annual report 2007–08*, viewed 23 January 2011, <<http://www.immi.gov.au/about/reports/annual/2007-08/html/outcome2/administered2-1.htm>>.
- 2008b, *Review of the Adult Migrant English Program*, discussion paper, DIAC, Canberra.
- 2010, *Adult Migrant English Program*, viewed 23 January 2011, <<http://www.immi.gov.au/living-in-australia/help-with-english/amep/>>.

Chapter 3

Literacy, qualifications, jobs, income and growth

Author: Gerald Burke¹

Introduction

The benefits of education to individuals through better access to jobs and higher earnings are well documented. The estimates typically involve the assumptions that workers' earnings largely reflect their contribution to production and that the benefits associated with education are largely due to the education and not related to characteristics of the individual.

There have also been attempts to estimate the total benefits to society, including benefits external to the individual. In many cases it is possible to identify these external benefits, such as the effect of more educated parents on children, the better health of the more educated or the extra productivity of a highly skilled team compared with a highly skilled individual. Often, however, the size of these benefits is difficult to quantify.

A separate group of studies has been undertaken, not at the level of individuals, but for the economy as a whole. These usually explore across a number of countries the relation of the level and growth rate of GDP to the aggregate inputs of physical capital, labour and human capital. The research in this area took a step forward when survey test data became available for a number of countries. The data in the International Adult Literacy Survey in the mid-1990s (OECD 2000) and the Adult Literacy and Life Skills Survey (ALLS) carried out in several countries around 2006 have been especially important.² These surveys provided information on general skills and the data were more comparable across countries than other measures of learning, such as years of schooling or qualifications.

This paper sketches the main ideas in these approaches and their limitations and makes some comments on the extent to which the findings have an application to policies on literacy, numeracy and qualifications.

¹ Thanks to Michael Long, Centre for the Economics of Education and Training, Monash University, for his comments and suggestions.

² The ALLS in Australia is a national survey that provides information on knowledge and skills of 15 to 74-year-olds for: prose literacy, the ability to understand and use information from various kinds of narrative texts; document literacy, the knowledge and skills required to locate and use information contained in various formats; numeracy, the knowledge and skills required to effectively manage and respond to the mathematical demands of diverse situations; and problem-solving, goal-directed thinking and action in situations for which no routine solution is available. The ALLS administered tests on these and also sought the participants' self-assessment on prose and document literacy and numeracy. Literacy proficiency is grouped into five performance levels, with level 1 being the lowest. The survey collected a range of data on income and employment and also on social capital and wellbeing (ABS 2008, p.4).

Private individual benefits

From the early 1960s estimates have been made of the relationship between educational attainment and individual outcomes, such as being employed and achieving a high income. The data for these studies are usually extracted from household surveys. Information on jobs and income, along with data on costs of education, are used to estimate private rates of return from an individual's investment in education. In general such studies show that investing in additional years of education and training yield on average a good rate of return, better than is usually available on other investments.

There are objections to the use of the earnings associated with education as due to the education. Some of the earnings may be due to other attributes of the individual. These could be higher intelligence and motivation. A range of attempts to disentangle these effects have been made. Dowrick (2002) cites studies that analysed the earnings of twins, controlling for genetic and domestic influences. Psacharopoulos and Patrinos (2002) in a review endorse the conclusion 'that the effect of ability and related factors does not exceed 10% of the estimated schooling coefficient'.

The data from the ALLS enable a teasing-out of the relationship between jobs and earnings and literacy and numeracy as well as with years of schooling and qualifications.

Australian and New Zealand data and analyses

This section looks briefly at the data on individuals' literacy, qualifications, jobs and earnings. Qualifications and literacy are strongly associated:

- ✧ with being employed
- ✧ with the level of earnings for those that are employed.

Some cross-tabulations are presented and then some of the more detailed analyses are reported.

Getting a job

Figure 1, based on the Survey of Education and Work (ABS 2009), shows that about 55% of the Australian population aged 15 to 64 years had a non-school qualification in 2009 and that people with educational qualifications were more likely to be employed: 83% of those with qualifications are employed by comparison with 64% of those without qualifications.

The gap in relation to full-time work is larger. More detailed analysis confined to persons 25 years and over (and therefore removing many young full-time students) moderates this picture, but not by much.

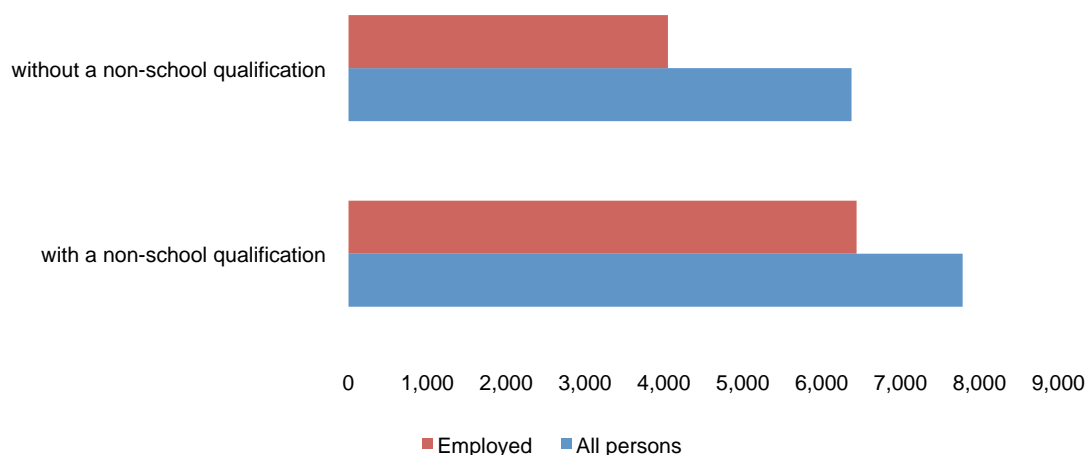
The data in figure 2, from the Adult Literacy and Life Skills survey (ABS 2008), are more striking. The results presented are for the test on numeracy but results for the other main measures, prose and document literacy, are similar. Over half the population aged 15 to 74 has a numeracy score at levels 1 and 2.³ Level 3 is regarded by the survey developers as the 'minimum required for

³ The tests had tasks at various levels. For example, for document Literacy level 5 tasks require the respondent to search through complex displays that contain multiple distractors, to make high-level text-based inferences, and to use specialised knowledge. Level 3 tasks require the respondent to integrate multiple pieces of information from one or more documents. Others ask respondents to cycle through rather complex tables or graphs which contain information that is irrelevant or inappropriate to the task. Level 1 tasks tend to require the respondent either to locate a piece of information based on a literal match or to enter information from personal knowledge onto a document. Little, if any, distracting information is present.

individuals to meet the complex demands of everyday life and work in the emerging knowledge-based economy' (ABS 2008). Figure 2 shows:

- ✧ Less than 50% of those at prose, document and numeracy level 1 are employed.
- ✧ Over 85% at levels 4/5 are employed.

Figure 1 Employment by qualification, persons aged 15–64, Australia 2009, '000s



Source: ABS (2009).

Figure 2 Employment and population by numeracy level, persons aged 15–74, Australia 2006, '000s



Source: ABS (2008).

Gross income—for those who have a job

The incomes of persons in employment are strongly related to literacy/numeracy and to qualifications. Data from the ABS Survey of Education and Training show that among full-time workers, graduates on average earn nearly 50% more than those for whom Year 12 is their highest level. Higher-degree qualifications attract still higher earnings. VET qualifications at certificate III and IV have a considerable premium over persons with only school credentials.

Incomes vary by literacy level:

- ✧ At literacy level 4/5, about 40% are in the highest income quintile and 17% in the lowest two quintiles.

✧ At level 1 about 10% are in the highest income quintile and 30% in the lowest two quintiles (ABS 2008).

Gross income for all persons aged 15–74⁴

To get a complete view of the economic benefits of literacy, or of qualifications, we need to consider the effects on employment and income together.

The median income of all persons in the cohort, including those not at work, shows those with prose literacy level 4/5 at \$900 per week, three times that of persons with literacy level 1 (ABS 2008, table 8).

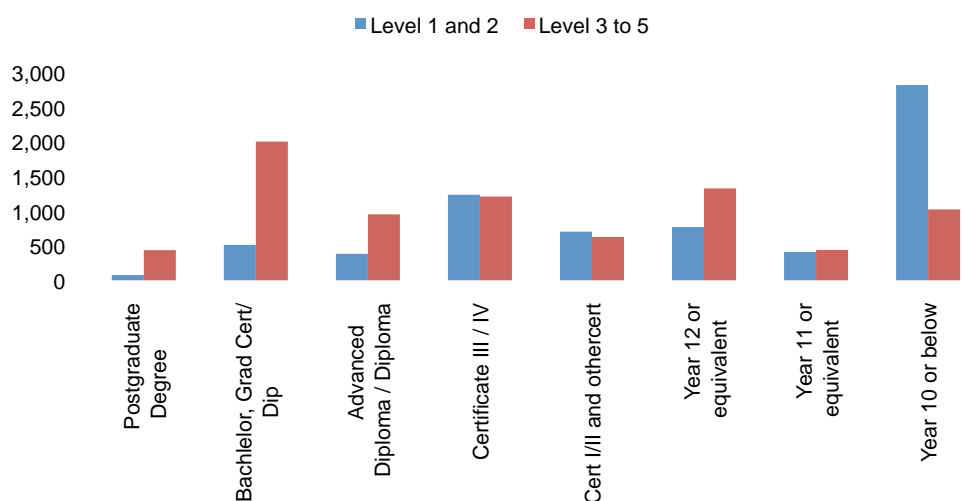
The interaction of qualifications, years of education and literacy

The cross-tabulations presented here do not deal with the interaction of education levels with literacy. Education enhances literacy and also other skills and knowledge. And literacy makes it more likely to obtain qualifications.

Figure 3 shows the vast majority of those with diplomas and above scored at literacy level 3 or above. Qualifications at these levels usually require the completion of secondary schooling and that is often dependent on considerable progress in literacy and numeracy.

Figure 3 shows that the majority of those with Year 10 of schooling or less scored at lower than level 3 on the adult literacy test. Those with certificates I to IV were more mixed, with around half having tested at literacy level below level 3. Figure 4 presents the information on education and training by years of formal education rather than by qualifications completed. The expected relationship with literacy is apparent again.

Figure 3 Persons aged 15–74 by qualification level and lowest and highest prose literacy level, Australia 2006, '000s



Source: ABS (2008).

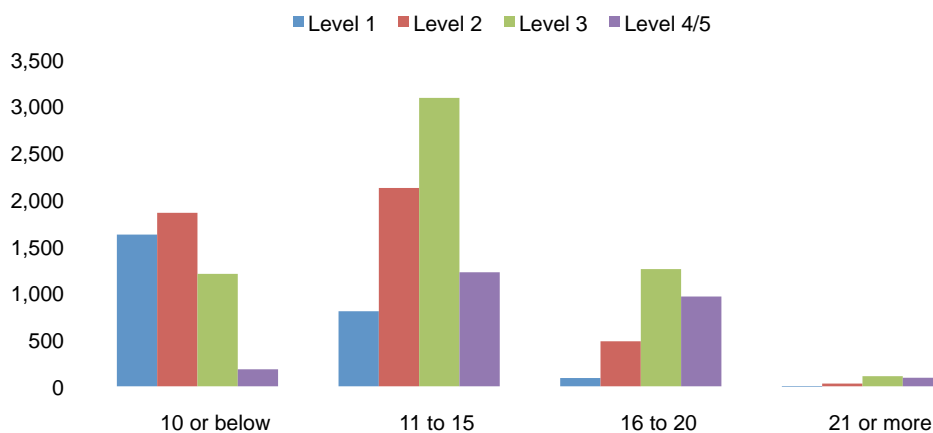
⁴ Gross personal income: regular and recurring cash receipts including monies received from wages and salaries, government pensions and allowances, and other regular receipts such as superannuation, workers' compensation, child support, scholarships, profit or loss from own unincorporated business or partnership and property income. Gross income is the sum of the income from all these sources before income tax or the Medicare levy is deducted.

Chiswick, Lee and Miller (2002), using the Australian data from the International Adult Literacy Survey in 1996, modelled influences on labour force participation and unemployment, including years of education. They then extended their model to include a number of literacy variables. They found that:

The estimation of models of labour market outcomes that include variables for both level of education and literacy and numeracy shows that perhaps as much as one-half of the total effect of education is in fact an indirect effect of education that arises due to the higher literacy and numeracy skills of the better educated. Education appears to be associated with improvements in skills (here literacy and numeracy) that are rewarded well in the labour market. Hence education affects labour market outcomes through its effects on human capital skills that are embodied in people and which are not measurable in most other studies.

(Chiswick, Lee & Miller 2002, p.20)

Figure 4 Persons aged 15–74 by years of formal education and prose literacy level, Australia 2006, '000s

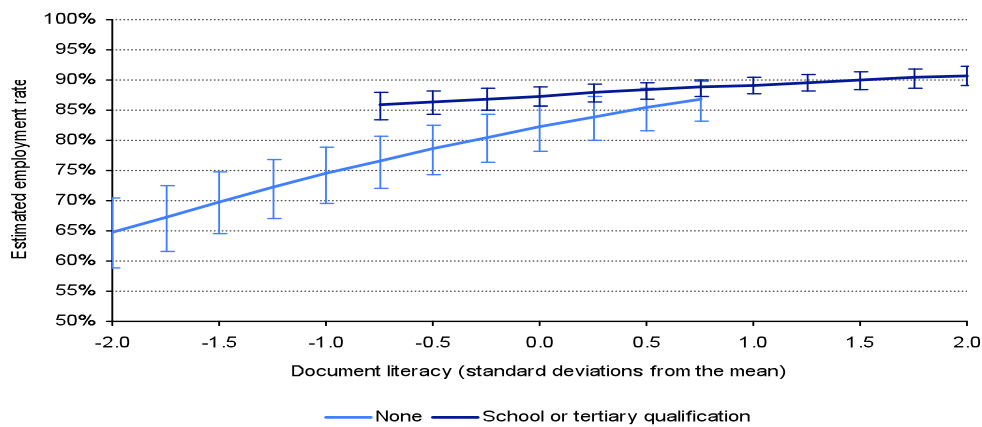


Source: ABS (2008).

Curtis (forthcoming) has modelled the relation of literacy and qualifications to employment status and to wages using data from the 2006 ALLS. The estimates for employment are provided for males and females and the employment effects for full-time and part-time work, unemployment and not in the labour force. In a model including the literacy variable, but not the qualifications variable, strong associations are found, as suggested from the cross-tabulations above. When qualifications are added to the model, the relation to literacy is modified but remains strong. The modelling is also undertaken with the hourly wage rate as the dependent variable. The effects of literacy are again strong. When qualifications are included in the model, the direct effect of literacy is moderated. The estimates also suggest that those with higher levels of qualifications receive higher additions to their wages for a given level of literacy than those with lower or no qualifications. The findings hold for males and females separately, although the additions to wages due to higher literacy are smaller for females.

Earle (2010) has analysed the corresponding literacy data for New Zealand. Figure 5 is from his study. It shows for males who have not completed school that higher levels of literacy are strongly associated with employment. For those who have completed school or have qualifications, the separate effects of literacy are not very marked.

Figure 5 Estimated employment rate by document literacy and highest qualification

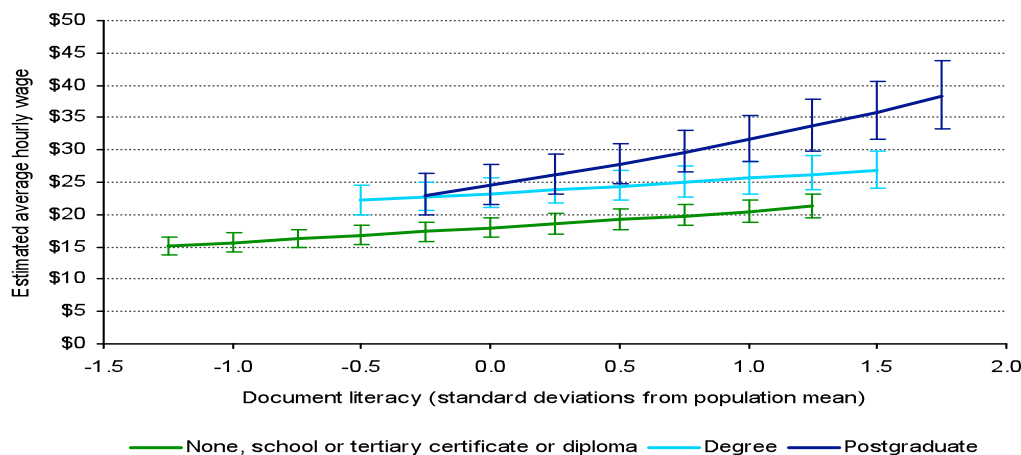


Note: Reference group is males, aged 30, with English as a first language. The lines show the population distribution from the 10th to 90th percentile for each qualification group.

Source: Earle (2010, figure 3).

Figure 6 shows that the effects of literacy on wages are associated with the level of qualification. Those with qualifications receive a greater premium from their higher literacy level, as also found by Curtis (forthcoming) for Australia.

Figure 6 Estimated average hourly wages by document literacy and highest qualification



Note: Reference group is males, aged 30, with English as a first language. The lines show the distribution from the 10th to 90th percentile for each qualification level.

Source: Earle (2010, figure 4).

Benefits to society

Can we take the benefits to individuals as a measure of benefits to society? There are several concerns that have been raised in interpreting the association of higher wages with increased education. Much of the discussion takes place in relation to income and earnings rather than in accessing jobs, which as noted above is a very important outcome for both literacy and educational qualifications. The issues raised are:

- ✧ The benefits to individuals may reflect associated attributes such as intelligence, motivation and family connections rather than the education.
- ✧ There may be benefits or costs external to the individual.

- ✧ The wage benefits may not measure contribution to production.
- ✧ Education credentials may be used to screen and select for pre-existing intelligence and the motivation of persons rather than for the skills developed in education.

The first issue was considered earlier in relation to the benefits to individuals. The other issue, although mostly irrelevant to the individual, are of concern in measuring the benefits to society.

Externalities

There are benefits to education not captured in the studies of individual wages or employment. Such benefits could include, for example:

- ✧ the increased productivity of workers from working in a skilled team—the greater effect per person than if only one is trained
- ✧ the more we learn the easier it is to learn more, the development of new ideas makes it easier to develop more, and the effects usually extend beyond the individual
- ✧ the benefits to children from a better educated parent
- ✧ the benefits in physical and mental health, civic participation and so on
- ✧ broad literacy competence, which can facilitate society-wide innovation in fields such as the introduction of electronic financial transactions and the use of the internet.

Do wages reflect contribution to production?

If we take the earnings associated with education or literacy as a measure of contribution to society, we are assuming that the earnings are a good measure of the worker's marginal contribution to production. There is dispute about this assumption due to, for example, the extent to which customary practices or union pressure influence pay; and in the public sector and for some service employments where it is difficult to work out what the value of production is. However, we could claim that if pay was not appropriate, then individuals would leave to find better jobs in the private sector, so there is some alignment of public and private wages.

Screening device

It has been argued that education credentials are used by employers to select or screen the motivated and intelligent and that the content of the education may not be the important factor. Critics of this view ask why then have cheaper forms of signalling and selection not been developed in place of the years of study or qualification. Chiswick, Lee and Miller (2002, p.20) argue that if the strict screening theory were true, then all the benefits should be associated with the screen—the level of education. But they find there are considerable benefits in employment associated with literacy over and above that connected to education.

A related theory by Thurow (1983) is the 'job competition hypothesis', in which he argues that productivity may be more in the job than in the worker. For example, not even a Formula 1 driver such as Mark Webber could legally increase the hourly output of a taxi driver by much. The productivity in the job may be limited by the technology and, in this case, by the road laws (although job design, good management and workforce development may make reduce such limitations). However, in an architect's office or in a management position in industry it may be possible to undertake practices that substantially increase the output of the firm. Thurow's theory—in its extreme form—is that anyone can do most jobs. The crucial thing is to gain entry to

the job in which you can be productive.⁵ In this view then, qualifications are a socially acceptable way of rationing entry to the productive jobs, just as social class or the caste system did in earlier days. While some aspects of this theory have appeal, it is hard to see it refuting the general view that the market in general is rewarding the productive skills of the worker and that the rewards associated with education seem to be very largely due to it.

Summing up

For individuals the pay and jobs associated with education are indicators of the expected benefits. However, the benefits to the economy and society might be somewhat different from those associated directly with individuals. In some cases, for example, if the benefits are due to signalling or job competition, it might be that the effects for society are less than the benefits to individuals.

In other cases the benefits could be greater. This is particularly the case where there are a range of externalities not captured by the individual earnings. It is fairly easy to make a list of these, such as improved health, reduced crime, civil participation and social capital (Burke, Keating & Robinson 2004). Some measure of their quantitative importance can also be made (Wolfe & Haveman 1984).

Alternatively, macros studies of education and economic growth offer another way of trying to capture the broader economic benefits.

Growth models

Macro analyses for an economy or studies across economies attempt to estimate the aggregate effects of factors such as labour and physical capital and human capital on the level and growth rate of the GDP.

Models of economic growth developed in the 1950s were based on labour and physical capital inputs and assumed that increases in productivity were caused by technological change, external to the model.

A later development was to include a measure of human capital (usually measured by 'years of schooling') alongside physical capital. Another development was to consider whether some technological change could be endogenous to the model, driven by human capital and in particular by research and development that is dependent on high levels of education.

In reviewing estimates of the effects of education on economic growth Dowrick (2002) found that the growth models show the effects of education to be similar to those found in individual rate of return studies. This might be seen to imply that the externalities are small. Dowrick's assessment is that there are benefits due to the complementarity of the skills of better educated persons and, what he calls, dynamic feedback, the faster acquisition of new knowledge and research possible among the better educated.

Measures of human capital in the studies Dowrick reviewed were usually based on years of schooling. A stronger relationship was found when data from the adult literacy surveys were used as the measure. This could be because literacy is itself an important skill in the economy and/or because previous measures of human capital such as years of schooling are affected by differences in the quality of education across countries.

⁵ Thurow also argues that pay structures may not correspond to those that might be expected in a competitive market, even in the absence of unions and other 'imperfections'. Some pay structures may enhance worker cooperation. In particular, a structure that encourages older workers to train younger ones seems desirable. If the older worker is not secure in pay and status she/he may be reluctant to pass on her skills. This may be of little consequence in the checkout lines at Woolworths but may be important in more skilled occupations.

Coulombe and Tremblay (2006) used the test data from the International Adult Literacy Survey (OECD 2000) as their measure of human capital. In their modelling they use GDP per capita and GDP per worker as the dependent variables. The growth rate of these two GDP measures will differ if the population is growing at a different rate from that of employment. This distinction can be important for policy. Education and training may:

- ✧ make employed persons more productive, so we see an increase in productivity—in GDP per worker.
- ✧ increase the proportion of persons who are employable. If the proportion of the population employed is increased, then GDP per capita will grow—but not necessarily GDP per worker.

Coulombe and Tremblay (2006) find strong positive effects on both GDP per capita and productivity, the latter being the larger. They conclude that effects of human capital are not confined to employment effects—to reducing unemployment and lifting labour force participation rates.

Coulombe and Tremblay (2006, p.17) conclude that a country that achieves literacy scores 1% higher than the average ends up in a steady state, with labour productivity and GDP per capita respectively higher than other countries by approximately 2% and 1.4% on average. They also found:

- ✧ The growth effects of human capital accumulation are similar in size to those found in micro rate of return studies.
- ✧ The effects of female literacy are greater than male literacy.
- ✧ The average level of literacy is more important than the proportion attaining high levels of literacy.

Coulombe, Tremblay and Marchand (2004) claim that the long-run effects of investment in literacy are around three times more important than investment in physical capital. But they then qualify the finding by saying it is not independent of the scale used to report literacy scores. And they add:

Furthermore this does not mean that the economic returns to investing in literacy are much higher than for physical capital ... because the cost of increasing the average literacy score by one per cent at national level may be much higher than the cost of increasing physical capital by the same amount. (Coulombe, Tremblay & Marchand 2004, p.31)

Some further comment is needed on the implications of the employment effects. Employment effects have an importance beyond their direct effect on GDP. A lift in the labour force participation rate is likely to mean employment of persons otherwise marginalised in the community:

Employment participation is central to social inclusion, the development of capability and removing income inequalities. Access to secure and rewarding employment contributes to the building of confidence and self-esteem. (Keating 2008)

This is a major goal for the Australian community, additional and complementary to our goals for the GDP.

Limitations of the growth models

The growth studies are elegant and interesting and their findings reassuring of the importance of literacy, education and training. They are, however, highly aggregated, with a single variable often used to represent each of total capital, total labour and total human capital in a country.

The growth studies involve specifying a model that puts some constraints on the relationship between the variables and GDP. The studies detail the assumptions and the difficulties in estimation and innovative ways of dealing with them. For example, Coulombe and Tremblay (2006) assume that the literacy level of adults ‘remains constant throughout individuals’ lives’ at the level that they entered the workforce.

Many studies use the average years of education in different countries as a measure of human capital, with some making considerable efforts to improve comparability. Where the data are more comparable, such as the test data on adult literacy, the information is only available for a small number of countries.

The measures used in the modelling only roughly represent the level of human capital development in a country and are usually for average years of schooling or average literacy. They do not cover non-formal or informal learning. Literacy test data measure important general skills but we have to hope that they represent the other skills and knowledge.

The findings are consequently very broad, such as:

The estimated long-term effect on economic output of one additional year of education in the OECD area generally falls between 3 and 6%. Analyses of human capital across 14 OECD economies—based on literacy scores—also suggest significant positive effects on growth within countries. (OECD 2005, p.144)

The analyses of growth focus on the aggregate GDP. The shortcomings of average GDP per head as a measure of welfare have been noted (Van den Bergh 2007). For example, GDP in valuing production at its market price does not currently capture the effects of pollution and climate change. As mentioned, issues of employment, social inclusion and equality are of particular policy concern and are not picked up in measures of average GDP per head.

Because of the level of aggregation, the growth studies can provide very limited information about the education of different groups or of levels and fields of education and training. There is also the issue of the effects of other factors on productivity. For example, Garnaut (2010) points to reforms to competition and industrial relations in the 1980s and 1990s as underpinning the surge in Australia's productivity. For more recent years of lower productivity, he notes the lack of productivity-raising reforms and inadequate infrastructure and transport development.

Implications

The availability of data on a large sample of individuals across countries for a range of measures of literacy and numeracy is important in identifying the relationships of literacy to a range of personal characteristics and outcomes.

The various studies of literacy, education levels, jobs and income provide broad background information that is useful in policy formation. Analyses of employment and income assist in estimating returns from qualifications and give a very broad indication of areas for expansion. Private rate of return estimates have played a role in the consideration of fees and loans, for example, in the introduction of HECS in 1989 and the debate about its extension to the vocational sector.

The importance of literacy and numeracy, as well as qualifications, to holding a job has received very strong support from the literacy data. It is indicated in the cross-tabulations and supported in the various analyses, for example, Chiswick, Lee and Miller (2002), Curtis (2010) and Earle (2010). Enabling less advantaged people to access employment remains a key objective of government policy, not only for its impact on the GDP and on social expenditures, but also for its importance for social inclusion and social capital.

The international studies of education and economic growth are important in that they endorse the contribution of literacy and qualifications to production and refute the theories that education and training provides rewards by reshuffling the queue for jobs. They provide estimates that show that education and particularly literacy are associated with higher levels of GDP per worker and per capita. However, the studies of growth are so aggregated that it is not easy to see specific policy

implications arising from them. They largely deal in averages across the whole of the labour population and do not offer much, if any, insight into issues of distribution of jobs or income. They do not deal with a wide range of factors, such as management, job design and skill matching, which are important in the use of skills and job satisfaction, and important for productivity.

Australian policy has long accepted the need to lift the levels of literacy and numeracy and the proportion of the population with qualifications. The literacy survey data are useful in identifying the backgrounds and experiences of groups of adults in need of particular support. They draw attention to the low levels of literacy, even among some who have qualifications. But devising a strategy for literacy and numeracy and for lifting qualification levels will need to draw on a range of other information and research.

References

- ABS (Australian Bureau of Statistics) 2008, *Adult literacy and life skills*, cat.no.4228, ABS, Canberra.
- 2009, *Education and work*, cat.no.6227, ABS, Canberra.
- 2010, *Education and training experience 2009*, cat.no.6278, ABS, Canberra.
- Burke, G, Keating, J & Robinson, L 2004, *Broader educational outcomes*, report to MCEETYA, University of Melbourne and Monash University.
- Chiswick, B, Lee, Y & Miller, P 2002, *Schooling, literacy, numeracy and labor market success*, IZA discussion paper no.450, Institute for the Study of Labor, Bonn.
- Coulombe, S & Tremblay, J 2006, 'Literacy and growth', *Topics in Macroeconomics*, vol.6, no.2, article 4.
- Coulombe, S, Tremblay, J & Marchand, S 2004, *Literacy scores, human capital and growth across fourteen OECD countries*, *International Adult Literacy Survey*, Statistics Canada, Ottawa.
- Curtis, DD forthcoming, *Adult literacy achievement, Correlates and consequences*, NCVER, Adelaide.
- Dowrick, S 2002, 'Ideas and education, level or growth effects and their implications for Australia's growth and productivity in East Asia', *NBER—East Asia Seminar on Economics*, vol.13, I Takatoshi and A Rose (eds), University of Chicago Press.
- Earle, D 2010, 'Labour market outcomes of skills and qualifications', Tertiary education occasional paper 2010/5, New Zealand Ministry of Education, Wellington.
- Garnaut, R 2010, 'Climate change, China booms and Australia's governance struggle in a changing world', 2010 Hamer Oration, University of Melbourne.
- Keating, N 2008, *Review of skills and workforce development in South Australia*, Economic Development Board, Adelaide.
- Long, M & Shah, C 2008, *Private returns to vocational education and training qualifications*, NCVER, Adelaide.
- Mavromaras, K, McGuinness, S & Fok, YK 2010, *The incidence and wage effects of overskilling among employed VET graduates*, NCVER, Adelaide.
- OECD (Organisation for Economic Co-operation and Development) 2000, *Literacy in the information age, final report of the International Adult Literacy Survey*, OECD and Statistics Canada, Paris.
- 2005, *Education at a glance 2005*, Paris.
- Psacharopoulos, G & Patrinos, H 2002, *Returns to investment in education: a further update*, Policy research working paper 2881, World Bank, New York.
- Thurow, L 1983, *Dangerous currents: the state of economics*, Oxford University Press, London.
- Van den Bergh, J 2007, *Abolishing GDP*, Tinbergen Institute, Amsterdam.
- Wolfe, B & Haveman, R 1984, *Accounting for the social and non market benefits of education*, OECD, viewed 23 January 2011, <<http://www.oecd.org/dataoecd/5/19/1825109.pdf>>.

Chapter 4

Links between literacy and numeracy skills and labour market outcomes

Author: Anthony Shomos, Productivity Commission

This is a summary of findings from a forthcoming staff working paper. The paper is based on an earlier paper presented at the Conference of Economists in 2009, see <https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=ACE09&paper_id=103>.

Background

This paper makes use of the 2006 ABS Adult Literacy and Life Skills (ALLS) survey.¹ The ALLS provides information on ‘functional’ literacy and numeracy skills, where functional refers to the skills people require to participate in daily activities and to work in a knowledge-based society.

In the staff working paper, the effect of improving literacy and numeracy skills on two economic parameters—labour force participation and wages—was explored using a measure of overall functional literacy and numeracy skills (essentially, a weighted average of the test scores for document literacy, prose literacy and numeracy).

Results

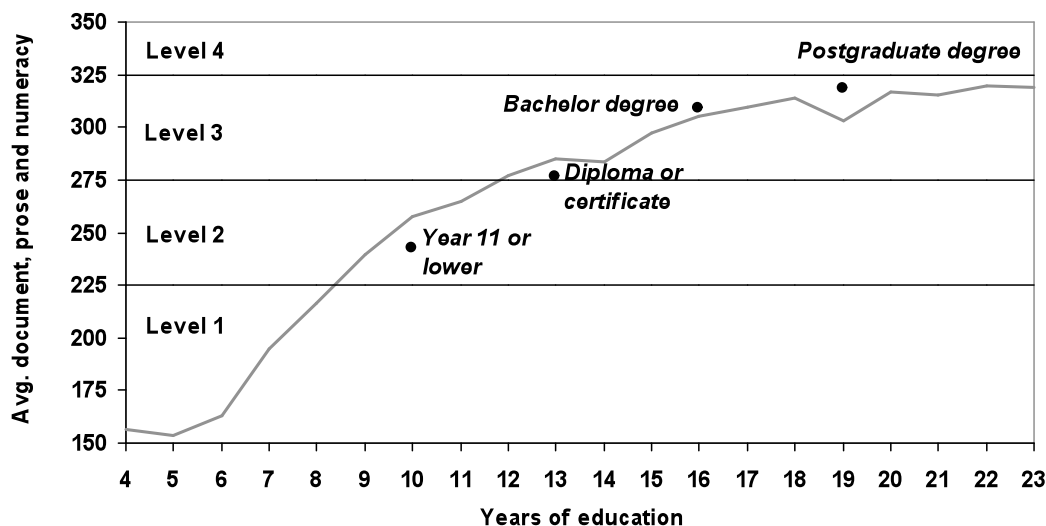
The links between literacy and numeracy skills and various demographic factors were first considered.

- ✧ *Education*: there was a strong correlation between education and functional skills. However, there was also evidence of diminishing returns from functional literacy and numeracy skills, the more years of education previously undertaken (figure 7). This is consistent with a theory that basic education helps to improve functional literacy and numeracy skills—which are used in many day-to-day contexts—whereas a person who undertakes higher education (bachelor degree or higher, for example) mainly develops skills that are job-specific.
- ✧ *Age*: skills increased as people reach the 20–25 years age bracket (perhaps because most people are still undertaking education at these ages). Skills were highest, and broadly similar, for age groups between 20 and 45 years. Literacy and numeracy skills of the population tapered off for people aged more than 45 years, and were lowest for people aged 70–74 years. This could reflect that older people had less education compared with younger persons, or that people experience deterioration in skills at those ages. Reasons for skill deterioration could include withdrawal from the labour force. People may need to actively engage in activities that use their literacy and numeracy skills (either at work or in daily activities).

¹ Further information on the ALLS is provided in chapter 3.

- ✧ *Language*: people born in an English-speaking country had the highest skills. This result is intuitive, as the test was conducted in English. Immigrants who were born in English-speaking countries had (slightly) higher literacy and numeracy skills than Australian-born people.

Figure 7 Literacy and numeracy score,^a by years of formal education and highest qualification, 2006



Note: a The literacy and numeracy test score is an average of document, prose, numeracy and problem-solving skill indexes. Four years of education includes people who acquired less than four years of education; 23 years of education indicates people who have taken 23, or more, years of education.

Source: Productivity Commission estimates based on the ALLS (2006).

The effect of increasing literacy and numeracy skills on labour force participation and on wages was estimated. Theoretically, people who have higher ‘human capital’ (of which literacy and numeracy skills is one component) are likely to perform better in the labour market than people with lower human capital. This means that, all else equal, they are likely to earn more, and therefore be more likely to participate in the labour force. There is an abundance of empirical evidence to support this theory in Australia and overseas.

Most research uses only education to proxy human capital. Because the ALLS survey contains information on literacy and numeracy skills (as well as education), a more detailed breakdown of how human capital affects labour market outcomes (participation and wages) can be obtained.

Empirical results from models which control for demographic factors (including immigrant background, education, and age) showed that improving skills had a positive effect on wages and participation. Models were estimated separately for men and women (for 25 to 64-year-olds). Some of the key results were:

- ✧ In relation to labour force participation, increasing literacy and numeracy skills had a larger positive effect on female participation (about 15 percentage points from increasing skills from level 1 to 3) than male participation.
- ✧ In relation to hourly wages, increasing literacy and numeracy skills had a larger impact on male wages (an increase of about 30%, from increasing skills from level 1 to 3) than female wages.
- ✧ The effect of education on both participation and wages was reduced once skills were controlled for, suggesting that education has a direct effect on labour market outcomes, and an indirect effect (via its effect on skills). Up to a quarter of the effect of education on participation/wages might be due to the indirect effect it has on improving functional skills.

Implications and future research

Governments are interested in increasing literacy and numeracy skills. Some governments have set targets and monitor the proportion of people who attain the minimum skill level required to participate in the workforce. Estimates from this paper can help quantify the effect of improving literacy and numeracy skills on wages and participation.

However, the analysis did not explicitly consider how such targets might be achieved; that is, how literacy and numeracy skills can be improved. This question can be further explored with data from the ALLS survey, or from information elsewhere.

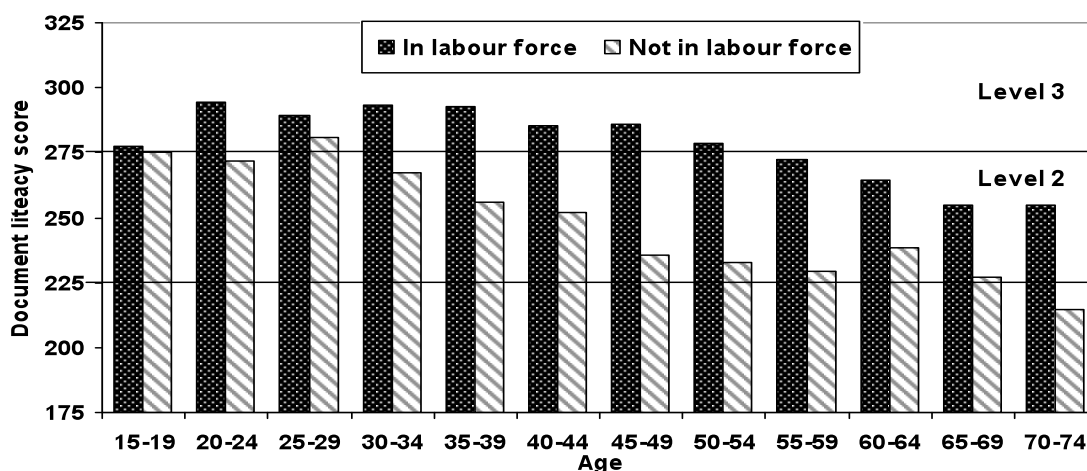
The descriptive analysis in the paper provides some insights. For students, there is some evidence that education improves functional skills. People with higher levels of education and those aged 20–25 (the age at which education is usually completed) had the highest literacy and numeracy skills.

Descriptive results also showed that a large proportion of older people had lower skills (compared with younger persons). Post-school courses (for example, VET) could assist in improving older people's skills. Alternatively, workers' skills might depreciate as they leave the labour force: the analysis showed that persons nearing retirement age (and people not working) had much lower functional skills compared with people who are working (including those nearing retirement age) (figure 8).

The ALLS data might be used to identify whether it is the use of skills at work, use of skills in daily activities, or undertaking further education which is relatively more important for maintaining the skills of older people.

The effect of education (and other important variables) on literacy and numeracy skills could be estimated with the ALLS data to determine the relative importance of each. However, there might be difficulties because the relationship is not one-way. For example, it is likely that people with higher ability (and therefore, possessing higher functional skills) choose to undertake more education. In that case, the effects of education on skills would be overestimated.

Figure 8 Document literacy score, by labour force status and age



Source: Productivity Commission estimates based on the ALLS (2006).

Chapter 5

Literacy and numeracy in the workplace

Author: Michael Taylor, Australian Industry Group

Background

The findings from the ABS Adult Literacy and Life Skills Survey (ALLS) are disturbing (2006). Despite some slight improvement compared with a similar survey ten years earlier, there are significant numbers of Australians with less than the minimum skill level required for meeting the complex demands of everyday work in the emerging knowledge-based economy (level 3 of the five levels reported, ABS 2006).¹ These data relate to the adult population but also contain clear messages about the language, literacy and numeracy situation in the Australian workforce.

Australian Industry Group Research

The Australian Industry Group's *World class skills for world class industries* report highlighted the centrality of skills and building the skills base as a key strategy to remaining globally competitive and that an inability to secure skilled staff was the greatest barrier to company success (2006, pp.18, 53). Beyond this, the report identified the main implications for future skilling as higher level skills, the need for a broader range of skills and the need for skills to be updated more often.

The final report of the Australian Industry Group's Skilling the Existing Workforce Project (2008) drew attention to this as a major issue within a number of the trial sites and case studies associated with this project. The report noted that employees from non-English speaking backgrounds and those with language, literacy and numeracy deficits were less likely to participate in all forms of skills training (2008, p.51).

The Skilling the Existing Workforce Project report advocated the adoption of the notion of workforce skills development as the appropriate method for skilling the existing workforce—an approach that is broader than the national VET system. It became clear in the course of this project that language, literacy and numeracy skills are key components of this approach.

The impact of low levels of literacy and numeracy is significant in the workplace, with the following effects:

- ✧ *Productivity* is reduced when errors are made, materials wasted and time is wasted.
- ✧ *Safety* is endangered when safety regulations are not understood.
- ✧ *Team effectiveness* is diminished by poor communication and low levels of literacy.

¹ Further information on the ALLS is provided in chapter C.

- ✧ *Increasingly complex work* as a result of increased regulation and documentation, increased competition and workplace change requires an increasingly literate workforce.
- ✧ *Training value*: benefits are reduced if participants lack literacy and numeracy skills.
- ✧ *Skills shortages*: internal promotion and recruitment is difficult if applicants lack the necessary literacy and numeracy skills.
- ✧ *Ageing workforce* is more likely to have literacy and numeracy issues which affect their re-skilling.

Other research

The Australian Council for Adult Literacy (ACAL) claims that ‘since the late 1980s a number of literacy surveys have alerted Australia to the fact that it has quite substantial problems with the literacy levels of its adult population’ (2008).

Hartley and Horne (2006) have also noted that ‘assessing the social and economic costs of poor adult literacy and numeracy is largely uncharted territory in Australia. The benefits of investing in adult literacy and numeracy skills have been under-researched’ (p.51).

The recent environmental scan conducted by Manufacturing Skills Australia has also noted:

Literacy and numeracy remains an increasing challenge, especially at the low AQF [Australian Qualification Framework] levels, and one that adds to the training needs for manufacturing enterprises. This is exacerbated by the high level of migrant workers in these industries.

(Manufacturing Industries 2009, p.29)

A major study conducted through the National Adult Literacy Project highlighted the impact that English as a second language (ESL) and literacy training can have in the workplace (Department of Education, Training and Youth Affairs 1996).

Other research findings indicate that language, literacy and numeracy skills enable the teaching and learning process in the workplace and that higher-order skills are important in a climate of lifelong learning (Trenerry 2002).

Tout (undated) indicates that there is significant evidence that the core skills of language, literacy and numeracy are low in many of the target groups for training and upskilling, especially in trade areas and apprenticeships. The proportion of individuals with level 1 skills exerts a strong negative effect on growth in GDP per capita; it is therefore possible to realise large economic gains by investing in this group.

No national strategy (pre-2010 Commonwealth Budget)

The Australian Language and Literacy Council was abolished in 1996 and since then there has been no replacement policy or strategy to address the national survey results (Innovation and Business Skills Australia 2008, p.6). While language, literacy and numeracy programs exist, especially the Workplace English Language and Literacy (WELL) program, they are implemented in the absence of any coordinated national objective or shared vision (Roberts 2008, p.6). The WELL program was evaluated in 2006 and found to be an overwhelming success, with more than 90% of participating employers, but the budget has only marginally increased (Innovation and Business Skills Australia 2008, p.6). The evaluation report also highlighted an inability to identify the extent of the need for language, literacy and numeracy training within small-to-medium enterprises and some industry sectors (Department of Education, Science and Training 2006, p.7). It was also reported that there are minimal measures in place to assess the effectiveness of the program (Department of Education, Science and Training 2006, p.13). More information is required about the reasons why enterprises are not engaging in WELL. In terms of adult literacy, ACAL has estimated that current provision supports only a small percentage of those needing assistance (2008, p.5).

The WELL program, together with the Language, Literacy and Numeracy Program (LLNP) for the unemployed, hardly constitute a national strategy.

National Workforce Literacy Project

The Australian Industry Group is undertaking the National Workforce Literacy Project to identify the influences of low literacy on enterprises, to test methods for improving workplace literacy performance and to evaluate the return on the investment in literacy and numeracy development. The project methodology includes consultations with employers, trials of literacy and numeracy interventions in enterprises, and evaluations of the effectiveness of the interventions.

Employer consultations

In the first phase of the project, employer consultations were conducted through focus groups and roundtables. The problem of low literacy and numeracy is reported to be pervasive and includes recent school leavers, mature-aged workers, those from non-English speaking backgrounds, and casual and contract workers.

Literacy and numeracy trials

For the next phase of the project, enterprises have been selected across three states to participate in literacy and numeracy trials. These will involve:

- ✧ Employers will nominate the particular literacy or numeracy problem that most affects their workplaces.
- ✧ A language, literacy and numeracy expert practitioner working with employers will agree on strategies to be used to assist literacy and numeracy development. Training will be additional rather than embedded.
- ✧ The nature and timing of the implementation of the strategies is subject to negotiation but it will include at least five identified employees with 80–120 hours of specific literacy or numeracy training delivered in the workplace over a six-month period. This will be organised differently within each enterprise according to their needs. The most common approach is small group workshops and 1:1 mentoring.
- ✧ Language, literacy and numeracy training will be integrated with the delivery of other formal or informal training to maximise effectiveness.
- ✧ Language, literacy and numeracy training will be assessed in addition to assessment for other integrated training.

Evaluation

Evaluations of the language, literacy and numeracy trials will include surveys of trainers, employers and participants and assessments of participants' skills using the Australian Core Skills Framework (ACSF). Trainers will use the ACSF at the beginning of trials to identify the specific literacy and numeracy skill needs of participants in order to develop a suitable training program. The ACSF will be used at the end of the trials to measure literacy and numeracy skills development.

It is anticipated that the final report will make recommendations to the government which may include new models or approaches for inclusion in the national strategy.

Return on investment

An important aspect of this project is to establish the link between workplace literacy and numeracy and productivity. Discussions between employers and the trainers have included consideration of

what the return on investment will be from the project. A range of measures have been identified across the trial sites. These include:

- ✧ better uptake of training
- ✧ fewer mistakes in calculation
- ✧ fewer industrial relations disputes
- ✧ standards documented for continuous improvement
- ✧ accurate recording of minutes, reports and solutions to problems
- ✧ improved implementation of new ideas
- ✧ reduced need for supervisor intervention
- ✧ better understanding of workplace literacy as an issue
- ✧ increased use of email rather than phone for records
- ✧ decreased downtime
- ✧ increased confidence, self-esteem and job satisfaction
- ✧ more portable skills, job mobility, job security and promotion opportunity.

Workplace literacy and numeracy development strategies

Employer consultations reveal that low literacy and numeracy skills lead to a variety of problems in the workplace, and each problem may require a unique intervention strategy which is expected to lead to particular efficiencies. These issues, solutions and outcomes are summarised in the table below.

Literacy/numeracy Issue	Return on investment	Category
Communication breakdown with customers and colleagues	Reduced supervisor intervention in interpreting communications Reduced workload for colleagues and supervisors by less customer phone enquiries	Productivity Customer satisfaction
Numeracy issues, such as:	Improved quality of product	Quality
✧ incorrect calculations of amounts/volumes/yields	Reduced supervisor time checking calculations	Productivity
✧ problems interpreting mathematical language and symbols	Reduced workload not taking on extra duties	Compliance
✧ problems with stocktake calculations		
Limited reading/writing skills	Reduced need for other colleagues to assist in writing 'toolbox' meeting reports Greater opportunities to grow in job role Increased promotional opportunities Reduced supervisor time for instructions	Productivity Compliance Expanding job roles

Results

The first phase of the project, employer consultations, is complete. This phase found:

- ✧ More than 75% of employers reported their business was affected by low levels of literacy and numeracy.
- ✧ Labourers and process workers were the occupational group most affected by low levels of literacy and numeracy—45%.

- ✧ A wide range of impacts resulting from a lack of literacy and numeracy skills were reported. The most frequently cited were poor completion of workplace documents and time-wasting through repeated work.
- ✧ A role for government, employers, education authorities and individuals in improving workforce literacy and numeracy skills was identified—38% think employers have a role.
- ✧ Only 8% of respondents reported that they had adequate capacity to assist the improvement of literacy and numeracy skills—the problem is most acute for small business, of which 28% report that they have no capacity for this task.
- ✧ Internal company training was the most common measure used by respondents to try to improve literacy and numeracy skills—tried by 29% of respondents.
- ✧ There was no clear preference for one particular measure to address the issue but workplace-based approaches were generally more favoured.

References

- ABS (Australian Bureau of Statistics) 2006, *Adult Literacy and Life Skills Survey, summary results*, Australia, cat.no.4228.0, ABS, Canberra
- Australian Council for Adult Literacy, 2008, *Moving forward: towards a literate Australia*, ACAL, Canberra.
- Australian Industry Group, 2006, *World class skills for world class industries*, AiG, Canberra.
- 2008, *Skilling the existing workforce: final project report*, AiG, Canberra.
- Department of Education, Science and Training 2006, *WELL evaluation: study of WELL projects, final report*, DEST, Canberra.
- Department of Education, Training and Youth Affairs 1996, *More than money can say, the impact of ESL and literacy training in the Australian workforce*, vols 1 and 2, DETYA, Canberra.
- Hartley, R & Horne, J 2006, *Social and economic benefits of improved adult literacy: towards a better understanding*, NCVET, Adelaide.
- Innovation and Business Skills Australia 2008, *Submission to the Review of the National Innovation System*, IBSA, Sydney.
- Manufacturing Skills Australia 2009, *Environmental scan*, MSA, Sydney.
- Roberts, A 2008, 'An age-old problem', *Campus Review*, 3 June, p.11.
- Tout, D undated, *What can the Adult Literacy and Life Skills survey tell us?*, Australian Council for Education Research, Melbourne.
- Trener, R, 2002, *Talking about training: literacy and numeracy training practices in industry—a comparative study across five industries*, Adult Literacy and Numeracy Australian Research Consortium, Melbourne.

Chapter 6

Integrated literacy and numeracy support in VET— implications for skills, equity and research

Authors: Steve Black and Keiko Yasukawa, University of Technology, Sydney

Introduction

This paper introduces a research project funded by the Department of Education, Employment and Workplace Relations currently being undertaken, *Working together: integrated literacy and numeracy in VET*. The project is due for completion by the middle of 2011. At this early stage in the project we have collected limited data, which remain largely unanalysed. However, we are in a position to outline the relevant literature, provide some early observations from the data collected, and indicate the significance of the project in light of current national VET and related agendas. We can also identify some of the key issues and areas in need of further research.

The rise of ‘foundation skills’

We have entered a new national political and socioeconomic era in the role of federal government-funded adult literacy and numeracy programs and initiatives. The process of elevating the role of adult literacy and numeracy skills as a government priority effectively began with some federal funding resulting from the 1987 National Policy on Languages (Lo Bianco 1987, 1990) and the 1990 International Literacy Year (1992). This was followed in 1991 with the comprehensive Australian Language and Literacy Policy (the ALLP, see Department of Employment, Education and Training 1991), which significantly increased federal funding, and importantly, introduced and promoted major workplace and job-seeker programs that, with some revision, remain the major component of current federal government funding for adult literacy and numeracy. It should be pointed out, however, that by far the majority of adult literacy and numeracy programs in the country have long been funded as part of the education department budgets of state and territory governments, which include many of the programs (excluding workplace programs) which are the focus of our research—those delivering integrated literacy and numeracy support to vocational students.

Two decades on from the ALLP, adult literacy and numeracy skills, now described largely as ‘foundation skills’, are again high on the federal government’s agenda. The current rise of foundation skills represents the confluence of several national political and socioeconomic agendas which are based in large part on the human capital rationale, whereby improved literacy and numeracy skills will lead in turn to improved productivity and greater national prosperity (for example, COAG Reform Council 2009; Gillard 2009; Productivity Commission forthcoming; Skills Australia 2010). One recent national report describes foundation skills as the ‘building blocks of human capital’ (National Quality Council 2009, pp.3–4). Private industry is playing a key promotional role and, with federal government funding, has re-discovered the significance of literacy and numeracy skills at the enterprise level (Australian Industry Group 2010). At national VET levels, these skills have a renewed focus in the ‘products’—the qualifications and standards

which all registered training organisations delivering VET are obliged to embrace, with recommendations that literacy and numeracy be made more explicit (National Quality Council 2009, p.17).

Significantly, in addition to the human capital rationale, adult literacy and numeracy skills are perceived to have a central role in ensuring equity in VET (National VET Equity Advisory Council 2010), and are seen to comprise a key element of social inclusion in society generally (Stephens 2008). It should be of no surprise therefore, that in this current climate of ‘skills’ and ‘equity’ agendas, there are demands for a new national strategy or policy, the first since 1991, to provide direction for the field of adult literacy and numeracy.

Integrated literacy and numeracy support in VET— the context

In this paper, and in our research project described later, we refer to integrated literacy and numeracy support, although the terminology varies slightly in different reports. Some reports refer to language, literacy and numeracy (LLN), others simply to literacy or literacy and numeracy. We acknowledge the interrelationships between these terms, but unless the reports cited in this paper specify otherwise, we will use the term ‘literacy and numeracy’.

Of the various types of adult literacy and numeracy provision in VET, integrated literacy and numeracy support is particularly significant in the current climate, due to its direct linkage to both skills development and equity concerns. We need to be clear, however, that our main focus is on the ‘delivery’ of integrated literacy and numeracy support in VET. Since the late 1990s in Australia, literacy and numeracy skills/competencies have been integrated in industry training packages, a process referred to as ‘built in not bolted on’ (Wignall 1998; ANTA 2003). While significant in highlighting the role of literacy and numeracy skills in VET, and potentially facilitating the delivery of integrated literacy and numeracy programs, its integration in training packages is not the focus of this paper or our research. Conceptually, delivering literacy and numeracy in VET in an integrated way involves concurrently developing literacy and numeracy and vocational skills and competencies ‘... as interrelated elements of the one process’ (Courtenay & Mawer 1995, p.2). In other words, literacy and numeracy are not taught as separate or discrete skills, but are contextualised or ‘situated’ within the process of learning vocational skills. Some researchers describe the need for this learning to be in ‘authentic and real-life settings’ (McKenna & Fitzpatrick 2005, p.7), and further, that students acquire literacy and numeracy skills best when taught in ‘authentic’ settings (Wickert & McGuirk 2005, p.7).

In Australian VET, integrated literacy and numeracy support has traditionally been associated with adult literacy and numeracy teachers assisting vocational students to complete their studies successfully. In fact, historically in major public VET organisations, the story of adult literacy and numeracy began with ‘tutorial support’ for trades students (Johnston 2002, p.25; Wickert et al. 2007, p.251). Some examples of this type of provision, including team teaching between trades teachers and literacy and numeracy teachers, are to be found in the series *Good practice in Australian adult literacy and basic education* of over 20 years ago (for example, Kelly 1989; Randazzo 1989; Glossop 1990). The title of our current research project is drawn from a professional development package of this era in the early 1990s called *Working together* (TAFE NSW 1990), which focused on these partnerships between adult literacy and numeracy teachers and vocational teachers. However, despite these pedagogical practices spanning more than two decades, they have not been researched beyond some state VET system internal reports (for example, Access & General Education Curriculum Centre 2005; Black 1996; Foley 2002; Moy 1994), professional development publications (for example, Allan & Salter 1996; Marr & Morgan 2005), occasional conference presentations (for example, Bates & Wiltshire 2001) and innovative projects (Widin, Yasukawa & Chodkiewicz 2007).

The most developed form of the delivery of integrated literacy and numeracy support in Australia is associated with the federal government's Workplace English Language and Literacy (WELL) program, which began 20 years ago. Integrated language, literacy and numeracy has long been mandatory for this program, and this form of provision, at least by the early 2000s, saw Australia as a world leader (ANTA 2003, p.3). Since the early 1990s, there has been significant research and documentation of WELL programs (for example, Sefton, Waterhouse & Deakin 1994). McKenna and Fitzpatrick (2005) provide an in-depth case study of the pedagogical issues involved in integrated literacy in the community services sector, and WELL programs generally have been extensively documented and evaluated (Woods et al. 2006). It is not clear, however, whether other federal government-funded workplace programs, such as the Productivity Places Program, enjoy a similar level of literacy and numeracy support (ISC WELL Network 2009).

In recent years, an additional focus for integrated literacy and numeracy support has been promotion of cross-sector partnerships and various 'joined up' or 'whole-of-government' approaches, often undertaken with a community capacity-building rationale (Wickert & McGuirk 2005). Some recent examples include literacy and numeracy teachers working with and supporting local volunteer agencies (Black & Lucchinelli 2006), the health sector (Balatti, Black & Falk 2009; Black, Innes & Chopra 2008) and more broadly, whole communities (Shore 2009).

Lessons from overseas research

Of particular significance for our research project are studies undertaken by the National Research and Development Centre (see Roberts et al. 2005; Casey et al. 2006) in the UK as part of the government's Skills for Life initiative. In the UK, the term 'embedded' tends to be used instead of integrated, and while it is accepted there are overlaps, a distinction is drawn between 'discrete' literacy, language and numeracy provision, which takes the form of generic support, and 'embedded' teaching and learning which:

combines the development of literacy, language and numeracy with vocational and other skills. The skills acquired provide learners with the confidence, competence and motivation necessary for them to succeed in qualifications, in life, and at work. (Roberts et al. 2005, p.5)

This UK definition, which indicates broad-ranging program outcomes that go beyond helping students to pass vocational courses, provides a framework for understanding integrated literacy and numeracy support for our research.

These UK studies, using ethnographic case studies, have provided insights into the operation and effects of integrated (embedded) literacy and numeracy support on VET courses (Roberts et al. 2005). They demonstrate how, in the process of VET students acquiring new professional identities through both practical work and theory, they increase their receptiveness to learning literacy and numeracy skills. VET learners are socialised through an apprenticeship model (Lave & Wenger 1991) into becoming a competent member of a new community of practice. In some vocational areas, the attitudes and motivations of VET learners to learning literacy and numeracy skills, which now comprise part of their new professional identities, may be more positive than in their previous school student identity roles (see Shiohata & Pryor 2008). Roberts et al. (2005, p.8) make the point, based on their case studies, that mapping literacy and numeracy skills onto the vocational curriculum provides only a starting point, and that studying the curriculum 'on paper' is not enough. They indicate that literacy and numeracy teachers need to work with vocational teachers in the practical work so that students can learn the 'situated' literacy and numeracy skills of their chosen job. Students also need to acquire 'academic' literacy and numeracy skills in order to succeed in the theory and written exam-related aspects of their courses. A fully integrated approach therefore would suggest that literacy and numeracy teaching and learning are integrated into both the academic study of the vocational content as well as the practice-based study of the vocational course.

The case studies also emphasise the impact of the affective dimensions of the embedded pedagogy; that is, the nature and dynamics of trust building between the literacy and numeracy and vocational teachers, and between the teachers and learners that are linked to the learners' motivation and confidence building, and how these are crucial factors in the engagement and success of the learners (Roberts et al. 2005). Examining these pedagogical dimensions of embedded literacy and numeracy learning and teaching in VET is likely to be important if access and equity in VET are regarded as outcomes of implementing embedded literacy and numeracy.

'Situated' learning is usually associated with what is termed a 'social practices' understanding of literacy and numeracy, which acknowledges the primacy of social context, and the personal meanings and values that people accord to different forms of literacy and numeracy practices (for example, Barton, Hamilton & Ivanic 2000). VET learning, on the other hand, is often associated with skills-based transmission approaches, and in the literacy and numeracy studies literature, these two approaches are seen to be in opposition to one another (Green & Howard 2007). The evidence of the UK research on embedded literacy and numeracy in VET, strongly supported in other national approaches to VET, such as in Ireland (Hegarty & Feeley 2009) and New Zealand (Workbase 2005), would suggest that a social-practices approach to integrated literacy and numeracy support is an important additional approach to incorporate in VET research, policy and provision. Such an approach has the potential not only to help VET learners succeed in the academic requirements of the qualification they are pursuing, but to contribute to their development as a member of their trade or vocational community and to their personal development as an adult in the wider community. These three kinds of benefits of embedded literacy and numeracy learning align with the 'benefits of learning' that are described in the work of Schuller et al. (2004) as the human capital, social capital and identity capital outcomes of learning.

A research study of integrated literacy and numeracy support in VET

Beyond some workplace programs, there is little Australian research on how or to what extent integrated literacy and numeracy support within VET is delivered nationally, and, unlike the UK, there is little in the way of good practice models, case studies or guidelines for VET policy-makers, managers and practitioners. Our research aims to begin to address these issues.

There are four phases to our research into the delivery of integrated literacy and numeracy support in VET: Phase 1 is an environmental scan using existing provider databases in order to document the extent and type of integrated literacy and numeracy support in the states and territories. Phase 2 comprises semi-structured interviews with mainly literacy and numeracy teachers and vocational teachers to highlight and explore the key pedagogical issues and challenges of providing literacy and numeracy support in VET. Phase 3 comprises three case studies, using a modified action research approach in order to document the process of delivering integrated literacy and numeracy support from the perspectives of both teachers and students. Three quite different case studies have been selected, including a remote site with Indigenous participants. Through these case studies we hope to show how students respond to, and possibly change as a result of, the provision of integrated literacy and numeracy support. From the interviews and case studies we aim to show how varying contexts (such as different vocational areas, geographical locations and student demographics) influence the type of integrated literacy and numeracy provision. In phase 4 we will provide recommendations for VET policy and systems, pedagogy and professional development.

At this early stage in the research we have collected some survey data from every state and territory but we have focused our attention mainly on two states: New South Wales and Western Australia. As the literature review indicates, New South Wales has a relatively long history of providing integrated literacy and numeracy support, currently known statewide as Learner Support. In Western Australia, a course known as CAVSS (Course in Applied Vocational Study Skills) was

introduced in 2000 and provides literacy and numeracy support for team teaching between literacy and numeracy teachers and vocational teachers.

Although Australia has a well-developed national VET system in relation to industry standards and accreditation, and while literacy and numeracy competences are 'built in' to training packages, the most obvious point to be made about the delivery of integrated literacy and numeracy support in VET (excluding federally funded WELL programs) is the absence of a national approach. Each state and territory varies in the literacy and numeracy support it offers, and even within states there is wide variation. And this variation is not just between types of providers, such as public VET and private registered training organisations. In some public VET colleges, for example, there is integrated literacy and numeracy support in almost every vocational area, with some vocational teachers insisting they must have literacy and numeracy teacher support, and yet in other colleges, even in the same institute, provision is limited and patchy. As an initial observation at this stage, it appears integrated literacy and numeracy support is provided either when vocational teachers realise that their students lack literacy and numeracy skills, with likely poor course completion rates, or when literacy and numeracy teachers actively decide as a local section policy to intervene to provide literacy and numeracy support. The type of literacy and numeracy support varies also, with some providers focusing on team teaching (especially in the CAVSS course), while others focus on supporting students in various modes of literacy and numeracy provision (for example, withdrawing students, or individual assistance in learning centres). Limited state VET funding and the absence of alternative funding sources to a large degree dictate the type and extent of literacy and numeracy support provision available. Further, a 'one size fits all' approach to literacy and numeracy support would be inappropriate, given the very different 'communities of practice' that exist within VET institutions. The literacy and numeracy support needed, for example, in a hairdressing course, may well differ from an aged care or small business management course (see Black 2008).

Another observation at this stage of the research is that integrated literacy and numeracy support focuses almost exclusively on the theory side of vocational courses. With the exception of WELL programs, few examples have been found of literacy and numeracy teachers working with students on the practical elements of vocational courses. Primarily, it appears the role of literacy and numeracy teachers is seen to be in assisting students to pass their VET exams and complete their courses successfully.

Conclusions and future directions for research

With the exception of federally funded WELL programs, integrated literacy and numeracy support is underdeveloped in Australian VET from a research perspective, and also from a policy and program delivery perspective. And yet, potentially, it is an aspect of literacy and numeracy provision in VET with enormous benefits for work skills and equity outcomes at individual, enterprise and national levels, and would appear to fit well within the current national agendas outlined at the beginning of this paper.

To date, as indicated in the Australian VET literature and in our own early research observations, integrated literacy and numeracy support is fairly narrowly focused on the 'academic' literacy and numeracy skills associated with course completions, and less on the literacy and numeracy practices learners will encounter in their workplaces and which can be related to more active, inclusive participation in society. A social-practices approach to researching the literacy and numeracy dimensions of VET, using what Hamilton (2009, p.72) terms the 'ethnographic eye', with its methods of close analysis, including observations over time and in-depth interviews, provides an additional and different lens through which to view and understand the literacy and numeracy needs of VET learners, employers and employees. The interplay, for example, between a learner's literacy and numeracy development in their VET course, their literacy and numeracy practices in the workplace, and their self-efficacy in other contexts in their lives, are unlikely to be discerned

accurately through quantitative surveys. Gaining richer insights into these interplays can inform policies on pedagogies, practices and professional development in VET. More significantly, conceptualising integration in this more holistic sense may enable an ‘integrated’, whole-of-government approach that bridges the government’s productivity and social inclusion agendas to improving the literacy and numeracy skills and knowledge of adult Australians.

Within such a research framework, we suggest the following research agendas:

- ✧ policy analysis research to identify the potential for an integrated whole-of-government approach to literacy and numeracy development
- ✧ in-depth analyses of the workplace practices that employers perceive are affected by poor employee literacy and numeracy skills, with a focus on WELL and other enterprise-based programs, and those programs where literacy and numeracy support is provided in VET institutions. The aim would be to identify whether and/or how programs in VET institutions can better prepare learners for the workplace literacy and numeracy demands
- ✧ longitudinal studies of VET learners from entry (or from pathway programs where possible) through to their experiences in employment, to examine the ways in which literacy and numeracy demands emerge in their study, work and community life, and how or whether these literacy and numeracy demands are addressed
- ✧ in-depth, qualitative analyses of the literacy and numeracy needs of students in the different ‘communities of practice’ within VET institutions. Vocational areas within VET differ markedly in relation to the literacy and numeracy requirements of courses and workplace practices, and in some cases, student demographics.

References

- Access & General Education 2005, *Towards developing a learner support framework: a review of practice in TAFE NSW*, TAFE NSW Access & General Education Curriculum Centre, Sydney.
- Allan, L & Salter, K 1996, *Strategies for success: developing English language, literacy and numeracy in vocational courses*, Foundation Studies Training Division, TAFE NSW, Blacktown.
- ANTA (Australian National Training Authority) 2003, *Language, literacy and numeracy in training packages*, ANTA think-piece, viewed 24 June 2010, <<http://www.dest.gov.au/NR/rdonlyres/69427C4F-FED8-46A5-B9D0-243F492894EF/6338/LLNinTP.pdf>>.
- Australian Industry Group 2010, *National workforce literacy project: report on employers’ views on workplace literacy and numeracy skills*, Australian Industry Group, North Sydney.
- Australian Government 2010, *Budget 2010–11: skills and infrastructure—building a stronger and fairer Australia*, Australian Government, Canberra, viewed 24 June 2010, <<http://www.deewr.gov.au/Department/Budget/Documents/2010-11BudgetMinisterialStatement.pdf>>.
- Balatti, J, Black, S & Falk, I 2009, *A new social capital paradigm for adult literacy: partnerships, policy and pedagogy*, NCVET, Adelaide.
- Barton, D, Hamilton, M & Ivanic, R (eds) 2000, *Situated literacies*, Routledge, London.
- Bates, S & Wiltshire, C 2001, *The Course in Applied Vocational Study Skills: professional development issues for the delivery of integrated literacy support in VET*, viewed 24 June 2010, <<http://www.aare.edu.au/01pap/bat01517.htm>>.
- Black, S 1996, *Literacy/numeracy support and team teaching in VET: TAFE teachers reflect on their practice*, Foundation Studies Training Division TAFE NSW, Sydney.
- Black, S 2008, *Non-English speaking background students in TAFE: exploring the factors behind their module completion rates in selected TAFE NSW courses*, TAFE NSW Multicultural Education Unit, Sydney, viewed 24 June 2010, <http://www.voced.edu.au/docs/estore/TD_TNC_95_836.pdf>.
- Black, S, Innes, C & Chopra, M 2008, *Diabetes literacy: a partnership approach to educating culturally and linguistically diverse people about the risks and prevention of type 2 diabetes*, viewed 24 June 2010, <http://icvet.tafensw.edu.au/ezone/year_2009/feb/diabetes-literacy-report.pdf>.
- Black, S & Lucchinelli, M 2006, ‘Community volunteering: A cross sectoral partnership, and integrated LLN’, *Literacy Link*, vol.26, no.4, pp.9–10.
- Casey, H, Cara, O, Eldred, J, Grief, S, Hodge, R & Ivanic, R 2006, *You wouldn’t expect a maths teacher to teach plastering: embedding literacy and language in post 16 vocational programmes—the impact on learning and achievement*, National Research and Development Centre for Adult Literacy and Numeracy, London.

- COAG Reform Council 2009, *National agreement for skills and workforce development: baseline performance report for 2008*, COAG Reform Council, Canberra.
- Courtenay, M & Mawer, G 1995, *Integrating English language, literacy and numeracy into vocational education and training: a framework*, Foundation Studies Training Division TAFE NSW, Sydney.
- Department of Employment, Education and Training 1991, *Australia's language: the Australian language and literacy policy*, DEET, Canberra.
- Foley, H 2002, *Understanding and applying vocational language, literacy and numeracy within the Australian Quality Training Framework*, Department of Employment and Training, Brisbane.
- Gillard, J 2009, Speech at the Big Skills Conference, Darling Harbour, Sydney, 5 March 2009, viewed 24 June 2010, <http://www.ala.asn.au/images/document/Guillard_speech_March_2009.pdf>.
- Glossop, C 1990, 'Team teaching in carpentry and joinery', *Good Practice in Australian Adult Literacy and Basic Education*, no.11, pp.14–17.
- Green, A & Howard, U 2007, *Insights: skills and social practices: making common cause*, National Research and Development Centre for Adult Literacy and Numeracy, London.
- Hamilton, M 2009, 'Relinquishing the practices of a lifetime: observations on ageing, caring and literacies', *Literacy and Numeracy Studies*, vol.16, no.2/vol.17, no.1, pp.63–74.
- Hegarty, A & Feeley, M 2009, *Literacy-friendly further education and training: an exploration of the potential for a whole organisation approach to integrating language and literacy in further education and training in Ireland*, National Adult Literacy Agency, Dublin.
- International Literacy Year Secretariat 1992, *Putting literacy on the agenda: ILY end of year report*, Canberra.
- ISC Well Network 2009, *State/territory support for LLN in the implementation of the Productivity Places Program: final report*, Commonwealth of Australia, Canberra.
- Johnston, B 2002, *Numeracy in the making: twenty years of Australian adult numeracy*, ALNARC, viewed 24 June 2010, <<http://www.staff.vu.edu.au/alnarc/publications3.html>>.
- Kelly, S 1989, 'Literacy screens for TAFE students', *Good Practice in Australian Adult Literacy and Basic Education*, no.5, p.9.
- Lo Bianco, J 1987, *National policy on languages*, AGPS, Canberra.
- 1990, 'Alas, poor ALAC? An overview of the Adult Literacy Action Campaign', *Australian Journal of Reading*, vol.13, no.1, pp.16–22.
- McKenna, R & Fitzpatrick, L 2005, *Integrated approaches to teaching adult literacy in Australia: a snapshot of practice in community services*, NCVER, Adelaide.
- Marr, B & Morgan, B 2005, *Enhancing teaching: integrating language, literacy and numeracy in VET programs*, Royal Melbourne Institute of Technology, Melbourne.
- Moy, J & Associates 1994, *Research on the effectiveness of tutorial support: report 1—statewide overview of current practices and issues*, TAFE NSW, Blacktown.
- National Quality Council 2009, *VET products for the 21st century*, NQC Secretariat, Melbourne.
- Lave, J & Wenger, E 1991, *Situated learning: legitimate peripheral participation*, Cambridge University Press, New York.
- National VET Equity Advisory Council 2010, *Overcoming disadvantage through VET: beginning the conversation*, National VET Equity Advisory Council, Melbourne.
- Productivity Commission forthcoming, *Links between literacy and numeracy skills and labour market outcomes: supporting research project*, Productivity Commission, Canberra.
- Randazzo, S 1989, 'Literacy support in a trade course', *Good Practice in Australian Adult Literacy and Basic Education*, no.6, p.5.
- Roberts, C, Gidley, N, Eldred, J, Brittan, J, Grief, S, Cooper, B et al. 2005, *Embedded teaching and learning of adult literacy, numeracy and ESOL: seven case studies*, National Research and Development Centre for Adult Literacy and Numeracy, London.
- Schuller, T, Preston, J, Hamond, C, Brassett-Grundy, A & Bynner, J 2004, *The benefits of learning: the impact of education on health, family life and social capital*, Routledge-Falmer, London & New York.
- Sefton, R, Waterhouse, P & Deakin, R 1994, *Breathing life into training: a model of integrated training*, National Automotive Industry Training Board, Melbourne.
- Shiohata, M & Pryor, J 2008, 'Literacy and vocational learning: a process of becoming', *Compare*, vol.38, no.2, pp.189–203.
- Shore, S 2009 *Playford literacies: building literacy capacity in learning communities*, Adult Literacy National Project: Innovative Projects report prepared for DEEWR, viewed 25 June 2010, <<http://www.deewr.gov.au/Skills/.../LiteracyNet/.../PlayfordLiteracies-FinalReport.pdf>>.
- Skills Australia 2010, *Australian workforce futures: a national workforce development strategy*, Commonwealth of Australia, Canberra.
- Stephens, U 2008, Speech to the pre-ACAL Conference Forum on 2 October 2008, at Crowne Plaza, Surfers Paradise, Qld, viewed 24 June 2010, <<http://www.acal.edu.au/>>.
- TAFE NSW 1990, *Working together*, Division of Adult Basic Education, TAFE NSW, Sydney.

- Wickert, R & McGuirk, J 2005, *Integrating literacies: using partnerships to build literacy capabilities in communities*, NCVER, Adelaide.
- Wickert, R, Searle, J, Marr, B & Johnston, B 2007, *Opportunities, transitions, and risks: perspectives on adult literacy and numeracy development in Australia*, viewed 24 June 2010, <http://www.ncsall.net/fileadmin/resources/ann_rev/rall_v7_ch8.pdf>.
- Widin, J, Yasukawa, K & Chodkiewicz, A 2007, *Making connections: adult literacy and numeracy practices*, Commonwealth of Australia, Sydney.
- Wignall, L 1998, *Built in not bolted on: information kit for language, literacy and numeracy coordinators on incorporating communication skills into training packages*, ANTA, Canberra.
- Woods, D, Cully, M, Bowman, K, Hargreaves, J, Harris, L, Priest, S 2006, *Review of literature: workplace English language and literacy: report prepared for Strategic Analysis and Evaluation Group*, NCVER, Adelaide.
- Workbase 2005, *A guide to integrating literacy into other courses*, Workbase, Auckland.

Chapter 7

Outcomes from the adult literacy and numeracy search conference

The main points arising from the forum are listed below.

✧ Develop policy and strategies

Given that the last national policy focused on adult language and literacy was released in 1991, a refreshed policy statement is needed. This would provide the overarching direction and support for the work—or strategies—to be undertaken.

Research aimed at taking things forward should be included as a strategy. Suggested areas of research include: longitudinal studies of learners, from entry into programs through to their experiences in employment, as a means of determining the literacy and numeracy demands in their study, work and community life, and how or whether these demands are addressed; and investigation of reasons why workers do not consider or take up training. The value of investing in qualitative research to provide rich data and understanding was emphasised.

✧ Target those with low-level skills—ALLS levels 1 and 2

There was agreement that language, literacy and numeracy is everyone's business and that learning opportunities need to be made available for those at all skills levels. However, individuals most in need—such as those in lower-skilled jobs and those not employed or not looking for work—should be prioritised in publicly funded programs.

There was also a call to focus on intergenerational literacy and family literacy programs, as such interventions in other countries have been shown to deliver positive ripple effects.

✧ Conduct a mapping exercise of language, literacy and numeracy activity

Knowing the extent of current literacy and numeracy activity across the country will assist policy-makers to determine what works, what still needs to be achieved and what data need to be collected to measure and evaluate literacy and numeracy training. This exercise could also assist in spreading good practice. It would be necessary to map the current literacy and numeracy activity across all jurisdictions and all sectors—adult community education (ACE), vocational education and training (VET), and higher education—in terms of the scope (what is being taught, to and by whom), funding arrangements and outcomes.

Challenges with such an exercise include the differing terminology used to describe adult language, literacy and numeracy training provision and the fact that much is in the form of unaccredited delivery, often by volunteers.

✧ Measure success

What we are measuring and how we are measuring it are important considerations.

The longer-term outcomes of language, literacy and numeracy programs, from both a workplace and individual perspective, also need to be investigated. Having both pre- and post-assessment would assist in determining longer-term outcomes from programs.

Greater awareness of the applicability and utility of the Australian Core Skills Framework is required to enable wider use of it. This is particularly important for teachers and service providers. (Note that NCVET is currently conducting a mapping exercise between the Australian Core Skills Framework and ALLS.)

✧ Partnerships are critical for improving language, literacy and numeracy

Opportunities for, and encouragement of, partnerships between provider organisations as well as strategies to improve pathways between different programs are needed. Small and medium enterprises may also benefit from creative partnerships, which would have to address the operational obstacles these businesses face, such as the inability to release staff to undertake training.

A greater focus on tapping into informal networks—in the home and at school and work—is also needed. Using workplace and community groups may be a means of connecting into informal networks.

Literacy and numeracy is a ‘whole of government’ issue and there needs to be greater cooperation between states/territories and the federal government. This points to the desirability of further effort for the development of partnerships between agencies such as the Department of Education, Employment and Workplace Relations, the Department of Immigration and Citizenship, the Department of Health and Ageing, Centrelink and others dealing with adult literacy and numeracy.

✧ Marketing of language, literacy and numeracy is essential

There was agreement that the national education campaign proposed in the Skills for Sustainable Growth initiatives would be a useful vehicle to raise awareness about adult literacy and numeracy and the various programs available. However, any such campaign(s) should not just be aimed at the individual. It is imperative that industry, community groups, informal networks, training providers and government departments are also targeted to increase their awareness of literacy and numeracy issues and their role in improving skills levels. Examples were raised relating to employees in job placement agencies needing to be better equipped to appropriately place individuals in training programs.

Tied to this is the re-badging of the concept of adult literacy and numeracy to move away from a deficit model. For some individuals, the perceived stigma attached to low literacy and numeracy can discourage them from seeking assistance and participating in training.

Another possible avenue for increasing awareness is the appointment of workplace literacy brokers to provide advice and support to colleagues. The Industry Skills Councils WELL Broker initiative provides an example of this in action. The Trade Union Representatives, or Union Learning Representatives (ULR), who operate in the United Kingdom were also mooted as a model upon which workplace literacy brokerage services could be based. The Union Learning Representative is a nominated or elected activist who focuses on the learning agenda in the workplace and who gives advice and guidance to members and answers queries about courses or learning opportunities in the workplace.

✧ Sustainability of funding is important to long-term outcomes

Underpinning all of the above is the issue of sustainable funding. Long-term outcomes cannot be achieved if there is uncertainty about the quantum and period of funding for programs or research. Importantly, there was a view that we should be funding *learning* and not qualifications for qualifications’ sake.

These outcomes suggest a number of possible ways forward:

✧ That the Department of Education, Employment and Workplace Relations builds on some of the themes emerging from the NCVET adult language, literacy and numeracy search conference to shape the consultations for the National Foundation Skills Strategy for adults,

those themes being: target populations; definitions of, and measuring, success; and partnerships.

- ✧ That a mapping exercise is undertaken collaboratively across jurisdictions to determine the extent of language, literacy and numeracy provision in Australia and the target audience for the programs.
- ✧ That any marketing/advertising campaigns developed as part of the Skills for Sustainable Growth initiatives should target industry, community groups, informal networks, training providers and government departments, as well as individuals, and should aim to increase awareness of literacy and numeracy problems and sensitivities and emphasise the importance of literacy and numeracy to improving skills levels and productivity.
- ✧ That a program of research with the following elements be undertaken:
 - ◆ a comparative study of international models for improving foundation skills (including through the use of partnerships between government, employers and provider organisations)
 - ◆ an in-depth analysis, which would require some longitudinal research, of the incidence of low language, literacy and numeracy skills across the different cohorts, including the:
 - pathways to low language, literacy and numeracy skills
 - practical impacts of poor language, literacy and numeracy on everyday life and work
 - barriers to improving language, literacy and numeracy and best practice in addressing those barriers
 - ◆ a cost–benefit analysis of addressing language, literacy and numeracy needs, and how this would vary for different cohorts
 - ◆ an investigation into what is needed to make the Australian Core Skills Framework more usable by a broader cohort of VET practitioners.

National Centre for Vocational Education Research Ltd
Level 11, 33 King William Street, Adelaide, South Australia
PO Box 8288, Station Arcade, SA 5000 Australia

Telephone +61 8 8230 8400 Facsimile +61 8 8212 3436
Website www.ncver.edu.au Email ncver@ncver.edu.au

