

EDUCATION, TRAINING AND DEVELOPMENT (LEARNING)

Acknowledgements

Professor P. McDonald and Dr J. Temple ANU
Mr Ken Jorgenson and Mr Michael Rzechowitz, Defence.

Defence today is a knowledge business. The edge we seek is the knowledge edge – in the broadest sense. Our critical assets are the knowledge, skills and innovative drive of the people who defend Australia. Australia’s future security depends on our ability to expand those skills and knowledge – it depends on our capacity to learn¹.

1. Defence - Our Priorities, Defence Publishing Service. November 1998

General Introduction

Education, training and development are terms used in parallel but all lead to one outcome – learning. For an individual or an organisation to be successful it must be able to learn and thus adjust to the circumstances of its environment⁵⁴.

The USA based Hudson Institute notes in ‘Workforce 2020’ that “*the strength of tomorrow’s workforce begins and ends with education*”⁵⁵ “... *formal learning can no longer be confined to the first 21 years of life but instead learning must become a part of life, as constant as change itself. Only those individuals, businesses, and nations capable of coping with this change and adapting to it will flourish in the 21st century*”⁵⁶.

The Hudson Institute acknowledged the under performance of the American education system and its inability to develop people with the literacy and numeracy skills to ensure the nation thrives as a technology-based knowledge society. Like America, Australia is also seeing falling numbers of students pursuing science, engineering and information technology degrees thus putting our economic and societal wellbeing at risk by not being able to move to a knowledge based economy or to address other pressing national issues.

54. This chapter was developed by Mr John Hearps, DSPPR.

55. Hudson Institute (2005). *Beyond Workforce 2020*, http://irlcjr.hudson.org/idx.cfm?fuseaction=about_detail (downloaded 26 October 2005).

56. Judy, Richard W. and D’Amico, Carol. *Workforce 2020 - Work and Workers in the 21st Century*. Hudson Institute

Australia is also seeing falling numbers of students pursuing science, engineering and information technology degrees thus putting our economic and societal wellbeing at risk.

In response to the short fall in certain trades and professions the Australian Government has, over the last three years, introduced a number of significant changes to education in Australia⁵⁷. The close cooperation between the Department of Education, Science and Training (DEST) and the Department of Employment and Work Place Relations (DEWR) has greatly assisted in enhancing both education and future workforce outcomes at a national level.

The Australian Education System

Education is delivered both formally through the three sectors comprising Australia's education and training system (namely school education; vocational education and training [VET], and higher education sectors) as well as informally (by family, community and at work). The education system has a range of objectives as noted below:

Sector	Comment
The ' <i>school education sector</i> ' focuses on developing the capacities and talents of all young people so they have the necessary knowledge, understanding, skills and values for a productive and rewarding life.	There were 3.3 million full time students in the 'school education sector' attending 9615 schools (including 6938 in government schools). Primary school students comprised 57.8% and secondary schools 42.25% of this student population as at August 2004 ¹ .
The ' <i>VET sector</i> ', focuses on providing industry with a highly skilled workforce to support strong performance in a globalised economy; making employers and students the centre of VET; strengthening communities and regions economically and socially through learning and employment.	Over 1.6 million people undertook VET programs in 2004. The VET programs were delivered in 933 TAFE and other government provider locations and 7659 community education and other registered provider training locations.
The ' <i>higher education sector</i> ', focuses on advancing and applying knowledge and understanding to benefit the Australian economy and society ² .	There were some 945,000 students in higher education in 2004. Two thirds were undertaking bachelor level degrees. The majority of students undertook their courses full time and on campus ³ .

1. ABS. (2005). *Schools*. ABS Cat. No. 4221.0, Australian Bureau of Statistics: Canberra.

2. Steering Committee for the Review of Government Service Provisions (2006). *Report on Government Service 2006*, Productivity Commission, Canberra.

3. Steering Committee for the Review of Government Service Provisions (2006). *Report on Government Service 2006*, Productivity Commission, Canberra.

57. *Bridging the skills divide*. Employment, Workplace Relations and Education References Committee, The Senate, November 2003.

Learning and Work

A recent report has indicated that in May 2005, 85% of young Australians aged 15-19 were either studying full time or working full time. The remaining 15% (208,400) were working part time, seeking work or not in the labour force. It is this group that is likely to face a higher level of risk in the labour market over the longer term⁵⁸.

The proportion of young adults who are not fully engaged has remained relatively stable over time. It is important to note though, that the proportion of 15 to 19 year olds not fully engaged in either work or studies, increases with age as young Australians leave school⁵⁹ (see Table 51).

Table 51 The Percent of 15 to 19 year olds who are not in Full Time Education or Full Time Employment by single year of age, May 1999-2005.

Age/Year	Mean 1999-2005
15	2.8
16	7.2
17	13.6
18	26.1*
19	24.6*
15-19 yrs	14.9

Source: ABS, Labour Force Australia, ABS 6291.0.55.001, Table 03b.

* About a quarter of 18 and 19 year olds are not fully engaged, and this proportion has remained relatively constant for the past six years.

Whilst it could be considered that a young person who is both working part time and studying part time, is fully engaged, only a small proportion of young people (15-19) combine part time study with part time employment (1.3%). This proportion is slightly higher for 18 and 19 year olds (2.0% and 3.0% respectively and lower for the younger age ranges (15-17 year olds). Again, these proportions have remained largely unchanged over the past 15 years⁶⁰.

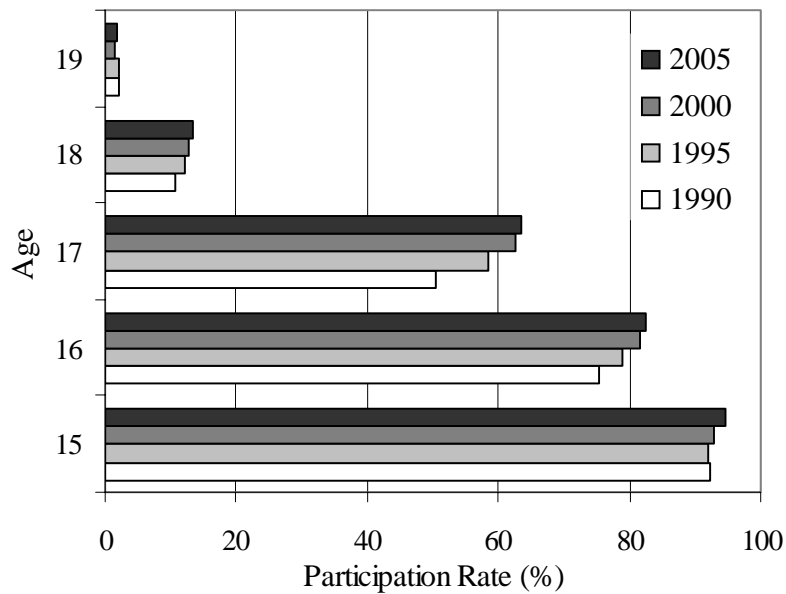
58. *How Young People are Faring: Key Indicators 2005, an update about the learning and work situation of young Australians.* Monash University - ACER, Dusseldorp Skills Forum.

59. *How Young People are Faring: Key Indicators 2005, an update about the learning and work situation of young Australians.* Monash University - ACER, Dusseldorp Skills Forum.

60. *How Young People are Faring: Key Indicators 2005, an update about the learning and work situation of young Australians.* Monash University - ACER, Dusseldorp Skills Forum.

An important aspect of current and future labour supply is the skills and qualifications of people entering the labour market. Figure 53 displays the age specific secondary school participation rates between 1990 and 2005. Over this period, participation in years 11 and 12 has increased considerably. The participation of 16 year olds in secondary education has increased by 7.1% and the corresponding figure for 17 year olds is slightly higher; 13%. (ANU, Society Chapter, J. Temple 2005)

Figure 53 Secondary School Participation Rates of 15-19 year olds, 1990-2005.



Source: ABS, 2005:17.

Note 1: Many 18 and 19 year olds have moved to employment/TAFE/higher education.



State differences in full engagement of young people

There appear to be substantial differences in full engagement of young people between the states as indicated in Table 52.

Table 52 Percent of 15-19 year olds in Full Time School, Full Time Tertiary and Full Time Employment by State, May, 2005.

Full-time%	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
Study	71.1	75.3	63.4	65.6	59.7	67.3	50.8	69.7	68.7
School	51.7	55.0	46.5	51.5	42.0	49.2	44.3	54.3	50.3
Tertiary	19.4	20.3	16.9	14.1	17.7	18.1	6.4	15.4	18.3
Work	14.9	13.6	20.8	17.0	24.8	17.1	16.3	15.9	17.0
Study or work	85.4	88.3	83.3	82.1	84.2	83.9	67.1	85.1	85.1

Source: ABS Labour force Australia, 6291.0.55.001-LM3

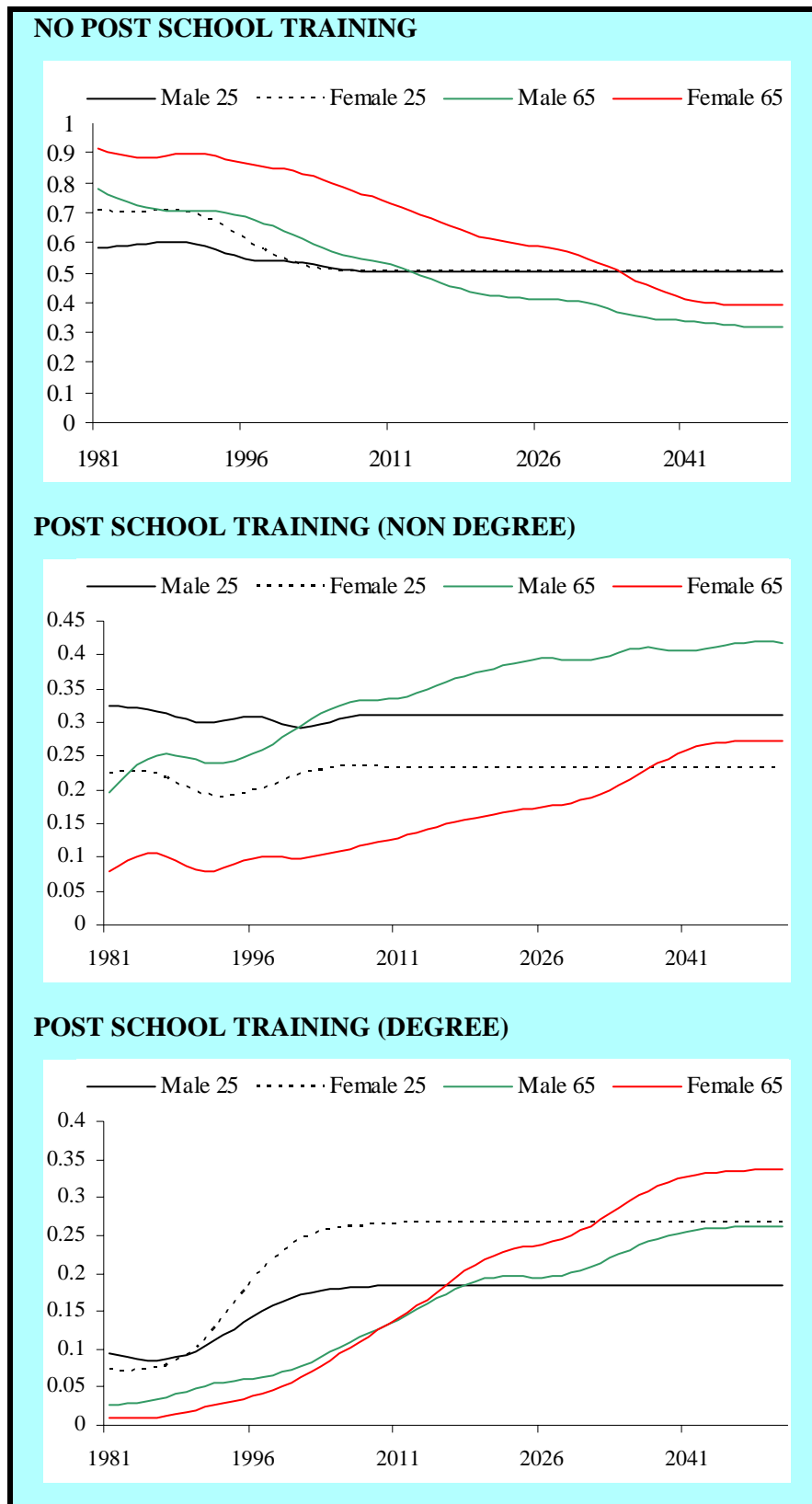
As indicated in Table 52, comparing states with similar age-grade profiles (that is, the age at which children start school), young people in New South Wales are less likely to be fully engaged than their counterparts in Victoria. Similarly, young people in Queensland are slightly less likely to be fully engaged than those in Western Australia⁶¹.

Participation in secondary school has important implications for the level of post school training obtained prior to entry. Figure 54 displays the observed (1981-2004) and projected (2005-2051) proportions of males and females with no post school training, post school training but without a degree and post school training with a degree. The unpublished propensities for the period 2005-2051 were provided by the Productivity Commission, who used these to forecast labour supply and education costs in the recently released *Economic Implications of an Ageing Australia*. (Scan 2025 Society Chapter, J. Temple 2005).



61. *How Young People are Faring: Key Indicators 2005, an update about the learning and work situation of young Australians*. Monash University - ACER, Dusseldorp Skills Forum.

Figure 54 Observed and Projected Qualification Propensities, Ages 25 and 65 by Sex, 1981 – 2051.



Source: Unpublished Projections Provided by the Productivity Commission.

Over the observed period, there have been considerable changes in the proportion of persons with no post school, post school but no degree and post school with a degree (see Table 53). By 2004, these data show a strong movement away from having no post school training, towards having a minimum of a bachelors degree or other post school training. The results are particularly striking for young females and older males. For example, in 1981 about 70% of 25 year old females held no post school qualification, compared to 51% in 2004. Conversely, between 1981 and 2004 the proportion of 25 year old females with a degree increased by over 18%. (P. McDonald and J. Temple ANU, 2005)

Table 53 Qualification Propensity by Age and Sex, 1981-2004.

		1981	2004	Diff
		(%)	(%)	
No Post School	Male 25	58.18	52.04	-6.14
	Female 25	70.36	51.08	-19.28
	Male 65	77.77	58.39	-19.38
	Female 65	91.21	80.90	-10.31
Post School - No Degree	Male 25	32.39	30.04	-2.35
	Female 25	22.44	23.21	+0.77
	Male 65	19.53	31.99	+12.46
	Female 65	7.93	10.54	+2.61
Post School - Degree	Male 25	9.44	17.91	+8.47
	Female 25	7.20	25.71	+18.51
	Male 65	2.70	9.62	+6.92
	Female 65	0.86	8.57	+7.71

Source: Unpublished Data Provided by the Productivity Commission.

Based upon these observed age specific patterns of educational attainment, the Productivity Commission used time series techniques to project future qualifications, with several interesting results (see Table 53).

Whereas in the historical data, a great deal of change occurred at younger ages, the reverse is the case in the future. For both males and females, there is very little change in the proportion of persons with no post school training, post school training without a degree and post school training with a degree. However, for both older males and females, the projections show a considerable movement away from having no post school training towards having any form of post school training. Indeed, beyond 2026 these projections assume that older persons have a greater propensity to have post school training when compared to labour market entrants. The Commission argues “This occurs for two reasons. First, the current generation of young people has relatively high educational attainment rates - and by the middle of this century, they will be the next generation of the old. Second, people continue to acquire education as they age.” (Productivity Commission, 2005:3.22).

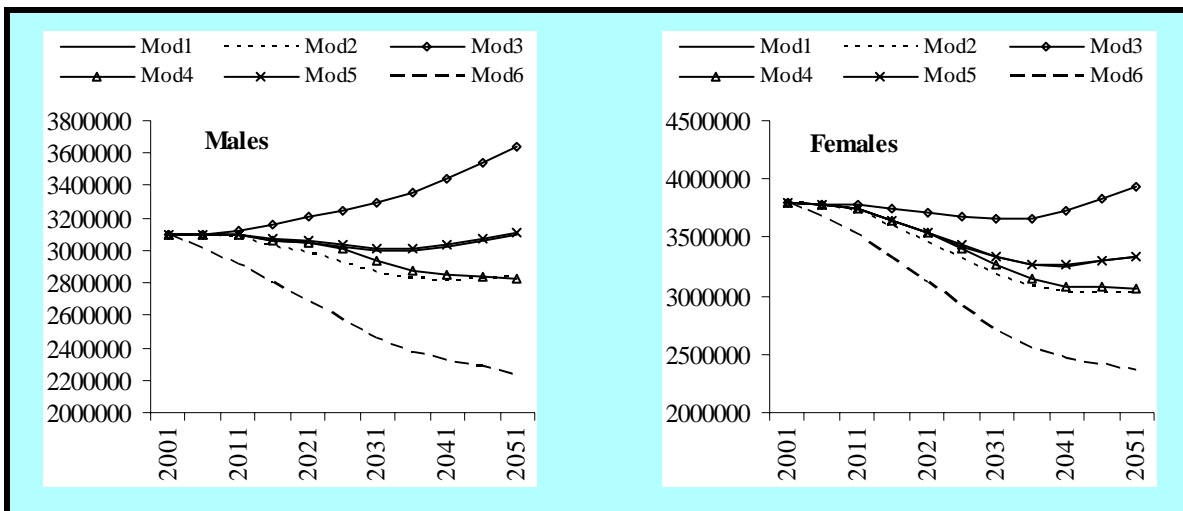
Table 54 Projected Qualification Propensity by Age and Sex, 2005-2026.

		2005 (%)	2026 (%)	Diff
No Post School	Male 25	51.46	50.49	-0.97
	Female 25	50.73	50.23	-0.50
	Male 65	57.13	41.09	-16.04
	Female 65	79.71	58.67	-21.04
Post School - No Degree	Male 25	30.49	31.05	0.56
	Female 25	23.33	23.12	-0.21
	Male 65	32.58	39.46	6.88
	Female 65	10.89	17.46	6.57
Post School - Degree	Male 25	18.05	18.46	0.41
	Female 25	25.94	26.65	0.71
	Male 65	10.29	19.46	9.17
	Female 65	9.40	23.86	14.46

Source: Unpublished Projections Provided by the Productivity Commission.

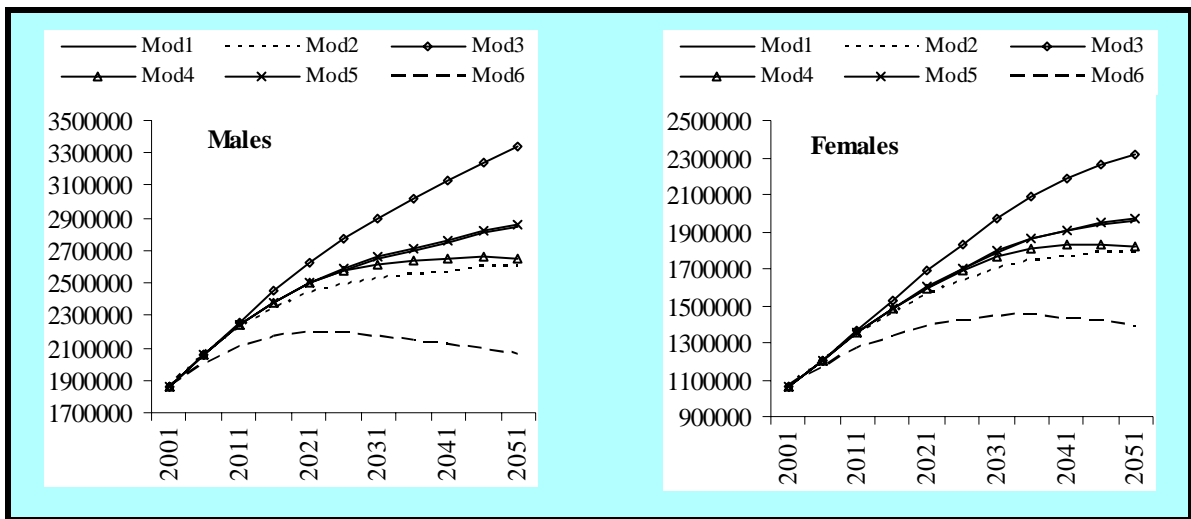
The following projections have been developed by Professor P. McDonald and Doctor J. Temple of the Australian National University. Using the projected age specific qualification propensities, it has been possible to project the numbers of persons with each qualification type by sex over the period 2001-2051. Variations in the supply of persons with each type of qualification are given with respect to changes in demography as presented earlier in Table 54. The projections are presented for all persons aged between 20 and 64. Figures 55-57 display the projected number with no post school training, post school training with no degree and post school training with a degree respectively.

Figure 55 Projected Number Aged 20-64 With No Post School Training, 2001-2051.



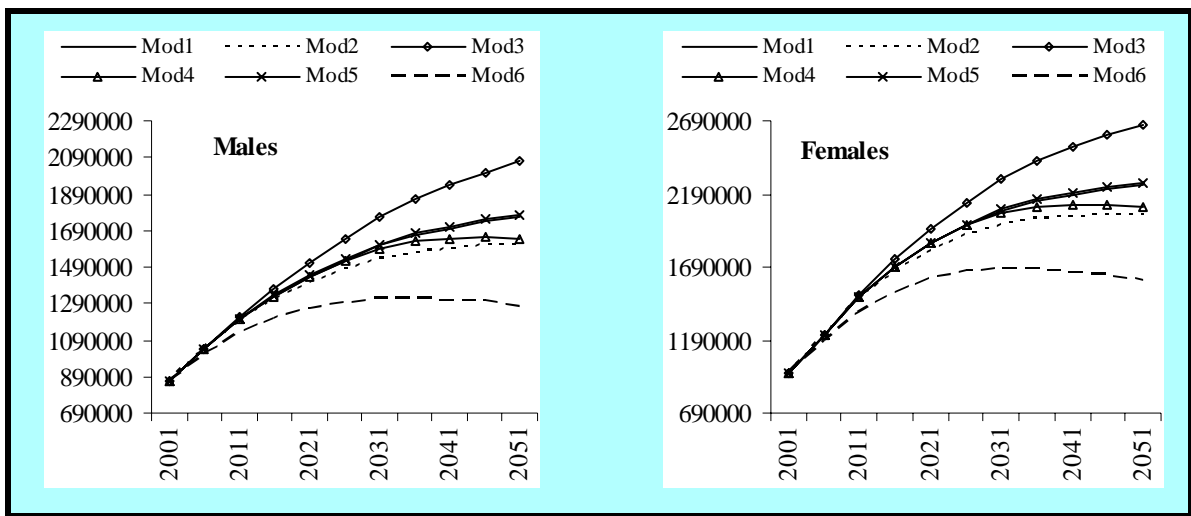
Source: Projections by Dr J. Temple, ANU, Based Upon Productivity Commission Participation Rates.

Figure 56 Projected Number Aged 20-64 With Post School Training (Non Degree), 2001-2051.



Source: Projections by Dr J. Temple, ANU, Based Upon Productivity Commission Participation Rates.

Figure 57 Projected Number Aged 20-64 With Post School Training (Degree), 2001-2051.



Source: Projections by Dr J. Temple, ANU, Based Upon Productivity Commission Participation Rates.

The projected patterns for each model are not discussed in detail here. For an overview of the effect of the changing demography on population size see Chapter 5. Table 55 displays summary results for the projections assuming the current demography continues (Model 1, TFR=1.8, ANM=110,000, rising life expectancy). By 2026, this model projects a 12.4% reduction in the number of females (aged 20-64) with no post school education. For males, the number with no post school education actually increases slightly by 0.2%. In contrast, a great deal of growth is projected in the numbers with any form of post school training. By 2026, the number of females with post school training without a degree is projected to grow by 85% for females and 53% for males. For those with a degree, the projected growth is higher still. By 2051, the growth rate falls considerably due to cohort flow of the young in the middle part of this century.

Table 55 Summary Results, Assuming Current Demography (Model 1).

		2026	2051	2001- 2026	2001- 2051
				Growth (%)	Growth (%)
No Post School	Males	3025578	3098824	0.2	-2.2
	Females	3429085	3329464	-12.4	-9.7
Post School - (No Degree)	Males	2579252	2844679	53.3	39
	Females	1695803	1958147	84.6	60
Post School - (Degree)	Males	1527802	1763040	102.5	76
	Females	1975331	2253256	106.1	135.1

Source: Projections by Dr J. Temple, ANU, Based Upon Productivity Commission Participation Rates.

As shown by the above projections, the numbers of people with post school training is sensitive to the level of fertility and migration. Predicting Australia's future fertility is subject to a great deal of uncertainty as discussed in chapter 5. These assumptions should be kept in mind when interpreting the results in Figures 55-57. This once more highlights the importance of maintaining Australia's existing level of fertility.

Projections of non school qualifications, although provide a crucial insight into the skill level of the labour supply. Data from the Census of Population and Housing shows that compared with those people who have no post school qualifications, those with a qualification are less likely to be unemployed, are more likely to be in better health and less likely to be earning a low income (within the lowest 20% of the income distribution).

Engagement patterns amongst school leavers

As young people (aged 15-19) left school in 2005, their participation in full time education reduced to 44%. Others (26%) commenced full time work, but the remainder 30% (~ 87,400) were not fully engaged in studies or employment. Even 6 months later, the majority were still not fully engaged. It is important to note also that 34% of female school leavers are not fully engaged, compared with 27% of males. Within this population of those not fully engaged, females are more likely to be in part time work and less likely to be unemployed than males.

The proportion of young school leavers working part time and not in full time study has increased over the past two decades, from 6% in 1986 to 16% in 2005⁶².

The proportion of those who are unemployed and not in full-time study has declined from the early 1990's. School leavers who complete year 12 are also more likely to be fully engaged in studies or in employment than those who do not complete year 12. Of school leavers in 2003, 23% of those who completed year 12 were not fully engaged, whereas 45% of those who completed only year 10 and 40% of those who only completed year 11, were not fully engaged in May 2004.

62. *How Young People are Faring: Key Indicators 2005, an update about the learning and work situation of young Australians.* Monash University - ACER, Dusseldorp Skills Forum.

Educational attainment and labour force participation

Whilst the labour force participation rates for males aged 25-54 has declined for all educational attainment groups, the decline in participation has been greatest for males with no post school qualifications. In 2001, males with no post school qualifications constituted over 50% of the male population aged 25 years and over.

In contrast, female participation in the labour force has increased for all educational attainment categories. It is important to note that the participation rates of males who have completed year 12 education, in the workforce, are only just below those with post school qualifications. However, as the level of school education level declines, so does the labour force participation rate⁶³.

There has been a significant increase in year 12 retention rates since the 1970s and this increase is likely to have a positive effect on labour force participation, regardless of whether these young people pursue additional studies post year 12. It also suggests that policies that operate to increase education retention are likely to also improve medium and longer term labour force participation⁶⁴.

Policies that operate to increase education retention are likely to also improve medium and longer term labour force participation.

The relatively low participation rates for low skilled males and females, suggests that there are challenges to be faced in relation to policies affecting skill formation in low skilled workers and school retention rates. On a more positive note, notwithstanding the ageing of the population, Australia's more highly educated labour force is likely to contribute to future economic growth through higher participation in the labour force and higher productivity⁶⁵.

Notwithstanding the ageing of the population, Australia's more highly educated labour force is likely to contribute to future economic growth through higher participation in the labour force and higher productivity.

63. *How Young People are Faring: Key Indicators 2005, an update about the learning and work situation of young Australians*. Monash University - ACER, Dusseldorp Skills Forum.

64. *How Young People are Faring: Key Indicators 2005, an update about the learning and work situation of young Australians*. Monash University - ACER, Dusseldorp Skills Forum.

65. Kennedy, S. & Hedley, D. (2003) *A note on educational attainment and labour force participation in Australia*. Treasury Working Paper 2003-04.

What do students know about work?

In a study of senior secondary school students⁶⁶, it was found that most students in Years 10, 11 and 12 appear to have vocational plans in place, although about 30% appear undecided. These vocational plans appear to be influenced by their gender, their interests and their perceived ability. While students appear to have a good understanding of the contents of the world of work, the study found evidence that they had much more to learn about how to get these jobs, and the probabilities of their doing so even if qualified.

Many students appear to misunderstand the availability of some jobs, especially those interested in the professions and trades. Many students seemed not to understand the educational requirements of jobs. Only about half of the students had matched their educational level to their occupational plans accurately, a quarter exceeded their educational levels to the level of education needed for the career chosen and a quarter of students had educational levels well below that needed for the occupation sought. This indicates a need to provide students with more information about how to get the job they would like most, including the educational levels that match these careers. This information and career advice needs to be provided during years 8-9⁶⁷.

Provide students with more information about how to get the job they would like most, including the educational levels that match these careers.



66. Beavis, A.; Curtis, D. & Curtis, N. (2005). *Senior Secondary School Student's Perceptions of the World of Work*. A report prepared for the Smith Family by ACER.

67. Beavis, A.; Curtis, D. & Curtis, N. (2005). *Senior Secondary School Student's Perceptions of the World of Work*. A report prepared for the Smith Family by ACER.

Educating Boys – the picture unfolds

Due to rising concerns about the educational achievement of boys the House of Representatives Standing Committee on Education and Training, undertook an inquiry. *Boys: Getting it right, Report on the inquiry into the education of boys, October 2002*, looked at the social, cultural and educational factors affecting the education of boys in Australian schools, particularly in relation to their literacy needs and socialisation skills in the early and middle years of schooling⁶⁸.

The report found that the challenge in the class room is becoming increasing more difficult. Social and economic changes are impacting on societal expectations, individual student needs and attitudes, rates of retention and subsequently educational policies and programs. Not all students or groups have fared equally well in the education system. Along with socio-economic factors, location and indigeneity, gender has figured significantly in the differing outcomes. Boys were found not to be coping as well as girls in the changing educational environment⁶⁹.

Therefore, if boys are not achieving as well as they could, their years of schooling are less enjoyable and less rewarding and they face greater risk of unemployment, under-fulfilment and social problems in their post school years. Society loses because of the under utilisation of their abilities. The report identifies that there is no single cause for this relative under achievement by boys in education nor are there any simple solutions.

In almost every socio-economic group, boys are underachieving educationally compared to girls. While young men have better access to full time employment than young women, they are also more likely to be unemployed. Young men are also less likely to be undertaking higher education but are more likely to be involved in employment based training such as apprenticeships⁷⁰.

68. *Boys: Getting it Right. Report on the inquiry into the education of boys.* House of Representatives Standing Committee on Education and Training, October 2002.

69. *Boys: Getting it Right. Report on the inquiry into the education of boys.* House of Representatives Standing Committee on Education and Training, October 2002.

70. *Boys: Getting it Right. Report on the inquiry into the education of boys.* House of Representatives Standing Committee on Education and Training, October 2002.

Labour market change.

Over the last 20 years the full time labour market for young males and females aged 15-24 years has collapsed while the school retention rate has doubled. The fall in full time employment opportunities has partially been offset by the rise in part time work but the changes have not affected young men and women equally.

Young men's greater access to full time employment is due to better access to unskilled labouring jobs in the traditional trades. However, these types of jobs are declining both in number and as a proportion of all jobs. The labour market in all areas is demanding better communication and interpersonal skills. Generally, boys do not develop these skills to the degree that girls do thus impacting on their ability to adapt to the markets requirements⁷¹.

Peer relationships.

Peer relationships become extremely important to boys in middle school. Involvement in decision making, mentoring programs and activities that encourage boys to take responsibility for others are essential for boys' development. The report also noted the importance of intervention processes to negative peer cultures and effective interventions for boys already engaged in destructive behaviours⁷².

71. *Boys: Getting it Right. Report on the inquiry into the education of boys.* House of Representatives Standing Committee on Education and Training, October 2002.

72. *Boys: Getting it Right. Report on the inquiry into the education of boys.* House of Representatives Standing Committee on Education and Training, October 2002.

Educating Boys – Defence Implications

The above aspects provide some opportunities to enhance recruitment and capability outcomes, and to identify and possibly address issues that maybe impacting on Defence families. For instance:

A large number of boys are turned away from Defence as a career due to lack of educational achievement thus Defence Recruiting is possibly missing out on a number of young males who have much more potential than that noted on their school report.

Defence training systems and methods could be better attuned to delivering educational instruction in a format suitable to young males who may not have achieved under the current national education system.

Combining the above two points could allow for the short term ‘recruitment’ and focused training of some young males to bring them up to an educational standard so as to be viable for a service career.

Defence training regimes need to be conscious of gender learning aspects to ensure maximum potential is reached by all students-recruits.

Defence families (with boys) often have the male parent away for long periods and the support of extended family networks is of particular relevance to the upbringing of boys.

ADF cadets could have a much larger role to play within the community when it comes to engaging boys with positive role models, peer relationships, career focus and directive training and development.

Vocational Education and Training in Australia

“The Australian VET system is based on the concept of competency. The broad concept of industry competency concerns the ability to perform particular tasks and duties to the standard of performance expected in the workplace. Competency in this context is far more than the skills an individual is able to perform in an industry or enterprise; it is actually about the knowledge that an individual brings to the application of those skills. This approach encourages multi-skilling and the ability to transfer competency to new situations leading to improved portability of skills across the workforce.”¹

1. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006.

In 2004, about 30% of Australians aged 15-64 years held a VET qualification (DEST 2005). In 2004, 1.1 million of 1.6 million students enrolled in VET are government funded⁷³. With regard to government funded VET students, 13% (143,000) were undertaking a diploma or advanced diploma, 44% (484,000) were enrolled in certificate level 3 or 4; 24% (264,000) were enrolled in certificate level 1-2, and 20% (220,000) were enrolled in a general course that did not result in a qualification. There were also 211,900 students enrolled in ‘VET in Schools Program’ in 2004.

In 2004, 27% of the units undertaken covered management and commerce, 16% were in engineering and related technologies, 10% were in health, 9% in society and culture, and 7% were in food, hospitality and personal services. Other fields studied included information technology, architecture, building, education and creative arts. In 2003, some 282,150 VET qualifications were completed nationally.

73. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006.

The Commonwealth Government is establishing 24 Australian Technical Colleges for Year 11 and 12 students in 2006 - 2008 catering for some 8,000 apprentices with a particular focus on those trades with skills shortages. The five priority industries include metal and engineering (machinists, welders, toolmakers, sheet metal workers); automotive (auto electrical, mechanics); building and construction (plumbers, carpenters, bricklayers); electro-technology (refrigeration, air conditioning, electricians) and commercial cookery. This initiative of the Government's reform of VET underpins three key objectives:

- That industry and business needs to drive training policies, priorities and delivery.
- That better quality training and outcomes for clients, through flexible and accelerated pathways, be achieved.
- That all process be simplified and streamlined^{74,75,76}.

The National Training Framework (NTF) seeks to develop the skills base, flexibility and mobility of the Australian workforce so that Australia may become more internationally competitive. Each industry within the Australian economy has, or is in the process of developing, one or more Training Packages⁷⁷.

74. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

75. *Underpinning Prosperity: Our agenda in Education, Science and Training*. Speech by Dr Brendan Nelson, at University of Melbourne, 31 March 2005. Extract from Provision of the Australian Technical Colleges (Flexibility in Achieving Australia's Skill Needs) Bill 2005, the Senate, August 2005.

76. *Provision of the Australian Technical Colleges (Flexibility in Achieving Australia's Skill Needs) Bill 2005*. The Senate, Employment Workplace Relations and Education Legislation Committee, August 2005.

77. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

Selected VET summary at State/Territory Government level

The states are currently experiencing a significant shift in workforce skill needs. The VET system is responding to this demand by increasing the number of student places and adapting its delivery profile to more closely align with skill shortages and emerging skill needs of State industries. The ageing of the Australian workforce means the up-skilling and retraining of mature aged workers in the workforce has become an urgent economic and social policy issue⁷⁸.

New South Wales

The 2005 NSW Strategic evaluation of VET in schools found, for instance, that a significant number of students would not have continued beyond year 10 if VET subjects had not been made available. Sixty percent of HSC VET graduates said that VET in schools subjects influenced their decision to stay on to year 12⁷⁹.

Victoria

145,000 apprenticeships and traineeships were undertaken in Victoria in 2004. Major initiatives in Victoria include:

- The funding of 15 Specialist centres and the development of four new centres covering biotechnology, heritage trades, textiles and e-business.
- Establishing a TAFE Development Centre to improve the professional development of the TAFE workforce.
- Selecting and funding six organisations to act as Industry Liaison Agents – independent agents identifying and brokering a range of training solutions for Victorian small and medium manufacturers⁸⁰.

Queensland

In 2004, 180,000 people participated in government funded VET programs in Queensland. Queensland has developed key priorities which include tackling urgent trade skill shortages through the modernisation of trade apprenticeships including adult trade apprenticeships and the establishment of a specialist trade and technical skills institute⁸¹.

78. Steering Committee for the Review of Government Service Provisions (2006). *Report on Government Service 2006*, Productivity Commission, Canberra.

79. Steering Committee for the Review of Government Service Provisions (2006). *Report on Government Service 2006*, Productivity Commission, Canberra.

80. Steering Committee for the Review of Government Service Provisions (2006). *Report on Government Service 2006*, Productivity Commission, Canberra.

81. Steering Committee for the Review of Government Service Provisions (2006). *Report on Government Service 2006*, Productivity Commission, Canberra.

Western Australia

In WA the number of apprenticeships and trainees in training was 25,700. WA has focused on further improving apprenticeships and traineeships launching a number of important new initiatives to support the system and some of these included:

- The School Apprenticeship Link, which aims to make trades more attractive to school students and increase the number of young people entering into apprenticeships.
- The Fast Track Apprenticeship Program provides mature aged and semi-skilled workers an express route through an apprenticeship, while addressing industry shortages in the process. Due to its' success it is being expanded into a greater range of trade areas.
- A major apprenticeship and traineeship promotional campaign has been developed targeting the community, parents and young people. The idea is to re-image trades.
- TAFEWA Plus was established across the college network, facilitating the placement of TAFEWA graduates into jobs and improving access to career advice for all students. This program assisted 9,000 students in 2004⁸².

Australian Capital Territory

New Apprenticeships continued at a high level in the ACT, with commencements for 2005 at 4,847. There were 350 commencements in the ACT of School-based New Apprenticeships (SNAPs) in 2005, with 630 in training during 2004. Another program, Young Adults and Risk Developing Skills looks at providing marginalised young people (often in transition from youth detention) with individual support for entering vocational or educational placements. The Training Pathway Guarantee, provides training for school leavers who have missed out on other training opportunities⁸³.

82. Steering Committee for the Review of Government Service Provisions (2006). *Report on Government Service 2006*, Productivity Commission, Canberra.

83. Steering Committee for the Review of Government Service Provisions (2006). *Report on Government Service 2006*, Productivity Commission, Canberra.

Northern Territory

18,219 people participated in VET Programs in the NT. Limitations due to population geographic spread makes delivery expensive. In 2004, the NT introduced employer incentive schemes, which will contribute to the growth and development of the Territory's skill base, boost job and economic opportunities and encourage the uptake of additional apprenticeships/trainees, particularly in skill shortage and emerging industry areas. The target is 10,000 new apprenticeships over the next 3 years. During 2004, 2331 people commenced apprenticeships an increase of 22% over 2003⁸⁴.

Defence and VET - Implications

The introduction of enhanced VET apprenticeship programs and other State based initiatives impacts on Defence's attractiveness in recruiting potential trade apprentices and other specific combat related trades. Significant and urgent action is required to improve and market Defence's education, development and career options both as recruiting tools but also to support retention.

The challenge for Defence VET is to optimise its use of the national VET system to support these interests, even as the national VET system itself continues to evolve. Defence's aim is to develop a much closer relationship with the VET sector in order to help it meet Defence's needs⁸⁵. Defence wants as seamless a transition as possible between its VET systems and the national VET systems. There are multiple benefits for Defence in utilising external VET systems to support Defence VET, including efficiencies⁸⁶.

84. Steering Committee for the Review of Government Service Provisions (2006). *Report on Government Service 2006*, Productivity Commission, Canberra.

85. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

86. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

Higher Education in Australia

A number of major developments have occurred in the higher education sector over recent years. The aspects are discussed more fully in the Defence Higher Education section below however, the main aspects relevant to Defence are:

\$5.3 billion into science and innovation, building on a \$3 billion package delivered in 2001.

Allocation of new Commonwealth supported places, including national priority places in medicine, nursing and teaching, pipelining to about 26,800 students by 2008.

Introduction of the Commonwealth Learning Scholarships Program which provides \$327m over 5 years out to 2008 to assist students from low socio economic backgrounds.

A new public information portal, *Going to Uni*¹ website was launched.

27 new higher education providers were approved².

1. <http://www.goingtouni.gov.au/>

2. Backing Australia's Ability. The Australian Governments Innovation Report 2003-04
http://backingaus.innovation.gov.au/reports/03_04/pm_forward.htm

Future Concepts, Trends and Technologies - Flexible Learning

Emerging concepts which will impact the role and shape of education during the next decade include ¹ :	
Learning At the Point of Need.	Portability of Information.
Learning Communities. ²	Workflow Learning.
Personalisation of Learning.	
Emerging trends which will impact the role and shape of Flexible Learning during the next decade include:	
Enterprise Content Management.	Integration of Learning Management Systems and HR-related software.
Informal Learning.	Learning Outsourcing.
Emerging technologies and tools which will impact the role and shape of Flexible Learning during the next decade include:	
Knowledge Management.	
Live e-Learning.	
M-Learning: 'M' stands for mobile. Instant messaging, mobile phones, PDAs (personal digital assistants), MP3 players, portable game devices, handhelds, tablets, and laptops are a few of the mobile technologies that will support learning, teaching and knowledge sharing in the future. Mobile learning programs will require changes to instructional design, communication skills and learning practices in general.	
Podcasting: Podcasting is asynchronous, on-demand mobile learning using an MP3 files. Podcasts are digital audio programs that can be subscribed to or downloaded using Really Simple Syndication (RSS) and accessed through a variety of digital audio devices. ³	
Reusable Learning Objects: More standards, leading to reusable learning objects, giving increased quality at lower costs.	
Rapid e-Learning Tools and Approaches: Rapid eLearning entails a short development timeframe (three weeks or less) and development process that is quick and easy for a subject matter expert to develop the content.	
Reference-ware: Online books and reference materials will be embedded into content offerings.	
Simulation and Educational Gaming. ⁴	
Social Software: Social software allows people to connect and collaborate through computer-mediate communication to form a learning community. Social software includes instant messaging, internet relay chat, internet forums, blogs or weblogs, wikis, etc.	

1. This is not an exhaustive list. The emerging concepts, trends and technology mentioned here are relevant to the current discussion of Flexible Learning and will be updated during the six year lifespan of this strategy. For more information regarding emerging trends in e-Learning, please refer to the Gary Woodhill, Brandon Hall sponsored research, *Emerging E-Learning*.
2. Kaplan S., 'Building Communities-Strategies for Collaborative Learning', Learning Circuits, <http://www.learningcircuits.org/2002/aug2002/kaplan.html>. Accessed on December 20, 2005.
3. Kaplan-Leiserson, E. 2005, 'Trend: Podcasting in Academic and Corporate Learning', *Learning Circuits*, http://www.learningcircuits.org/2005/jun2005/0506_trends.htm, Accessed on December 20, 2005.
4. Schooley, C. 2005, *Simulations: An Emerging Technology for Building Employee Skills*, p. 2.

Education in Defence

“As an organisation that emphasises the ‘knowledge edge’, we (Defence) must offer all our people rewarding and attractive careers while they are in the service of their country. We must also ensure that they have the opportunity to develop skills that will make them attractive to potential future employers. We cannot guarantee lifetime employment, but we should make it our business to ensure lifetime employability.”¹

1. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

“The acquisition and integrated use of platforms and systems will not alone deliver enhanced capability. Equally important is the need for people working with a joint operating concept to have the right competencies and skills to command, operate and maintain these platforms and systems.”
(Australia’s National Security - A Defence Update 2005)¹

1. Australia’s National Security - A Defence Update 2005, p.30

In March 2006 the Defence Education and Training Committee (DETC, 2006) agreed the requirement for an overarching education, training and development framework, to inform senior decision-makers, so that all Defence education, training and development strategies and policies will be consistent, coherent, and aligned with Defence priorities. The framework will reflect the full scope of a workforce development concept which embraces not only formal education and training, but also recognises the importance of experience and the other ways that developing true deep expertise in the workforce. Consequently, this framework may also inform a range of other personnel policies, such as career management, performance management, and workplace relations, where those affect development outcomes.

The primary objective of the Defence training and development system, as noted by DETC in 2006, is to provide a capability advantage over potential competitors, through the superior individual and organisational knowledge, skills and attitudes of its workforce. Other important objectives include workforce attraction and retention, compliance with legislation, targeted international and other external engagement, and the effective resettlement of ADF members. While not an objective, the Defence contribution to the skilling of the national workforce is a significant incidental outcome.

The DETC 2006 noted that the major components of ADF and APS individual training and development are based on Service/APS career development models. A continuum of common and specialist formal education and training programs, delivered at defined career stages, is coupled with job experience to ensure that the necessary skills are not only imparted, but also practiced and developed. The major developmental continuums are Service-specific at junior levels, but become increasingly integrated at more senior levels.

Collective training, building on individual skills, is conducted at Unit, Service and joint force levels, to mould trained individuals into effective operational forces. Services, Groups, specialist authorities and line managers compliment common Service career development programs, as and when required, with specific education and training tailored to meet individual job and career needs.

Skill requirements for positions and proficiencies attained by individual personnel are recorded in the corporate personnel information system. These data inform workforce development planning, as well as a range of other personnel management decisions, including workforce planning, career management, and pay.

Defence people are being trained and developed under the national system and they are subsequently accredited under the current and emerging frameworks. By understanding the national education system and consequently the national frameworks, Defence is better positioned to enhance its competitiveness to attract and retain personnel, whilst also having a medium and longer term view of developing personnel for the nation's workforce⁸⁷.

Having a medium and longer term view of developing personnel for the nation's workforce.

Defence's internal training programs (both military and civilian) are extensive, and the utilisation of education providers under a number of development and learning packages enhances our business skills. By applying the new national educational frameworks Defence is able to promote its internal education, training and development programs to further enhance both retention and recruitment⁸⁸.

Promote its internal education, training and development programs to further enhance both retention and recruitment.

87. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

88. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

Risks - Science, Engineering and Information Technology Professions

Of particular concern is the falling numbers of Australian students undertaking science, engineering and IT degrees not only in the wider community but also at ADFA⁸⁹. This will have a major impact on the nation's capacity to move towards a knowledge economy and to address many other significant issues such as new technology development and delivery. In the case of Defence, the impact will be in its ability to develop, acquire and maintain its systems. Both the Defence Materiel Organisation (DMO) and Defence Science and Technology Organisation (DSTO) have flagged these professional officer shortages as major risks to delivering capability.

The situation for these professional fields is repeated in almost all OECD nations; and coupled with ageing workforce aspects and the high demand for these people into the future, there is significant risk to sustaining national economic vitality and maintaining our security systems. Global industry is also competing for this dwindling pool of talent. Migration will not necessarily provide the numbers or quality required and Australia is now facing fierce competition for migrant talent.

In this context Defence must continue to recruit, develop and retain high level talent in these fields so as to maintain its technological superiority. This will require some significant personnel development initiatives including targeted graduate recruitment coupled with continuous educational opportunities particularly in the fields of radar technology and electro-optics in the short term, and nanotechnology, quantum computing and smart materials into the future. Likewise, Defence Industry must also sustain its capacity in these areas if it is truly to be counted on to support the Defence organisation.



89. For further information: DEST report - Audit of Science, Engineering and Technology Skills - Summary Report, July 2006.

Defence and VET

The use of the national VET system is a key component of Defence's education and training strategy. It supports Defence's efforts with recruitment and retention. It also facilitates the ready transition of some 5,000 ADF personnel annually into civilian employment on completion of their Defence careers thus supporting national workforce objectives. These people typically leave Defence with at least two nationally recognised qualifications at the Certificate III level or higher. Consequently, Defence regards the national VET system as a strategic asset and valuable ally⁹⁰.

ADF VET has a strong focus on war-fighting expertise but it also addresses expertise shared with the wider Australian workforce. As vocational and technical education for this type of shared expertise is basically the same for defence and civilian professions or trades, defence purchases much of the training from the national system. This approach where appropriate, releases ADF personnel from providing vocational and technical education to other core military functions⁹¹.

The Defence vocational and technical education system has considerable depth, breadth and complexity. Over 7,500 ADF personnel, APS and contractors are involved in its design, conduct, management and support at over 50 sites across Australia. Defence has four Registered Training Organisations (RTOs). These RTOs are registered to deliver 368 national qualifications and 251 'accredited courses'⁹². In 2005, Defence provided over 10,000 course sessions to over 128,000 participants.

90. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

91. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

92. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

Many ADF careers are directly comparable to careers in other industries, for example: aviation, aerospace and maritime engineering, information technology, warehousing, administration, cooks and stewards.

Defence use of National Training Framework (NTF) initiatives enables Defence to:

Source accredited VET from other, nationally recognised VET providers with confidence and integrate it into its own programs.

Have its VET recognised nationally.

Concentrate its limited VET resources into those areas where only Defence can provide the VET required.

Benchmark Defence VET against other VET provision.

Articulate Defence VET into other post-compulsory education and training.

Introduce concepts such as 'flexible careers' whereby Defence people can alternate between Defence and non-Defence employment.

Facilitate recruitment actions, especially in times of mobilisation.

Enhance retention mechanisms (through the prospect of additional nationally recognised qualifications flowing from further Defence VET and service).

Promote effective resettlement of Defence people into industry through national recognition of skills and knowledge (competencies) gained from Defence VET and employment. (In Financial Year 2003-04, 5,138 personnel separated from the ADF and 1,950 from the Department)¹.

1. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006.

Accreditation of Defence Education

“Education and training is a critical investment in future capability. ... Defence education and training has also been aligned more closely with the National Training Framework. This will continue. Defence people are able to gain nationally recognised qualifications under the National Training Framework. This is an important recruitment initiative and will also help to retain people.”¹

1. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006.

As suitable qualifications become available within Training Packages, it is both a national requirement and a Defence preference to adopt the national qualification. Accredited Defence VET is listed on the National Training Information Service (NTIS) at www.ntis.gov.au. The database can be accessed at <http://www.defence.gov.au/dpe/civilquals>.

The Defence White Paper 2000⁹³ called for a means for employers of Reservists to identify the skills and knowledge their Reservist employees gained through their Reserve activity. It was decided that a database linked to a website would best meet this requirement. The database now covers all Defence accredited HE and VET for all Defence personnel⁹⁴.

The civil accreditation database and its associated web site were made available in August 2001. They provide access for all current and past Defence people, their current and potential employers, and Australian education and training providers to the national accreditations gained by Defence over the last nine to ten years (depending on Service)⁹⁵.



93. *Defence 2000, Our Future Defence Force*. Commonwealth of Australia, 2000.

94. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

95. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

Accreditation of Defence Higher Education

Defence accreditation of its higher education and training is done to:

- Facilitate the acquisition of education and training from the national system that meets Defence's requirements - thereby freeing resources for education that only Defence personnel can deliver.
- Provide Defence personnel with nationally recognised qualifications. This outcome is used as a recruiting, mobility, retention as well as career transition device.

Most Defence education and training provision has gained accreditation as either higher education (HE) or vocational education and training (VET). Defence purchases 'accredited' HE from many universities; either as whole programs, access to courses, or single programs for individuals. The 2003 Australian Defence Force (ADF) Census provided the following statistics on HE in the ADF (see Table 56).

Table 56 Numbers of ADF Personnel Undertaking Higher Education Courses in 2003.

<i>Numbers currently studying:</i>	
Degree	3,269
Post Graduate	2,391
Total	5,660
<i>Highest qualification held:</i>	
Degree	5,079
Post Graduate	3,465
Total	8,554

Source: Briefs of Defence Education. Prepared by Mr Ken Jorgensen
Director, Directorate of Training Systems Policy, February 2006)

Perhaps the best known of this type of accreditation is the undergraduate degrees from the University of NSW offered to officer cadets at the Australian Defence Force Academy. Less well known are the 200 equivalent full time places Defence has access to each year for post-graduate study, and the single programs for individuals (civil schooling, cadetships) as most Australian Universities⁹⁶.

96. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006.

The Future of Defence Higher Education Accreditation

The August 2004 meeting of the Defence Education and Training Committee (DETC) agreed the following:

ADF Higher Education Advanced Standing Scheme (AHEAS) Vision Statement.

A partnership or series of partnerships with one or a range of institutions that provide a pre-determined level of advanced standing that would count toward defined undergraduate or post graduate qualifications based upon skills, knowledge and experience obtained at specific points in an ADF career.¹

Principles to Underpin AHEAS:

Wide applicability across the rank structure.

Linked to the Australian Qualification Framework.

Fair and equitable.

Flexible delivery that is compatible with the ADF workforce.

Credible – perceived to be of more value than the current arrangements, and easily understood.

Administratively simple.

Cost effective.

1. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

By February 2006, 16 universities had expressed their intent to participate in the AHEAS scheme. Most of these universities are offering a range of postgraduate programs with block advanced standing ranging between 25% and 50%. Accreditation of Defence provided HE can contribute to Defence People initiatives. To be effective, accreditation gained must be credible to recipients and cost and resource efficient for Defence. By negotiating through AHEAS to achieve a properly implemented, marketed, clearly defined, and with agreed advanced standing in selected current programs in Australian universities, Defence could facilitate access to a more dynamic range of development pathways for its members. This could act as a powerful recruiting and retention tool as well as provide significant flexibility for Defence to grow and/or improve a range of new capabilities into the future⁹⁷.

97. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

Defence VET Accreditation

Defence has implemented a program to gain accreditation for its VET not covered by a Training Package (or combination of Training Packages). Defence VET has 251 nationally recognised awards for ‘accredited courses’ from Certificate I to Advanced Diploma (as at 7 February 2006)⁹⁸. (see Table 57)

Table 57 Nationally Recognised Qualifications Offered by Defence Registered Training Organisations Summary Detail - as at 7 February 2006.

	National Qualifications (from Training Packages)	‘Accredited Courses’		Grand Total
		Certificate II to Advanced Diploma	Graduate Certificates and Diplomas	
Navy	94	50	0	144
Army	151	84	0	235
Air Force	98	113	0	211
Department	25	4	4	33
Total	368	251	4	623



RAAF Official photograph 000-106-017 AV Mechanics working in F/A-18 wheel bay, used with approval.

⁹⁸. Briefs of Defence Education. Prepared by Mr Ken Jorgensen Director, Directorate of Training Systems Policy, February 2006

Defence - Flexible Learning Strategy

Flexible Learning is a learner-centered approach to education and training that covers a range of delivery modes, including eLearning.⁹⁹ Training and education that is delivered, enabled and/or mediated by electronic technology is called eLearning.¹⁰⁰

Future Defence capability will depend on its ability to recruit, develop and retain the right people with the right set of skills and experience.¹⁰¹ The White Paper cites *cost effective, efficient and innovative Defence education and training* as one means of achieving this aim.¹⁰² Innovation in education and training will come through greater use of flexible learning techniques and by embracing leading-edge practices and systems.¹⁰³

The vision and enabling strategies set out in the Flexible Learning strategy address many of the environmental challenges faced by Defence as it develops its people capability. Flexible Learning is an approach which offers Defence greater flexibility and cost effectiveness in re-skilling and up-skilling its workforce as required. At the same time, it presents the learner with greater choice and variety as to when, where and how they learn. Flexible Learning is therefore a key component of Defence's employment offer to its existing and future personnel.

99. Adapted from *The Flexible Learning Business Planning Framework 2003*, p 4.

100. Adapted from *The Defence e-Learning Strategy 2001*, p 2.

101. The Australian Defence Organisation (ADO) is used here to avoid confusion with other Defence organisations. This is in accordance with the *Defence Writing Standards*.

102. Department of Defence 2000, *Defence 2000 – Our Future Defence Force – Defence White Paper 2000*, p 43, paras 7.35-7.41.

103. Department of Defence 2000, *Defence 2000 – Our Future Defence Force – Defence White Paper 2000*, p 43, para 7.40.

Defence APS Careers - Education, Qualification and Learning

A number of Defence APS professions are either already critically short of staff or are at risk of becoming critical due to the lack of new workforce entrants with the required skills. This situation generally reflects the wider national and global workforce situation. The developing Defence workforce situation is risky for scientists (particularly those with high end physics and mathematics qualifications), engineers (software, systems, electronic and electrical), accountants, project managers, logisticians, linguists and information technology specialists.

Defence Groups are experiencing difficulty attracting and retaining these specialist staff due to a combination of factors including: a highly competitive labour market environment, falling numbers of university entrants with the appropriate skill sets, overall high work loads for these professions, and limited opportunities for professional development and advancement. There is also some risk that cohorts in these professions are ageing relatively fast. Data relating to the level of risk is still being collated. DEST has completed an audit related to the future supply and demand for science, engineering and technology skills¹⁰⁴.

There is significant competition for these skilled and talented people not only between Defence and external organisations (including other government agencies) but also between internal Defence Groups. The lack of experienced specialist APS staff in many Groups places at risk the critical support roles provided by Defence APS to ADF operational capabilities. Workforce planning and analysis of Defence APS is now occurring to better determine the exact risk areas.

An interesting finding from Defence Human Resource Decision Support System (HRDSS) research is that many professionals highly value professional development and educational opportunities. The research identified that linking the development of qualifications to utility in the day to day work situation produced significantly higher levels of job satisfaction and consequently higher retention.

Recently Defence has progressed a corporate approach (*APS Skilling Strategy*, or *APS Career Path Strategy*) for the development of Defence APS personnel. The strategy seeks to develop an APS proficiency framework linked to classification levels and job roles; ensure APS skilling aligns to other personnel policies including performance management and workplace relations policies and provide a suite of common core training and development programs integrated with APS career progression.

104. Audit of Science, Engineering and Technology Skills - Summary Report. DEST, July 2006.

A number of new initiatives are being developed in Defence to address the critical skill shortages. For example, the Defence Materiel Organisation (DMO) has established the DMO Institute. The DMO Institute is leading a consortium to provide life-long learning and development programs for the DMO. A partnering arrangement has been established between DMO and Deakin University (DeakinPrime) to manage the DMO Institute, as well as key partners such as Melbourne Business School, Engineers Australia, Australian Institute of Project Managers, University of South Australia, the US Defense Acquisition University, the UK Military College at Shrivenham, NSW TAFE, CPA Australia and the University of Technology Sydney.

This approach allows the DMO Institute to utilise the most appropriate courses to accredit personnel whilst also engaging with professional bodies to ensure best practice chartering and certification processes. DMO will address its workforce requirements by targeted graduate recruitment whilst in parallel offering excellent professional development opportunities, and the breadth and depth of experience opportunities within its myriad of acquisition projects.

Another example of utilising continuous learning as an attraction and retention tool is the DSTO's graduate recruitment program. The program targets graduates from specific science and technology backgrounds such as mathematics, physics and psychology and engages them directly as permanent APS4's. DSTO also provides experience to University students through the Summer Vacation Scholarship Program (12 weeks) and Industry Experience Program (generally up to 12 months). Both are important precursors to attracting graduates at a later stage.

Defence has introduced the Business and Finance Skilling Program to enhance learning and development in crucial areas over time. The Chief Finance Officer (CFO) has enhanced the financial skilling of managers which now forms part of a learning pathways program. To strengthen the organisational focus on learning and skill development, performance exchanges now note these development opportunities for all individuals.

Defence and Defence Industry Workforce - Development

To address a significant shortfall in the quantity and quality of skills available to Defence industry and to ensure that the ADF has the capabilities it needs to defend Australia and its national interests the *Skilling Australia's Defence Industry (SADI)* Program was launched in 2004. The *SADI* initiative shares the responsibility for skills growth and development between industry and government and represents a win-win solution to both the defence of Australia and Australian industry. It is estimated that around 3,000 to 5,000 additional engineers, specialist technicians, key trades people and project managers will be required by Defence industry over the next decade to provide the skills necessary to build and maintain Australia's major Defence platforms. Providing this assistance (around \$215 million over ten years) will generate additional skilled positions, up-skilling existing employees and improving the quality and quantity of skills in Defence industry¹⁰⁵.

In return for a profitable Defence industry sector the Government expects an efficient and effective commitment from industry that is able to deliver value-for-money capability to the ADF on time, on budget and to the required quality. A Defence industry that has invested in growing its skilled workforce demonstrates a real commitment to future industrial capability. Project risks will be further reduced and Australian Defence industry will continue to be globally competitive¹⁰⁶.

105. Skilling Defence Industry, *Defence Magazine*, July 2006

106. <http://www.defence.gov.au/dmo/>

Conclusion – Defence Implications

The recent significant changes to the Australian education system seek to ensure a greater level of participation both in the general workforce but also to enhance the number of students taking up trades in areas of current and future skill shortages.

As noted in *Beyond Workforce 2020*, the strength of tomorrow's workforce begins and ends with education¹.

1. Hudson Institute (2005). *Beyond Workforce 2020*, http://irlcjr.hudson.org/imdex.cfm?fuseaction=about_detail (downloaded 26 October 2005).

The development of a vibrant workforce to achieve economic outcomes is reliant on the nation's education and training achievements. Significant risk exists to the nation's economy and security if a substantial improvement in the number of students completing science, engineering and IT degrees is not achieved over the coming decade. Government is currently addressing shortages in areas of nursing, medical officers and teachers however these skill groups will take several years to become fully effective in the workforce.

Defence has three distinct types of workforce with each having its own specific educational requirements. One is the full time military workforce. The regular force is supplemented by Reserve personnel (who often have civilian workforce skills as well, and many of these skills are relevant to Defence operations). The other workforce is the Defence APS professional workforce. These three workforces have substantially different profiles and needs. Defence has to take a direct role in addressing these medium and longer term workforce risks to its capability. Many of these risks and possible solutions are centered around educational or learning aspects. Issues regarding embedded Defence contractors and Defence Industry skill sets and their future workforce development also need to be factored into longer term workforce capability considerations.

Flexible Learning is an approach which offers Defence greater flexibility and cost effectiveness in re-skilling and up-skilling its workforce as required. At the same time, it presents the learner with greater choice and variety as to when, where and how they learn. Flexible Learning is therefore a key component of Defence's employment offer to its existing and future personnel.

Defence is a major user of educational services and delivers significant training outcomes both for its own purposes and for the national economy. Relationship development between DEST, DEWR and Defence must be maintained if not enhanced to ensure Defence is aware of emerging educational and workforce initiatives. This will enable Defence to integrate wherever possible education and workforce changes to ensure that maximum national security and economic benefits are derived from the Defence workforce. There may be opportunities for Defence to further contribute to apprenticeship schemes not just in terms of full time ADF personnel but also in relation to cadets and Reservists.

There are a number of possible educational initiatives that can be pursued which will enhance Defence's capabilities particularly in relation to personnel retention and recruitment outcomes as well as sustaining the workforce into the future. Provision of education, training, development and accreditation are known to result in significantly stronger retention outcomes particularly when coupled with skill set utility¹⁰⁷. Recruitment would also be enhanced by promoting the opportunities offered via Defence educational and career frameworks.

The fact that, about a quarter of all 18 -19 year olds are not engaged in either study, or work, is perhaps a recruitment opportunity in need of renewed attention. The potential improved educational outcomes of 'under achieving' male youths through training in the ADF is of specific national interest. Linking a Defence job to the opportunity for further education and development is especially important noting that initiatives that operate to increase educational outcomes are also likely to improve medium and longer term labour force participation. All these potential outcomes need to be supported by the provision of information and guidance about how students can get a Defence job.

Defence has the potential to address its total workforce needs by offering a multi-career pathway based around educational and development opportunities.



107. For more information: see HRDSS Program outcomes.